

**INSTITUTIONAL FACTORS INFLUENCING INFORMATION
COMMUNICATION TECHNOLOGY USE IN RESOURCE
PLANNING IN PUBLIC SECONDARY SCHOOLS IN MATUNGULU
SUB COUNTY, KENYA**

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**A Research Project Submitted in Partial Fulfillment of the Requirements
for the Award of the Degree of Master of Education in Educational
Planning
University of Nairobi**

2016

DECLARATION

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

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DEDICATION

This research is dedicated to my dear loving family.

ACKNOWLEDGEMENT

First and foremost I wish to express my sincere gratitude to God for blessing me with good health, clarity of mind which enabled me to undertake my study successfully .Glory and honour unto His name!

My sincere acknowledgment to my supervisors Dr. Rose Obae and Mr. Ferdinand Mbeche for their professional support and guidance throughout the study. My appreciation is extended to The National Council of Science and Technology for granting me permission to undertake the research, the Matungulu Sub County Educational officials who offered assistance and all the respondents for having spared time from their busy schedule. I am grateful to the University of Nairobi for allowing me to study in this institution. I cannot forget to thank my dear loving family for the unwavering support when I was studying.

Am indebted to so many individuals and institutions for their contribution and support towards the successful completion of this research work. It may not be possible to mention all by name. Please do accept my sincere appreciation and gratitude. To you all I say thank you.

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ACRONYMS / ABBREVIATIONS

H O D Heads of Department

ICT Information Communication and Technology

MoE Ministry of Education

PTA Parents Teacher Association

SPSS Statistical Package for Social Sciences

TSC Teacher Service Commission

ABSTRACT

The purpose of this study was to investigate institutional factors influencing ICT use in resource planning in public secondary schools in Matungulu Sub County. It sought to establish the influence of ICT implementation plan, procurement of ICT infrastructure, Parents Teacher Association involvement in acquisition of ICT resources and training of administrators on ICT use in resource planning. The study was grounded on systems theory according to Von Bertalanfy (1968). This was a cross-sectional research survey that targeted 33 principals and 215 Heads of Departments (HODs). Purposive sampling was used to pick the 17 principals, 17 deputies and 65 heads of department. The instrument for data collection was the questionnaire. Data was analyzed using SPSS program and presented in tables and percentages. The study revealed that majority of schools had ICT implementation plans which had influence in ICT use in resource planning. Procurement committees were in place and they had the procurement procedure which influenced procurement of ICT infrastructure and use of ICT in resource planning. The procedures reduced cases of embezzlement of funds, corruption and mismanagement of resources in schools. School administrators were trained in the use of ICT and they served as a useful resource in development of in-house system, played a vital role in promoting the spirit of ICT use in schools, assisted in recognising system defects early thus prompting corrective or timely maintenance and this influenced ICT use in resource planning. Parents Teacher Association was involved in acquisition of ICT resources and this influenced the ICT use in school as it ensured smooth implementation. Parents Teacher Associations determined the effectiveness of ICT use in public secondary schools. From the research several recommendations are made; The government should increase more funds for ICT implementation plans; this will enable schools not to work under difficulties. Well wishers should also support the implementation financially. Schools should fully integrate ICT use as it reduces the cost of operation. Suggestions for further studies have also been given which include; Socio-economic factors influencing implementation of information communication technology use in resource planning in public schools. Gains and losses of implementation of information communication technology in resource planning in public schools. Ways of increasing ICT use in resource planning in public secondary schools. A similar study be replicated in other areas to compare the findings of this study.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Globalization and trade liberalization have facilitated intensive business competition which in turn has increased the need for adoption of new technologies to increase the efficiency in service delivery. According to Adomi (2013) information Communication Technology (ICT) is an absolute necessity for taking part in today's global economy and as such the role of ICT in the emerging global market cannot be overemphasized. Information Communication Technology has shown benefits according to Davis (2012) in a study in Cyprus secondary schools. Information Communication Technology use in secondary schools is essential for personnel planning, students planning, resource planning and financial planning. It enables institutions to rationally allocate scarce resources such as human, physical and financial resources and therefore maximising the returns from education.

Drenoyianni (2014) defined ICTs as electronic means of capturing, processing, storing and disseminating information. Information Communication Technology use is rapidly becoming indispensable part of school life and inevitable in financial planning. In support of this Ngugi (2012) noted that ICT has become valuable for storing and analyzing data in school financial planning. It is upon institutional planners to ensure that resources are equitably distributed in all areas to enhance balanced development of the institution. Today, ICTs are considered so central to

development that governments have initiated national e-strategies and donor agencies have made them a mainstream item in national and international programmes (OECD, 2004). Information and communication technologies (ICTs) have the potential to make vast amounts of information available to users located in various parts of the world and to facilitate rapid communication between them (McCormick 2002). Information Communication Technology offers a radically new means of enabling organizations to exchange information with each other regardless of where they are located geographically (Panagariya, 2013; United Nations 2010; Gakuu, 2013). Information Communication Technology in the public institutions like parastatals and schools is being promoted as a means of enabling organizations in developing countries to become more integrated within the global economy on economic terms that are favourable for them. This is achieved through reductions in transaction costs accompanying ICT use by using the available resources and networks.

According to Greenleaf (2014) Kenya has always ICT education and training at all levels including public secondary schools as it is considered the core start for social and economic development. Public secondary schools are financed by tax revenues and other government collected revenues and administered exclusively by state and local government officials. Use of ICT in secondary schools would help increase efficiency in resource planning in public secondary schools. Equipping schools with relevant infrastructure like building, retrofitting physical facilities, purchases of hardware and software

and the like must be considered. Professional development of administrators through in-service courses should be well planned (Muriithi 2013). In addition, school leaders and other stake holders should have interest, commitment and champion the use of ICT in resource planning in secondary schools.

Despite the importance of ICT in schools and the strategies developed by the government and other stakeholders, as formulated in sessional paper no. 1 of 2005, research has revealed that several schools were not efficiently using ICT to support resource planning in schools. Nyamu (2015) observed that despite the benefits of ICT, the school principals and other stake holders had not fully implemented the policies developed by the Ministry of Education. Laaria, (2013) assert that some schools had developed guidelines on how to use ICT in schools but no attempt was made to implement them.

1.2 Statement of the Problem

Due to globalization and ICT driven economy, ICT use in resource planning in secondary schools is essential. There is an increasing concern over the low rate of ICT use in resource planning in secondary schools in Matungulu Sub County. This has continued to occur despite the benefits associated with ICT use in Schools and therefore prompted a knowledge gap that the researcher sought to fill.

1.3 Purpose of the Study

The purpose of this study is to investigate the institutional factors influencing use of ICT in resource planning in secondary schools in Matungulu Sub County.

1.4 Objectives of the Study

The study was guided by the following objectives;

- i. To establish the extent to which ICT implementation plan influence ICT use in resource planning in public secondary schools in Matungulu Sub County.
- ii. To determine the extent to which procurement of ICT infrastructure influence ICT use in resource planning in public secondary schools.
- iii. To establish the administrators training influence in ICT use in resource planning in public secondary schools.
- iv. To assess the extent to which involvement of Parents Teacher Association influence the ICT use in resource planning in public secondary schools.

1.5 Research Questions

The study was guided by the following questions:

- i. What is the influence of ICT implementation plan on ICT use in resource planning in public secondary schools in Matungulu Sub County?
- ii. How does procurement of ICT infrastructure influence ICT use in resource planning in public secondary schools?

- iii. What is the influence of training of administrators in ICT use in resource planning in secondary schools?
- iv. How does involvement of parent's teacher Association's in acquisition of ICT resources influence ICT use in resource planning in public secondary schools?

1.6 Significance of the Study

The findings of this study may be used by school principals and teachers in establishing the extent to which institutional factors influence ICT use in resource planning in their schools. The study findings and conclusions may also provide vital information to the Ministry of Education in planning of learning institutions in Kenya to establish how different analyzed factors including: the implementation plan, procurement of ICT infrastructure, administrators training and involvement of Parents Teacher Association in acquisition of ICT resources may positively or otherwise affect ICT use in resource planning and hence be in a position to adjust appropriately. Parents Teacher Associations may be able to know their role in ICT use and therefore get involved fully. Board of Management of secondary schools in Kenya would be able to identify both technical bottlenecks and measures of dealing with them in prompting ICT use in resource planning in schools. It may support policy makers in choosing appropriate methods of planning changes associated with ICT use in resource planning in secondary schools. The study may be helpful to researchers who may need the literature on the topic discussed.

1.7 Limitations of the Study

Limitations are conditions which are not within the control of the researcher, hence can restrict the conclusions of the study and applications (Best and Kahn, 2003). The study was limited to 33 public secondary schools in Matungulu Sub County which is mainly a rural setting and may not be generalized to other Sub Counties in the country.

1.8 Delimitation of the Study

Delimitation of the study are those characteristics that were selected by the researcher to define the boundaries of the study according to Diane M (2011). The study confined itself to public secondary schools in Matungulu Sub County in regard to institutional factors influencing ICT use in resource planning. The study did not cover private secondary schools because these schools may not experience the same problems as public secondary schools. The study was also limited to the use of questionnaires as the only instrument for data collection. Questionnaires offered appropriate time to respondents to provide well thought information.

1.9 Basic Assumptions of the Study

The following were the assumptions of the study;

- i. That all chosen respondents had exposure and knowledge about ICT use in resource planning in secondary schools. The researcher piloted the research instrument in order to standardize it before the actual study.

- ii. That ICT use in resource planning in secondary schools influenced by various institutional factors which can be measured using questionnaires. This was mitigated through ensuring an elaborate and thorough questionnaire with a wide scope of data collection.

1.10 Definition of Significant Terms

This section defines basic terms that were used in the research study.

Administrators refer to individuals who are entrusted by Ministry of Education with responsibility of day to day running of schools.

ICT refers to the diverse technological tools and resources to create disseminate and store information. The technological tools include computer, the internet and mobile telephony.

ICT infrastructure refer to the overall name used to describe all the computer and communications hardware and software used in various tasks in institutions

ICT Skills refers to special ability (or expertise) enabling one to perform an activity by using a computer efficiently and its related peripherals in.

ICT Implementation Plan Is a tool designed to illustrate in detail critical steps in realization of an ICT application and starting a project.

Parents Teacher Associations refers to a formal body made up of parents whose children are officially registered as students in the school together with their teachers and that work for the acquisition of the schools resources and the benefit of the students.

Planning refers to the process of organizing the institutions activities required to achieve a desired goal.

Procurement refers to acquisition of goods and services following laid down procedure or act.

Stakeholder refers to anyone who is invested in the welfare and success of a school and its students. They include Principals, Students, teachers, Parents Teacher Association's etc.

Training refers to organized activity aimed at importing practical skills, knowledge and attitude to perform industrial tasks. whose children are officially registered as students in the school together with their teachers and that work for the acquisition of the schools resources and the benefit of the students.

Resource planning refers to involvement in identifying resources, developing a planning structure and coordinating resource development plans.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter presents the review of related literature, ICT Implementation plan, procurement of ICT infrastructure, involvement of PTA in acquisition of ICT resources, training of administrators in ICT, theoretical framework, the conceptual framework and the existing research gaps.

2.2 Global Overview of ICT use in Resource Planning

In some developed countries, such as Finland and the United States, the technological innovation and high volumes of demand generated by an ICT-productive sector played an important role in achieving beneficial impact to the national economies (Adomi, 2010). Countries with strong ICT service sectors are at an advantage over those countries where the ICT sector as a whole is weak. According to Christensen (2012) ICT investment has contributed to capital -deepening by increasing capital input per worker in addition to increasing labour productivity. In most developed countries, pervasive use of ICTs throughout the value chain has contributed to improved performance in firms, enabling them in particular to increase efficiency in combining capital and labour (OECD, 2004).

In African countries, the problem of inadequate access to affordable ICTs is due to the poor state of Africa's ICT infrastructure, the weak policy and regulatory frameworks, and human resource deficiencies in these countries.

African countries have in recent years made some efforts to facilitate the ICT infrastructure deployment in a number of areas. For example, in Kenya, significant achievement has been made through the undersea Fibre Optics Cable. However, Africa still remains the continent with the least capability in ICT and other related facilities (New Partnership for Africa's Development NEPAD, 2010). The threat posed by the digital divide to the rapid development of African countries can on the whole be attributed to African country's inability to deploy, harness and exploit the developmental opportunities of ICTs to advance their socio-economic development especially in the education sector (Kinyanjui, 2010). According to Davis(1980) internal efficiency can be enhanced through improved technology which results to greater production and proper utilisation of resources in the institutions. Despite the importance that accrues as a result of ICT use in resource planning its adoption in public secondary schools remains limited. There is absence of information about the ICT implementation plan, cost of ICT infrastructure, administrators training and involvement of Parents Teacher associations in acquisition of ICT resources as institutional factors influencing ICT use in resource planning in Matungulu Sub County.

2.3 ICT Implementation Plan and ICT use in Resource Planning

The Strategic Implementation plan on ICT planning and deployment provides a reference for central government and it is designed to be read alongside the government's ICT Strategy (MOE, 2011). The Strategic Implementation Plan

provides an overview on how it will implement the strategy and summarize the individual plans for each delivery area.

School leaders are chief accounting officers and planners in their schools and therefore are concerned in allocating budgets to various school activities including use of ICT in resource planning. According to Betz (2011), use of ICT in resource planning in schools would be successful when school principals adopt implementation plan, provide up-to-date infrastructure, ensure adequate professional development and involve relevant stakeholders. School leaders have the responsibility of supervising use of ICT programs in resource planning in their schools. A study carried out by Anderson & Dexter (2010) on technology leadership behaviours of school principals established that apart from ICT infrastructure being important in schools, school leadership was the most determining factor in the process of effective use of ICT in resource planning in schools. More research; support the idea that school planning behaviour determines the success or failure of schools to use ICT in its activities (Schiller, 2011; Hennessey, 2010; Aguoyo, 2010; Chang, Chin & Hsu, 2012).

Information communication Technology use in resource planning in schools necessitates several factors such as ideas, technology availability, leadership, and school culture. There are some initiatives of ICT use that yield enough results due to lack of sufficient technology planning. Fullan (2010) argues that in implementing educational innovation, all systems consisting of national,

provincial, and school levels should work collaboratively in creating ICT implementation plans.

Schiller (2011) describes successful ICT education plans as effective technology plans that are short term, not long term. As technology has changed rapidly, schools need to create short term ICT implementation plans that are appropriate with school budget. Information Communication Technology education plans need to be matched with schools goals towards the use of technology at schools. Sometimes schools heavily focus on technology as supposed to implementation process. Thus, even with the latest and advanced technologies will mean little or nothing without the proper plans that are focusing on developing human capital. Effective technology plans define technology as more than computers (Smith and Hanna 2012). With the advancement of mobile technologies such as mobile phones and tablet computers, schools need to consider incorporating them in resource planning. Effective technology plans are tied to staff development plans.

Fullan, (2010) ICT education plans in national, provincial, and school level must be shared visions among educational stakeholders who are involved in creating and implementing the plans. The plan should involve all those who have a stake in the outcomes, including teachers, parents, and students and allow them to assist in its creation by contributing their knowledge, skills and positive attitudes.

2.4 Procurement of ICT Infrastructure and ICT use in Resource Planning

A study by Hannah (2006) found that provision and improvement of ICT infrastructure in schools enhanced ICT use in schools. Though computer technology is entirely vowed as a facilitator for change, many secondary school planners do not offer it due to the high costs of purchase, installation and maintenance of the equipment's (Smyth & Hannah, 2006). Wikely and Stables (2007) assert that public secondary schools depend primarily on county and national governments for funds which are inadequate and whose disbursement is often delayed which makes acquisition of sufficient computers and servicing impossible. In availability of computer facilities hinder access to equipment and materials for resource planning in schools. Many secondary schools in Kenya lack adequate funds to provide modern computer equipment's, internet connection which hinder ICT use in secondary schools.

Coleman & Hoffer (1989) allude that majority of secondary schools are located in low income minority communities with limited resources hence they cannot access to adequate internet connectivity due to the geographical location, installation and subscription expenses. The government started financing the schools under the free secondary education launched in 2008. However, the government is facing budgetary constraints because public resources are not adequate to meet the physical infrastructure demand. There has been quest for organized and standardized procurement procedures in our Kenyan schools. In 2008, the MOE (2003) increased its support to public

secondary schools by providing some level of funding to support schools operation and development expenditure .Some of these resources are used for procurement of books, other educational learning materials and facilities for the learning institutions such as ICT infrastructure. In secondary schools procurement committee chaired by the Deputy Principal is in charge of requisitions for goods and services. The Principal makes the approval for the procurement process to start. The reviewed literature shows that availability of computer facilities in schools influence ICT use in resource planning in secondary schools. This study sought to investigate the influence of procurement of computer facilities in ICT use in resource planning in public secondary schools in Matungulu Sub County.

2.5 Involvement of Parents Teacher Associations in acquisition of ICT resources and ICT use in Resource Planning

Effective leadership is important in coordinating and supporting ICT use in resource planning in schools. To achieve this, school leaders need to appreciate that, the idea to use ICT is about transformation of planning and involvement of various institutional stakeholders in resource planning process (Laaria, 2012). Most of the government and non-governmental agencies have paid a substantial attention in ICT use.

Leadership becomes a key to successful ICT education in schools (Lawler, 2011). Information Communication Technology in schools includes support from leaders in national, district and school levels. Research has suggested

that national, district and school levels have an important role to create a successful ICT use in a country. In school level, PTA members have important roles in providing support to teachers in a form of technology availability and creating school culture to support ICT education (Kirkpatrick, 2014). School administrators in conjunction with PTA members, work in designing professional development for teachers and creating budget for ICT education. In a study of the Hong Kong Special Administrative Region (SAR) ICT education, researchers reported that ICT education in schools were dependent on leadership factors such as school leaders' vision, goals and objectives of ICT use and school culture. They can be trained through mentorship and ongoing professional development of ICT in schools (Kiptalam, 2010).

In United States of America the role of PTA is involved in determining instructional decisions, promotion of communication, raising school funds and lobbying the state and national legislation on behalf of the students (Onderi and Makori, 2013). Parental involvement in schools through PTA's has been widely acknowledged in both developing and developed countries (Kamba 2010). PTA plays a significant role in all aspects of education, according to MoE (2002) from raising resources to planning for different schools activities. PTA help raise much needed money by organizing and managing various fund raisings. The money generated by these fundraising may be used to buy computers and other ICT materials throughout the year (Abdullahi, 2006). Abdullahi (2006) also reported that PTA compliments Government efforts in the provision and maintenance of infrastructure in the schools. According to

the same authors, there are several levies which are collected in the schools such as PTA levy, in which members of the PTA can be part of the spending team. Adepojuin Alongue & Ekundayo (2012) argued that with little supply of money, schools become helpless, while with ample supply, its problems become manageable. In some developing countries, PTA is running in different directions like creating projects, workshops and sustainability awareness in many ways. Economic, human and social sustainability are also very essential according to Alongue & Ekundayo, (2012). Economic sustainability included regular contributions made by parents. Human sustainability involved organising and promoting training workshops on ICT skills development for administrators and other parties involved in schools resource planning. Social sustainability on the other hand includes involving the entire community from the beginning to the end in all the activities of the school. Money generated through this medium, PTA, would help compliment governments effort in ICT use in resource planning in public secondary schools in Matungulu Sub County.

2.6 Administrators Training and ICT use in Resource planning

One of the most crucial factors of successful ICT use in resource planning are the principals, deputy principals and heads of departments because they are in charge of what's happening in schools. Studies reveal that administrators ICT skills influence their decision making process. Fabry and Higgs (2013) conducted extensive study on 1165 primary and secondary administrators in Greece which revealed that most administrator's would have positive belief

toward ICT use after a series of ICT educational training. This evidently shows that administrators' competency level need to be addressed by training and deployment to use ICT in resource planning in schools. The study also revealed that quantity and quality of ICT facilities or related resources in schools for educational planning purposes was low.

Kenya Education Management Institute (2011) notes that, before a school can successfully use ICT, it needs to ensure that administrators acquire appropriate ICT and pedagogical skills that are necessary for ICT. Such skills enable the administrators to have the self-drive and enthusiasm to integrate ICT in resource planning. Farrell and Isaac (2011) emphasized that motivation to use computers is reduced where administrators have inadequate technical skills. A study of ICT in Kisumu East revealed low ICT level of skills among principals who are custodians in our educational institutions. A study by Getange (2005) on institutional initiatives in supplementing the financing of secondary school education in Kisii District revealed that schools initiated diversified income generating and resourcing activities. The funds realized from the activities were spent in supplementing government efforts in financing education in schools. Such funds could be diverted to training administrators on ICT skills.

According to Drenoyianni (2014) various ICT competencies must be developed through education system for ICT use to be successful. He further noted that the relations between skills administrators in using computers, their Pedagogical thinking and their self-reported practices are not matching. Thus

only a small percentage of administrators had adequate technical computer skills. Gakuu (2011) also identified these challenges and noted that most newly qualified teachers coming out of teacher training institutions today have only limited exposure to ICT and almost no actual training on how to incorporate ICT in resource planning. Therefore there is need to allocate funds to equip teachers with skills undergoing training so as to equip them with the desired ICT knowledge and skills thus promoting the ICT use in resource planning in secondary schools.

2.7 Summary of Literature Review

Kenya is a developing country where ICT use in schools is considerably more recent, small-scale and experimental. Despite the importance that accrues as a result of ICT use in resource planning, its adoption remains limited in most schools in Kenya. The study was done to establish institutional factors influencing ICT use in public secondary schools in Matungulu Sub County.

2.8 Theoretical Framework

A theoretical framework positions research in the discipline or subject area in which one is working and provides an orientation to a study (McMillan & Schumacher, 2006). The study was grounded on systems theory according to Von Bertalanfy (1968). The systems theory was proposed to better understand the systems of the world around us and explore problems and their causes. All systems have components in them that have interdependent relationships in them. Systems theory suggests that, when there is a problem with one

component in the system we cannot isolate that component but take a holistic approach and view the whole system to understand what the problem could be. When a system fails it is because a feedback channel is not working. Participants can identify the intention of the program and provide a model for identifying problems such that steps can be taken for correction or improvement.

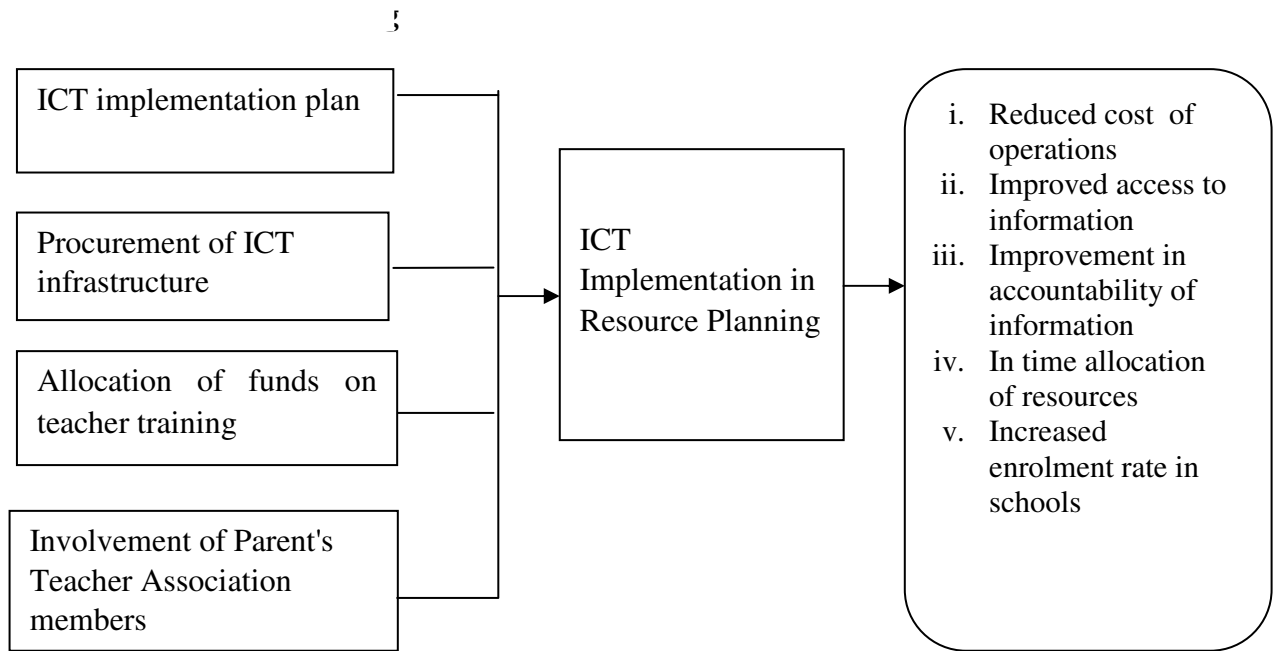
According to Ritter (2013), a true closed system is considered purely theoretical because every system needs some sort of input and output functions. The study will be based on an open system theory. According to systems theory a program can be transferable in whole or in part, provided the new setting meets the needs of the program. System theorists argue that the most important feature of a system is that it will no longer exist if it is split into parts and any alteration of one of the parts can influence a systems performance (Pattan, 2002). The success of enhancing one part of a system will largely depend on the interaction between this part and the other part of the same system. The study will be based on an open system to show the output from the interdependence of the various independent variables influencing ICT implementation in resource planning and how they may affect the whole system.

2.9 Conceptual Framework

The use of information and communication technologies (ICT) in school has become an intrinsic part of all stakeholders in resource planning. With millions of dollars now being spent on ICT in schools, the of ICT in resource

planning is of critical concern among government policy makers, school leaders, teachers and researchers worldwide. The various institutional factors influencing ICT implementation in resource planning are however discussed in the framework.

Figure 2. 2: Influence of Institutional factors on ICT Implementation in



Independent variables including ICT implementation plan, procurement of ICT infrastructure, training of administrators, and involvement of Parents Teacher Association in acquisition of ICT resources influence on use of ICT in resource planning in public secondary schools. Their interrelation would lead to reduced cost of operations, better management of student's records, improved access to information, improvement in accountability of information, in time allocation of resources and Increased enrolment rate in schools.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the methodology used in this study. This chapter highlights the study design, target population, sampling procedure and sampling size, research instruments, pilot study, validity and reliability of the research instruments, data collection procedures, data analysis techniques and ethical considerations in data collection.

3.2 Study Design

A research design is a program that guides the investigator as he/she collects analyses and interprets observations (Mugenda & Mugenda, 2003). A research design facilitates the smooth sailing of various research operations thereby making research as efficient as possible (Kothari, 2006). The study used the cross-sectional survey to find out the views and knowledge of Principals, Deputy Principals and Heads of departments in public secondary schools in Matungulu Sub County. A cross sectional survey design was preferred for it is an efficient strategy of accessing data from a wide range of informants (Orodho, 2004.). The survey design is most favoured by most researchers because of its ability to report things the way they are.

Since there is an association between ICT implementation plan, procurement of ICT infrastructure, administrators training on ICT and involvement of PTA in acquisition of resources in use of ICT in resource planning, there will be

need to correlate these variable hence justification of the use of the correlation design. (Kerlinger, 1986).

3.3 Target Population

According to Mugenda and Mugenda (2003), target population refers to an entire group of individuals, events or objects having common observable characteristics. There are 33 public secondary schools in Matungulu Sub County. This study aimed at principals, Deputy Principals and Heads of department as respondents in the use of ICT in resource planning in secondary schools. The students themselves were not part of the scope of this study. This is partly because it is assumed that the young targeted group would not have a clear vision of ICT use in school. The target population for this study was the 33 principals, 33 Deputy Principals and 215 Heads of Departments (HODs) from the 33 public secondary schools.

3.4 Sampling Size and Sampling Procedure

According to Ornstein and Weiss (2010) sampling is the process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group. The sample was selected using proportionate sampling method. According to Mugenda and Mugenda (2003), a sample of at least 10 percent of the target population is appropriate. For this study, a sample of 50 percent of the target population was used to select 17 schools to be included in the sample size.

The study randomly sampled 50% for school Principals and Deputy Principals and 30% for Heads of Department of the target population. Total sample size for the study was 109. To avoid bias purposive sampling technique was used to select respondents from the 17 secondary schools in Matungulu Sub County.

Table 3.1: Sample Distribution

Categories	Population	Percent (%)	Sample
Principals	33	50	17
Deputy principals	33	50	17
Head of departments	215	30	65
Total	301		109

3.5 Research Instruments

The study used questionnaires to gather information in this study. A questionnaire is a collection of items to which respondent is expected to react usually in writing according to Mugenda and Mugenda (2003). The questionnaires were expected to bring out the feelings, attitudes and perceptions on the factors influencing ICT use in resource planning in secondary schools in Matungulu Sub County. The questionnaire collected demographic information in section one and institutional factors influencing ICT use in resource planning in section two.

3.6 Validity of the Research Instruments

Validity refers to the accuracy and meaningfulness of inferences based on the research results. Mugenda and Mugenda, (2003) states that validity can be enhanced by absence of errors in the data collected. The research instruments were piloted in 2 schools which were not forming part of the schools selected for the actual study. This was ensured by going through the questionnaire with the respondents to ascertain that each of the items is framed in the least ambiguous way. The pilot study aimed at establishing construct validity of the instruments (Mugenda & Mugenda, 2003). The pilot study assisted in identifying the problems which the respondents may encounter in the process of answering the questions put across to them. The researcher enhanced the instrument validity by seeking the opinion of the University Supervisors. The piloted questionnaires were revised and ambiguous items modified.

3.7 Reliability of the Research Instruments

Reliability is increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. Kothari (2006) describes reliability as the degree to which empirical indicators are consistent in two or more trials in an attempt to measure the theoretical concept. The researcher used test-retest method to obtain reliability of the measuring instrument. This technique involved administering the same instruments twice in a span of two weeks in two of the schools not in the study sample. Scores from both testing periods were then

correlated. Reliability co-efficient was computed by use of Pearson Moment Correlation Coefficient (r)

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{\{N\Sigma X^2 - (\Sigma X)^2\}\{N\Sigma Y^2 - (\Sigma Y)^2\}}}$$

Where:-

ΣX = the sum of scores in x distribution

ΣY = the sum of scores in y distribution

Σ = symbol of summation

ΣX^2 = the sum of squared scores in x distribution

ΣY^2 = the sum of squared scores in y distribution

ΣXY = the sum of products of paired x and y scores

N = the total number of subjects.

When the value of (r) is equal to +1.00, the two sets are in perfect agreement and is -1.00 when they are in perfect disagreement. A correlation co-efficient (r), of about 0.75 is considered to be high enough to judge the reliability of the instruments (Kothari, 2006). If the reliability were less than 0.75, the instrument could have been revised to enhance its reliability.

3.8 Data Collection Procedures

The researcher asked for research permit from the National Commission for Science Technology and Innovation (NACOSTI) before embarking on the study. The researcher then paid a courtesy call to the Matungulu Sub county Director of Education and explain the intention to carry out the research. The researcher made appointments with the secondary school Principals, Deputy Principals and Heads of departments. On arrival at the

schools on the agreed dates, the researcher created rapport with the respondents and explained to them the purpose of the study and then administered the research instruments.

3.9 Data Analysis Techniques

This is the process of summarizing the collected data and putting it together so that the researcher can meaningfully organize, categorize and synthesize information from the data collecting tools. The collected data were edited and coded using Statistical Package for Social Sciences (SPSS). Quantitative data collected were analyzed using descriptive statistics. Qualitative data was analyzed using content analysis. The results were presented by use of percentages, frequency distribution tables. Charts and graphs.

3.10 Ethical Consideration

The study upheld the following ethical issues; it ensured justice and respect of human dignity by maintaining honesty and openness with the respondents. The researcher obtained informed consent and voluntary participation by creating rapport with the respondents and explaining to them the purpose of the study. The researcher ensured confidentiality and anonymity by assuring the respondents that their identities would not be publicized. The researcher ensured exposure of respondents to harm by protecting the respondents against physical and psychological harm. The researcher observed the principle of beneficence by informing the respondents the results and findings of the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1. Introduction

The purpose of this study was to investigate the institutional factors influencing ICT use in resource planning in public secondary schools in Matungulu Sub County. This chapter dealt with data analysis, presentation and interpretation based on the research objectives including the questionnaire return rate and demographic information.

4.2. Questionnaire Return Rate

The questionnaires were administered to 109 respondents. Table 4.1 shows the questionnaire return rate for the study.

Table 4.1: Questionnaire Return Rate

Targeted respondents	Sample size	Responses	Return rate (%)
Principals	17	12	70.6
Deputy principals	17	16	94.1
Head of departments	65	48	73.8
Total	109	76	69.7

The results on Table 4.1 indicate that majority of principals 70.6 percent filled and returned the questionnaires, while 94.1percent of deputy principals and head of departments 73.8 percent filled and returned the questionnaires. The average return rate was 69.7 percent. According to Mugenda and Mugenda

(2003), a response rate above 50 percent is adequate for the researcher to make informed conclusion.

4.3 Demographic Information

This section presents the distribution of principals, deputy principals and head of departments by their gender, age bracket and number of years served in their current positions.

The principals were asked to indicate their gender. Their results were as shown in Figure 4.1

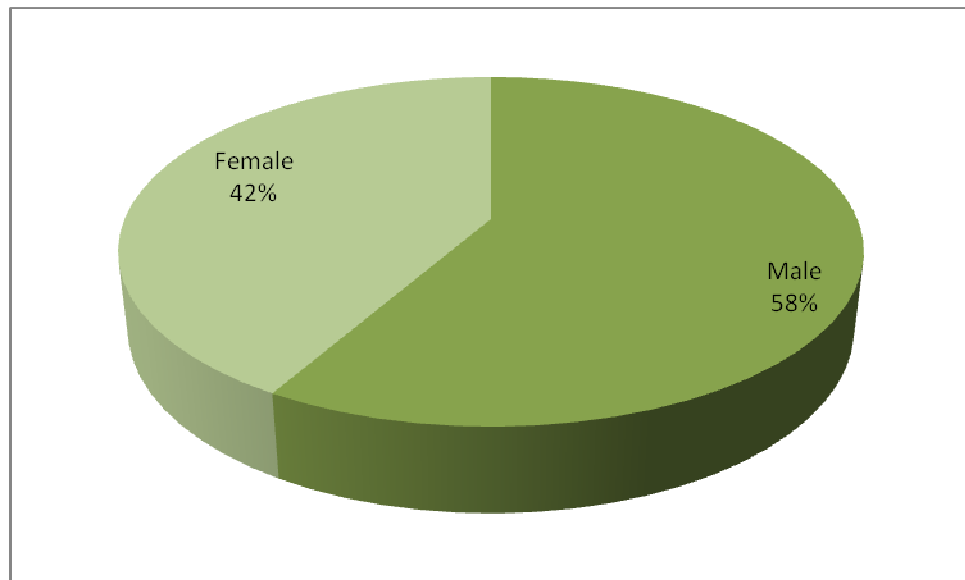


Figure 4.1: Distribution of Principals by Gender

Figure 4.1 indicates that the majority 58 percent of principals of schools are male. This information helped the researcher to obtain a general gender description of respondents to avoid gender bias.

The deputy principals were asked to indicate their gender. Their findings are shown in Figure 4.2

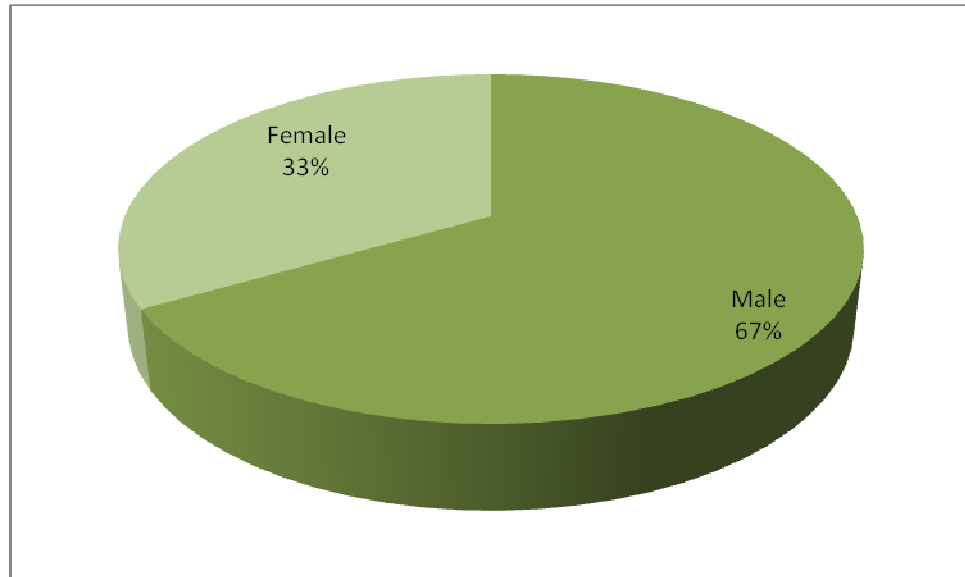


Figure 4.2: Distribution of Deputy Principals By Gender

The findings in Figure 4.2 indicate that majority of deputy principals 67 percent are male. This implies that there is gender disparity in school leadership.

The head of departments were asked to indicate their gender. The results are shown in Figure 4.3

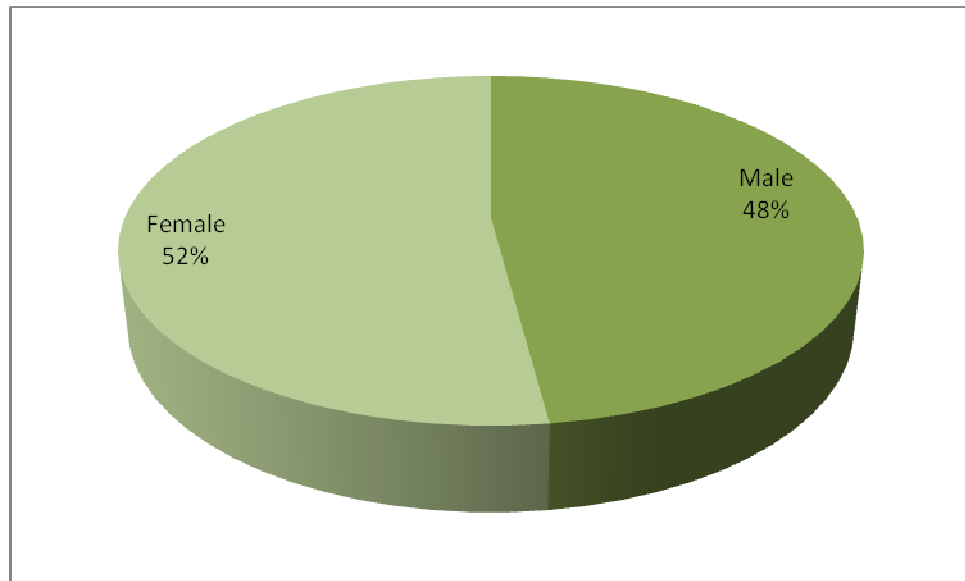


Figure 4.3: Distribution of Heads of Department by Gender

The findings on Figure indicate that majority of heads of departments 52 percent were female. This means that the research catered for both gender in the study.

The principals were asked to indicate their age bracket. Their Response are shown in Table 4.2

Table 4.2: Distribution of Principals by Age Bracket

	Frequency	Percent (%)
41 to 50 years	8	66.7
Above 50 years	4	33.3
Total	12	100

The data on Table 4.2 indicate that majority of principals 66.7 percent are aged between 41 to 51 years. This could be attributed to the fact that leadership goes hand in hand with experience which is a result of time.

The deputy principals were also asked to indicate their age bracket. Their Response are shown in Table 4.3

Table 4.3: Distribution of Deputy Principals by Age Bracket

	Frequency	Percent (%)
31 to 40 years	3	18.8
41 to 50 years	9	56.2
Above 50 years	4	25
Total	16	100

The data on Table 4.3 indicate that majority of deputy principals 56.2 percent were aged between 41 to 50 years. The head of departments were also asked to indicate their age bracket. This means that they have served for a longer time as teachers which enabled them to get positions as deputies and are able to answer question on institutional factors influence use of ICT in resource planning in public secondary schools. Their responses are shown in Table 4.4

Table 4.4: Distribution of Heads of Department by Age Bracket

	Frequency	Percent (%)
21 to 30 years	1	2.1
31 to 40 years	19	39.6
41 to 50 years	25	52.1
Above 50 years	3	6.2
Total	48	100

The data on Table 4.4 indicate that majority of heads of department 52.1 percent are were aged between 41 to 50 years.

The principals were asked to indicate the number of years served as a principal in their teaching profession. Their response are shown in Table 4.5

Table 4.5: Distribution of Principals by Numbers of Years Served

	Frequency	Percent (%)
Less than 4 years	1	8.3
4 to 7 years	6	50.0
8 to 11 years	3	25
Over 11 years	2	16.7
Total	12	100

The data on Table 4.5 indicate that majority of principals 50 percent had served at that position for the period between 4 to 7 years. This implies that they have the knowledge and experience on institutional factors influencing use of ICT in resource planning in secondary schools.

The deputy principals were also asked to indicate the number of years served as deputies in their teaching profession. This implies that training of administrators has an influence on ICT use in schools and in resource planning. Their response are shown in Table 4.6

Table 4.6: Distribution of Deputy Principals by Numbers of Years Served

	Frequency	Percent (%)
Less than 4 years	4	25
4 to 7 years	10	62.5
8 to 11 years	2	12.5
Total	16	100

The data on Table 4.6 indicate that majority of deputy principals 62.5 percent had served at that position for between 4 to 7 years. This depicts that they also have knowledge and experience on institutional factors influencing use of ICT in resource planning in secondary schools.

The head of departments were also asked to indicate the number of years served as at position in their teaching profession. Information Communication Technology use in schools, increases efficiency in resource planning. Their response are shown in Table 4.7

Table 4.7: Distribution of Head of Departments by Numbers of Years Served

	Frequency	Percent (%)
Less than 4 year	15	31.3
4 to 7 years	33	68.7
Total	48	100

The data on Table 4.7 indicate that majority of head of departments 68.7 percent had served at that position for between 4 to 7 years. This implies that they also have skills and knowledge on ICT use in resource planning.

4.4 Influence of ICT Implementation Plan on ICT Use in Resource Planning

The research sought to establish the influence of ICT implementation plan on ICT use in resource planning. The respondents were asked if they had implementation plan in their school. Their responses are shown in Table 4.8

Table 4.8: Availability of ICT Implementation Plan in Schools

	Principals		Deputy principals		Head of departments	
	F	%	F	%	F	%
Available	8	66.7	12	75	37	77.1
Not available	4	33.3	4	25	11	22.9
Total	12	100	16	100	48	100

The data on Table 4.8 indicate that majority of principals 66.7 percent, 75 percent of deputies and 77.1 percent of head of departments agreed that they had ICT implementation plans in their schools. This implies that use of ICT in resource planning in schools would be successful due to the adoption of implementation plan.

The research sought to establish the influence of ICT implementation plan on ICT use in resource planning. The respondents were asked if they had implementation plan in their school.

The respondents were asked if implementation plan in their schools was short term or long term. Their responses are shown in Table 4.9

Table 4.9: Length of Implementation Plan

	Principals		Deputy principals		Head of departments	
	F	%	F	%	F	%
Short term	8	66.7	12	75	37	77.1
Not available	4	33.3	4	25	11	22.9
Total	12	100	16	100	48	100

The data on Table 4.9 indicate that majority of principals 66.7 percent, 75 percent of deputies and 77.1 percent of head of departments of those who had had ICT implementation plans in their schools said that the plans were short term in nature. The principals said that this was due to budget constraints as schools get little fund from the government and other sponsors for ICT implementation. Head of departments and deputy principals preferred short term plans due to rapid changes in technology over shorter periods. They also feared working with obsolete technology during the plan period.

The respondents were asked if National ICT implementation plan had influence in their schools. The results are shown in Table 4.10

Table 4.10: Influence of National ICT Implementation Plan

	Principals		Deputy principals		Head of departments	
	F	%	F	%	F	%
Yes	10	83.3	14	87.5	43	89.6
No	2	16.7	2	12.5	5	10.4
Total	12	100	16	100	48	100

The data on Table 4.10 indicate that majority of principals 83.3 percent, 87.5 percent of deputies and 89.6 percent of head of departments agreed that National ICT implementation plan had influence in ICT implementation in their schools. They all agreed that National ICT plan gave them a clear policy in planning and a common vision in implementation. When asked if ICT implementation plan influences the use of ICT in their school, majority said it did. They argued that ICT implementation made the use of ICT in schools more effective.

4.5 Influence of Procurement of ICT Infrastructure on ICT Use in Resource Planning

The research sought to determine the influence of procurement of ICT infrastructure on ICT use in resource planning. The respondents were asked if they had procurement committee. Their responses are shown in Table 4.11

Table 4.11: Presence of Procurement Committee in Schools

	Head of departments	
	Frequency	Percent (%)
Yes	36	75
No	7	14.6
Not aware	5	10.4
Total	48	100

The data on Table 4.11 indicate that majority of head of departments 75 percent said yes about existence of procurement committees. When asked the same, majority of principals and deputies 100 percent said that they had procurement committees in their schools. This was as a result of tough procurement law in the country. Section 2 6(3) of the Public Procurement and Disposal Act 2005 and Regulation 20 of the Public Procurement and Disposal Regulations 2006 provide for an elaborate structured mechanism for procurement planning for public entities.

4.5.1 Influence of Procurement Procedures on ICT Use in Schools

Majority of the respondents 85.7 percent supported the view that procurement procedures influenced procurement of ICT infrastructure which in turn influenced use of ICT in resource planning. They said that the procedures reduced cases of embezzlement of funds, corruption and mismanagement of school resources. This concurs with Mahmood, (2010)

who found out that most countries had resorted to using their annual procurement plans as a possible problem solver.

4.5.2 Procurement Procedures of ICT Infrastructure Used in Schools

Majority of respondents 77.4 percent stated that procurement procedure followed steps according to the Public Procurement and Disposal Act 2005. These steps are observed in order to ensure that all the stakeholders involved in the procurement exercise obtain fair treatment. The steps involve; planning for the required procurement over a given period, identifying the source of the items, highlighting specifications/initiation of procurement, determination of procurement procedure, Sourcing (soliciting) offers, evaluation of offers, post qualification, commencement of contract, contract performance (delivery) and management, record keeping and accountability, payment and post contract performance. These procedures ensure fairness in issuing of tenders for ICT infrastructure.

The respondents were asked to indicate their level of agreement with the following statements relating to effect of procurement procedures on ICT use in resource planning in their schools their responses are shown in Table 4.12 (Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.)

Table 4.12 Effect of Procurement Procedures on ICT Use in School

	1		2		3		4		5	
	F	%	F	%	F	%	F	%	F	%
Effective procurement procedures serves as a critical role in ICT use	44	57.9	21	27.6	11	14.5	-	-	-	-
The school has clear procurement policy that ensures selection is always based on lowest tender	10	13.2	20	26.3	6	7.9	31	40.8	9	11.8
Clear procurement policy leads to the purchase of superior ICT materials and speeding up of the use of ICT process	47	61.8	24	31.6	5	6.6	-	-	-	-
The school procurement policy enables the selection of a suitable supplier at a time appropriate to the circumstances	17	22.4	22	28.8	27	35.5	7	9.2	3	3.9

The data on table 4.12 indicate that majority of respondents 57.9 percent strongly agreed that effective procurement procedures serves as a critical role in ICT use although some respondents 40.8 percent indicated that their schools

had no clear procurement policy that ensured selection was always based on lowest tender. Majority of the respondents 61.8 percent strongly agreed that clear procurement policy leads to the purchase of superior ICT materials and speeding up the use of ICT process. 35.5 percent of the respondents were moderate that school procurement policy enables the selection of a suitable supplier at a time appropriate to the circumstances.

4.6 Influence of Training of Administrators in ICT Use in Resource Planning

The researcher sought to determine the influence of training administrators in ICT use in resource planning. The respondents were asked whether the administrators were trained and the effect of the training on use of ICT. The responses are shown in Figure 4.4

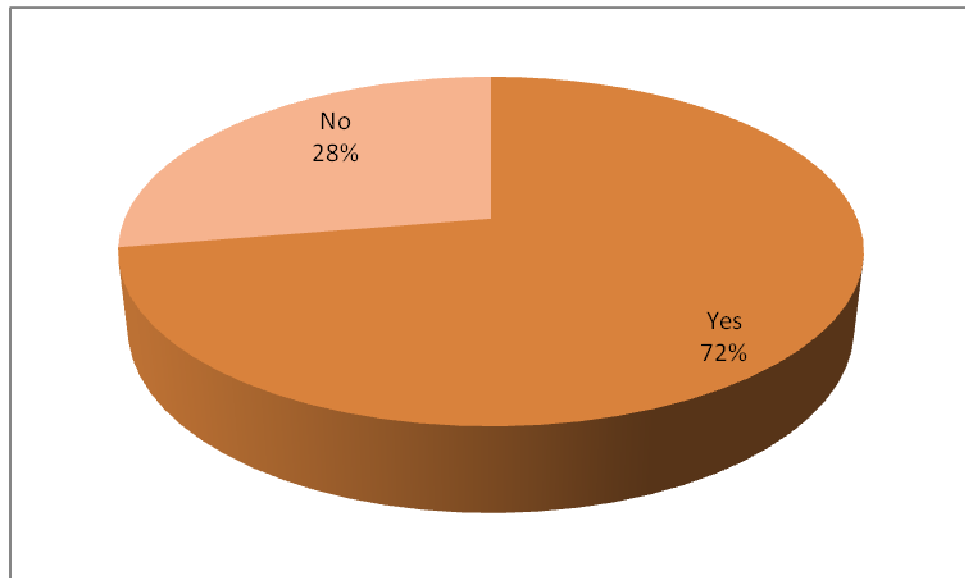


Figure 4.4 Response on Administrators' Training

Figure 4.4 indicates that majority of respondents 72 percent agreed that school administrators are trained in the use of ICT in their schools. When

asked about the influence of the training, majority said that training of administrators influence their preparedness to use ICT. The findings concur with the Kenya National ICT Policy (2006) Article 2.4(a), which emphasized that training of teachers on ICT can promote acquisition of skills and confidence. The training in ICT can help administrators to develop skills required in ICT use in resource planning.

The study sought to establish the extent at which training of administrators affect ICT use in schools. The results are shown in Figure 4.5

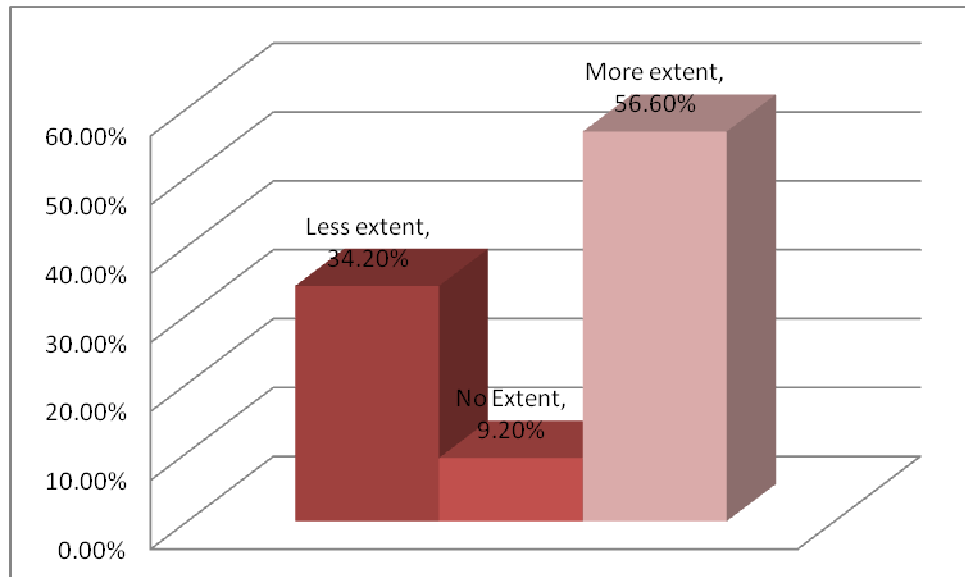


Figure 4.5 Extent of Training on Use of ICT

The findings in Figure 4.5 indicates that majority of the respondents 56.6 percent said that training had more extent on the use of ICT in schools.

The respondents were asked to indicate their level of agreement with the following statements relating to effect of administrators training on ICT use in school. Their responses are shown in Table 4.13 (Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.)

Table 4.13 Effect of Administrators Training on ICT Use in School

	1		2		3		4		5	
	F	%	F	%	F	%	F	%	F	%
Computer literate personnel show less resistance to ICT use	63	82.9	13	17.1	-	-	-	-	-	-
Computer literate administrators serve as a useful resource in development of in-house system	67	88.2	9	11.8	-	-	-	-	-	-
Computer literate administrators play vital role in promoting the spirit of ICT us in schools	57	75	15	19.7	3	3.9	2	2.6	-	-
Computer literate administrators assist in recognising system defects early thus prompting corrective or timely maintenance	21	27.6	14	18.4	11	14.5	18	2.37	12	5.8
The school has ensured employment of highly trained personnel in view of encouraging ICT use.	13	17.1	17	22.4	15	19.7	23	30.3	8	10.5
The school principal hires external ICT consultant who promotes the essence of computer knowledge in modern world to teachers	7	9.2	19	25	6	7.9	28	36.8	16	1.1

n = 76

The data on table 4.13 indicate that majority of respondents (88.2 percent) strongly agreed that computer literate administrators serve as a useful

resource in development of in-house system. Another 75 percent strongly agreed that computer literate administrators play vital role in promoting the spirit of ICT us in schools. 27.6 percent strongly agreed that computer literate administrators assist in recognising system defects early thus prompting corrective or timely maintenance.

The research sought to establish the level of rate of ICT use in resource planning in schools. The results are shown in Figure 4.6

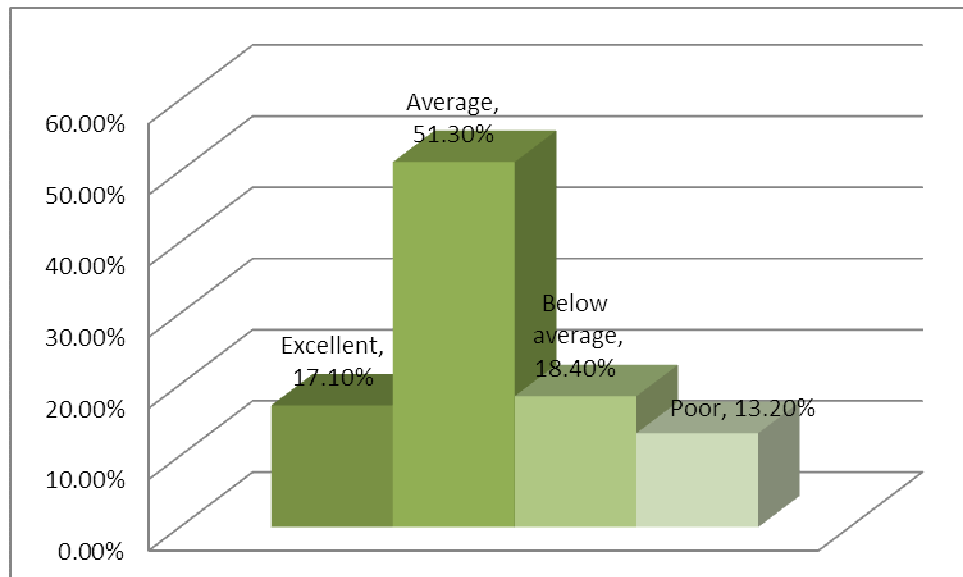


Figure 4.6 Rate of ICT use in schools

Figure 4.6 shows that majority of respondents 51.3 percent gave the rate of ICT use in schools to be average. This implies that ICT use in schools is still not fully implemented in resource planning.

The study sought to establish the effect of implementation of ICT use in school in resource planning. The responses are shown in Table 4.14.

Table 4.14 Effect of Implementation of ICT Use in School.

	Very high		High		Moderate		Below average		Very low	
	F	%	F	%	F	%	F	%	F	%
Reduced cost of operations	28	36.8	21	27.6	13	17.1	11	14.5	3	3.9
Improved access to information	41	53.9	29	38.2	6	7.9	-	-	-	-
Improvement in accountability of information	39	51.3	17	22.4	14	18.4	4	5.3	2	2.6
In time allocation of resources	53	69.7	23	30.3	-	-	-	-	-	-
Increased enrolment rate in schools	12	15.8	16	21.1	18	23.7	22	28.9	8	10.5
Better management of students' records.	61	80.3	15	19.7	-	-	-	-	-	-
N = 76										

The data on table 4.14 indicate that many respondents 36.8 percent indicated that implementation of ICT reduced cost of operation at a very high rate. Majority 53.9 percent indicated that it improved access to information at a high rate. On the improvement in accountability of information, majority of the respondents 51.3 percent indicated that it was very high. It also brought better management of students' records at 80.3 percent.

4.7 Influence of Involvement of Parent's Teacher Association's in Acquisition of ICT Resources on ICT Use in Resource Planning

The respondents were asked if they involved parent's teacher association's in acquisition of ICT resources on ICT use in resource planning. Their responses are shown in Figure 4.7

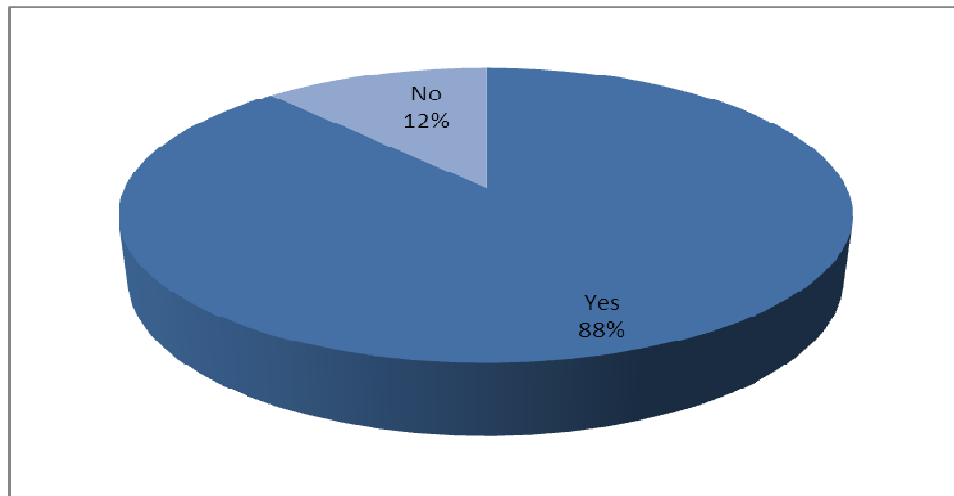


Figure 4.7 Response on Involvement of PTA in Acquisition of ICT Resources

Figure 4.7 indicates that majority of respondents 88 percent involved PTA in acquisition of ICT resources. The respondents agreed that involvement of PTA influenced the ICT use in school as it ensured smooth implementation. Parents are major stakeholders in education and if not involved, implementation process will face numerous problems.

The respondents were asked to indicate their level of agreement with the following statements relating to effect of involvement of Parents Teacher Association in influencing ICT use in school. (Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.)

Table 4.15 Effect of Involvement of Parents Teacher Association on ICT

Use in School

	1		2		3		4		5	
	F	%	F	%	F	%	F	%	F	%
Involvement of Parents Teacher Association in procurement policies as a necessity influences ICT use in public secondary schools	21	27.6	27	35.5	8	10.2	15	19.7	5	6.6
Involvement of Parents Teacher Association determines the effectiveness ICT use	13	17.1	18	23.7	17	22.3	22	28.9	6	7.9
PTA participation involvement in ICT use provides invaluable support during the implementation of the activities.	-	-	3	3.9	24	31.6	30	39.5	19	25
That PTA have a key role to play in supporting and cultivating ICT use in public secondary schools	47	61.8	24	31.6	5	6.6	-	-	-	-
The role and interaction of Parents Teacher Associations determines the effectiveness of ICT use in public secondary schools	49	64.5	23	30.3	4	5.3	-	-	-	-

n = 76

The data on table 4.15 indicate that few respondents 27.6 percent strongly agreed that involvement of Parents Teacher Association in procurement policies as a necessity influences ICT use in public secondary schools. 28.9

percent disagreed that involvement of Parents Teacher Association determines the effectiveness ICT use. Majority of the respondents 61.8 percent strongly agreed that PTA had a key role to play in supporting and cultivating ICT use in resource planning in public secondary schools. Majority of the respondents 64.5 percent also strongly agreed that the role and interaction of Parents Teacher Associations determines the effectiveness of ICT use in public secondary schools.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter presents the summary of the study, conclusions, recommendations and suggestions for further studies.

5.2. Summary of the Study

The purpose of this study was to investigate the institutional factors influencing use of ICT in resource planning in secondary schools in Matungulu Sub County. In particular, the study was set to establish the extent to which ICT implementation plan, procurement of ICT infrastructure, administrators training and involvement of Parents Teacher Association influence the ICT use in resource planning in public secondary schools.

The study used the cross-sectional survey research design where the target population comprised of the 33 principals, 33 Deputy principals and 215 Heads of Departments (HODs) from the 33 public secondary schools. Purposive sampling technique was used to pick 22 schools and their principals, 22 deputy principals and 65 head of departments. study used questionnaires to gather information in this study.

The researcher discovered that majority of principals 66.7 percent, 75 percent of deputies and 77.1 percent of head of departments agreed that they had ICT implementation plans in their schools. The nature of the implementation plans were short term. This was due to budget constraints as schools got little fund from the government and other sponsors for ICT implementation. The other

reasons were due to rapid changes in technology over shorter periods and the fear of working with obsolete technology during the ICT plan period. National ICT implementation plan had an influence in the ICT implementation in schools as it gave clear policy in planning and a common vision in ICT implementation. It also influenced the use of ICT in schools by making it more effective.

Majority of principals and deputies 100 percent agreed that they had procurement committees in their schools while 75 percent of head of departments said yes about existence of such committees. This was as a result of tough procurement law in the country. Majority of the respondents 85.7 percent supported the view that procurement procedures influenced procurement of ICT infrastructure which in turn influenced use of ICT in resource planning. They said that the procedures reduced cases of embezzlement of funds, corruption and mismanagement of resources in schools. The procurement procedure followed steps according to the Public Procurement and Disposal Act 2005 which ensured fairness in issuing of tenders for ICT infrastructure. Majority of respondents 57.9 percent strongly agreed that effective procurement procedures served a critical role in ICT use. Another majority of the respondents 61.8 percent strongly agreed that clear procurement policy led to the purchase of superior ICT materials and speeding up the use of ICT process.

The study also revealed that majority of respondents 72 percent agreed that school administrators were trained in the use of ICT in their schools and this made them prepared in readiness to use ICT. Majority of respondents 88.2 percent strongly agreed that computer literate administrators served as a useful resource in development of in-house system. Another 75 percent strongly agreed that computer literate administrators played a vital role in promoting the spirit of ICT us in schools. 27.6 percent strongly agreed that computer literate administrators assisted in recognising system defects early thus prompting corrective or timely maintenance and this influenced ICT use in resource planning. Many respondents 36.8 percent indicated that implementation of ICT reduced cost of operation at a very high rate while another majority 53.9 percent indicated that it improved access to information at a high rate. On the improvement in accountability of information, majority of the respondents 51.3 percent indicated that it was very high. It also brought better management of students' records 80.3 percent.

On the influence of involvement of parent's teacher Association's in acquisition of ICT resources on ICT use in resource planning, the study revealed that majority of respondents (88 percent) agreed that PTA were involved in acquisition of ICT resources and this influenced the ICT use in school as it ensured smooth implementation. Many respondents 27.6 percent strongly agreed that involvement of Parents Teacher Association in procurement policies as a necessity influenced ICT use in public secondary

schools. The study further revealed that majority of the respondents 64.5 percent also strongly agreed that the role and interaction of Parents Teacher Associations determined the effectiveness of ICT use in resource planning in public secondary schools.

5.3 Conclusions

Based on the foregoing findings, several conclusions were arrived at;

- i. Availability of ICT implementation plans in schools and their nature in terms of time influenced ICT use in resource planning in public secondary schools. National ICT implementation plan gave a clear policy in planning and a common vision in implementation ICT in schools as it. It also influenced the use of ICT in schools by making it more effective
- ii. Presence of procurement committees in and following up of the laid down procurement procedures reduced cases of embezzlement of funds, corruption and mismanagement of resources in schools. Effective procurement procedures served a critical role in ICT use. Clear procurement policy led to the purchase of superior ICT materials and speeding up the use of ICT processes.
- iii. Training of administrators made them prepared in readiness to use ICT. Computer literate administrators served as a useful resource in development of in-house system, played a vital role in promoting the spirit of ICT use in schools and assisted in recognising system defects early thus prompting corrective or timely maintenance and this

influenced ICT use in resource planning. Implementation of ICT reduced cost of operation at a very high rate, accountability and improved access to information.

- iv. Involvement of parent's teacher association's in acquisition of ICT resources on ICT use in resource planning ensured smooth implementation. Their involvement influenced ICT use in resource planning in public secondary schools. The role and interaction of Parents Teacher Associations determined the effectiveness of ICT use in public secondary schools.

5.4. Recommendations

The following recommendations were made by the study:

- The government should increase more funds for ICT implementation plans; this will enable schools not to work under difficulties. Well wishers should also support the implementation financially.
- Schools should fully use ICT as it reduces the cost of operation.

5.5. Suggestions for further study

- i. Socio-economic factors influencing implementation of information communication technology use in resource planning in public schools
- ii. The gains and losses of implementation of information communication technology in resource planning in public schools
- iii. Ways of increasing ICT use in resource planning in public secondary schools.

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APPENDICES

APPENDIX I: INTRODUCTION LETTER

University of Nairobi,
P.O. Box 30197- 00100,
Nairobi.

The Principal,
..... Secondary School,

Dear Sir/Madam,

RE: FILLING OF QUESTIONNAIRE

I am a student at the University of Nairobi taking a Masters in educational Administration and planning. As a requirement for the fulfillment of the degree, I intend to carry out a study on **institutional factors influencing Information Communication Technology use in resource planning in public secondary schools in Matungulu Sub County**. I request you to kindly spare some of your time to complete the questionnaire attached herein. The information given will be handled with utmost confidentiality and will only be used for the purpose of this study.

Yours faithfully,

Mary Mbithe Michael.

APPENDIX II: QUESTIONNAIRE FOR PRINCIPALS

Kindly tick in the space provided (✓) the correct answer or supply the required information where required, please specify and elaborate where need be.

Part A: Respondents Information

1. What is your age? (Optional)

21 to 30 years ()

31 to 40 years ()

41 to 50 years ()

Above 51 years ()

2. Are you a male or female?

Male []

Female []

2. For how long have you served as a principal in your teaching profession?

Less than 3 years ()

8 to 11 years ()

4 to 7 years ()

More than 12 years ()

Section B: Influence of ICT implementation plan in ICT use in resource planning

3. Do you have ICT implementation plan in your school?

Yes ()

No ()

Briefly explain your response

4. Is ICT implementation plan in your school short term or long term?

Yes ()

No ()

Briefly explain your response

5. In your own opinion does National ICT implementation plan influence the ICT implementation plan in your school?

Yes () No ()

Briefly explain your response

6. Does ICT implementation plan influence the use of ICT in your school?

Yes () No ()

Briefly explain your response

Indicate your level of agreement with the following statements relating to effect of ICT implementation plan on ICT use in resource planning in your school. Authority Scale 1= strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statement	1	2	3	4	5
Provision of efficient ICT implementation plan is necessary for ICT use in public secondary schools					
Lack of ICT implementation plan impedes ICT use process thus delimiting the perceived benefits					

7. Indicate other ways though which availability of ICT implementation plan in schools influence the ICT use in your school

Section C: Influence of procurement of ICT infrastructure on ICT use

8. Does your school have a procurement committee?

Yes () No ()

Briefly explain your response

9. In view of your experience, how does procurement procedure affect ICT use in your school?

Briefly explain your response

10. Identify some of the procurement procedures of ICT infrastructure used in your school

11. Indicate your level of agreement with the following statements relating to effect of procurement procedures on ICT use in resource planning in your school (Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.)

Statement	1	2	3	4	5
Effective procurement procedures serves as a critical role in ICT use					
The school has clear procurement policy that ensures selection is always based on lowest tender					
Clear procurement policy leads to the purchase of superior ICT materials and speeding up of the use of ICT process					
The school procurement policy enables the selection of a suitable supplier at a time appropriate to the circumstances					

12. Indicate other ways through which procurement procedures influence ICT use in your school.

Section D: Influence of involvement of Parents Teacher Associations in acquisition of ICT resources on ICT use in Resource Planning

13. Does involvement of Parents Teacher Associations in acquisition of ICT resources influence use of ICT in your school?

Yes () No ()

If yes please explain?

14. To what extent does involvement of Parents Teacher Associations in acquisition of ICT resources influence the ICT use in your school?

Yes () No ()

Briefly explain your response

16. Indicate your level of agreement with the following statements relating involvement of Parents Teacher Association in influencing ICT use in your school. Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statements	1	2	3	4	5
Involvement of Parents Teacher Association in procurement policies as a necessity influences ICT use in public secondary schools					
Involvement of Parents Teacher Association determines the effectiveness ICT use					
PTA participation involvement in ICT use provides invaluable support during the implementation of the activities.					
That PTA have a key role to play in supporting and cultivating ICT use in public secondary schools					
The role and interaction of Parents Teacher Associations determines the effectiveness of ICT use in public secondary schools					

17. How else does involvement of Parents Teacher Association affect the ICT use in your school?

Section E: Administrators Training on ICT influence in use of ICT in

Resource Planning

18. Do administrators in your school train on ICT use?

Yes () No ()

19. Does training of administrators on ICT affect ICT use in your school?

Yes () No ()

Briefly explain your response

20. To what extent does training of ICT affect ICT use in your school?

Less extent () No extend () More extent ()

Briefly explain your response

22. Indicate your level of agreement with the following statements relating effect of administrators training on ICT use in your school?

Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statement	1	2	3	4	5
Computer literate personnel show less resistance to ICT use					
Computer literate administrators serve as a useful resource in development of in-house system					
Computer literate administrators play vital role in promoting the spirit of ICT us in schools					
Computer literate administrators assist in recognising system defects early thus prompting corrective or timely maintenance					

The school has ensured employment of highly trained personnel in view of encouraging ICT use.					
The school principal hires external ICT consultant who promotes the essence of computer knowledge in modern world to teachers.					

23. How else do administrators with computer skills affect ICT use in your school? _____

PART F: ICT use in public secondary schools

24. Generally how would you rate the ICT use in your school?

Excellent () Average ()

Below average () Poor ()

25. To what extent do you agree with the following statement relating to ICT use in your school?

Statement	Very high	High	Moderate	Below average	Very low
Reduced cost of operations					
Improved access to information					
Improvement in accountability of information					
In time allocation of resources					
Increased enrolment rate in schools					
Better management of students' records.					

Thank you for your time.

APPENDIX III: QUESTIONNAIRE FOR DEPUTY PRINCIPALS

Kindly tick in the space provided (✓) the correct answer or supply the required information where required, please specify and elaborate where need be.

Part A: Respondents Information

1. Age of the respondent (Optional)

Below 20 years ()

21-20 years ()

31 to 40 years ()

41 to 50 years ()

Above 51 years ()

2. Gender of the respondent?

Male []

Female []

3. For how long have you served as a Deputy principal in your teaching profession?

Less than 3 years ()

8 to 11 years ()

4 to 7 years ()

More than 12 years ()

Section B: Influence of ICT implementation plan ICT implementation is resource planning

4. Do you have ICT implementation plan in your school?

Yes ()

No ()

Briefly explain your response

5. In your opinion does ICT implementation plan influence the ICT use in resource planning in your school?

Yes () No ()

Briefly explain your response

6. Indicate your level of agreement with the following statements relating to effect of ICT implementation plan on ICT use in resource planning in your school. Authority Scale 1= strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statement	1	2	3	4	5
Provision of efficient ICT implementation plan is necessary for ICT use in public secondary schools					
Lack of ICT implementation plan impedes ICT use process thus delimiting the perceived benefits					

7. Indicate other ways though which availability of ICT implementation plan in schools influence the ICT use in your school

Section C: Influence of procurement of ICT infrastructure on ICT implementation

8. In view of your experience, how does procurement procedure affect ICT use in your school?

Briefly explain your response

9. Identify some of the procurement procedures of ICT infrastructure used in your school

10. Indicate your level of agreement with the following statements relating to effect of procurement procedures on ICT use in resource planning in your school (Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.)

Statement	1	2	3	4	5
Effective procurement procedures serves as a critical role in ICT use					
The school has clear procurement policy that ensures selection is always based on lowest tender					
Clear procurement policy leads to the purchase of superior ICT materials and speeding up of the implementation process					
The school procurement policy enables the selection of a suitable supplier at a time appropriate to the circumstances					
The school has a well-established procurement policy					

11. Indicate other ways through which procurement procedures influence ICT use in your school.

Section D: Influence of involvement of Parents Teacher Associations in acquisition of ICT resources in resource planning

12. Does involvement of Parents Teacher Associations affect ICT use in your school?

Yes () No ()

If yes please explain?

13. To what extent does involvement of Parents Teacher Associations influence the ICT use in your school?

Less extent () No extend () More extent ()

Briefly explain your response

14. Indicate your level of agreement with the following statements relating involvement of Parents Teacher Association in influencing ICT use in your school. Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statements	1	2	3	4	5
Involvement of Parents Teacher Association in procurement policies as a necessity influences ICT use in public secondary schools					
Involvement of Parents Teacher Association determines the effectiveness ICT implementation process					
PTA participation in ICT use enables those who are interested in having an opportunity to influence the outcome					
PTA participation involvement in ICT use provides invaluable support during the implementation of the activities.					
That PTA have a key role to play in supporting and cultivating ICT use in public secondary schools					
The role and interaction of Parents Teacher Associations determines the effectiveness of ICT use in public secondary schools					
Applying an integrated approach and intervention acts as an effective means in supporting ICT use in secondary schools					
Parents Teacher Associations improve chances of ICT use in secondary schools due to their varsity with market trends					

15. How else does involvement of Parents Teacher Association affect the ICT use in your school?

Section E: Influence of administrators Training on ICT use in Resource

Planning

16. Does training of administrators influence ICT use in your school?

Yes () No ()

Briefly explain your response

17. Does training of administrators on ICT affect ICT use in your school?

Yes () No ()

Briefly explain your response

18. Indicate your level of agreement with the following statements relating effect of administrator’s computer skills on ICT use in your school?

Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statement	1	2	3	4	5
Computer literate personnel show less resistance to ICT use					
Computer literate administrator’s serve as a useful resource in development of in-house system					
Computer literate administrator’s play vital role in promoting the spirit of ICT use among other staff					
Computer literate administrator’s assist in recognising system defects early thus prompting corrective or timely maintenance					
The school has ensured employment of highly trained personnel in view of encouraging ICT use.					
The school principal hires external ICT consultant who promotes the essence of computer knowledge in modern world to school administrators.					

19. How else do administrator's computer skills affect ICT use in your school?

PART F: ICT implementation in public secondary schools

20. Generally how would you rate the ICT use in your school?

Excellent () Average ()
 Below average () Poor ()

21. To what extent do you agree with the following statement relating to ICT use in your school?

Statement	Very high	High	Moderate	Below average	Very low
Reduced cost of operations					
Improved access to information					
Improvement in accountability of information					
In time allocation of resources					
Increased enrolment rate in schools					
Better management of student's records.					

Thank you for your time.

APPENDIX IV: QUESTIONNAIRE FOR HEADS OF DEPARTMENT

Kindly tick in the space provided (✓) the correct answer or supply the required information where required, please specify and elaborate where need be.

Part A: Respondents Information

4. Age of the respondent (Optional)

Below 20 years ()

21-20 years ()

31 to 40 years ()

41 to 50 years ()

Above 51 years ()

5. Gender of the respondent?

Male []

Female []

6. For how long have you served as a head of department in your teaching profession?

Less than 3 years ()

8 to 11 years ()

4 to 7 years ()

More than 12 years ()

Section B: Influence of ICT implementation plan ICT implementation is resource planning

5. Do you have ICT implementation plan in your school?

Yes ()

No ()

Briefly explain your response

22. In your opinion does ICT implementation plan influence the ICT use in resource planning in your school?

Yes () No ()

Briefly explain your response

23. Indicate your level of agreement with the following statements relating to effect of ICT implementation plan on ICT use in resource planning in your school. Authority Scale 1= strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statement	1	2	3	4	5
Provision of efficient ICT implementation plan is necessary for ICT use in public secondary schools					
Lack of ICT implementation plan impedes ICT use process thus delimiting the perceived benefits					

24. Indicate other ways though which availability of ICT implementation plan in schools influence the ICT use in your school

Section C: Influence of procurement of ICT infrastructure on ICT implementation

25. In view of your experience, how does procurement procedure affect ICT use in your school?

Briefly explain your response

26. Identify some of the procurement procedures of ICT infrastructure used in your school

27. Indicate your level of agreement with the following statements relating to effect of procurement procedures on ICT use in resource planning in your school (Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.)

Statement	1	2	3	4	5
Effective procurement procedures serves as a critical role in ICT use					
The school has clear procurement policy that ensures selection is always based on lowest tender					
Clear procurement policy leads to the purchase of superior ICT materials and speeding up of the implementation process					
The school procurement policy enables the selection of a suitable supplier at a time appropriate to the circumstances					
The school has a well-established procurement policy					

28. Indicate other ways through which procurement procedures influence ICT use in your school.

Section D: Influence of involvement of Parents Teacher Associations in acquisition of ICT resources in resource planning

29. Does involvement of Parents Teacher Associations affect ICT use in your school?

Yes () No ()

If yes please explain?

30. To what extent does involvement of Parents Teacher Associations influence the ICT use in your school?

Less extent () No extend () More extent ()

Briefly explain your response

31. Indicate your level of agreement with the following statements relating involvement of Parents Teacher Association in influencing ICT use in your school. Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statements	1	2	3	4	5
Involvement of Parents Teacher Association in procurement policies as a necessity influences ICT use in public secondary schools					
Involvement of Parents Teacher Association determines the effectiveness ICT implementation process					
PTA participation in ICT use enables those who are interested in having an opportunity to influence the outcome					
PTA participation involvement in ICT use provides invaluable support during the implementation of the activities.					
That PTA have a key role to play in supporting and cultivating ICT use in public secondary schools					
The role and interaction of Parents Teacher Associations determines the effectiveness of ICT use in public secondary schools					
Applying an integrated approach and intervention acts as an effective means in supporting ICT use in secondary schools					
Parents Teacher Associations improve chances of ICT use in secondary schools due to their varsity with market trends					

32. How else does involvement of Parents Teacher Association affect the ICT use in your school?

Section E: Influence of administrators Training on ICT use in Resource

Planning

33. Does training of administrators influence ICT use in your school?

Yes () No ()

Briefly explain your response

34. Does training of administrators on ICT affect ICT use in your school?

Yes () No ()

Briefly explain your response

35. Indicate your level of agreement with the following statements relating effect of administrator’s computer skills on ICT use in your school?

Scale 1=strongly agree 2= agree 3= moderate 4= disagree 5=strongly disagree.

Statement	1	2	3	4	5
Computer literate personnel show less resistance to ICT use					
Computer literate administrator’s serve as a useful resource in development of in-house system					
Computer literate administrator’s play vital role in promoting the spirit of ICT use among other staff					
Computer literate administrator’s assist in recognising system defects early thus prompting corrective or timely maintenance					
The school has ensured employment of highly trained personnel in view of encouraging ICT use.					
The school principal hires external ICT consultant who promotes the essence of computer knowledge in modern world to school administrators.					

36. How else do administrator's computer skills affect ICT use in your school?

PART F: ICT implementation in public secondary schools

37. Generally how would you rate the ICT use in your school?

Excellent () Average ()
 Below average () Poor ()

38. To what extent do you agree with the following statement relating to ICT use in your school?

Statement	Very high	High	Moderate	Below average	Very low
Reduced cost of operations					
Improved access to information					
Improvement in accountability of information					
In time allocation of resources					
Increased enrolment rate in schools					
Better management of student's records.					

Thank you for your time.

APPENDIX V: RESEARCH CLEARANCE PERMIT



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/16/25247/14362**

Date:

4th November, 2016

Mary Mbithe Michael
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Institutional factors influencing Information Communication Technology use in resource planning in public secondary schools in Matungulu Sub County,*" I am pleased to inform you that you have been authorized to undertake research in **Machakos County** for the period ending **3rd November, 2017**.

You are advised to report to **the County Commissioner and the County Director of Education, Machakos County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. STEPHEN K. KIBIRU, PhD.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Machakos County.

The County Director of Education
Machakos County.



National Commission for Science, Technology and Innovation is ISO 9001:2008 Certified


APPENDIX VI: RESEARCH AUTHORIZATION

THIS IS TO CERTIFY THAT: **Permit No : NACOSTI/P/16/25247/14362**
MS. MARY MBITHE MICHAEL **Date Of Issue : 4th November,2016**
of UNIVERSITY OF NAIROBI, 454-100 **Fee Received :ksh 1000**
nairobi,has been permitted to conduct
research in Machakos County

on the topic: INSTITUTIONAL FACTORS
INFLUENCING INFORMATION
COMMUNICATION TECHNOLOGY USE IN
RESOURCE PLANNING IN PUBLIC
SECONDARY SCHOOLS IN MATUNGULU
SUB COUNTY

for the period ending:
3rd November,2017

 **Applicant's Signature**  **Director General**
National Commission for Science, Technology & Innovation



1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.


2. Government Officer will not be interviewed without prior appointment.


3. No questionnaire will be used unless it has been approved.

4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.

5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.

6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice


REPUBLIC OF KENYA


National Commission for Science, Technology and Innovation

RESEACH CLEARANCE PERMIT

Serial No.A11632

CONDITIONS: see back page