

**FACTORS INFLUENCING PRINCIPALS' INTEGRATION OF
INFORMATION COMMUNICATION TECHNOLOGY IN
ADMINISTRATION OF PUBLIC SECONDARY SCHOOLS IN ISINYA
SUB-COUNTY, KENYA**

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the Award of Master of Education Degree in Educational Administration**

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DECLARATION

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

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DEDICATION

This research project is dedicated to my family: my husband Charles and my sons Clive, Douglas, Lawrence and Fidel.

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TABLE OF CONTENTS

Content	Page
Declaration.....	ii
Dedication.....	iii
Acknowledgements.....	iv
List of tables.....	x
List of figures.....	xi
Abbreviations and acronyms	xii
Abstract.....	xiii

CHAPTER ONE

INTRODUCTION

1.1 Background to the study.....	1
1.2 Statement of problem	5
1.3 Purpose of the study	6
1.4 Objectives of the study.....	7
1.5 Research questions	7
1.6 Significance of the study.....	8
1.7 Limitations of the study.....	8
1.8 Delimitation of the study.....	9

1.9 Basic assumptions of the study	9
1.10 Definitions of significant terms of the study	10
1.11 Organization of the study	11

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction	13
2.2. Concept of ICT and school administration	13
2.3 Principals' ICT literacy level and the integration of ICT	15
2.4 Impact of attitudes of principals towards ICT on ICT integration n management of secondary schools	16
2.5 Availability of ICT infrastructure and principals' ICT integration.....	18
2.6 Availability of technical support to principals and ICT integration.....	20
2.7 Summary of literature review.....	21
2.8 Theoretical framework	23
2.9 Conceptual framework	24

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction	26
3.2 Research design.....	26

3.3 Target population	27
3.4 Sample size and sampling procedure	27
3.5 Research instruments.....	28
3.6 Instrument validity	29
3.7 Instrument reliability.....	29
3.8 Data collection procedures	30
3.9 Data analysis techniques	31
3.10 Ethical considerations	31

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction	32
4.2 Response and return rate	32
4.3 Demographic characteristics of respondents.....	33
4.3.1 Gender of respondents.....	33
4.3.2 Age of respondents.....	35
4.3.3 Highest academic qualification of respondents.....	36
4.3.4 Respondents experience in the teaching profession.....	38
4.3.5 School type of the respondents' schools	40
4.3.6 Period the respondents had been in their current station.....	41

4.4 ICT literacy level amongst school principals	42
4.4.1 Principals exposure to ICT training	43
4.4.2 Competence of principals in the basic computer programs and specific administration tasks.....	44
4.4.3 Influence of ICT literacy among principals on ICT integration in administrative task.....	47
4.4 Principal’s Attitude towards the use of ICT	48
4.5 Availability of ICT Infrastructure and principals’ integration	52
4.6 Availability of technical support and principals’ integration.....	56

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction	62
5.2 Summary of the study	62
5.3 Discussion of findings.....	64
5.4 Conclusions	66
5.5 Recommendations	68
5.5 Suggestions on areas for further research	69
REFERENCES.....	71

APPENDICES

Appendix i: Letter of introduction	78
Appendix ii: Questionnaire for principals.....	79
Appendix iii: Questionnaire for deputy principals.....	85
Appendix iii: Questionnaire for senior teachers.....	89
Appendix iv: Research permit.....	93
Appendix v: Letter of authorization	94

LIST OF TABLES

Table	Page
Table 3.1: Summary of sample size	28
Table 4.1: Distribution of respondents by age	36
Table 4.2: Highest academic qualification of the respondents	37
Table 4.3: Period respondents had been in teaching profession	39
Table 4.4: School type distribution of respondents' schools	40
Table 4.5: Period the respondents had been in the current station.....	42
Table 4.6: Competence of the principal in basic computer programs relevant to administration functions of a secondary school.....	45
Table 4.7: ICT competence of principals' in specific administration tasks.....	46
Table 4.8: Influence of ICT literacy among principals on ICT integration in administrative task	47
Table 4.9: Principal's attitude towards the utilization of computers in specific administrative tasks across the school	49
Table 4.10: Availability of computers in the principals' offices	52
Table 4.11: Influence of availability of ICT infrastructure on principals' ICT integration	55
Table 4.12: Persons tasked with computer maintenance in principals offices	57
Table 4.13: Influence of availability of ICT technical support on principals' ICT integration	60

LIST OF FIGURES

Figure	Page
Figure 4.1: Distribution of respondents by gender	34
Figure 4.2: Period the respondents had been in the current station	43
Figure 4.3: Influence of Principals attitude towards the use of ICT on the actual utilization in administrative task.....	51
Figure 4.4: Availability and reliability of internet connection at principals' offices	54
Figure 4.5: : Source of advice in regard to the appropriate computer facilities to be purchased in the principal's office.....	58
Figure 4.6: Contracting a technology firm to maintain the computers in the principal's office	59

ABBREVIATIONS AND ACRONYMS

ASALs	Arid and Semi-Arid Lands
GOK	Government of Kenya
ICT	Information, communication and technology
MOEST	Ministry of Education, Science and Technology
NACOSTI	National Commission for Science, Technology and Innovation
NGOS	Non-government organizations
SPSS	Statistical Package for Social Science
TSC	Teachers Service Commission

ABSTRACT

Throughout the globe, there has been a soaring recognition of the importance of Information Communication Technology (ICT) in the field of education. Principals emerge as the prime enforcers of the deliberate measures put in place by governments to facilitate the implementation of ICT in schools. Principals are able to champion the integration of ICT into learning and teaching in their specific schools. This research was devoted to examine the factors that influenced the principals' integration of ICT in their administrative tasks. The study sought to determine the extent to which principals' ICT literacy, attitudes towards the use of ICT, availability of ICT infrastructure and availability of technical support influence integration of ICT in administration of secondary schools. The objectives of the study were; to determine the extent to which principals' ICT literacy, availability of ICT infrastructure, principals' attitudes towards ICT, and availability of technical support influence principals' integration of ICT in administration of secondary schools in Isinya Sub-County. A descriptive survey design was employed for the study. The target population of the study involved all the 12 public secondary schools in Isinya Sub-County. However, simple random sampling was utilized to select a sample of 10 public secondary schools to participate in the study while the other two secondary schools were reserved for pilot study. From the sampled 10 public secondary schools in Isinya Sub County, 10 principals, 10 deputy principals and 10 senior teachers were considered for the study. A self-designed questionnaire was utilized to collect data from the respondents between the month of May and June 2015. The Statistical package for social sciences (SPSS) was used to analyze data and the data was presented using frequency tables, pie and bar graphs. The findings of the study showed that ICT competency among the principals, attitudes of principals towards the use of ICT, the availability of ICT infrastructure and technical support influenced their integration of ICT in administrative task areas, especially financial management. Given this, the research report suggested strategies on how to prompt the principals to integrate ICT into their administrative task areas in secondary schools.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Over the recent past, information communication technology (ICT) has emerged as a principle driver of economic and social development. This fact comes forth as the justification for investment in education reforms in regard to the integration of ICT in education (Kozma, 2005). Kelles (2005) maintains that ICT plays a key role in all aspects of life, such as political, economical, social and cultural life. ICT is rapidly transforming the way people do business, assess information and services, communicate with each other and even entertain themselves. Ray and Davis (1991) maintain that the potential of ICT to enhance human capabilities and ameliorate administration of education was first realized in business and military.

Globally, researchers are in harmony that school environments are overly conservative in the way they operate (Norris, Sullivan, Poirot & Slowav, 2003, Albirini, 2006, Felton, 2006). It follows that an introduction of new ways of doing things presents a great challenge (Office of Government Commerce, 2002). The empirical findings indicated that principals serve a key role in influencing the manner in which things are done in schools and thusly their attitude and

knowledge base in regard to ICT is of great importance when it comes to the integration of ICT into administration functions of schools (Afshari, Bakar, Luan, Samah & Foo, 2010). In the same vein, Afshari, Bakar, Luan and Siraj (2012), after conducting a study on Iran principals, endorsed that the ICT literacy level of principals influenced their decision to integrate ICT in their transformational leadership role of administration in the schools.

Recently, developing countries started to realize the benefits of ICT in education and it is anticipated that governments should facilitate this initiative (Kamel, 2010). Nonetheless, Singh and Muniandi (2012) emphasize that governments have not done enough in funding ICT initiatives in schools since they found that the lack of ICT infrastructure and inadequate technical support were lacking in the Malaysian schools that had no yet integrated ICT into their administration functions.

The ICT literacy level of principals directly impacts their decision to utilize ICT in administration functions. Hennessey (2010) conducted a research study that focused on the internal factors that influence teachers in primary and secondary schools in the Sub-Saharan Africa region to use, or lack to use, ICT in the conventional classroom setting and administration tasks. Through the use of questionnaires that included items on perceptions and beliefs about ICT, pedagogical expertise pertinent to technology use, as well as technological

literacy levels, the findings of her survey revealed that the adoption of ICT in pedagogical and administration functions in the Sub-Saharan Africa region is greatly influenced by ICT literacy level of school administrators, especially principals, as well as their attitudes towards the use of ICT.

In Kenya, the 21st century advancement in ICT is increasingly becoming complex and multidimensional thus requiring a grand input in regard to human, financial and physical resources. The educational sector has been given more weight, especially the administration tasks (Waema, 2005). The importance of ICT in schools has therefore led to the contribution widely recognized in the workplace and at home, demonstrating that ICT is becoming a vital enabling tool that can no longer be ignored in the administration of schools in Kenya. It is amidst this favorable gesture that the government of Kenya (GOK) has not only embraced ICT, but also encouraged the application of ICT in the administration of schools in Kenya through the MoE (MoE, 2007). In a bid to foster this initiative, the GOK came up with a policy and strategy to promote and expand the use of ICT as a tool for effective management, research and development at all education levels (Republic of Kenya, 2006). The efforts of the government to nurture the integration of ICT into the education system cannot be overemphasized and one can expect that Kenya would be in the forefront in the utilization of ICT in the administration of schools.

However, studies show that Kenya is lagging behind and not operating on its potential. For instance, Kelles (2005) observes that whereas several countries have reported over 40 percent of successful ICT integration into the administration of schools and learning, Kenya still falls behind notwithstanding the vast amounts committed to ICT. This has prompted researchers to conduct in-depth research into the factors that hamper and encourage the integration of ICT in schools. Waweru and Kihara (2013) conducted a study on the factors that challenge the adoption and utilization of ICT in public secondary schools in Molo Sub-County and observed that the lack of ICT infrastructure due to the lack of funds emerges as the main setback in the adoption of ICT in schools. Similarly, Mugo (2014) exposed that the lack of the basic ICT infrastructure and the limited skills and competencies in ICT emerges as the main factors that discouraged the integration of ICT in public secondary schools in Thika west District, Kenya. In a bid to investigate the level of adoption of ICT in secondary schools in Isinya Sub County, Mwencha (2012) discovered that regardless of the willingness of teachers to learn about the application of ICT, their ICT literacy level was below par. Moreover, Mwencha (2012) disclosed that the schools were not well equipped with ICT facilities.

Apparently, the entire sets of studies conducted on the issue of adoption of ICT into the administration of schools have their distinct limitations. The studies only consider a few factors and some of the involve locations are too wide to

generalize to the Isinya sub county. For instance, a study carried in Iran, Malaysia or the entire Sub-Saharan Africa cannot provide accurate information to be generalized to schools in Isinya Sub County. What is ore is that the studies do not specifically regard the issue of ICT use in administration tasks.

1.2 Statement of problem

The factors influencing principals' integration of ICT in administration of schools identified from previous studies cannot be generalized to the area of interest because, unlike other regions, Isinya Sub County is classified among the ASALs. Principals in ASALs are often given hardship allowances due to harsh conditions in their work areas, such as lack of stable water supply. Perhaps, principals in ASAL regions would lack the urge to utilize ICT in their administrative task areas on account of the fact that their places of work are entrapped in wretched working conditions. Therefore, despite their sound ICT literacy levels, positive attitudes towards the use of ICT and the availability of ICT infrastructure and technical support, the principals may still fail to integrate ICT in their administrative task areas. Compounding knowledge gap with the government's effort to ensure that the education sector benefits from the plethora of possibilities that ICT has to offer, it was necessary to conduct the study so as to shed some light ICT integration by principals in ASAL regions given the plight they have to endure. Mwencha (2012) investigated the level of integration of ICT in public secondary schools in Isinya Sub-County and found out that it was falling

below par. This is the only study that has been conducted to shed some light on the degree of integration of ICT in Isinya Sub County and therefore the current study aims to add onto the scarce studies on the region of interest.

Furthermore, Mwencha (2012) did not specifically examine the factors that influence the decisions of principals in public schools in Isinya Sub County to use ICT in their administrative task areas. His study was general in the sense that he considered the integration of ICT in public secondary schools in Isinya Sub County without being specific whether the ICT integration was in administration or teaching and learning tasks. However, the current study seeks to specifically investigate the factors influencing principals' integration of ICT in administration of public secondary schools in Isinya Sub County, Kajiado County. As a matter of fact, Mwencha (2012) suggested that one of the areas that needed further research was on the factors that influenced principals' integration of ICT in administrative task areas.

1.3 Purpose of the study

The purpose of this study was to investigate the factors influencing principals' integration of information communication technology in public secondary schools in Isinya sub County, Kenya.

1.4 Objectives of the study

- i. To determine the extent to which principals' ICT literacy influence integration of ICT in administration of secondary schools in Isinya Sub-County, Kenya.
- ii. To determine the degree to which availability of ICT infrastructure influences principals' integration of ICT in administration of secondary schools in Isinya Sub-County, Kenya.
- iii. To determine the influence of principals' attitudes towards ICT on integration of ICT in administration of secondary schools in Isinya Sub-County, Kenya.
- iv. To establish the extent to which availability of technical support influences principals' integration of ICT in administration of secondary schools in Isinya Sub-County, Kenya.

1.5 Research questions

- i. How do ICT literacy levels among principals influence their integration of ICT in administration of secondary schools in Isinya Sub-County, Kenya?
- ii. What effect do principals' attitudes towards use of ICT have on integration of ICT in administration of secondary schools in Isinya Sub-County, Kenya?

- iii. What impact does the availability of ICT infrastructure has on principals' integration of ICT in administration of secondary schools in Isinya Sub-County, Kenya?
- iv. To what extent does the availability of technical support influence principals' integration of ICT in Isinya Sub-County, Kenya?

1.6 Significance of the study

The key beneficiary of the findings of the study is the Sub County Educational Officer of Isinya as he would have a degree of understanding on the factors that motivate principals to adopt ICT in the administration of schools. In this way, he would get an incentive to set up and enhance these factors in order to heighten the extent to which public schools are administered and managed through the use of ICT. Moreover, school principals and other school clientele would benefit from the study through the awareness brought forth by the study, which has a result of fostering their use of ICT and hence efficient operations.

1.7 Limitations of the study

The major limitation that the researcher anticipated was the lack of cooperation from the respondents who may dread sharing vital information about their schools. However, the researcher planned to make the respondents understand

that the research is meant for academic purpose and that the names of the individuals and schools remained anonymous.

1.8 Delimitation of the study

The study was confined to Isinya Sub County, Kajiado County, and was carried out on public secondary schools only. Further, it was confined to principals, deputy principals and senior teachers only. The implication of the defined scope of the study was that the findings were not generalized in regard to private secondary schools Isinya and to locations that are not ASALs.

1.9 Basic assumptions of the study

The assumptions of the study were:

- i. Principals, deputy principals and the various heads of departments who were be selected to participate in the survey gave honest and accurate responses to the items in the research questionnaire to be used.
- ii. Principals had positive attitudes towards ICT and that the set of ICT skills among the schools administrators enhance the adoption of ICT in the administration of secondary schools in Isinya Sub County.

1.10 Definitions of significant terms of the study

Administration refers to the formalized system which is intended to control, supervise, plan and make decisions about various activities across the school on the basis of established authority, which is the Ministry of Education, Science and Technology (MOEST), albeit on behalf of the government .

Attitudes refer to a settled way of thinking or feeling about something, such as ICT use, typically one that is reflected in the principal's behavior and can be either negative or positive.

Information communication technology (ICT) refers to diverse set of information communication and technology tools and resources that are used to transmit, store, create and share information in the context of a school.

ICT infrastructure refers to all the computer and communications hardware and software that support the flow and processing of information.

ICT literacy refers to the knowledge on ICT and its various applications and this is acquired through participation in an ICT seminar or workshop or undertaking a short course on ICT, such as computer packages course.

Influence refers to the act or power to produce an indirect effect without any apparent use of force or exercise of command in the sense that the principal will integrate ICT into administrative task areas without being compelled by the Ministry of Education, Science and Technology (MOEST) or any other authority.

Integration refers to the act of combining into an integral whole, such as making ICT an integral part of administration functions.

Technical support refers to the act of maintaining ICT equipment, such as computers and the computer networks.

1.11 Organization of the study

The study consists of five chapters. Chapter one comprised background to the study, statement of the problem, purpose of the study, objective of the study, research questions, significance of the study, limitations of the study, delimitations of the study, definition of significant terms, and organization of the study.

Chapter two constituted the literature review of the related areas under: the concept of ICT in administration, influence of principals ICT literacy level on the integration of ICT, impact of attitudes of principals towards ICT use on ICT integration, availability of ICT infrastructure to principals and ICT integration,

availability of technical support to principals and ICT integration, summary of literature review, theoretical framework and the conceptual framework.

Chapter three comprised of research design, target population, sample size and sampling procedures, research instruments, validity and reliability of the research instrument, data collection, data analysis procedures and ethical consideration.

Chapter four was made up of the study findings and the analysis of the results. Chapter five came as the last chapter and presented the summary of the study, conclusion, and recommendations of the study as well as suggestion for further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covered the concept of ICT in administration, influence of principals ICT literacy level on the integration of ICT, impact of principals' attitudes towards ICT use and ICT integration, availability of ICT infrastructure and principals ICT integration, availability of technical support to principals and ICT integration, summary of literature review, theoretical framework and the conceptual framework.

2.2. Concept of ICT and school administration

ICT applications in the field of education are regarded as an effective facilitator to creating, accessing, storing, manipulating and transmitting or share various forms of information, such as audio, visual and word formats. This is made possible by the proactive environment presented by ICT (Kawade & Kulkarni, 2012). In a school context, ICT applications can be utilized for various functions including enhancing the teaching-learning process and the overall school administration purposes. However, the use of ICT is prevalent in the latter purposes.

School administrators utilize ICT to ease their mundane administrative task areas. School administrators use ICT in the registration of students, preparing school reports, announcements and letters for meetings, as well as staff and teachers employment. Also, ICT is employed in giving in-house training or presentations to teachers. Preparation of schemes of work, teaching plans and timetables also come forth as the functions that necessitate administrators to use ICT applications. Finally, schools administrators utilize ICT application in handling financial work, keeping records, collecting data, processing documents and maintaining communication across the school and with the external environment alike (Mwalongo, 2011).

ICT application tools relevant to school administration include internet based tools, hardware and software applications. Internet based tools bear a direct impact in improving the effectiveness of administration functions of a school. Hardware application tools, such as photocopy machines and computers make administration tasks cheap, fast and easier. Finally, software application tools including Microsoft Office and Educational management Information systems (EMIS) help schools administrators to manage information in an effective and efficient manner (Huggins, 2007).

2.3 Principals' ICT literacy level and the integration of ICT

Katz and Macklin (2007) conceive ICT literacy as a form of twenty first century literacy. However, they affirm that this literacy gives a degree of attention to the utilization of digital technology to not only communicate, but also for research purposes. In fact, the weight given to digital technologies in the twenty first century is akin to the emphasis placed on reading and writing in anterior centuries. ICT literate people are able to communicate and research using ICT infrastructure whereas those who are illiterate encounter difficulties in doing such tasks. This is because ICT literate people have knowledge, which is acquired from ICT courses taken and ICT workshops and seminars, while ICT illiterate people fail to appreciate the importance of ICT and therefore do not engage in any form of ICT training.

Schiller (2003) explored the level of the use of computers by principals and their perceived competencies in using various elements in Australia. The study findings showed that a 93.5 percent of the principals used computers in their homes and schools. Their main competence was in the basic packages, such as word processing, databases and sending and receiving emails. The study also revealed that it is from this ICT literacy among the principals that the principals were swayed into using ICT in the administration of secondary schools in Australia. Similarly, Felton (2006) carried out a study that focused on the impact

of literacy among principals, from the United States and the District of Columbia, on the integration of ICT in administration undertakings. The findings of the study confirmed that the competence of school principals in the use of computers is essential for the integration of ICT in their administration tasks and thus sufficient training is necessary. Also, the study of Mbatia (2014) carried in public secondary schools in Githunguri Sub County, Kenya, focused on the factors that motivated public secondary school principals to integrate ICT into administration tasks. The findings of this study endorse that ICT literacy among principals plays a key role in influencing the utilization of ICT in their tasks.

2.4 Impact of attitudes of principals towards ICT on ICT integration n management of secondary schools

Baker (1992) avers that attitudes denote the predisposition to act; however it does not necessarily indicate the real behavior. People tend to behave in a manner that is only consistent with their attitudes, as well as beliefs. This is because behaving in a manner that is contrary to a person's beliefs and attitudes brings about internal dissonance and tension. Given this, personal attitudes provide an individual with a plethora of information for planning the ideal course of action. In this context, the attitudes of principals towards the use of ICT will be considered.

Mingaine (2013) undertook a study focusing on the skill shortcomings that hinder the use and adoption of IVT in public secondary schools in Kenya. The findings of this study suggested that the positive attitudes towards implementation of ICT are overly significant in overcoming the challenges encountered in implementing ICT in secondary schools. In the same vein, Han (2002) focused on the principals' practices in adopting ICT in his empirical research and found that principals with positive attitude towards technology are very helpful and supportive in introducing novel technology in school administration tasks, especially where they are directly involved. Rather than confining the research to only one factor, the current study is aimed at exploring three other factors including ICT literacy levels, availability of ICT resources and accessibility of technical support.

Felton (2006), also, reports that the attitudes of principal's towards ICT are attributed to their cultural perceptions. The idea here is that attitudes of principals are traced on their culture, which sets societal norms. A culture which is receptive to change and technological innovation will manifest in the principal through his or her willingness to integrate ICT in the administration functions of the secondary school. The cultural background of a principal plays a key role in influencing the adoption of ICT in managing schools. The current study sought to authenticate the role played by attitudes towards the use of ICT among principals

in integration ICT in administrative task areas in public secondary school in Isinya Sub County.

2.5 Availability of ICT infrastructure and principals' ICT integration

ICT infrastructure plays a great role in encouraging secondary school principals to take on ICT in administration roles. Global e-Schools and Communities Initiative Kenya (2009) defines ICT infrastructure as the computers, communication hardware, software, databases, people, structures and policies supporting the integration of ICT, such as electricity and local internet connection.

Goktas, Yildirim and Yildirim (2009) assert that access to ICT infrastructure and resources in secondary schools is an essential requirement for the adoption of ICT by principals in the course of their administration. They assert that principals will not have an incentive to integrate ICT into their administrative task areas if they do not have the infrastructure and resources, such as computer rooms, which are necessary for the effective use of ICT. Therefore, access to computers, updated hardware and software are critical in influencing the principal's incorporation of ICT to their tasks. Norris, Sullivan, Poirot and Sloway (2003) also indicate that access to adequate technology infrastructure is a prerequisite for the successful adoption of ICT.

Hennessy (2010), after conducting research on utilization of ICT in primary and secondary schools in Sub-Saharan Africa, observes that the availability of physical ICT structures, such as computer rooms and electricity, influence the principals' decisions to integrating ICT into their executions. It is then deducted that the availability of electricity and the availing of ICT structures has the capacity to boost the principals' willingness to integrate ICT into the administration tasks.

Afshari, Bakar, Samah and Foo (2010) surveyed the extent to which some identified factors including high level of computer access, high level of transformational leadership behaviors, high level of computer competence and strong perceptions of the ICT attributes influenced the principal's integration of ICT in the administration tasks in Iran. The survey indicated that the main factors that influenced the principals' adoption of ICT in the management and administration of schools were the availability of ICT infrastructure. With availability of ICT infrastructure, principals are encouraged to utilize these facilities in order to tap the advantages therein. The knowledge gained from Afshari et al.'s study will be used as a hypothesis that the current study will aim to confirm or challenge in regard to Isinya sub-County, Kajiado, Kenya. This is because the findings of the survey were based in Iran, a country that varies widely with Kenya in terms of political, social and economical stances.

Similarly, Olayemi and Omatayo (2012) set about a study that stressed on the effectiveness of the adoption of ICT-based administration in secondary schools in Ekiti-state, Nigeria. The findings of the study pointed out that ICT the availability of ICT resources was a shot in the arm for the principals to adopt ICT in their administration tasks. The insights gained from this study are very significant; however, the current study intends to add to the study by considering additional factors, such as the ICT competency among principals, the availability of technical support, as well as the attitudes of principals.

2.6 Availability of technical support to principals and ICT integration

The ICT technical support functions and processes are designed in such a way that they provide the necessary expertise and support in order to corroborate the integration of ICT in performing tasks. The technical support team maintains and in-depth pool of technical advice and expertise to offer guidance, information and actual resources, For instance, technical support personnel help the principal install software programmes and accessing of documents over and above maintaining and repairing the computers (Office of Government Commerce, 2002). The ICT technical support team has a significant impact on the integration of ICT in administration by principals.

Researchers such as Makhanu (2010) posit that ICT technical support is critical in building and maintaining confidence in the principals in regards to the

access to ICT hardware, software and other equipments. Having adequate technical support will mean that the principal does not have to worry about any uncertainties pertaining to the utilization of ICT since the technical support team will be quick to solve such issues. This creates an opportunity for the principal to not only encourage the deputy principal; and the head of departments to embrace ICT in administrative roles, but also to use ICT as a tool of effective administration and management of secondary schools by the principals themselves.

Lau and Sim (2008) assert that the ICT technical support serves as a motivation for principals to integrating ICT in administering schools. This is because a well trained technical support team provides guidance on the use of computers, not only to the principal, but also to the teachers and students. ICT literacy is not sufficient; rather, a technical support team has to boost the confidence of the principal in employing ICT by offering guidance, over and above the technical support team's role of dealing with ICT infrastructure break downs.

2.7 Summary of literature review

Generally, studies by Schiller (2003), Mbatia (2014) and Felton (2006) agree that the ICT literacy among principals plays a key role in influencing their use of ICT in administration tasks. Han (2002) and Mingaine (2013) concur that

positive attitudes towards the use of ICT among principals also act as a motivation for them to utilize ICT. Studies by Hennessy (2010) and Goktas et al. (2009) also hold that the availability of ICT infrastructure an incentive for the principals to integrate ICT in their administrative task areas. Also, studies carried by Makhanu (2010) and Lau and Sim (2008) point out that the accessibility of technical support among the principals impacts their decision to use ICT in administering schools. From the studies, it is apparent that different studies placed different weights on the four major factors that influence the integration of ICT by principals in their administration tasks. In itself, this is a research gap that prompted an investigation to be carried, albeit in a comprehensive manner, on how these four salient factors motivate the principals to utilize ICT. Moreover, only modest research dealing with ICT integration in secondary schools has been carried in Kenya, such as Mbatia (2014) Mingaine (2013) and Makhanu (2010). What is more, the studies carried in Kenya were either general (Mingaine (2013) and Makhanu) or were based in areas that were not ASALs (Mbatia (2014). Intrinsically, the studies assumed that the conditions prevailing in public secondary schools across the Kenyan national are homogenous. Nevertheless, it is unreasonable to place public secondary schools in a place like Isinya on a level ground with those in Githunguri. In fact, there is no study that has been carried out to unearth whether the factors affecting principals' ICT integration in administration of public secondary schools in ASAL regions are identical to those in regions that are not classified as ASALs. Given this, this study was

indispensable in a bid to fill the research gap left by prior research and therefore considered an ASAL region: Isinya Sub-County.

2.8 Theoretical framework

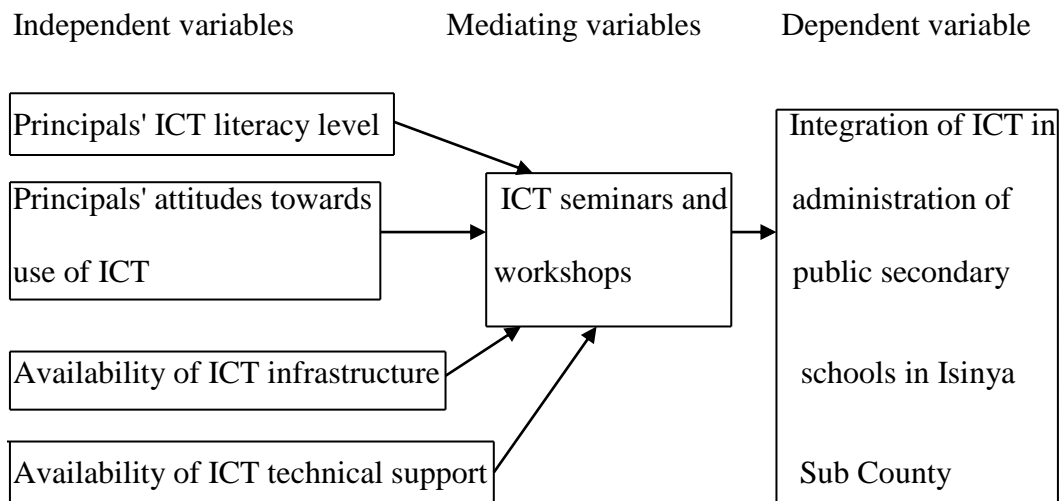
The Technology Acceptance Model (TAM) is a theoretical model that explicates the manner in which users accept and embrace novel technological and was coined by Fred Davis in 1989. TAM postulates that actual technology usage is shaped by behavioral intent. TAM proposes that perceived usefulness of new technology determines the attitude of a user towards the innovation. On the other hand, perceived ease of use influences the users to utilize technology. Generally, TAM assumes that once perceived usefulness and perceived ease of use interact and the intention to act is developed, an individual is boundlessly able to act. However, this comes out as the major limitation of TAM since in reality individuals face constraints including time, limited ability, as well as organizational and environmental restraints (Davis, Foxall & Pallister, 2002).

This brings forth the importance of perceived usefulness and perceived ease of use in integration of ICT into secondary schools. The concept of perceived usefulness, as presented by TAM, will be conceived to influence not only the attitude of principals towards the use of ICT but also the ICT literacy, which they seek in order to tap on the potential benefits of ICT. On the other hand, perceived ease of use will be conceived to be demonstrated through the availability of both ICT infrastructure and the technical support thereof. By comprehending the

manner in which new technology is embraced, it is easy to predict the aforementioned factors will impact the utilization of ICT in administration of schools.

2.9 Conceptual framework

The conceptual framework depicts the relationship between the independent and dependent variables.



The study conceptualized that principals were motivated to integrate ICT in the administration of public secondary schools in Isinya Sub County by various factors. ICT literacy level among principals encourages them to integrate ICT into the administration of the school because of the assured competence in computers.

Positive attitudes towards the use of ICT among principals are a very powerful tool of motivating principals to integrate ICT into the administration of schools due to the perceived usefulness. Besides, availability of ICT infrastructure can affect the decision of principals to integrate ICT into the administration of schools since an incentive to take advantage of these resources is developed. To boot, the availability of technical support will reduce the uncertainty underlying the use of ICT because technicians were available to advice and repair ICT infrastructure in case of breakdowns.

The study also conceptualized that ICT workshops and seminars organized by both the government and non-governmental organizations (NGOs) promoted the integration of ICT in administering secondary schools. Principals get an opportunity to share experiences and sensitize each other on the value of utilizing ICT in administration functions. As such, principals are empowered and end up emulating their colleagues in regard to ICT use.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter comprises of: research design, target population, sample size and sampling procedure, research instruments, instrument validity, instrument reliability, data collection procedures, data analysis techniques and ethical considerations.

3.2 Research design

This study utilized descriptive survey design. A descriptive study attempted to describe or define a subject, often by creating a profile of a group of problems, people, or events, through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated by Cooper and Schindler (2003). Descriptive research is used to obtain information concerning the current status of the phenomena to describe what exists with respect to variables in a situation. In light of this study, the research design was ideal in obtaining information on how the competence among principals, attitudes among principals, the availability of ICT infrastructure and the availability of technical support impact the integration of principals to adopt ICT in the course of the administrative chores.

3.3 Target population

Cox (2010) postulates that a target population is the entire set of units for which the study data will be used to make inferences. The target population of the current study consisted of 12 principals and 12 deputy principals in the 12 public secondary schools in Isinya Sub County. Besides, 12 senior teachers were targeted. In total, the target population was 36 persons.

3.4 Sample size and sampling procedure

Simple random sampling was used to select the public secondary schools, whose principals, deputy principals and senior teachers would participate in the study. A census was carried on the principals, deputy principals and senior teachers. Cargan (2007) certifies that simple random sampling is ideal because it is less biased. Besides, Kombo and Tromp (2006) provide the ground for sampling. They opine that a sample size of a research study must be at least 10 percent of a large population in order to give adequate representation. Table 3.1 summarizes the sample size to be considered in the study.

Table 3.1: Summary of sample size

Target respondents	Target population size	Sample size
Principals	12	10
Deputy principals	12	10
Senior teachers	12	10
Total	36	30

3.5 Research instruments

The study employed self-administered principals', deputy principals' and senior teachers' questionnaires to collect data. Gay (1992) substantiated that the anonymity of questionnaires helps in produce more candid answers as compared to the use of other research instruments.

There were three sets of questionnaires: one for the principals as shown in appendix ii, another one for deputy principals as shown in appendix ii and another one for senior teachers as depicted in appendix iv. The questionnaires administered to the principals were useful in gathering information on the factors that motivate the principals' utilization of ICT in administering schools. Then, the questionnaires administered to the deputy principals and the senior teachers sought to find out the thoughts of these school administrators on the factors that influence principals' integration of ICT in the administration functions of schools.

3.6 Instrument validity

Validity is the degree to which the findings of a research instrument reflect on the phenomenon being investigated. It is the accuracy with which the research instruments measures what it is intended to measure (Mugenda & Mugenda, 2009). The researcher tested the research instruments for both face and content validity.

Face validity is conceived to relate to the misinterpretation of the items in the research instrument, such as questions in questionnaires. The researcher intended to ensure face validity by conducting piloting in two public secondary schools in Isinya Sub-County, which were not considered in the study. The questionnaires were administered to the respondents in these schools in two consecutive times with an interposing period of two weeks and the consistency of their answers was assessed. On the other hand, content validity is conceived to relate to the capacity of the study instrument to adequately cover the topic in question (Gall, Gall & Borg, 2005). As such, the researcher intended to check content validity by cautiously preparing the questionnaires through the professional guidance of the supervisors, as well as expert opinion on the items of the questionnaire.

3.7 Instrument reliability

Mugenda and Mugenda (2009) conceptualize reliability of a research instrument as the capability of the instrument to yield results that are consistent if

issued to the respondents again. In order to ensure that the questionnaires were reliable, the researcher engaged the supervisors in developing the instruments, albeit in terms of guidance.

A pilot study was also carried out in two public secondary schools in Isinya Sub-County, albeit those that were not regarded in the study. The questionnaires were administered to respondents in the public secondary schools twice in a time lapse of two weeks. The results of the pilot study was subjected to Pearson's product correlation coefficient so as to evaluate the consistency therein and make necessary changes before the final administration because, as Mugenda & Mugenda, (2009) posit, the accuracy of the data to be collected greatly depends on the reliability of the study instruments. The reliability coefficient was found to be 0.87. Gay (1992) affirms that a research instrument with a Correlation Coefficient between 0.7 and 1.0 was to accept as reliable enough. Therefore, the researcher confirmed that the instruments were reliable enough to be used in this study.

3.8 Data collection procedures

Authority to conduct the research was sought from the University of Nairobi, which offered an introduction letter, and the National Commission of Science and Technology and Innovation. Thereafter, the office of the Sub County Educational Officer was contacted for permission prior to the data collection exercise. The selected schools were visited and the principals notified of the goals

of the study before the questionnaires are issued to the sampled participants. The researcher was available to make clarifications on any issue that may arise during the data collection exercise. Finally, the researcher collected the questionnaires upon completion on the same day.

3.9 Data analysis techniques

After the collection process, the data was coded and entered into a computer for analysis. Both qualitative and quantitative data analysis techniques were utilized. Quantitative data was analyzed using descriptive statistics through the help of Statistical Package for Social Sciences (SPSS). Qualitative data was analyzed using content analysis, which comprised categorizing and indexing the responses and other field notes into common themes in line with the objectives.

3.10 Ethical considerations

The respondents were informed of the aim of the research study and no respondent will be compelled to respond to the questionnaire. The text belonging to other authors that were utilized in the study have been fully referenced. The questionnaires did not contain any discriminatory or degrading language that was offensive to the respondents. Besides, the research instruments refrained from asking personal questions to the respondents.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction

The main purpose of the study was to investigate the factors influencing principals' integration of information communication technology in public secondary schools in Isinya sub County, Kenya. Graphs, pie charts and tables were used to present the data. The questionnaires were dropped and later picked at a later date to allow the respondents to feel the questionnaires at their own time. Once the respondents answered the questionnaire, data was then coded and analyzed using SPSS.

4.2 Response and return rate

The questionnaires were study were distributed to 10 principals, 10 deputy principals and 10 senior teachers in the all the 10 schools in Isinya Sub-County. Given this, the study targeted and considered 30 respondents in collecting data with regard to factors influencing principals' integration of information communication technology in public secondary schools in Isinya sub County, Kenya. All the 10 principals responded to the questionnaires, 8 deputy teachers responded to the questionnaires and only 7 senior teachers filled and returned the questionnaires. In total, only 25 respondents responded to the questionnaires and

this represented a questionnaire response rate of 83.33 percent. According to Kumar (2010), a questionnaire response and return rate of 50 percent is sufficient to conduct the study efficiently and, therefore it is a good response rate. In regard to this study, the response and return rate was regarded excellent because it surpassed the minimum required return rate by 33.33 percent. The implication of this healthy response and return rate is that the respondents were cooperative and willing to participate in the study on the factors influencing principals' integration of ICT in administration tasks in their Sub-County, Isinya.

4.3 Demographic characteristics of respondents

The researcher sought to find out the personal characteristics of characteristics of the principals, deputy principals and the senior teachers who participated in the study. Therefore, the questionnaires included a demographic data section, which explored various personal characteristics of the respondents. These aspects were regarded to be critical in comprehending the respondents in regard to the factors influencing principals' integration of ICT in administration tasks in Isinya Sub County. Percentages and frequency tables were utilized in depicting these demographic data and the result are presented in figure 4.1, tables 4.1, 4.2, 4.3, 4.4 and table 4.5.

4.3.1 Gender of respondents

The study sought to cognize disparities in gender among the respondents. This was overly essential in understanding the respondents in regard to their

integration of ICT in administration tasks areas as well as their principals' integration of ICT in administration tasks. Volman and Eck (2001) conducted a study on gender influences ICT use among teachers and observed that male teachers were better off in using ICT as compared to their female counterparts, who had limited interest, skill and access to technology. Given this, the gender of the principals is a significant factor when examining their ICT integration in administrative task areas. The findings of the study are presented on Figure 4.1.

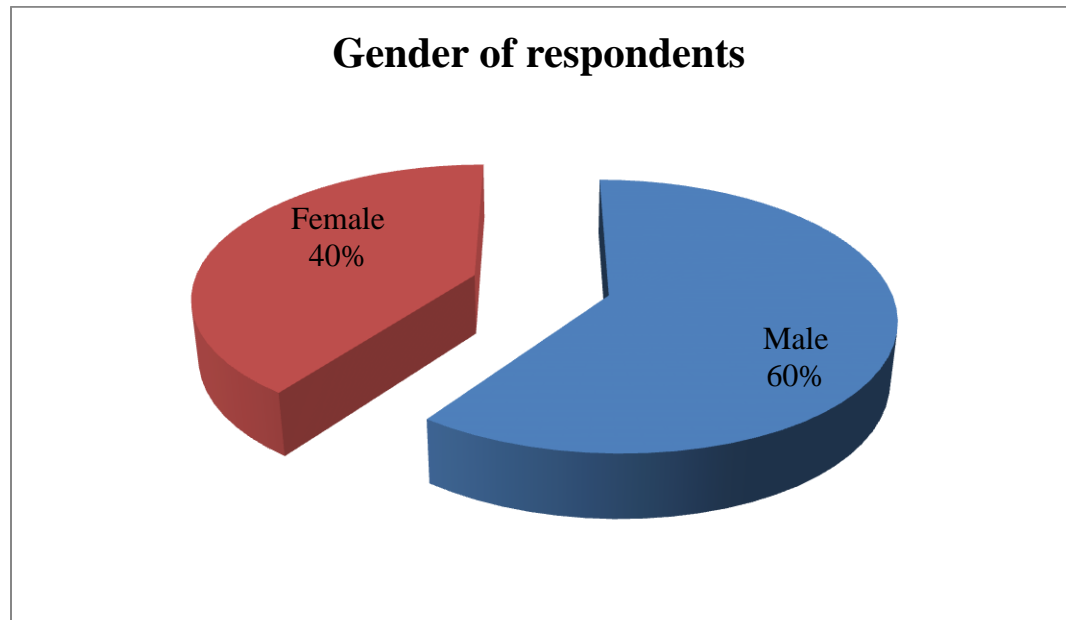


Figure 4.1: Distribution of respondents by gender

The analysis of the gender disparity of respondents indicated that there were more male respondents (60 percent) as compared to females (40 percent). The implication of this disparity in gender is that most of the school administrators including principals, deputy principals, and senior teachers are male. Besides, the

findings imply that there were more boys' schools, which are often managed by male school administrators, as compared to girls' schools, which more than often have female school administrators. For mixed schools, these findings connote that the school administrators were male in most cases as opposed to women. The underlying reason for this distribution is that men are trusted to hold administrative and management positions whereas women are left to be led rather than leading, with an exception of imploring situations, such as girls' schools.

4.3.2 Age of respondents

The study also sought to establish the age of the respondents and head teachers were asked to indicate the age bracket under which they fall. By and large, the age of a respondent indicates his or her level of maturity. Robbins and Judge (2010) surveyed the connection between the age of individuals and technological embracement. The findings of their survey indicated that those belonging to the so called Generation Y or Millennials were technology savvy and were at ease with online communication and diversity in regard to technology use. As such, it is expected that youthful principals would prefer to use ICT in their administrative task areas as compared to older principals. The findings of the age distribution of the respondents are recorded in Table 4.1.

Table 4.1: Distribution of respondents by age

	Frequency	Percentage
31-40 years	6	24
41-50 years	17	68
Over 50 years	2	8
Total	25	100

As established in table 4.1, majority of the school administrators in public secondary school in Isinya Sub- County are aged between 41 and 50 year. A possible explanation for this distribution is that teachers aged between 41 years and 50 years possess sufficient experience to take up administrative positions in public secondary schools as compared to those aged between 31 and 40 years. For those aged above 50 years are either retired or have advanced their education and moved to colleges and universities to serve as lecturers. Given this, teachers who fall in this age bracket are few and hence the small number of school administrators in this age bracket, despite the healthy experience they are presumed to be having.

4.3.3 Highest academic qualification of respondents

The highest qualification of the respondents was a factor that the study sought to explore. It was necessary to know the highest qualification of the

respondents so as to comprehend the prevailing qualification of school administrators in secondary schools in Isinya Sub-County since it is presumed that the higher the academic qualification of school administrator, the higher the push to integrate ICT in their tasks, more specifically principals. Riddell and Song (2012) conducted a study on the relationship between the level of education and ICT use and they observed that with a step-up in education, the profitability of utilizing ICT in tasks is enhanced. In other words, teachers who have higher educational qualifications, more often than not, have sound work experience in utilizing ICT, such as computer use. The results of the distribution of respondents by highest academic qualification are shown in Table 4.2.

Table 4.2: Highest academic qualification of the respondents

	Principals	Deputy principals	Senior teachers
Masters of Education	6	2	1
Bachelor of Education	3	4	3
Post-Graduate Diploma in Education	1	2	3
Total	10	8	7

As indicated in table 4.2, principals were the major respondents and most of them were holders of Masters of Education, while most of deputy principals were holders of Bachelors of Education. However, senior teachers mostly held Bachelors of Education and Post-Graduate Diploma in Education. The implication of these findings is that the respondents had sufficient knowledge on the importance of ICT, especially the head teachers who were the main focus of this study. Information is power and as a principal furthers his or her education, the better his or her understanding becomes in regard to the use of ICT in administrative task areas.

4.3.4 Respondents experience in the teaching profession

The study also wished to explore the experience level of the respondents. As such, the respondents were requested to indicate the number of years they have serving in the teaching profession. This information was necessary in order to get a rough picture of the level of understanding of the importance of utilizing ICT in their administrative task areas, which is presumed to increase with a step-up in experience, especially for principals who were the major focus of this study. Wanga (2014), in his study that focused on how the experience of teachers influences their adoption of new technology in teaching, found out that teachers with a lot of experience in the teaching profession were receptive of new technology as opposed to their less experienced counterparts. The findings were compiled as shown in Table 4.3.

Table 4.3: Period respondents had been in teaching profession

	Principals	Deputy principals	Senior teachers
5-10 years	1	1	2
11-15 years	2	4	5
16-20 years	5	2	0
Over 21 years	2	1	0
Total	10	8	7

As indicated in table 4.4, principals made up the greatest number of respondents and most of the principals had been in the teaching profession for over 16 years but below 20 years. On the other hand, deputy principals and senior teachers were mostly found to have teaching experience ranging between 11 and 15 years. The implication of these findings is that the respondents had adequate experience to understand the importance of utilizing ICT in administrative task areas, especially principals who the study centered on. As a teacher gains more experience in the teaching profession, the chances of him or her being appointed as a school administrator are increased. Also, the findings imply an experienced school administrator will appreciate the saliency of utilizing ICT in administrative task areas as compared to an inexperienced school administrator.

4.3.5 School type of the respondents' schools

The school type is conceived as the gender of the students in the school whereby a school can be a boys' school, girls' school or mixed, both boys' and girls'. The school type of the respondents also issued as the concern of the study. It was critical that the type of the respondents' schools would be known since this would help in understanding the underlying explanation behind the gender distribution of the school administrators considered in this study. The results are as recorded in Table 4.4.

Table 4.4: School type distribution of respondents' schools

	Frequency	Percentage
Boys	4	40
Girls	2	20
Mixed	4	40
Total	10	100

From the responses recorded in table 4.4, it is evident that the number of boys' public secondary schools and those that were mixed, that is, boys and girls, were equal in Isinya sub-county. However, the girls' public secondary schools only constituted a small percentage of the total schools considered in the study. The implication of this distribution in the type of schools is that the administrators

considered in the study were male because boys' schools tend to have male school administrators as well as the mixed schools. Only the girls' schools required to have female school administrators, and given the small number of girls' school in Isinya Sub-County, the female school administrators to be considered would not match their male counterparts.

4.3.6 Period the respondents had been in their current station

Another demographic data that the study was interested in is the period the respondents had been in their current station. This information was important since it helped the researcher evaluate the respondents understanding on their principals' practices in regard to the utilization of ICT in administration tasks. The principal's experience in the current station was essential in comprehending his or her level of cognition of the need to utilize ICT in his or her endeavors as the top school administrator. Weinberg (2004) posits that the more a person is conversant with his or her work station, the chances of such a person to embrace new technology in his or her tasks. The outcome of the respondents is as expressed in Table 4.5.

Table 4.5: Period respondents had been in current stations

	Frequency	Percentage
1-5 years	5	20
6-10years	16	64
Over 15years	4	16
Total	25	100

Evidently, table 4.5 indicates that most of the respondents had stayed in their current station for over 5 years (80 percent). This implies that the information the deputy principals and senior teachers provided was well-educated because they had worked with their principal for some quite some time and, therefore, understood his or her operations regarding the integration of ICT in his or her administrative task areas in the school. The findings also implied that the principals had adequate experience in their stations to realize the saliency of utilizing ICT in their administrative undertakings in their capacity as principals.

4.4 ICT literacy level amongst school principals

The principals' integration of ICT in administration of secondary schools is highly dependent on the ICT literacy level of principals. Therefore, the study sought to find out the ICT literacy level of the considered public secondary schools in Isinya sub-county and various aspects were utilized to gain insight into the ICT literacy of the principals.

4.4.1 Principals exposure to ICT training

Training is very significant in intensifying the know-how of principals on matters concerning ICT and especially on matters involving administration, which the major role of the principals. To establish the level of exposure among the principals of the schools considered by the study, the study inquired whether the principals had any form of training in ICT, including the continuous attendance of ICT seminars and workshops. The findings are depicted in Figure 4.2.

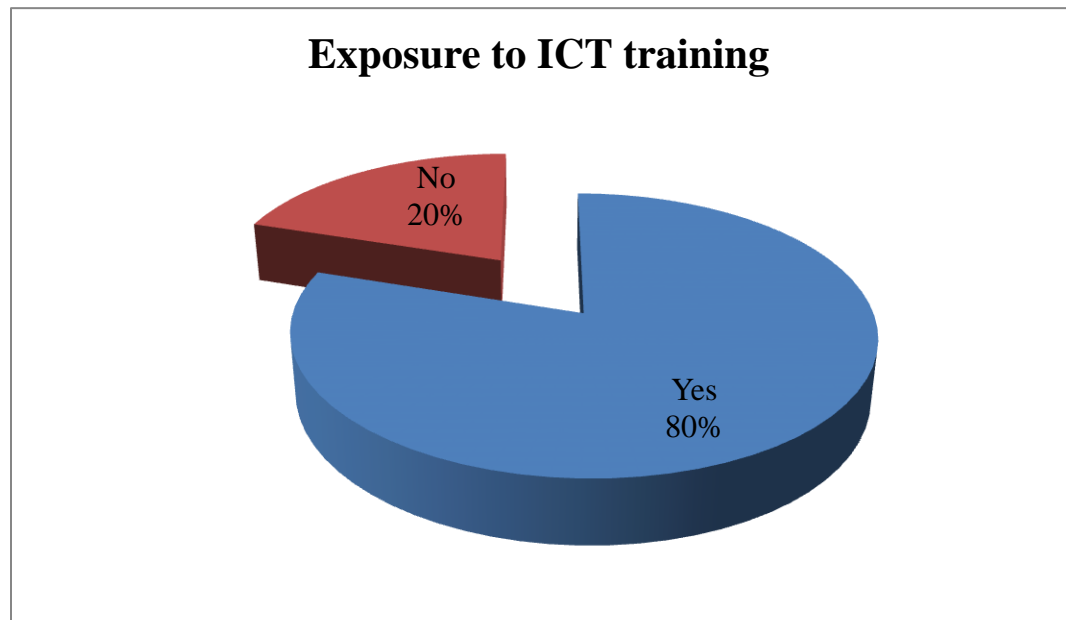


Figure 4.2: Period the respondents had been in the current station

The indication is that majority of the principals had exposure to some form of ICT training (80 percent), with only a few lacking ICT training. The implication of these findings is that most of the surveyed principals ICT literate and therefore it was anticipated that this would influence their integration of ICT

in the administration of their respective schools, an assumption that is in line with Felton (2006) assertion that competence in ICT had the effect of influencing the utilization thereof.

4.4.2 Competence of principals in the basic computer programs and specific administration tasks

Exposure to ICT training alone is not sufficient to influence the principals to integrate ICT in administering schools. Given this, it was necessary to explore the competence of the principals in various computer programs that would have a significant impact on their utilization of ICT in administration tasks. A 5-point likert scale was employed, where 1-1.49 represented very poor; 1.50-2.49 represented poor; 2.50-3.49 represented fair; 3.50-4.49 represented good; 4.50-5.00 represented excellent. The findings of the analysis were tabulated as depicted in Table 4.6.

Table 4.6: Competence of the principal in basic computer programs relevant to administration functions of a secondary school

Program	Mean	Standard deviation
Microsoft Word	4.16	0.24
Microsoft Excel	3.57	0.6
Microsoft Access	1.43	0.15
Microsoft PowerPoint	3.27	0.38
Email & Internet	3.85	0.14
Microsoft Outlook	1.18	0.19
Photoshop	1.26	0.62
Quick Books	1.53	0.27
Microsoft Publisher	1.74	0.31

From the findings, the principals were good in Microsoft word, Email & Internet and Microsoft excel as shown by a mean of 4.16, 3.85 and 3.57 respectively. In addition, the principals were fair in Microsoft PowerPoint as shown by a mean of 3.27. Moreover, the principals were poor in Microsoft publisher and Quick books as shown by a mean of 1.74 and 1.53 respectively. Also, the principals were very poor in Microsoft access, Photoshop and Microsoft outlook as shown by a mean of 1.43, 1.26 and 1.18 respectively. This is in line with Schiller (2003) who explored the level of the use of computers by principals

and their perceived competencies in using various elements in Australia and found that their main competence was in the basic packages such as word processing, databases and sending and receiving emails.

The ICT competency level of principals in the six main administration tasks was also important in order to find out the strengths and weaknesses of principals in regard to the utilization of computer programs in their administration chores. A 5-point likert scale was also employed, where 1-1.49 represented very poor; 1.50-2.49 represented poor; 2.50-3.49 represented fair; 3.50-4.49 represented good; 4.50-5.00 represented excellent. The outcomes of the analysis are as recorded in Table 4.7.

Table 4.7: ICT competence of principals in specific administration tasks

Administrative task	Mean	Standard deviation
Curriculum and instruction	3.72	0.15
Student personnel	3.88	0.43
Staff personnel	2.18	0.38
School facilities	2.15	0.20
School community relations	1.92	0.13
Management of finances	4.57	0.22

Table 4.7 indicates that the ICT competence of the principals was in the management of finances, which had the greatest mean of all the main administration tasks considered in the study. However, principals were not competent in utilizing ICT for school community relations since this administration task had the least mean as indicated in the table 4.7 above. The implication of this distribution in ICT competence in specific administration tasks among the principals is that financial matters were deemed to be of great relevance with respect to the use of ICT as compared to other administrative task areas.

4.4.3 Influence of ICT literacy among principals on ICT integration in administrative task

The researcher sought to obtain the opinion of principals on the factors that influenced them to integrate ICT the course of their administrative responsibilities. Given this, principals were asked to indicate the extent to which they felt participating in ICT training and competence in computer programs motivated them to utilize ICT in administrative task areas. A 5-point likert scale was also employed, where 1-1.49 represented nil influence; 1.50-2.49 represented insignificant influence; 2.50-3.49 represented little influence; 3.50-4.49 somewhat influence; 4.50-5.00 represented strongly influence. The findings are as demonstrated in Table 4.8.

Table 4.8: Influence of ICT literacy among principals on ICT integration in administrative task

Key: SA-Strongly Agree, A-agree, U-undecided, D-Disagree

Statements	Percentage of ratings				Total	Mean
	SA	A	U	D		
Participation in ICT training	48.9	38.3	12.8	0	100	4.76
Competence in computer programs	42.9	40.7	16.4	0	100	4.05

The findings reveal that the principals’ participation in ICT training had a strong influence on their integration of ICT in administrative task areas as manifested by the healthy mean. Moreover, competence of principals on the basic computer programs that are pertinent to administrative task areas across the school had a somewhat influence on the principals integration of ICT in administrative task areas. The implication of these findings is that ICT competency among the principals has a profound influence on the principals’ integration of ICT in administration tasks in public secondary schools in Isinya Sub-County.

4.4 Principal’s Attitude towards the use of ICT

The researcher sought to know the attitudes of principals towards the use of ICT. To access this, the respondents were required to indicate the attitudes of

the principals towards the use of ICT pertaining to the main administrative task areas of the principals. The study employed a 3-point likert scale, where a scale of 1-1.49 indicated that the respondents were not certain of the attitude of the principals towards the use of ICT in specific administrative task areas, a scale of 1.50-2.49 represented that the respondents felt that the principals had negative attitude towards the utilization of ICT in the main administrative task areas, and a scale of 2.50-3.00 represented that the respondents felt that the principal had a positive attitude towards the use of ICT in the major administrative task areas. The findings were compiled and recorded as given in Table 4.9.

Table 4.9: Principal’s attitude towards the utilization of computers in specific administrative tasks

Administrative task	Mean	Standard deviation
Curriculum and instruction	1.89	0.16
Student personnel	1.27	0.45
Staff personnel	1.16	0.27
School facilities	2.15	0.16
School community relations	1.23	0.25
Management of finances	2.57	0.15

As disclosed in table 4.9, the principals were extremely positive towards the utilization of ICT in management of finances as indicated by a great mean (2.57). However, the principals were negative towards the utilization of computers in school facilities and curriculum and instruction as shown by the means, which range between 1.50 and 2.49. Besides, the respondents were not sure about principals' attitude towards the utilization of ICT in student personnel, school community relations and staff personnel. The implication of these findings is that principals chose to use the limited ICT facilities in the management of finances, which is a very sensitive aspect of the school administration, and left out the other administrative task areas.

However, the study was particularly interested in establishing the impact of the principals' attitude towards the general utilization of ICT in the administrative task areas. As such, the respondents were requested to indicate how the attitude of the principals reflected on their integration of ICT in administrative task areas. The results of the analysis are recorded in Figure 4.3.

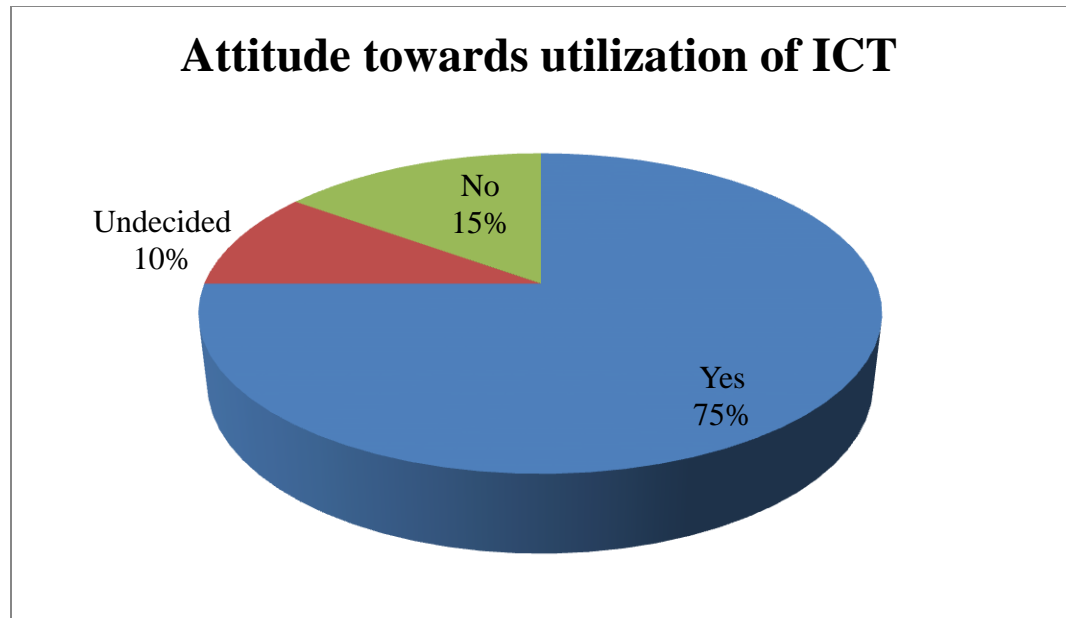


Figure 4.3: Influence of Principals attitude towards the use of ICT on the actual utilization in administrative task

From the findings, it was apparent that a staggering number of the respondents (75 percent) felt that the attitude of the principal towards the use of ICT actually utilized ICT in their administrative task areas. In other words, principals with positive attitudes towards the use of ICT were motivated to utilize ICT in their administrative task areas. On the other hand, principals with negative attitudes were dissented the utilization of ICT in administrative task areas because they failed to see the any beneficial value of ICT and, therefore, inclined towards the use of manual systems. However, a modest number (15 percent) of the respondents felt that the attitudes of the principals towards the use of ICT had no impact on the actual utilization of ICT by the principals in their administrative

tasks. Besides, only 10 percent of the respondents were honestly unsure of the how the attitudes of the principals towards the use of ICT influenced their actual usage of ICT in administrative tasks. These findings are in line with the findings of Han (2002), who focused on the principals' practices in adopting ICT in his empirical research and found that principals with positive attitude towards technology are greatly motivated to utilize ICT in their mundane tasks, such as administrative tasks.

4.5 Availability of ICT Infrastructure and principals' integration

What is more, the study sought to find out how the availability of ICT infrastructure in the schools considered in the study influenced the principals integration of ICT in administration tasks. To gather information on this variable, the respondents were asked to indicate whether the principals had computers in their offices. Computers were considered because they are the main ICT facility that enhances efficiency in the course of the administrative tasks of the principals including the ease processing of information. The outcome of the analysis is as portrayed in Table 4.10.

Table 4.10: Availability of computers in the principals' offices

	Frequency	Percentage
Yes	17	68
No	8	32
Total	25	100

The researcher observed that a stupendous number of the principals' offices in the public secondary schools in Isinya Sub-County were installed with computers with only a few of the offices lacking these very crucial facilities. The implication of these findings is that the government of Kenya is committed into ensuring that public secondary schools utilize computers, especially for principals as they administer the schools. The government of Kenya has increasingly allocated colossal amounts of money to the education sector with an aim of integrating ICT into the administration of schools, a platform that enables better transparency and efficiency in administration, as well as learning and teaching.

The study also sought to find out if the principals had reliable internet connection in their offices, albeit for those who had operating computers in their offices. Internet connection is very crucial when utilizing computers to perform tasks, especially administrative tasks, which involve the sharing of information. As such, the researcher inquired from the respondents if the principals had reliable internet connection. Figure 4.4 contains a graphic representation of the findings of this analysis.

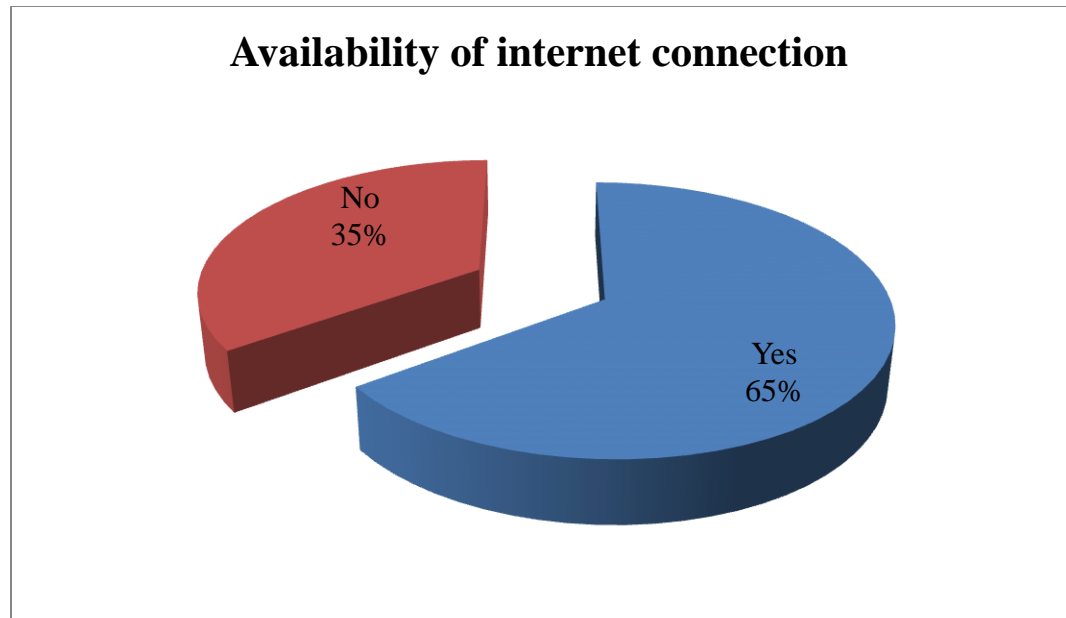


Figure 4.4: Availability and reliability of internet connection at principals' offices

The findings exposed that most of the principals' offices in public secondary school in Isinya Sub-County had reliable internet connection (65 percent). The high connectivity of computers to reliable internet can be attributed to the government's commitment to ensure that schools have access to the internet, which offers a pool of information that is very salient to learning and teaching in schools. More specifically, internet connection ensures that information can be shared among by the principals in his or her administrative endeavors.

Additionally, it was necessary for the researcher to investigate the extent to which the availability of ICT infrastructure influenced the principal's integration of ICT in the major administrative tasks. A 5-point likert scale was also applied, where 1-1.49 represented nil influence; 1.50-2.49 represented insignificant influence; 2.50-3.49 represented little influence; 3.50-4.49 somewhat influence; 4.50-5.00 represented strongly influence. The findings are as demonstrated in Table 4.11.

Table 4.11: Influence of availability of ICT infrastructure on principals' ICT integration

Administrative task	Mean	Standard deviation
Curriculum and instruction	4.35	0.23
Student personnel	3.54	0.18
Staff personnel	2.40	0.34
School facilities	3.12	0.20
School community relations	2.93	0.19
Management of finances	4.88	0.07

Table 4.11 expresses that the availability of ICT infrastructure, including computers and reliable internet connection, influenced principals to utilize ICT in financial management and curriculum and instruction to a greater extent as

compared to other administrative tasks. The underlying explanation behind this distribution in the integration of ICT in administrative tasks given the availability of ICT infrastructure is that much attention is given to the efficiency of the management of funds because principals feel that with sound management of funds, then the school can run effectively. Besides, the curriculum and instruction administrative task is also given a degree of attention by principals because the more efficient the curriculum and instruction administrative task is, the better the presumed performance of students and this increases the reputation of the not only the school but also the principal. These findings conform to the findings of Afshari Bakar, Samah and Foo (2010) who found that the main factor that influenced the principal's adoption of ICT in the administration of schools was the availability of ICT infrastructure and ICT was utilized especially in the management of finances.

4.6 Availability of technical support and principals' integration

The study sought to inquire the availability of ICT technical support in the principals' offices in the public secondary schools considered by the study. Technical support is indispensable for the effective application of ICT in tasks. This is because breakdowns of ICT infrastructure, such as computers and computers networks, are set to take place and hence there should be some form of technical assistance for the principals, who are not required to be specialized in such tasks. To gather information on this aspect of ICT integration, the respondents were requested to furnish information on who was responsible for

maintaining and repairing the computers in the principal’s office, who offered advice on what ICT infrastructure would be purchased in the principal’s office and whether the principal had signed any contract with any technological firm to maintain the computers in his office. The results of this analysis are as put down on Tables 4.12 and 4.13 and Figures 4.5 and 4.6.

Table 4.12: Persons tasked with computer maintenance in principals offices

Personnel	Frequency	Percentage
Computer instructors	15	60
Employed technician	10	40
Total	25	100

Table 4.15 reveals that in most of the public secondary schools in Isinya Sub-County, the computers in the principals’ offices were maintained and repaired by computer instructors. However, a fair number of the schools had employed technicians. The implication of these findings is that principals assumed that the computer instructors of the school had sufficient expertise and thus it was needless to employ technicians to repair and maintain the computers facilities in their offices. However, some principals recognized the need to have external ICT technicians to maintain and repair the computers facilities in their offices. The findings connote that the principals in public secondary schools in Isinya sub-county were cost conscious in the sense that they would prefer to have

the computer instructors within the school to maintain and repair the computers facilities in their offices rather than incurring an extra cost of hiring technicians.

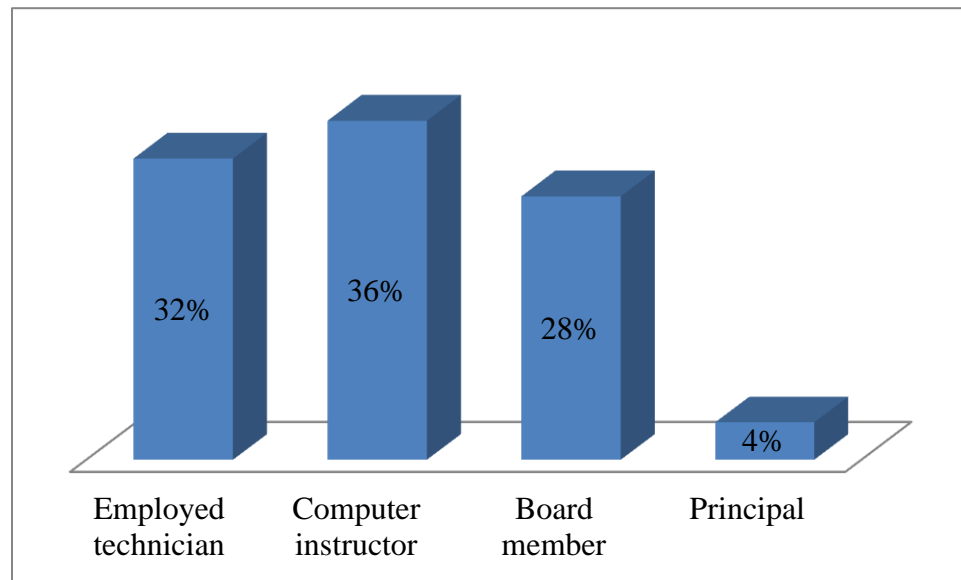


Figure 4.5: : Source of advice in regard to the appropriate computer facilities to be purchased in the principal’s office

From figure 4.5, it is apparent that computer instructors and employed technicians were increasingly sought for in regard to advising on the appropriate ICT infrastructure to be purchased in the principal’s office as opposed to the board members and the principals. This implies that the decisions on the ICT facilities to be purchased in the principal’s office were well educated since the computer instructors and technicians are often savvy in matters of ICT and have the capability of advising on the most effective facilities to be purchased. These

findings confirm the Office of Government Commerce (2002) assertions that the technical support team maintains and in-depth pool of technical advice and guidance on matters concerning ICT facilities.

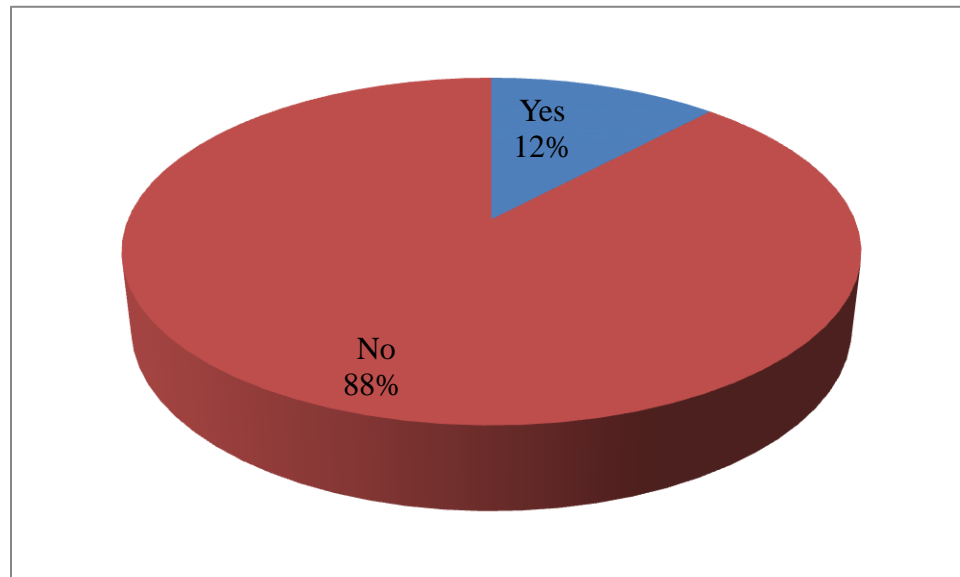


Figure 4.6: Contracting a technology firm to maintain the computers in the principal’s office

The results of the analysis, depicted in figure 4.6, disclose that almost all the principals had not contracted a technology firm to maintain the computers in their office. Only a few principals had gone against the grain and contracted technology firms. The implication of these results is that the ICT facilities in the secondary schools in Isinya Sub-County were not many so as to necessitate the principal to contract a technological firm to maintain the computers in his or her office. In fact, it is illogical for the principal to contract a technological firm to

maintain the computers in his or her office if the computers are in the school are limited.

Even so, it was the researcher’s specific concern to seek to found out how the availability of technical support in the school influence the principal to integrate computers into the specific administrative tasks. A 5-point likert scale was also utilized, where 1-1.49 represented nil influence; 1.50-2.49 represented insignificant influence; 2.50-3.49 represented little influence; 3.50-4.49 somewhat influence; 4.50-5.00 represented strongly influence. The findings are as demonstrated in Table 4.13.

Table 4.13: Influence of availability of ICT technical support on principals’ ICT integration

Administrative task	Mean	Standard deviation
Curriculum and instruction	4.08	0.09
Student personnel	4.42	0.36
Staff personnel	3.54	0.25
School facilities	1.32	0.28
School community relations	1.53	0.92
Management of finances	4.58	0.41

The findings make it clear that besides ICT technical support influencing the principals' integration of ICT in administration tasks, different administration tasks are influenced differently. For instance, financial management, student personnel and curriculum and instruction are greatly influenced by the availability of technical support as compared to other administrative tasks. This means that finances and student affairs are considered to be critical by principals in public secondary schools in Isinya Sub-County. It can be deduced that principals believe that by utilizing ICT in these administrative tasks, the performance of the school will ameliorate.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter covers the summary of the key findings of the study, the conclusions of the study, the recommendations of the study and the suggestions for areas of further studies.

5.2 Summary of the study

The purpose of the study was to investigate the factors influencing principals' integration of information communication technology in public secondary schools in Isinya sub County, Kenya. The objectives of the study included; to determine the extent to which principals' ICT literacy influence integration of ICT in administration of secondary schools in Isinya Sub-County, to determine the degree to which availability of infrastructure influences principals' integration of ICT in administration of secondary schools in Isinya Sub-County, to determine the influence of principals' attitudes towards ICT in integration of ICT in administration of secondary schools in Isinya Sub-County, and to establishment the extent to which availability of technical support influences principals' integration of ICT in administration of secondary schools in Isinya Sub-County, Kenya.

The review of the literature pertinent to the study was conducted from global, regional and local perspectives. The literature review indicated that the ICT literacy of principals, the principals' attitude towards the use of ICT, the availability of ICT infrastructure and technical support had a grand influence on the principals' integration of ICT in administrative endeavors. The study was guided by the Technology Acceptance Model (TAM), which centers on the manner in which new technology, such as ICT, is adopted by users through the perceived usefulness and the perceived ease of use elements.

The study employed the descriptive research design. The design was ideal for the study because the researcher had no control over the situation surveyed by the study and hence it had to be explored as it was without any alterations. The target population of the study comprised of 10 principals, 10 deputy principals and 10 senior teachers, who represented the school administrators of the 10 public secondary schools in Isinya Sub-County that were considered in the study after utilizing simple random sampling on the schools.

The study utilized questionnaires as the sole data collection instruments. The items on the questionnaires were first presented to the supervisors, who are senior lectures in the department of Educational Administration and Planning, as a draft, after which their suggestions and guidance on how to improve the items on the questionnaires were incorporated in the final draft of the questionnaires. A pilot study was conducted in two public secondary schools in the neighboring

Kitengela Sub County so as to ascertain the validity and reliability of the questionnaires. The questionnaires were administered to 10 principals, 10 deputy principals and 10 senior teachers, making a total of 30 distributions. However, only 25 respondents filled and returned their questionnaires to the researcher for analysis. Therefore, the response rate was 83.33 percent, which is considered adequate by Kumar (2006). Data analysis was done through the usage of both qualitative and quantitative techniques. Frequencies and percentages of the data analysis were done through the SPSS. Likert scales were also utilized to analyze the data. By use of frequency distribution tables, bar and pie graphs, the data was presented.

5.3 Discussion of findings

The study found out that the ICT literacy among the principals influenced the integration of ICT in administrative task areas. This is manifested by the fact that principals who had integrated ICT in their administrative task areas were found to have participated in ICT training program. The principals were good in Microsoft word, Email & Internet and Microsoft excel but very poor in Microsoft access, Photoshop and Microsoft outlook. However, it was apparent that the ICT literacy among principals was mainly in financial management and least in school community relations. This meant that principals accorded greater importance to the financial aspects of administering schools as compared to the other administrative tasks. In fact, the exposure to ICT training among principals had

the greatest impact on the utilization of ICT as opposed to the competence in specific computer programs which had somewhat impact.

The study also established that the attitudes of principals towards ICT use influenced the integration of ICT in administrative task areas, especially in the management of finances. This implied that the financial aspect administration was given a degree of emphasis by the principals insofar that they preferred to utilize ICT. By and large, the respondents ascertained that the attitude of the principal, whether positive or negative, had a profound influence on his or her utilization of ICT in administrative tasks (75 percent). As such, it was confirmed that the ICT literacy among the principals was a very critical factor when analyzing the integration of ICT in administrative tasks.

The study determined that the availability of infrastructure, especially computers, influenced the integration of ICT by the principals in their administrative tasks. For those principals' offices with operating computers, a fair number (65 percent) had reliable internet connection. However, the availability of these crucial ICT infrastructures, computers and internet connection, was greatly mainly utilized in the management of funds and curriculum and instruction administrative functions. The meant that principals viewed the performance of students, which is often influenced by curriculum and instruction tasks, and financial management to be important and therefore ICT had to be utilized.

Additionally, the study ascertained that the availability of ICT technical support significantly influenced the integration of ICT by the principals in their administrative tasks areas. These findings hinted that even though the advice on the ICT facilities to be purchased in the principals' offices was sound, the principals were increasingly cautious on their expenditure on ICT to an extent of utilizing computer instructors rather than technicians to maintain and repair computers in their offices.

5.4 Conclusions

Based on the objectives of the study, the following conclusions were drawn;

ICT literacy among the principals' influences the principals' integration of ICT in administrative tasks. Principals who have adequate exposure to ICT training are better placed when it comes to the utilization of ICT in administrative endeavors because they possess the requisite know-how as well as the benefits of ICT. However, ICT literacy among the principals tends to encourage principals to utilize ICT in the management of the school finances to a greater degree in comparison to the other administrative tasks. The probable net effect of utilizing ICT in the management of finances is improved transparency and accountability in the financial expend across the school.

The attitudes of the principals towards the use of ICT have a fundamental impact on the principals' integration of ICT in administrative undertakings. Principals with a positive attitude towards the use of ICT will be primed to utilize

ICT in their administrative endeavors since they comprehend and appreciate the benefits of employing ICT. Conversely, principals with a negative attitude towards the use of ICT, perhaps due to their previous experience with ICT, will be hesitant to integrate ICT in their administrative roles because of their pessimistic perspective towards ICT use. Still, positive attitudes towards the use of ICT develop the urge for the principals to utilize ICT particularly in the management of finances.

The availability of ICT infrastructure in the principals' offices serves as a key motivation for the principals to integrate ICT in administrative tasks. However, the availability of ICT infrastructure does not necessarily translate into equal integration of ICT in administrative tasks among principals. Principals tend to integrate ICT into financial management tasks to a greater extent as compared to the other administrative tasks. This was manifested by the high mean obtained from the likert scale.

Furthermore, the study drew the conclusion that the availability of technical support in the offices of the principals was key encouraging factor for the principals to incorporate ICT in their administrative functions. Technicians, who specialize in ICT infrastructure maintenance and repair, intensify the confidence of the principals in utilizing ICT in administrative tasks since an immediate solution is available to them in the event of a breakdown. Nonetheless, the availability of technical support does not step-up the confidence of the

principals in the utilization of ICT in specific administrative tasks in a similar manner, but rather the confidence in the student personnel and management of finances tasks is more pronounced. This may have the net effect of improving the performance of students over and above ensuring efficient management of financial resources in the school.

5.5 Recommendations

The recommendations of the study include;

- i. The study recommends that principals attend ICT training. Ministry of Education needs to plan and encourage all teachers to train in ICT. This will enable them to be competent in use of ICT especially when doing management jobs. Colleges and universities that train teachers need to incorporate computer learning in their curriculum rather than assuming that students have computer knowledge.
- ii. The study recommends principals to be engaged in ICT seminars and workshops so that they can develop positive attitude towards the utilization of computers in the management of secondary schools. This is because positive attitudes towards implementation of ICT are overly significant in overcoming the challenges encountered in implementing ICT in secondary schools. A culture should be cultivated in school of accepting change and innovation.

- iii. The study recommends principals to employ ICT technician. ICT technician should be given responsibility to advice and offer guidance, information and actual resources on ICT. ICT technician should also be responsible of helping principals to use ICT as a tool of effective administration and management of secondary schools.
- iv. The study recommends principals to install ICT infrastructure. This will help in adoption of ICT in the management and administration of schools. Local internet connection should be made available in schools. This will fasten communication.

5.5 Suggestions on areas for further research

Based on the limitations that the researcher encountered in the course of carrying out his study, the following are the areas that she felt need further research and they include,

- i. A comparative study ought to be conducted in other sub-counties in the Kajiado County using similar research tools so as find out if there are any differences between the sub-counties.
- ii. Given that the current study was carried in public secondary schools, a similar study should be carried out in private secondary schools, or even both, in Isinya Sub-County so as to determine if there are any disparities in the findings.
- iii. Also, a study should be carried out on the factors influencing integration of ICT in learning and teaching the public secondary

schools in Isinya Sub-County since the current study concentrated on principal factors as well as administrative task.

REFERENCES

- Afshari, M., Bakar, K., Luan, W., Samah, B., & Foo, F. (2010). Computer use by secondary school principals. *The Turkish Online Journal of Educational Technology*, Vol. 9(3), pp. 8-25
- Afshari, M., Bakar, K., Luan, W & Siraj, S. (2012). Factors affecting the transformational leadership role of principals in implementing ICT in schools. *The Turkish Online Journal of Educational Technology*, vol. 11(4), pp. 164-176.
- Albirini, A. (2006). Teachers' attitudes toward information and communication technologies. *Journal of Computer & Education*, 47, 373-398.
- Baker, C. (1992). *Attitudes and language*. Clevedon: Multilingual Matters.
- Carden, F. (2009). *Knowledge to policy: Making the most of development research*. Los Angeles: Sage.
- Cargan, L. (2007). *Doing social research*. Lanham: Rowman & Littlefield.
- Cooper, D. R., & Schindler, P. S. (2003). *Business research methods (8th edition)*. USA: McGraw-Hill.
- Cox, B. K (2010). *Public research institutes in Europe: Changing environments and strategic responses*. London: Ivy press.
- Davis J., Foxall G. & Pallister J. (2002). Beyond the intention-behavior

mythology: An integrated model of recycling. *Marketing Theory*, Vol. 2 (1), pp. 29-113.

Felton, F.S. (2006). *The use of computers by elementary school principals*.

Virginia: Unpublished Doctoral Dissertation, Virginia Polytechnic Institute and State University.

Gall, J. P., Gall, M. D., & Borg, W. R. (2005). *Applying educational research: A practical guide*. Boston ; Toronto: Pearson/Allyn & Bacon.

Gay, L. R. (1992). *Educational research competence for analysis and application*. New York: Macmillan Publishers Company.

Global e-Schools and Communities Initiative Kenya. (2009). *ICT in education situational analysis*. Nairobi, Kenya: Government Printer.

Goktas, Y., Yildirim, S., & Yildirim, Z. (2009). Main barriers and possible enablers of ICT integration into pre-service teacher education programs. *Educational Technology & Society*, 12 (1), 193–204.

Government of Kenya (2006). *National information and communication technology (ICT) strategy for education and training*. Nairobi, Kenya: Government Printer.

Han, C. (2002). Leadership roles of a pre-school principal in the use of ICT. *Contemporary Issues in Early Childhood*, Vol. 3 (2), pp. 293-297.

Hennessey, S. (2010). Teacher factors influencing classroom use of ICT in sub-Saharan Africa. *Itupale Online Journal of African Studies*, Vol. 2 (1), pp. 39- 54

- Kamel, S. (2010). *E-strategies for technological diffusion and adoption: National ICT approaches for socioeconomic development*. Hershey, PA: Information Science Reference.
- Katz, I. R. and Macklin, A. S. (2007). Information and Communication Technology (ICT) Literacy: Integration and Assessment in Higher Education. *Systemics, Cybernetics and Informatics*, Vol. 5(4), pp.50-55.
- Kawade, D.R. (2012). Use of ICT in primary school. *Pioneer Journal*. Retrieved on 27 May 2015 from: <http://pioneerjournal.in/conferences/tech-knowledge/14th-national-conference/3798-use-of-ict-in-primary-school.html>
- Kelles, V. A. (2005). The Role of ICT in Governing Rural Development. Paper presented at the *International Fund for Agricultural Development (IFAD) workshop on Innovation Challenges for Rural Development* held in Rome, on November 17. Retrieved April 2015, from (<http://www.ifad.org/innovation/presentations/ict.pdf>)
- Kombo, D. K. & Tromp. (2006). *Proposal and thesis writing*. Nairobi: Pauline Publications Africa.
- Kozma, R. (2005). National policies that connect ICT-based education reform to economic and social development. *An Interdisciplinary on Humans in ICT Environments*, Vol. 1(2): 117-156.
- Kumar, R. (2010). *Research methodology: A step-by-step guide for beginners*.

Thousand Oaks, CA: SAGE Publications.

Lau, B., & Sim, C. (2008). Exploring the extent of ICT adoption among secondary school teachers in Malaysia. *International Journal of Computing and ICT Research*, Vol. 2 (2), pp. 19-36.

Lee, I., Choi, B., Kim, J. & Hong, S-J. (2007). Culture-technology fit: Effects of cultural characteristics on the post-adoption beliefs of mobile Internet users. *International Journal of Electronic Commerce*, Vol. 4(11), pp. 11-51.

Makhanu, E. (2010). *Principals' literacy in ICT: towards improving secondary school performance in Kenya*. Pretoria: Unpublished PhD thesis, University of South Africa.

Mbatia, M. (2014). *Factors influencing school principals' integration of ICT in administration of public secondary schools in Githunguri sub county, Kiambu county, Kenya*. Nairobi, Unpublished Masters project, University of Nairobi.

Ministry of Education (MoE, 2007). *The MOE 2006-2011 strategic plan*. Nairobi, Government Printers.

Mingaine, L. (2013). Skill challenges in adoption and use of ICT in public secondary schools, Kenya. *International Journal of Humanities and Social Science*, Vol. 3(13), pp. 61-72.

Mugenda, O. M., & Mugenda, A.G. (2009). *Research methods & quantitative*

and qualitative approaches. Nairobi: Acts Press.

Mugo, M. P. (2014). *Factors that impact on use of education management information systems: a case study of Thika west district Kiambu county Kenya.* Nairobi: Unpublished Masters project, Kenyatta University.

Mwalongo, A. (2011). Teachers' perception about ICT for teaching, professional development, administration and personal use. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, Vol. 3(1), pp.36-49.

Mwencha, B.K. (2012). *Use of information and communication technology in secondary schools in Kenya: a case of Isinya district, Kajiado county, Kenya.* Nairobi: Unpublished Masters project, University of Nairobi.

Norris, C., Sullivan, T., Poirot, J., & Sloway, E. (2003). No access, no use, no impact: Ohio University diffusion of ICT in education snapshot surveys of educational technology in K-12. *Journal of Research on Technology in Education.* Vol. 36(1), pp. 15-28.

Office of Government Commerce. (2002). *ICT infrastructure management.* London: The Stationery Office.

Olayemi, a & Omotayo, k. (2012). ICT adoption and effective secondary school administration in Ekiti-state, Nigeria. *European Journal of Educational Studies Vol. 4(1)*, pp. 60-64.

- Ray, S. & Davis, R. (1991). *Teaching and learning in the global era*. In R. King et al. *The University in the global age*. (pp. 164-180). New York: Palgrave Macmillan.
- Republic of Kenya. (2006). *National Information & Communications Technology (ICT) Policy*. Nairobi: Government Printer.
- Riddell, C. & Song, X. (2012). *The role of education in technology use and adoption: evidence from the Canadian workplace and employee survey*. IZA Discussion Paper No. 6377.
- Robbins, S. P., & Judge, T. A. (2010). *Essentials of organizational behavior*. Upper Saddle River, NJ: Pearson Education.
- Schiler, J. (2003). Working with ICT: Perceptions of Australian principals. *Journal of Educational Administration*, vol. 41 (3), pp. 171-185.
- Singh, T & Muniandi, K. (2012). Factors affecting school administrators' choices in adopting ICT tools in schools – The case of Malaysian schools. *International Education Studies*, Vol. 5 (4), pp. 21-30.
- Volman, M., & Eck, E. (2001). Gender equity and information technology in education: the second decade. *Review of Educational Research*, Vol. 71 (4), pp. 613–634.
- Waema, T.M. (2005). *ICT policy making in East Africa: a brief history of the development of ICT policy in Kenya*. Nairobi: East African Publishers.

Wanga, A.A. (2014). *Factors influencing information communication technology integration in curriculum implementation in secondary schools: A case of Gilgil sub-county, Nakuru county – Kenya*. Nairobi: Unpublished Masters project, University of Nairobi.

Waweru, B.K & Kihara, C. M. (2013). Challenges in the adoption and utilization of ICT in public secondary schools in Molo sub-county, Kenya. *Journal of Network & Communication Technologies (JNCT)*, vol. 1(7), pp. 234-239.

APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

Margaret N. Ogachi
University of Nairobi
P.O. Box 30197
NAIROBI, KENYA
Date _____

The Principal,
_____ Secondary School

P.O. Box _____

KAJIADO, KENYA

Dear Sir/Madam,

RE: PERMISSION TO CONDUCT RESEARCH

I am a postgraduate student at the University of Nairobi pursuing a Master of Education (M.Ed) degree in Educational Administration. I am carrying out a study on the **factors influencing principals' integration of ICT in administration of public secondary schools in Isinya Sub County, Kenya.**

Please allow me to carry the study in your school. Information provided is for this study only. Respondents will be treated with utmost confidence.

Yours faithfully,

Margaret Nyanchoka Ogachi

APPENDIX II: QUESTIONNAIRE FOR PRINCIPALS

Instructions

This questionnaire was designed to gather information on factors influencing principals' integration of ICT in administration of public secondary schools in Isinya Sub County. Kindly, do not indicate your name or the name of the school on the questionnaire. Respond to the questions by either using a tick (✓) as appropriate or by filling in the blank spaces.

Section A: Personal Details

1. What is your gender? Male () Female ()
2. What is your age range? 31-40 years () 41-50 years () Over 60 years ()
3. What is your highest academic qualification? Master in education ()
Bachelor of education () Post-graduate diploma in education ()
Any other (please specify) _____
4. How long have you been in the teaching profession? 5-10 years ()
11-15 years () 16-20 years () Over 21 years ()
5. What is the school type? Boys () Girls () Mixed ()
6. How long have you been in the current station? 1-5years ()
6-10years () Over 15years ()

Section B: ICT Literacy Level amongst School Administrators

7. Have you ever participated in any ICT training program? Yes () No ()

8. The list below consists of the basic computer programs relevant to administration functions of a secondary school. Please tick (√) your competence in each of the computer programs.

Program	Excellent	Good	Fair	Poor	Very poor
Microsoft Word					
Microsoft Excel					
Microsoft Access					
Microsoft PowerPoint					
Email & Internet					
Microsoft Outlook					
Photoshop					
Quick Books					
Microsoft Publisher					

9. What are the major setbacks that you encounter when using ICT in the administration of school? _____
- _____

10. What techniques do you employ in order to motivate the use of computers in administration of the school? _____
- _____

11. The following are statements concerning the ICT literacy level of principals.

Through the use of a tick (✓), indicate the extent to which each statement

influences your integration of ICT in administrative tasks as pertaining to your school.

Key: SA- Strongly Agree, A- Agree, U- undecided D- Disagree, SD- strongly disagree

Statement	SA	A	U	D	SD
Participation in ICT training					
Competence in computer programs					

Section C: Principal’s Attitude towards the use of ICT

12. The table below lists the main administrative tasks across the school.

Through the use of a tick (√), kindly indicate your attitude towards the utilization of computers in the following tasks.

Administrative task	Positive	Negative	Not sure
Curriculum and instruction			
Student personnel			
Staff personnel			
School facilities			
School community relations			
Management of finances			

13. Generally, does your attitude towards the use of ICT influence your decision to utilize ICT in administrative tasks?

Yes () No ()

Section D: Availability of Technical Support

14. Who is tasked with the role of maintaining and repairing computer facilities in your office? Computer instructors () Employed technician ()

Others (please specify) _____

15. What is the source of advice in regard to the appropriate computer facilities to be purchased in your office? Employed technician ()

Computer instructor () Board member(s) () Myself ()

Others (please specify) _____

16. Have you signed any contract with a technology firm to service the school computers? Yes () No ()

17. The following are statements concerning the availability of technical support to principals. Through the use of a tick (√), indicate the extent to which each statement influences your integration of ICT in administrative tasks as pertaining to your school.

Key: SA- Strongly Agree, A- Agree, U- undecided D- Disagree, SD- strongly Disagre

Statement	SA	A	U	D	SD
Technicians maintaining and repairing computers					
Principal advising on the purchase of computers in his/her office					
Contracting a technology firm to service the principal's computers					

Section E: Availability of ICT Infrastructure

18. Do you have an operating computer in your office? Yes () No ()

19. If yes, do you have a reliable internet connection? Yes () No ()

20. Do you undertake administration tasks using computers? Yes () No ()

21. Is there uninterrupted power supply in your school? Yes () No ()

22. The following are statements concerning the availability of ICT infrastructure to principals. Through the use of a tick (✓), indicate the extent to which each statement influences your integration of ICT in administrative tasks as pertaining to your school.

Key: SA- Strongly Agree, A- Agree, U- undecided D- Disagree, SD- strongly Disagree

Statement	SA	A	U	D	SD
Availability of computers in the principal's office					
Reliable internet connection					
Availability of uninterrupted power supply					

Thank you for your cooperation

APPENDIX III: QUESTIONNAIRE FOR DEPUTY PRINCIPALS

Instructions

This questionnaire was designed to gather information on factors influencing principals' integration of ICT in administration of public secondary schools in Isinya Sub County. Kindly, do not indicate your name or the name of the school on the questionnaire. Respond to the questions by either using a tick (✓) as appropriate or by filling in the blank spaces.

Section A: Personal Details

1. What is your gender? Male () Female ()
2. What is your age range? 31-40 years () 41-50 years () Over 60 years ()
3. What is your highest academic qualification? Master in education ()
Bachelor of education () Post-graduate diploma in education ()
Any other (please specify) _____
4. How long have you been in the teaching profession? 5-10 years ()
11-15 years () 16-20 years () Over 21 years ()
5. What is the school type? Boys () Girls () Mixed ()
6. How long have you been in the current station? 1-5 years ()
6-10 years () Over 15 years ()

Section B: ICT Literacy Level amongst School Administrators

7. Has your principal ever participated in any ICT training program?

Yes () No ()

8. The list below consists of the basic computer programs relevant to administration functions of a secondary school. Please tick (√) your principals competence in each of the computer programs.

Program	Excellent	Good	Fair	Poor	Very poor
Microsoft Word					
Microsoft Excel					
Microsoft Access					
Microsoft PowerPoint					
Email & Internet					
Microsoft Outlook					
Photoshop					
Quick Books					
Microsoft Publisher					

9. What are the major setbacks that your principal encounters when using ICT in the administration functions? _____

10. What techniques do the principal employ in order to motivate school administrators to utilize computers in the school? _____

Section C: Principal's attitude towards the use of ICT

11. The table below lists the main administrative tasks across the school.

Through the use of a tick (✓), kindly indicate your principal's attitude towards the utilization of computers in the following tasks.

Administrative task	Positive	Negative	Not sure
Curriculum and instruction			
Student personnel			
Staff personnel			
School facilities			
School community relations			
Management of finances			

12. Generally, does a positive or negative attitude of the principal towards the use of ICT influence his or her decision to utilize ICT in administrative tasks?

Yes ()

No ()

Section D: Availability of technical Support

13. Who is tasked with the role of maintaining and repairing computer facilities in the principal's office? Computer instructors ()

Employed technician ()

Others (please specify) _____

14. What is the source of advice in regard to the appropriate computer facilities to be purchased in the principal's office? Employed technician ()

()

Computer instructor () Board member(s) () Principal ()

Others (please specify) _____

15. Has the principal signed any contract with a technology firm to service the school computers? Yes () No ()

16. If yes, does this influence his or her decision to utilize computers in administration undertakings in the school? Yes () No ()

Section F: Availability of ICT infrastructure

17. Does the principal have an operating computer in his/her office?

Yes () No ()

18. If yes, is there reliable internet connection? Yes () No ()

19. Does the principal use computers in administration tasks? Yes () No ()

Thank you for your cooperation.

APPENDIX III: QUESTIONNAIRE FOR SENIOR TEACHERS

Instructions

This questionnaire was designed to gather information on factors influencing principals' integration of ICT in administration of public secondary schools in Isinya Sub County. Kindly, do not indicate your name or the name of the school on the questionnaire. Respond to the questions by either using a tick (✓) as appropriate or by filling in the blank spaces.

Section A: Personal Details

1. What is your gender? Male () Female ()
2. What is your age range? 31-40 years () 41-50 years ()
Over 60 years ()
3. What is your highest academic qualification? Master in education ()
Bachelor of education () Post-graduate diploma in education ()
Any other (please specify) _____
4. How long have you been in the teaching profession? 5-10 years ()
11-15 years () 16-20 years () Over 21 years ()
5. What is the school type? Boys () Girls () Mixed ()
Boarding () Day () Boarding & Day ()
6. How long have you been in the current station? 1-5 years ()
6-10 years () Over 15 years ()

Section B: ICT Literacy Level amongst School Administrators

7. Has your principal ever participated in any ICT training program?

Yes () No ()

8. The list below consists of the basic computer programs relevant to administration functions of a secondary school. Please tick (√) your principal’s competence in each of the computer programs.

Program	Excellent	Good	Fair	Poor	Very poor
Microsoft Word					
Microsoft Excel					
Microsoft Access					
Microsoft PowerPoint					
Email & Internet					
Microsoft Outlook					
Photoshop					
Quick Books					
Microsoft Publisher					

9. What are the major setbacks that your principal encounters when using ICT in the administration functions? _____

10. What techniques do the principal employ in order to motivate school administrators to utilize computers in the school? _____

Section C: Principal's attitude towards the use of ICT

11. The table below lists the main administrative tasks across the school.

Through the use of a tick (√), kindly indicate your principal's attitude towards the utilization of computers in the following tasks.

Administrative task	Positive	Negative	Not sure
Curriculum and instruction			
Student personnel			
Staff personnel			
School facilities			
School community relations			
Management of finances			

12. Generally, does a positive or negative attitude of the principal towards the use of ICT influence his or her decision to utilize ICT in administrative tasks? Yes () No ()

Section D: Availability of technical Support

13. Who is tasked with the role of maintaining and repairing computer facilities in the principal's office? Computer instructors ()

Employed technician ()

Others (please specify) _____

14. What is the source of advice in regard to the appropriate computer facilities to be purchased in the principal's office? Employed technician ()

Computer instructor () Board member(s) () Principal ()

Others (please specify) _____

15. Has the principal signed any contract with a technology firm to service the school computers? Yes () No ()

16. If yes, does this influence his or her decision to utilize computers in administration undertakings in the school? Yes () No ()

Section F: Availability of ICT infrastructure

17. Does the principal have an operating computer in his/her office?

Yes () No ()

18. If yes, is there reliable internet connection? Yes () No ()

19. Does the principal use computers in administration tasks? Yes () No ()

Thank you for your cooperation.

APPENDIX IV: RESEARCH PERMIT

THIS IS TO CERTIFY THAT: Permit No. : NACOSTI/P/15/7911/6295
MS. MARGARET NYANCHOKA OGACHI Date Of Issue : 23rd June,2015
of UNIVERSITY OF NAIROBI, 3143-40200 Fee Received :Ksh 1,000
Kisii,has been permitted to conduct
research in Kajiado County

on the topic: FACTORS INFLUENCING
PRINCIPALS' INTEGRATION OF
INFORMATION COMMUNICATION
TECHNOLOGY IN ADMINISTRATION OF
PUBLIC SECONDARY SCHOOLS IN ISINYA
SUB-COUNTY, KENYA

for the period ending:
6th November,2015





Applicant's
Signature




Director General
National Commission for Science,
Technology & Innovation

CONDITIONS

- 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 Officers 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

RESEARCH CLEARANCE
PERMIT

Serial No. A 5498

CONDITIONS: see back page

APPENDIX V: LETTER OF AUTHORIZATION



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

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

Ref. No.

Date:
23rd June, 2015

NACOSTI/P/15/7911/6295

Margaret Nyanchoka Ogachi
University of Nairobi
P.O Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Factors influencing principals' integration of Information Communication Technology in administration of public secondary schools in Isinya Sub-County, Kenya,*" I am pleased to inform you that you have been authorized to undertake research in **Kajiado County** for a period ending **6th November, 2015.**

You are advised to report to **the County Commissioner and the County Director of Education, Kajiado 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.


SAID HUSSEIN
FOR: DIRECTOR-GENERAL/CEO

Copy to

The County Commissioner
Kajiado County.

The County Director of Education
Kajiado County.

