

**INSTITUTIONAL FACTORS INFLUENCING INTEGRATION OF
INFORMATION COMMUNICATION TECHNOLOGY IN ADMINISTRATION
OF SECONDARY SCHOOLS IN MBITA SUB-COUNTY, HOMABAY COUNTY,
KENYA**

James Odero Omogi

**A Research Project Submitted in Partial Fulfillment of the Requirements for the
Award of Degree of Masters of Education in Educational Administration, University
of Nairobi**

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DECLARATION

DECLARATION

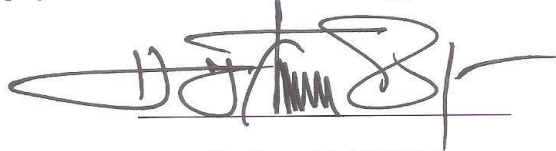
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James Odero Omogi

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This research project has been submitted with our approval as the university supervisors



Dr. Jeremiah M. Kalai

Senior Lecturer and Chair

Department of Educational Administration and Planning

University of Nairobi



Dr. Ursulla Okoth

Senior Lecturer

Department of Educational Administration and Planning

University of Nairobi

DEDICATION

This study is dedicated to my loving sons Chrispine, Lincoln and Alvine and my daughters Lavender and Milka who are my strength and reason for living. Special dedication to my loving wife Mary Akinyi who gave me all her support and blessings during the difficult moment of reading. God bless you in all your endeavors.

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ABBREVIATIONS AND ACRONYMS

BOM	Boards of Management
CDE	County Director of Education
CPD	Continuous Professional Development
DOI	Diffusion of Innovation
ESP	Economic Stimuli Programme
GOK	Government of Kenya
HOD	Head of Department
ICT	Information Communication Technology
KESI	Kenya Education Staff Institute
KESSP	Kenya Education Sector Support Programme
MSP	Multi-shareholders Partnership
MOEST	Ministry of Education Science and Technology
NCET	National Council for Education Technology
NACOSTI	National Commission for Science and Technology Innovation
ROK	Republic of Kenya

TIVET: Tertiary Institution and Vocational Education and Training

UNDP: United Nations Development Programme

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ABSTRACT

The aim of this study was to investigate the institutional factors influencing the integration of information and communication technology in the administration of public secondary schools in Mbita Sub-county in Homa Bay County. It was guided by four objectives which were; to establish the influence of the availability of ICT infrastructure, ICT plan, Boards of Management, and the technical support, on the integration of ICT in the administration of public secondary schools. The study adopted descriptive survey design. The target population was comprised of 32 principals, 32 deputy principals and 160 heads of department in all the 32 public secondary schools in Mbita sub-county. The study sample comprised of 16 schools, 16 principals, 16 deputy principals, and 80 heads of department, randomly selected. Questionnaires and interview schedules were the main data collection tools. Qualitative data from the instruments was processed by first categorizing responses by coding and labelling each item according to themes. This also included the narratives and the direct quotes from the informants. Quantitative data was analysed by use of computer software SPSS (Statistical Package for Social Sciences-version 20). Data from field questionnaires were sorted out, coded and entered into the computer for analysis to give descriptive statistics namely frequency distributions and percentages. Tables and figures were used to present a summary of the analyzed data. Through data analysis, the study established that ICT facilities such as internet overhead projectors, telephones, radios, computers, and digital cameras were either missing or available but inadequate in schools. This was as attested by 83.3 percent of deputy principals and 60.9 percent of head of departments. The study also established that there existed no independent ICT plan for acquisition, use and maintenance of ICT equipment in schools. From the study findings, 48.2 percent of HOD's, 50.0 percent of deputy principals and 11.1 percent of principals said that the school Boards of Management played a role in the mobilization of funds for acquisition of ICT resources, employment of a technician in ICT and professional development of staff. The study further established that ICT technicians were very important for successful integration of ICT in the management of schools because they provide of maintenance services (83.8%), creation of internet connectivity (21.9%), assisting other ICT users (22.2%), designing of ICT programs (11.1%), and training of ICT staff and donation of some ICT equipment (6.3%). Based on these findings, the study recommended that, for successful integration of ICT's in the management of schools, the Boards of Management of schools should give priority to the acquisition of ICT equipment and infrastructure, a comprehensive plan for the acquisition of adequate and quality ICT resources be developed by school management, employment of well trained personnel to take care of the available ICT resources. The study recommended further research on the influence of the age of the school principal on the integration of ICT in successful integration of ICT in the management of schools.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

In the past decades, there has been a steady and remarkable growth in the use of information communication and technology (ICT) in learning institutions (Mutuma, 2005). The growth of the global economy and the information based society has pressured education systems around the world to use technology in the management of schools.

Globally, researchers are in harmony that school environments are overly conservative in the way they operate (Poirot & Slowav, 2003; Albirini, 2006). It follows that an introduction of new ways of doing things presents a great challenge. The empirical findings indicate that Boards of management serve a key role in influencing the manner in which things are done in schools and thus their support 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, a study conducted on Iranian Boards of management, endorsed that the Boards of management support has great influence on administrators decision to integrate ICT in their transformational leadership role of administration in the schools. The support given by the Boards include; mobilization of funds for ICT acquisition, donation of ICT technology and contribution of funds for staff resource development including hiring and training.

Information Communication and Technology infrastructure also plays a great role in encouraging secondary schools to take on ICT in administration roles. Global e-Schools and Communities Initiative Kenya (2009) defines ICT infrastructure as the computers, communication hardware such as; mobile phones, software, databases, digital cameras, projectors, printers and policies supporting the integration of ICT, such as electricity and local internet connection. The availability of physical ICT structures, such as computer rooms and electricity, influence the administration's decisions to integrating ICT into their executions. It is then deducted that the availability of electricity and the availing of ICT infrastructure, their adequacy, and accessibility has the capacity to boost the administration's willingness to integrate ICT into the administration tasks (Mutuma, 2005).

According to Visscher, et al (2003) and Tearle (2004), studies in the United Kingdom, the Netherlands, Malaysia and South Africa supports the facts that school educators require facilities with appropriate computer facilities and related infrastructure to optimize the application of ICT in their teaching and administration engagements. For effective schools administration and management subsystems should be assisted by computer information system.

In addition to ICT infrastructure ICT technical support provided by ICT technician is critical in building and maintaining confidence in the administration in regards to access and use of ICT hardware, software and other equipment. Sicilia (2005) points out that having adequate technical support will mean that the administration 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. Technical support is also required in

the maintenance of technology and in designing programmes such as excel, word processing, and spreadsheet. This creates an opportunity for the administrations to not only encourage the members of the school to embrace ICT in administrative roles, but also to use ICT as a tool of effective administration and management of secondary schools by the school administration itself.

Also required for effective and successful integration of ICT in administration is a carefully designed school ICT plan given that the institution is required to provide ICT resources for the staff and administrators. The plan provides a basis for the steps and methods needed to translate ICT vision into reality and also estimated budget for ICT investment in the school (Afshari, 2009). The areas of the budget use include maintenance, training, and hiring of a technician, acquisition of hardware and software materials (Bryderup & Kowalski, 2002). Although school administrators are expected to ensure provision of these required ICT facilities, they are also faced with the challenge of lack of funds to enable them implement ICT policies alongside many other pressing needs.

The developed countries (G7) that is Japan, Germany, Britain, Canada, France, Italy, and America led in Information Technologies and Integration of ICT into their education systems. This has led to unprecedented explosion of knowledge due to these technological developments hence overall socio-economic growth. The integration of ICT into virtually all aspects of the economy and society is creating a digitally-enabled economy that is responsible for generating economic growth and prosperity (Bollou, 2006).

Recently, developing countries started to realize the benefits of ICT in education and it is anticipated that governments should facilitate this initiative (Kamel, 2010). African countries for instance have only recently begun to show the micro economic stability needed for education development and therefore the need to integrate ICT in education administration is real more than ever before (Nduati & Bowman, 2005)

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). Wango (2009), points out that given the use of ICT including the internet and the entire information system extended in the education in the form of education management information system (EMIS). This system is an organized way of collecting, processing, and distributing education data for the purpose of decision making by administrators and teachers. It contains information on students, staff, financial records, policies, curricular visitors, and property maintenance.

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. According to Maki (2008), information communication and technology integration in administration help to perform the following administrative task which include; curriculum and instruction, student personnel administration, staff personnel, financial management, school community relation, and school plant management. 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 Ministry of Education (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. 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 study seeks to find out the institutional factors that influence integration of information and communication technology in administration of secondary schools in Kenya and specifically in Mbita Sub-county in Homa Bay County.

1.2 Statement of the Problem

The introduction of ICT in secondary schools is a prudent idea given the vital role it plays in promoting effectiveness and quality of administration and management of educational institutions. It has brought about new ways of acquiring and distributing information throughout the organization and managing the school database. The Ministry of Education Science and Technology (MOEST) is implementing ICT development projects to all schools in order to enhance productivity, effectiveness, and efficiency in the management system (Mutuma 2010). In its ICT strategy, the MOEST states that, while there are wide ranges of innovation in ICT to support effective and quality delivery of education services and curricular, there is considerable lag in

education institutions to integrate ICT in their administrative processes. Great deal of administrative work in secondary schools is still carried out manually despite the ICT policy of 2006 for management of secondary schools (ROK, 2006). This therefore implies that the integration of ICT for secondary schools management has not been significantly embraced (KESI, 2008). In Mbita sub-county, data available in the office indicate that only 15 percent of the 32 public secondary use computer for administrative duties. It is against this underpinum that this study seeks to investigate institutional factors influencing ICT integration in the administration of secondary school in Mbita Sub- County in Homa bay County.

1.3 Purpose of the study

The purpose of the this study is to investigate institutional factors that influence integration of information and communication technology in administration of secondary schools in Mbita Sub-county in Homa Bay County.

1.4. Objectives of the study

The specific objectives of this study were the following;

- i. To determine the extent to which the availability of ICT infrastructure influences the integration of ICT in administration of secondary schools in Mbita Sub-County.
- ii. To establish the influence of school ICT plan on the integration of ICT in administration of secondary schools in Mbita Sub-County.
- iii. To examine the influence of Boards of Management on the integration of ICT in the administration of secondary schools in Mbita Sub- County.

- iv. To determine the extent to which the level of technical support influences the integration of ICT in the administration of secondary schools in Mbita Sub-County.

1.5. Research questions

This study was guided by the following questions;

- i. What is the influence of availability of ICT infrastructure in the integration of ICT in administration of secondary school in Mbita Sub-county?
- ii. To what extent does school ICT plan influence integration of ICT in administration of secondary schools in Mbita Sub-county?
- iii. What is the influence of Boards of Management support on integration of ICT in administration of secondary schools in Mbita Sub-county?
- iv. To what extent does technical support influence integration of ICT in administration of secondary schools in Mbita Sub-county?

1.6 Significance of the study

The findings of this study assisted the ministry of education in the formulation of policies aimed at enhancing provision and funding of ICT infrastructure required for ICT integration in administration. The study was guided in the formulation of policies by the Ministry of Education to revamp and improve integration of ICT in Education Management hence promoting effectiveness and efficiency of administrative duties in Secondary Schools. The findings benefited administrators who embraced ICT integration in their administrative work. The study provided empirical information on the level of ICT facilities available to administrators in public Secondary Schools.

1.7 Limitations of the study

The study was limited by the fact that Mbita sub-county in Homabay County is a rural area and thus research findings was generalized only in rural secondary schools. For

more conclusive results, urban secondary schools were studied. The researcher used self-assessment questionnaires as the instrument of data collection which were subjected to respondent bias and therefore the results accurately reflected the opinions of all secondary school administrators. To overcome this, the researcher used more than one type of instruments and different respondents in order to triangulate thereby increasing reliability and validity of research instruments.

1.8 Delimitation of the study

The study delimited itself to public secondary school principals, deputy principals, and head of departments only. It therefore excluded teachers, students in public secondary schools and private secondary schools and therefore the findings was generalized to all secondary schools in the sub- County.

1.9 Basic assumptions

The study was conducted under the following assumptions;

The principals provided truthful and honest responses to the instrument items and were conversant with factors influencing ICT integration in administration.

That Secondary schools in the constituency were not unique and therefore the findings from the chosen schools for the study was a reflection of the situation on the ground in the entire sub-county.

1.10 Definition of significant terms

The following were definition of key terms used in this study;

Administration; refers to headteachers, deputy headteachers and head of departments who control, plan and make decisions about the many activities that take place in Secondary Schools.

Availability of ICT infrastructure; refers to the presence of ICT devices and resources for school administration.

Diffusion; refers to the process by which an innovation is communicated through channels over time among members of social system (Rodgers, 1995)

Information Communication Technology (ICT); refers to abroad term for communication devices such as mobile phones, computer hardware and software, network system used for secondary school administration.

Institutional Factors; refers to variables within an institution that influence integration of ICT in administration.

Innovation: - refers to a new object or idea being introduced

Integration; refers to the implicit blending of technology components such as computers in the administration of Secondary schools.

Technical support; refers to support given by technicians to assist ICT users in overcoming technical barriers or faults arising due to the use of technology.

1.11 Organization of the study

This study was organized into five chapters as outlined below;

The first chapter provide introduction and it consists of background of the study, statement of the problem, purpose of the study, objective of study, research questions,

and significance of the study, limitations, and delimitations of the study, basic assumptions, and definitions of significant terms. In Chapter two, presents review of literature on ICT integration in administration, availability of ICT infrastructure on ICT integration in administration, school ICT plan on ICT integration in administration, BOM support on ICT integration in administration and technical support on ICT integration in administration. Chapter three outlines research methodology. It contained the design of the study, target population, sample size and sampling procedures, research questions, instrument validity, instrument reliability, data collection procedures and data analysis techniques. Chapter four also presented data analysis interpretation and discussion of the study findings. Finally, Chapter five provides summary of the findings, conclusion, and recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature of the related studies. In particular, the chapter presents literature on integration of ICT in administration of Secondary Schools and independent variable of institutional factors for ICT integration in Secondary School administration. The variables focused on are availability of ICT infrastructure, Boards of Management Support, Technical Support and school ICT plan. The chapter also presents a summary of literature reviewed, theoretical perspectives and conceptual framework.

2.2 Concept of ICT integration

Information communication technology (ICT) integration refers to the use of technology components such as hardware, software, network, internet, computers, phones in the school administration (Van Belle & Chigona, 2006). The use of these technology components in school administration promotes effective and efficient management of information for social, economic, and cultural development (Mahapatra, 2011). It also enhances effectiveness and quality of administration and management of education in terms of personnel, students, resources and general administration (Maki, 2008).

2.3 Availability of ICT infrastructure and ICT integration in administration.

The ICT infrastructure required in the integration process in school administration are varied but majorly include hardware, software, networks and media such as computers, telephones, internet according to World Bank. Pelgrum (2001) points out that insufficient availability of these technologies is an obstacle for integration in the administration. The place of location (Becker, 2000) and lack of access to the computer rooms (Schaumberg, 2002) also adds to obstacles that inhibit successful integration in administration. Al-Ruz and Khasawneh (2011) equally observes that technology availability and related support are necessary for ICT integration. This therefore indicates that presence of high support structure and availability of technology enhances integration by both the teachers and administrators.

A research done in the UK indicated that there was 97% agreement that respondents could use computers for administrative role (Tearle, 2013). The global society is increasingly depending on computers and telecommunication to accomplish its work, provide entertainment, and make contact between people. As these infrastructures become available in schools, technology can be used to improve communication between ministries and local educators by efficiently handling and communicating data in a timely fashion (Siddiqui, 2007). School management information systems are being design and implemented to provide administration with new tools to support them in many activities like grade and attendance reporting, follow up on decision, analysis of the teacher and school achievements (Mahapatra, 2011). School administrators of today therefore have a responsibility to ensure the availability of computers and to use them

in administration of their schools. This is due to enormous information that need to be managed in a school system has grown tremendously.

According to (Maki, 2008) ICT integration in administration plays a vital role in supporting powerful and efficient management and administration in education sector. In the study in Cyprus Secondary schools, Maki observed that ICT integration is essential for personal administration, student administration, resource administration, financial administration, and general administration. This therefore confirms why the availability of these technologies is vital for use in administration.

The principals as the chief administrators and other educational administrators at various levels have varying responsibilities in each of the tasks outlined. Crawford,(2009) indicate that some of administrative and management tasks can be done effectively using general purpose software such as graphics, word processing, desktop publishing, database and spreadsheet software.

Introduction of ICT integration in education administration in Africa began recently indicating micro-economic stability needed for education development (Nduati & Bowman, 2005). The effort therefore provided facilities and possibilities for the education administrators to perform their many tasks like keeping students record to various resource administration in an education system. Principals also required effective and fast communication and accessibility to information as noted by Willey (2003).

As from early 1990s many schools in Kenya have been slowly but steadily equipping themselves with computers although of low cost for being identified as having computers (Wabuye, 2003; Wims & Lawler, 2007). Odera (2002) observed that most

schools failed to comply with the government order of 1996 that schools introduce computer studies but did not indicate clearly on how to acquire the technology. ICT integration in secondary schools administration is considered to be part of the extensive technological modernization of education and administration as well as the electronic government (MOEST, 2005)

The national ICT policy framework, developed in 2006 by the MOEST to be implemented by education and training sectors sets out the objectives and strategies pertaining to ICT and education. The relevant section provides that the government will encourage the use ICT in all public learning institutions and administration (Kenya ICT Policy Document, 2006).

In recognition of the importance of technology in promoting productivity and efficiency across the social, economic and political pillars, the vision 2030 points at the critical role that education will play in development of ICT skills, consequently the government of Kenya in 2009 tried to make the ICT infrastructure available by disbursing funds for the purchase of facilities for e- learning and administration under the economic stimulus programme (ESP) project.

2.4 School ICT plan and ICT integration in secondary school Administration

According to Whitehead et al., (2003), on ‘changing strategies in technology’ noted that administrators have misdirected planning efforts by envisioning technological direction around where educators are and how to move forward. Instead, he suggests that we envision where we want to be and then work backward in designing the appropriate framework to get us there.

Therefore, for successful and effective integration of ICT in administration to occur there must be proper planning at the school level. This is because the school is expected to provide the necessary ICT resources for the staff and administrators to use. An ICT integration plan provides a detailed blue print of the steps and methods needed to translate the school ICT vision into reality (Afshari, 2009). A plan is guide to action of a substitution for it, the existence of a written ICT plan and strategy does not guarantee the comprehensive use of ICT in school, nor does the absence of an ICT plan necessarily equate to the lack of ICT integration in a given school (Bryderup, 2002). The school ICT plan should provide or clearly indicate sources of ICT infrastructure acquisition and estimate budget for ICT investment (Afshari, 2009). It should also provide areas of budget use on ICT integration which include hardware and software maintenance, capacity building for staff and administrators and also for hiring and employment of a technician (Bryderup & Kowalski, 2002).

School administrators have a major task in ensuring that they equip their schools with the necessary ICT facilities like the computers. However, the school administrators are faced with major challenges like implementing the ICT policies which require heavy amount of cash in relation to other pressing educational needs such as need for classrooms, furniture, and maintenance of existing physical facilities among others.

2.5 Boards of Management Support and ICT Integration in Secondary School Administration

Boards of management is a body created at the helm of the school organization and charged with the duty of general school management such as hire and dismisses any staff in the school, implementation of educational innovations in the school, resource

management among others. In Singapore, school advisory/management committee is major vocal in school decision making. These advisors are mandated to give direction on the type of decision to be made and how they influence the future of ICT integration in school education (Lewis, Charley, 2010). The management also helps in advisory and voluntary capacity to support ICT school programme and help the school raise funds for developmental, infrastructural and ICT related activities to benefit the staff, students and administration.

In Kenya the management of education at secondary Middle level colleges and TIVET institutions are managed by Boards of Governors and university by councils (MOE, 2011). These bodies are responsible for the management of both human and other resources so as to facilitate smooth operations, infrastructure development, and provision for teaching and learning material (Sessional Paper No.1, 2005:63). In helping schools to implement ICT integration, a careful construction of a sustainable infrastructure plan that could assist to turn the situation round should be done by the management of school, since it is the custodian of school infrastructure, including ICT infrastructure. The management is concerned with providing adequate and relevant school infrastructure (Ajayi L, 2009). The BOG should be in the forefront in championing implementation of ICT by involving all stakeholders in provision of ICT infrastructure in their schools. It is also their responsibility to inform parents about the expenses and importance of implementing ICT in schools administration in order to encourage them to support the programme.

2.6 Technical support and ICT integration in school administration

The technical support given by technical assistant is required to overcome the barriers that prevent institutions from using ICT (Lewis, 2003). A study by Sicilia (2005) indicates that these major technical barriers as waiting for website to open, failing to connect to the internet, printers not printing, malfunctioning computers and administrators and teachers required to work on old computers. The barriers impeded the smooth integration of ICT and delivery of lessons (Sicila, 2005). The Becta (2004) report indicates that lack of technical support in school may cause lack of technical maintenance to be carried out regularly resulting to a higher risk of technical breakdown. According to Gomes (2005), ICT integration in administration needs a technician and if one is not available then lack of technical support can be an obstacle. Therefore, technical support offered by ICT technician or computer expert is critical in building and maintaining confidence in the administration in regard to the access and use of ICT hardware, software and other equipment. The presence of adequate technical support, will ensure that major technical barriers which slows down the smooth integration of ICT are solved appropriately. Technical support in ICT integration is required in the maintenance of ICT technology, in the designing of programmes in computers such as excel, spreadsheet, database word processing. In the use of ICT devices, Gomes indicates that a technician is required to guide the users on the steps and methods to be followed.

According to World Bank (2009), Singapore has involved the local Business Industries/Sector in achieving the implementation of its ICT policy. The sector collaborates with the schools to formulate effective programmes for the young such as

offering ICT work related projects and donating either direct funds or ICT enables into schools, support placement opportunities for the professional developments of administration and offers scholarship and bursaries to students, teachers and administrators who are ready and willing to advance in ICT World (ITU, 2010).

2.7 Summary of Literature Review

Reviewed literature indicate that availability of ICT infrastructure promotes integration which provides effective communication between members and local educators by efficiently handling and communicating data in a timely fashion, (Siddiqui, 2007). It also supports powerful and efficient management and administration (Maki, 2008). On the other hand, Pelgrum (2001) points out that insufficient availability of ICT infrastructure and also location of this devices (Becker, 2000) inhibits successful integration in administration.

2.8 Theoretical Framework

The theory of diffusion of innovation (DOI) provides a theoretical basis for this study. It was developed by Rodgers (1995). Rodgers described diffusion of innovation as the process by which an invention is communicated through certain channels over time among members of social system. He further argues that technology diffusion is an indispensable process through which technological potential of innovative activities can actually be turned into productivity. Adoption means that a person does something differently from the way it has been done previously. For adoption to occur successfully the person must perceive the idea, behavior, or innovations, in this case the adoption of ICT. Adoption of ICT in School administration does not take place simultaneously but

it is a process where some people will be quick to adopt the innovation than others simply because of different characteristics in people.

The rate of adoption of innovation is explained by the following five perceived characteristics of innovation as suggested by Rodgers; relative advantage, compatibility, complexity, triability and observability. These five characteristics by Rodgers influence adoption of innovation. Complexity is the extent to which an innovation can be considered relatively difficult to understand and use (Cheung et al 2000). It negatively influences the adoption of internet usage. Lin (2011) suggest that there is strong impact of perceived ease of use of new technology on its adoption since ICT provide very user friendly interfaces hence people form positive attitude towards them.

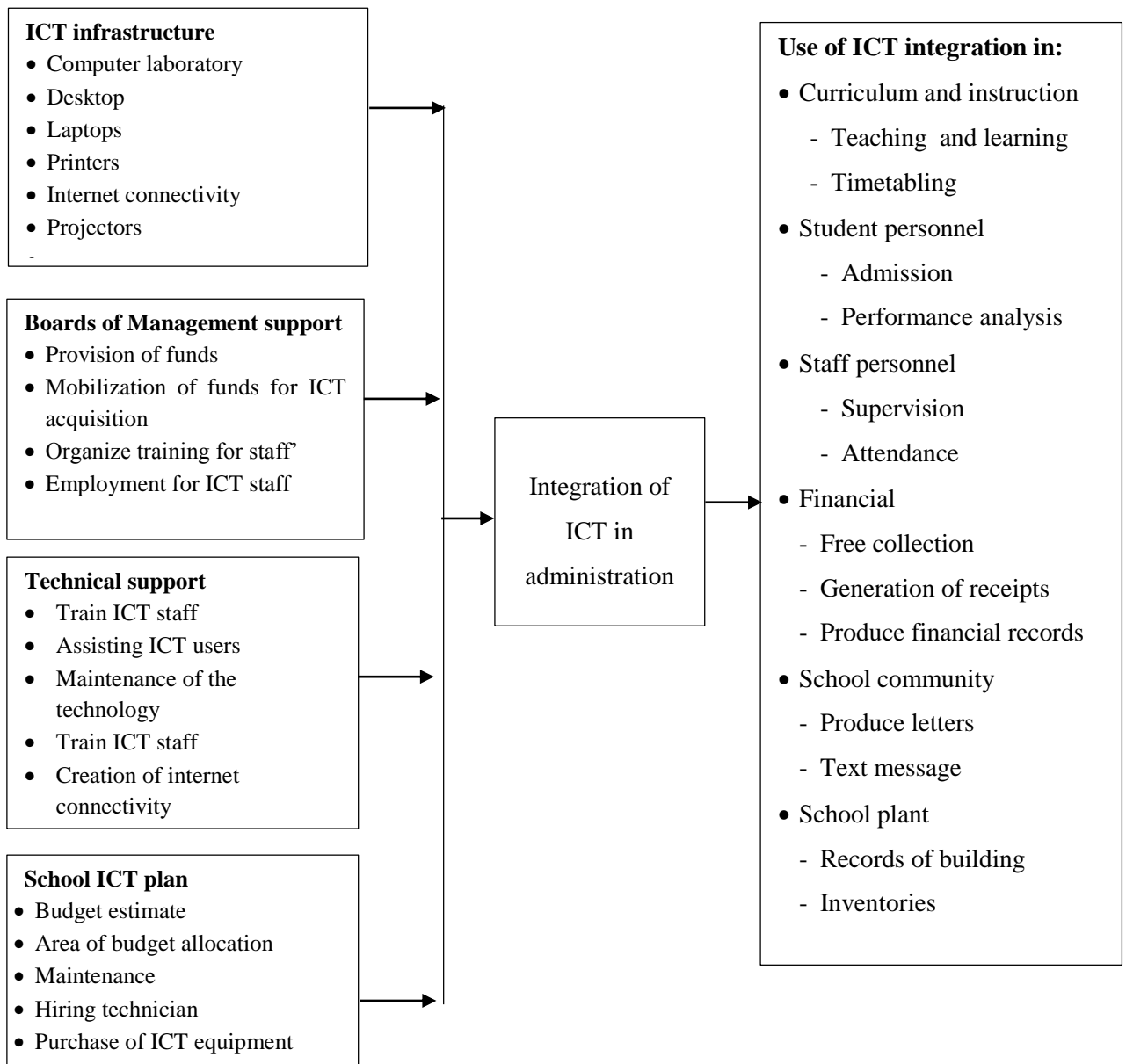
Observability of an innovation describes the extent to which an innovation is visible to the members of social system and that benefit can easily be observed and communicated (Rodgers, 2003).

This study is about the integration of ICT in administration which requires availability of ICT infrastructure, support of alumnae, BOM, and technical support for successful integration of ICT process to occur in secondary school administration. Therefore the school administrator should ensure that the concerned stakeholders are mobilized to provide these ICT infrastructures, their accessibility and those that are easy to use for administrative work. He or she must understand the different characteristics of people who are required to adopt technology (Rodgers, 1995).

2.9 Conceptual Framework

A conceptual framework is a model that helps to understand the study. The model of the study is shown in Figure 2.1.

Figure 2.1: Conceptual frame work



The integration of information communication technology in administration of secondary school is dependent on the institutional factors such as ICT infrastructure availability, Boards of Management support, technical support from ICT technician and also school ICT plan. There is a direct relationship between the school factors and the integration of ICT into administration which finally leads to success.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section presents the methodology used in data collection and analysis. It covers the following sections; research design, target population, sample size and sampling techniques, data collection instrument.

3.2 Research design.

The study adopted descriptive survey research design. This design was considered appropriate for collecting data necessary to determine institutional factors influencing ICT integration in administration of secondary schools. It was useful in identifying the standards of against which the existing conditions were compared. The survey method was chosen because the findings of this study were generalized over a large population. It was also appropriate since the method was capable of collecting background information and also the research had little opportunity to motivate or influence respondents' responses (Schreiber and Asner-self, 2011). The design also provided many relevant facts which were not only important but also necessary. The method was appropriate for the study because it sought to gain insight into a phenomenon as means of providing basic information in this area of study (Bless and Higson-Smith, 2006). The Merits of the method are its ability to study, describe, explore, and analyze relationships among the schools included in this study.

3.3 Target population

Population is a complete set of individuals, cases, or subjects with some common observable characteristics (Mugenda & Mugenda, 1999). A target population is the population to which a researcher focuses to draw generalizations of the result of the study. The target population for this study comprised all principals, deputy principals, and heads of department in the 32 public secondary schools in Mbita sub-county. The sub-county had 32 principals, 32 deputy principals and 160 Heads of Departments (MOEST, 2016).

3.4 Sample size and sampling procedures

A sample design is a definite plan for obtaining a sample from a given population (Polit, 2005). A sample frame was drawn from the target population. A sample frame is a list of cases or Individuals from which a sample was selected to form the units of observations in a study (Orodho, 2009). For the study the researcher randomly selected 50 percent of the public secondary school in the sub- County. This was in agreement with Mugenda and Mugenda (2003) who says that the rule of the thumb can be used to obtain a reasonable sample for a study. Of this percentage it therefore translate to 16 schools. The actual schools were picked using simple random sampling which allowed each member of the population an equal and independent chance of being selected. The sample size therefore comprised of 16 schools, 16 principals, 16 deputy principals, and 80 heads of department (Languages, Sciences, Mathematics, Technical, and Humanities).

Table 3.1: Target population and sample size

Respondents	Population	Size
Principals	32	16
Deputy Principals	32	16
Head of Departments	160	80
Total	224	112

3.5 Research instruments

The data collection instruments used in this study were designed and developed by the researcher. Data was collected using two instruments namely questionnaires and Interview schedules. These were briefly discussed below:

3.5.1 Interview schedule for principals

Interview schedule or guide refers to administering of oral questions to respondents. It allows face to face interaction with the respondents. According to (Kombo and Tromp, 2006) interview guide provide in Depth information about cases of interest to the researcher. The essence of qualitative interview was to capture the perspective of the respondents through verbal interaction between the interviewer and the interviewee (Mugenda & Mugenda, 2003; Saunders et al, 2007). Structured and semi- structured interview questions were used. The reason for the use of interviews was that they allowed great deal of information gathered in a short period of time. Interviews helped to sought for clarification through probing. They were easy to administer since the questions were prepared in advance. It was administered by principals.

3.5.2 Questionnaires

This is a collection of items to which a respondent is expected to respond in writing. Questionnaires are preferred for this study because they generate quantifiable data ready for statistical analysis (Mugenda, 2008). Questionnaires also allow each one of the respondents to read and answer identical questions, thereby ensuring consistency of the demands (Saunders et al, 2007). Choice on questionnaires were based on the fact that; it was a quick method to collect data, it was less time consuming, it was able to cover the entire sample within the proposed time frame and it offered greater assurance of anonymity. It was administered on deputy principals and heads of departments.

3.6 Validity of the research instruments

According to Mugenda & Mugenda (2003), validity refers to the accuracy and meaningfulness of inferences which are based on the research results. It is the degree to which an instrument measures what it claims to measure. The content validity of the instrument used to measure the degree of accuracy in the data collected using the questionnaires. To enhance the validity of the questionnaires researchers' supervisor was contacted to assist in ensuring that the instruments items were in relation to the set objectives and content area under the study. Their suggestions and comments were used as a basis to modify the research items and make them adaptable to the study. The areas of correction included ambiguities, length of structured and wordings of questionnaires and interview schedule. The modified version was then used for data collection.

$$\text{Content validity} = \frac{\text{Total number of items rated as valid}}{\text{Total number of items on the instruments}}$$

3.7 Reliability of the research instruments

Reliability of research concerns the replicability and consistency of methods and results (Wiersma and Jurs, 2005). It refers to the measure of the degree to which research instruments yield consistent results or data after repeated trials (Mugenda and Mugenda, 2003). An instrument cannot be valid if it is not reliable, that is, if it does not measure what it purports to measure consistently. Cronbach's alpha coefficient (α) was computed to determine internal consistency of the items. This method was appropriate owing to the fact that it required only one administration of the test (Cohen and Swerdlik, 2005). The formula for Cronbach's alpha (α) is

$$\alpha = \frac{N - \bar{r}}{1 + (N - 1) - \bar{r}}$$

Where N is equal to the number of items and \bar{r} bar is the average of inter- item correlation among the items.

Source: <http://www.ats.ucla.edu/stat/spss/faq/alpha.html>

From this formula if one increase the number of items, Cronbach's alpha (α) increases. Additionally, if the average inter-item correlation is low, alpha will be low. As the average inter-item increases, Cronbach's alpha increases as well. This makes sense intuitively if the inter-item correlations are high, then there is evidence that the items are measuring the same underlying construct. Cronbach's alpha (α) will therefore computed to ascertain internal constituency of the questionnaire items.

3.8 Data collection procedures

The researcher first obtained a research permit from the National Commission for Science, Technology, and Innovation ((NACOSTI) and a letter of introduction from the University to help carry out a field study in the selected schools. Before collection of data, the participating schools were contacted and appointment for visit done particularly with the principals, deputy principals and heads of departments for getting consent to participate in the study. The research entailed administering of the questionnaires to the deputy principals and heads of departments and oral interviews or interview guide to the principals.

3.9 Data analysis techniques

Data analysis is necessary in order to summarize the data collected in a dependable and accurate manner (Gay, Geoffrey and Peter, 2009). Data was analysed quantitatively and qualitatively according to the study objectives. The recorded discussions through interview guide were transcribed before analysis. The qualitative data was processed by first categorizing responses by coding and labelling each item according to themes. This also included the narratives and the direct quotes from the informants. The findings were then presented in Tables and charts with interpretations, conclusions and recommendations. The quantitative data was analysed by use of computer software SPSS (Statistical Package for Social Sciences-version 20). Data from field questionnaires were sorted out, coded and entered into the computer for analysis to give descriptive statistics namely frequency distributions and percentages. Tables and figures were used to present a summary of the data. Descriptive statistics were utilized to analyze demographic data from all the instruments.

3.10 Ethical consideration

Ethical consideration was ensured to comply with ethical measures in the course of conducting this research work. A permit for research work was obtained and a letter of introduction from NACOSTI and Boards of Post Graduate Studies (BPS) at the University of Nairobi respectively. Respondents were assured of their safety, rights, and confidentiality of the information given. Verbal explanation was given to respondents on the study objectives in attempt to maximize the quality of information given by them (Saunders et al, 2007).

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, AND DISCUSSION

4.1 Introduction

This chapter focused on the questionnaire response rate, demographic information of the respondents, presentation, and discussion of findings on the institutional influencing information communication technology integration in administration of secondary schools. The presentations and discussions were done based on the research questions, reviewed literature and emerging trends in findings.

4.2 Questionnaire return rate

Questionnaire return rate is the proportion of the sample that participated as intended in all the research procedures. All the questionnaires administered to the Heads of department, deputy principals and principals were returned; representing a questionnaire return rate of 100 percent which is consistent with Mugenda and Mugenda (2003) who suggested that for generalization a response rate of 50% is adequate for analysis, while a response rate of 70% and above is excellent for statistical reporting. The high questionnaire return rate was possible because the researcher administered the questionnaires in person through a drop-wait-and-collect method; whereby, the questionnaires were administered to the respondents, allowed some time to fill them, and picked immediately after they were dully filled.

4.3 Demographic information of the respondents

This section dealt with the demographic information of the respondents; who were mainly principals, deputy principals, and heads of departments of the sampled public secondary schools in Mbita Sub-County.

4.3.1 Gender of respondents

The study sought the gender of the respondents with the aim of establishing whether the views of both genders were incorporated into the study. Table 4.1 below summarizes the gender of the respondents.

Table 4.1: Distribution of respondents by gender

Gender	HOD's		D/principals		Principals	
	Freq.	%	Freq.	%	Freq.	%
Male	45	70.3	10	83.3	9	100
Female	19	29.7	2	16.7	0	0.0
Total	64	100.0	12	100.0	9	100

Table 4.1 above shows that, 70.3 percent of heads of departments, 83.3 percent of deputy principals, and 100 percent of principals were males. On the other hand, 29.7 percent of heads of departments, 16.7 percent of deputy principals, and none of the principals were females. This implied that, of all the respondents, males were the majority. This was attributed to the fact that, there were more boys boarding schools

(13) compared to girls boarding (6). The ministry of education demands that boys schools be headed by men and girls schools be headed by females

4.3.2 Age of respondents

The study also sought the age of the respondents and are as summarized in Table 4.2 below

Table 4.2: Distribution of respondents by age

Age	HOD's		D/principals		Principals	
	Freq.	%	Freq.	%	Freq.	%
25-30	27	42.2	-	-	-	-
31-40	33	51.6	9	75.0	-	-
41-50	3	4.7	2	16.7	4	44.4
51 and above	1	1.6	1	8.3	5	55.6
Total	64	100.0	12	100.0	9	100

The data captured in Table 4.2 showed that, 55.6 percent of principals, 8.3 percent of deputy principals and 1.6 percent of heads of department were above 50 years of age. Those between the ages of 41 and 50 years were 44.4 percent of principals, 16.7 of deputy principals and 4.7 percent of heads of departments. 51.6 percent and 75 percent of heads of department and deputy principals respectively were aged between 31 years and 40 years. Only 42.2 percent of the heads of departments were between 25 and 30 years of age. None of the principals and their deputies was below 30 years of age. This

meant that the responses they gave could be relied on because with age comes maturity and experience.

4.3.3 Length of teaching in the same school

The respondents were also asked to indicate the number of years they had been teaching in the same school. The responses obtained were as summarized in Table 4.3.

Table 4. 3: Duration of teaching of respondents in the same school

Duration	HOD's		D/principals		Principals	
	Freq.	%	Freq.	%	Freq.	%
below 10 years	49	76.6	2	16.7	3	33.3
10-20 years	13	20.3	10	83.3	6	66.7
21-30 years	2	3.1	0	0.0	0	0.0
Total	64	100.0	12	100.0	9	100

The data in Table 4.3 showed that, 66.7 percent of principals and 83.3 percent of their deputies had been serving in their respective schools for a period between 10 years and 20 years. Only 33.3 percent of principals and 16.7 percent of deputies had been in their current stations for less than 10 years. On their part, 76.6 percent of heads of departments had served in their current schools for less than 10 years; 20.3 percent had been there for between 10 and 20 years, while 3.1 percent only had a long tenure of service sinning 21 to 30 years. This meant that, having served in their respective schools for several years, the respondents were in a good position to comment on matters

affecting their delivery of services in their different capacities; including the use of Information, communication and technology in management of schools.

4.3.4 Highest academic qualifications of respondents

The highest academic qualifications of the respondents were sought by the study in establish whether they had any influence on the subject under study.

Table 4.4 Distribution of respondents by their highest academic qualifications

Level of education	HOD's		D/principals		Principals	
	Freq.	%	Freq.	%	Freq.	%
M.ED	7	10.9	2	16.7	2	22.2
B.ED	45	70.3	8	66.7	6	66.7
B.A/B.SC with PGDE	3	4.7	1	8.3	0	0.0
Diploma	9	14.1	1	8.3	1	11.1
Total	64	100.0	12	100.0	9	100.0

The results in the Table show that, 70.3 percent of heads of departments, 66.7 percent of deputy principals and similar percentage of principals had bachelor's degree in education. Furthermore, 10.9 percent of heads of departments, 16.7 percent of deputy principals, and 22.2 percent of principals had masters of education. The rest had either Bachelor of Arts, Bachelor of Science, Post-Graduate Diploma in Education, or simply diploma in education. The high number of respondents with bachelors and masters

degrees means that they were very much qualified and competent to perform their various administrative duties.

4.3.5 Category of school

The study grouped the schools into various categories so as to establish whether the factors influencing use of ICT's in administration cut across all schools or were a reserve of some schools. Table 4.5 below summarizes the categories of schools

Table 4.5: Distribution of schools in their respective categories

Category of school	HOD's		D/principals		Principals	
	Freq.	%	Freq.	%	Freq.	%
National	4	6.3	1	8.3	1	11.1
Extra-County	8	12.5	0	0.0	0	0.0
County	19	29.7	3	25.0	1	11.1
Sub-County	33	51.6	8	66.7	7	77.8
Total	64	100.0	12	100.0	9	100.0

The data captured in Table 4.5 showed that, majority of public secondary schools in Mbita sub-county were sub-county and county schools respectively. This was depicted by high percentages of the respondents who responded in favor of the same. National and extra county schools were the least. This could be attributed to the fact that, many schools were within rural areas, implying that, their first call of duty is to serve the locals; save for national or extra county schools which have a wider catchment,

stretching beyond the county borders.

4.3.6 Type of school

The schools were further stratified into different types in an attempt to establish whether the factors influencing the use of ICT's in administration cut across all types of schools or they only affected some schools. Table 4.5 below summarizes the categories of schools.

Table 4.6: Distribution of schools by type

Category of school	HOD's		D/principals		Principals	
	Freq.	%	Freq.	%	Freq.	%
Boys Boarding	13	20.3	2	16.7	2	22.2
Girls boarding	6	9.4	2	16.7	0	0.0
Mixed Boarding	7	10.9	0.0	0.0	0	0.0
Mixed Day	17	26.6	2	16.7	5	55.6
Mixed Day/ Boarding	21	32.8	6	50.0	2	22.2
Total	64	100.0	12	100.0	9	100.0

The results in the Table show that, majority of the schools in Mbita sub-county were mixed day and boarding, and mixed day schools. Full boarding schools are the least. This could be so because of most families in the sub county are economically

challenged, hence their reference for local day schools to cut down on costs.

4.4 Availability of ICT infrastructure in public secondary schools

The first objective of this study was to determine the extent to which the availability of ICT infrastructure influences the integration of ICT in administration of secondary schools in Mbita sub-county. In so doing, the study first sought to assess the state of ICT infrastructure in schools. The responses from heads of departments were as summarized in Tables 4.7 below:

Table 4.7 Availability of ICT computers in public secondary schools according to HOD's

ICT facility	Not available		Available and inadequate		Available and adequate	
	Freq.	%	Freq.	%	Freq.	%
Computers	10	15.6	35	54.7	19	29.7
Internet facilities	39	60.9	18	28.1	7	10.9
Overhead projectors	35	54.7	21	32.8	8	12.8
Telephones	29	45.3	17	26.6	18	28.1
Television	13	20.3	17	26.6	34	53.1
Printers	2	3.1	23	35.9	39	60.9
Digital camera	47	73.4	10	15.6	7	10.9
Radio	27	42.2	26	40.6	11	17.2

Table 4.7 shows that, 53.1 and 60.9 percent of the heads of departments indicated that, televisions and printers respectively, were available and but adequate in almost all the schools. Furthermore, 54.7 percent and 40.6 percent of them felt that computers and radios were available but inadequate in their schools. 60.9 percent and 45.3 percent of the HOD's said that internet facilities and telephones were not available at all in schools; while a further 73.4 percent and 42.2 percent felt that digital cameras and radios were conspicuously missing in schools.

The responses of deputy principals of the availability of ICT infrastructure in public secondary schools are summarized in Table 4.8 below

Table 4.8: Availability of ICT resources in public secondary schools according to Deputy Principals

ICT facility	Not available		Available and inadequate		Available and adequate	
	Freq.	%	Freq.	%	Freq.	%
Computers	1	8.3	7	58.3	4	33.3
Internet facilities	8	88.7	3	25.0	1	8.3
Overhead projectors	6	50.0	4	33.3	2	16.7
Telephones	5	41.7	2	16.7	5	41.7
Television	4	33.3	1	8.3	7	58.3
Printers	2	16.7	-	-	10	83.3
Digital camera	9	75.0	2	16.7	1	8.3
Radio	5	41.7	2	16.7	5	41.7

From the 4.8 above, 88.7 percent and 50.0 percent of the respondents said that internet facilities and overhead projectors were not available in their schools. 41.7 percent, 75.0 percent and 41.7 percent of them also noted that, telephones, radios, digital cameras and radios respectively, were lacking in schools. 58.3 of the deputies however said that computers were available but not adequate. The only ICT materials that seemed to be available and adequate in schools were printers, televisions, and radios. This was as indicated by 83.3 percent, 58.3 percent, and 42.7 percent of head of deputy principals respectively. From the foregoing discussions, it is evident that, schools experience acute shortages of vital ICT resources and even the available ones are not readily accessible to all members of the administrative staff.

Pelgrum (2001) pointed out that insufficient availability of ICT technologies is an obstacle for integration in the administration. Location of these devices (Becker, 2000) and insufficient access to computer laboratories (Schaumburg, 2002) also contributes to obstacles that inhibit successful integration in administration. Al-Ruz and Khasawneh (2011) also points out that technology availability and overall support are important in technology integration. That the higher the support structure and technology availability the higher the technology integration efforts made by the teachers and administration.

To further assess the availability and accessibility of ICT materials in schools, the principals were asked to state the number of computers in their schools. Figure 4.1 below summarizes the responses obtained.

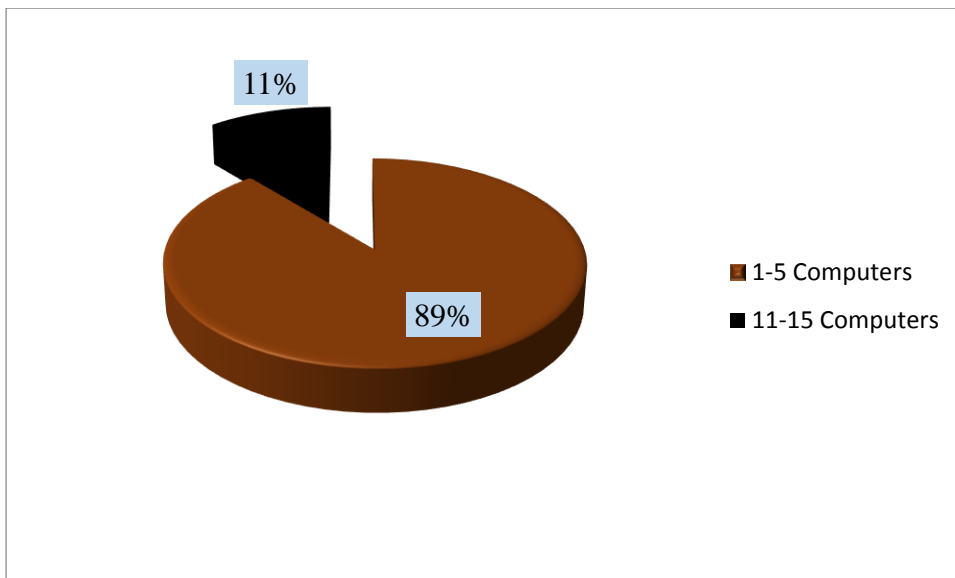


Figure 4.1: Number of computers available in public secondary schools

The data captured in Fig. 4.1 shows that, 89 percent of schools had between 1 and 5 computers, while only 11 percent had between 11 and 15 computers. The dismal number of computers in schools is a huge hindrance to successful integration of ICT because computers play a central role in nearly all management practices in schools. On the availability of other ICT materials, 44.4 percent of the principals mentioned printers, 33.3 percent mentioned photocopiers, while 22.2 percent mentioned projectors. The principals were further asked to indicate whether they felt that the available ICT resources were adequate; to which, 33.3 percent said ‘Yes’ while 66.7 said ‘No’. The respondents were further asked to state whether the available ICT resources were readily accessible to all members of the administrative staff. Table 4.9 below summarizes the responses obtained.

Table 4.9: Accessibility of available ICT materials by other members of administrative staff

Response	Yes		No	
	Frequency	Percentage	Frequency	Percentage
HOD's	22	34.4	42	65.6
D/principals	4	33.3	8	66.7
Principals	1	11.1	8	88.9

From Table 4.9, 65.6 percent of HOD's, 66.7 of deputy principals and 88.9 percent of principals said that the available ICT materials were not readily accessible to other members of administrative staff. This means that, it is difficult to fully integrate ICT into the administration of schools. The foregoing discussions show that, there indeed exists shortage of ICT facilities in public secondary schools in Mbita sub-county. Furthermore, the available ICT resources in schools were not readily accessible to all members of the administrative staff. This poses a real challenge to the integration of ICT in administrative duties in schools.

Mutuma, (2005) asserts that, the availability and accessibility of physical ICT structures, such as computer rooms and electricity, influence the administration's decisions to integrating ICT into their executions. It is then deducted that the availability of electricity and the availing of ICT infrastructure, their adequacy, and

accessibility has the capacity to boost the administration’s willingness to integrate ICT into the administration tasks

An item on the questionnaires required the respondents to indicate how often computers were used in performing some administrative tasks in their schools. This was on a scale of; 1-More often, 2- Often, 3-Rarely, 4-Not at all, 5-Not aware. Table 4.10 below summarizes the responses of the HOD’s and deputy principals

Table 4. 10: The use of computers in performing some administrative duties according to heads of departments

Response	Monitoring attendance		Finance		Newsletter		Storekeeping		Student admission		Timetabling	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
More often	5	7.9	12	18.8	29	45.3	6	9.8	17	27.0	34	53.1
Often	6	9.5	12	18.8	18	28.1	11	18.0	21	33.3	21	32.8
Rarely	16	25.4	11	17.2	7	10.9	13	21.3	10	15.9	5	7.8
Not at all	23	36.5	14	21.9	6	9.4	23	37.7	10	15.9	3	4.7
Not aware	13	20.6	15	23.4	4	6.3	8	13.1	5	7.9	1	1.6
Total	63	100	64	100	64	100	61	100	63	100	64	100

From Table 4.10, the administrative duties that often integrate ICT are generation of newsletters (45.3%), timetabling (53.1%), and admission of students 933.3%). Others like management of finances (25.4%) and storekeeping (21.3%) rarely integrate ICT or never use it at all as depicted by 36.5 percent and 37.7 of HOD’s who responded in affirmation.

The responses for the deputy principals on the same item are as summarized in Table 4.11 below

Table 4.11: The use of computers in performing some administrative duties according to deputy principals

Response	Monitoring attendance		Finance		Newsletter		Storekeeping		Student admission		Timetabling	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
More often	1	8.3	4	33.3	10	83.3	1	8.3	2	16.7	9	75.0
Often	5	41.7	2	16.7	2	16.7	5	41.7	4	33.3	2	16.7
Rarely	1	8.3	2	16.7	0	0.0	0	0.0	2	16.7	0	0.0
Not at all	5	41.7	4	33.3	0	0.0	6	50.0	4	33.3	1	18.3
Total	12	100	12	100	12	100	12	100	12	100	12	100

The data captured in the Table shows that, ICT is very often integrated in the generation of newsletters (83.3%) and Timetabling (75.0%). Often use of ICT is also experienced in the monitoring of attendance (41.7%), storekeeping (41.7%) and admission of students (33.3%). 50.0 percent and 33.3 percent of deputy principals however felt that, ICT had not been integrated in store keeping and finance management respectively. These responses mirror those of HOD's, implying that, many administrative duties are yet to realize the benefits of ICT integration. The minimal use of ICT's in administration could be attributed to the scarcity of ICT materials in schools. School administrators therefore have a responsibility to ensure that availability of computers,

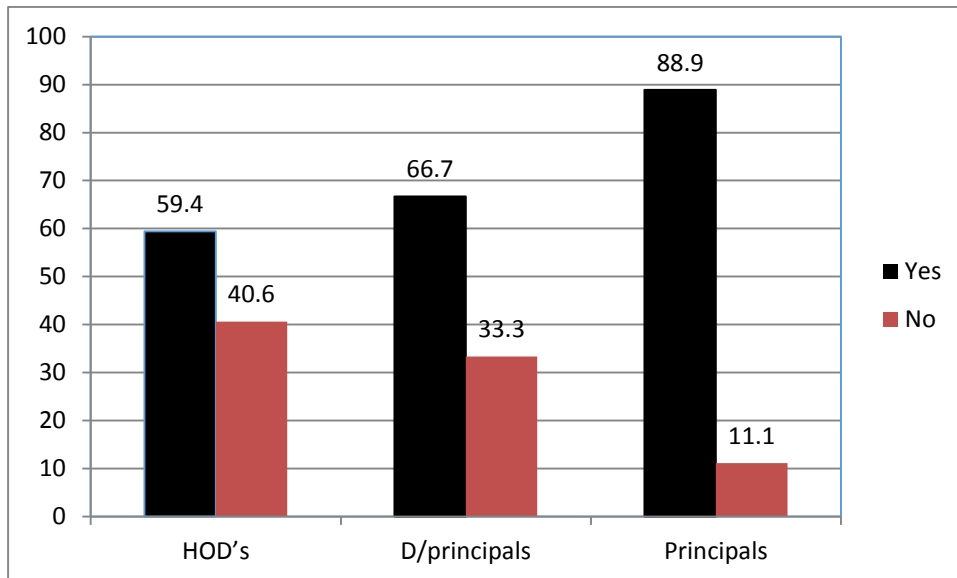
and use them in administration of their schools. This is due to enormous information that need to be managed in a school system has grown tremendously.

The findings agree with those of a research done by Tearle (2013) in the UK which indicated that ICT's were important for administrative role in school management. Information systems are being design and implemented to provide administration with new tools to support them in many activities like grade and attendance reporting, follow up on decision, analysis of the teacher and school achievements (Mahapatra, 2011). According to (Maki, 2008) ICT integration in administration plays a vital role in supporting powerful and efficient management and administration in education sector. In a study in Cyprus Secondary schools, Maki observed that ICT integration is essential for personal administration, student administration, resource administration, financial administration, and general administration. This therefore confirms why the availability of these technologies is vital for use in administration

4.6 Influence of ICT plan on the integration of ICT in administration of schools

The second objective of this study was to establish the influence of school ICT plan on the integration of ICT in administration of secondary schools in Mbita County. In line with this objective, the respondents were asked to state whether there was plan for acquisition of ICT infrastructure in their schools. Fig 4.2 below summarize the responses obtained.

Figure 4. 2: Influence of ICT plan on the integration of ICT in administration of schools



As evidenced by the analysis in Figure 4.2, all the respondents pointed out that their schools had put in place a plan for acquisition of ICT infrastructure. The plan involves the inclusion of some ICT materials in the school budget with the hope that, finances will be allocated for their purchase; - failure to which, the plan gets stalled. The respondents were further asked to indicate the specific ICT areas considered for budgetary allocations in their schools. Table 4.10 below summarizes the responses obtained.

Table 4.12: Specific areas of budget allocation in schools

Response	HOD's		D/principals	
	Freq.	%	Freq.	%
Provide classroom infrastructure	13	25.5	4	36.4
Purchase of hardware and software materials	23	45.1	5	45.5
Maintenance expenses	7	13.7	1	9.1
Hiring a technician	5	9.8	1	9.1
Training administrators	3	5.9	11	91.6

From Table 4.12, 25.5 percent of head of departments and 36.4 percent of deputy principals said that the existing budget aims to provide classroom infrastructure and 45.1 percent of HOD's and 45.5 percent of deputies said that emphasis was laid on the purchase of software and hardware materials. 91.6 percent of the deputies and 45.5 percent of HOD's said that the existing budget concentrated on the training of administrators and provision of classroom infrastructure respectively. Only 9.8 percent of HOD's and 9.1 percent of deputies thought that, the budget addressed itself to the hiring of technicians. The respondents were further asked to state whether or not the government granted extra funds to support the acquisition of ICT resources. 22.2 percent said 'Yes', while 78.8 percent said 'No'. Therefore, successful and effective integration of ICT in administration to occur there must be proper planning at the school level because the school is expected to provide the necessary ICT resources for the staff and administrators to use. School administrators therefore have a major task in ensuring that they equip their schools with the necessary ICT facilities like the computers

The findings concur with Afshari, (2009 who noted that, for effective and successful integration of ICT in administration is a carefully designed school ICT plan given that the institution is required to provide ICT resources for the staff and administrators. The plan provides a basis for the steps and methods needed to translate ICT vision into reality and also estimated budget for ICT investment in the school. Bryderup & Kowalski, (2002) observed that, the areas of the budget use include maintenance, training, and hiring of a technician, acquisition of hardware and software materials.

4.7 Influence of Board of Management on the integration of ICT in the administration of secondary schools

The third objective of the study was to examine the influence of Board of Management on the integration of ICT in the administration of secondary schools. The respondents were therefore asked to indicate the kind of support BOM provided to school ICT integration.

Table 4.13: Influence of Board of Management on the integration of ICT in the administration of secondary schools

Response	HOD's		D/principals	
	Freq.	%	Freq.	%
Mobilization of funds for ICT acquisition	27	48.2	5	50.0
Provision of funds	17	30.4	2	20.0
Funding teachers for continuous professional development	9	16.1	2	20.0
Employment of ICT staff	3	5.4	1	10.0

The data captured in Table 4.13 showed that, 48.2 percent of HOD's and 50.0 percent of deputy principals said that the school Board of Management played a role in the mobilization of funds for acquisition of ICT resources. 16.1 percent of HOD's and 20 percent of deputy principals also said that the Boards of Management were responsible for the provision of funds for the employment of a technician in ICT and professional development of staff.

From their responses in the interview schedules, 22.2 percent of the principals said that the Board of Management played a role in the provision of funds; 66.7 percent said that they authorized the acquisition of hardware, while 11.1 percent felt that they had the role of donating some hardware to the school. The empirical findings indicate that board of management serve a key role in influencing the manner in which things are done in schools and thus their support in regard to ICT is of great importance when it comes to the integration of ICT into administration functions of schools. They should therefore be in the forefront in championing implementation of ICT by involving all stakeholders in provision of ICT infrastructure in their schools

The above findings supports Lewis & Charley (2010) who said that, school Boards of Management are mandated to give direction on the type of decision to be made and how they influence the future of ICT integration in school education. According to Lewis, school boards are responsible for the management of both human and other resources so as to facilitate smooth operations, infrastructure development, and provision for teaching and learning material. A Sessional Paper No.1, of (2005) said that school Boards of Management help in the implementation of ICT integration and construction of a sustainable infrastructure plan because they are the custodians of school

infrastructure, including ICT infrastructure. The management is concerned with providing adequate and relevant school infrastructure Ajayi (2009). In the same vein, a study conducted on Iranian boards of management, endorsed that the board of management support has great influence on administrators decision to integrate ICT in their transformational leadership role of administration in the schools. The support given by the board include; mobilization of funds for ICT acquisition, donation of ICT technology and contribution of funds for staff resource development including hiring and training.

4.8 Extent to which technical support influences the integration of ICT in the administration of secondary schools

The fourth and last objective of the study was to determine the extent to which the level of technical support influences the integration of ICT in the administration of secondary schools in Mbita sub-county. The respondents were therefore asked to state whether their schools had employed a technical assistant to assist in ICT integration, and their responses were summarized as in Table 4.14 below:

Table 4.14: Influence of technical staff on the integration of ICT in the administration of secondary schools

Response	HOD's		D/principals		Principals	
	Freq.	%	Freq.	%	Freq.	%
Yes	21	33.3	6	50.0	7	77.8
No	42	66.7	6	50.0	2	22.2
Total	63	100.0	12	100.0	9	100.0

From Table 4.14, 33.3 percent of HOD's, 50.0 percent of deputy principals and 77.8 percent of principals indicated that, their schools had an ICT assistant. On the other hand, 66.7 percent of HOD's, 50.0 percent of deputy principals and 22.2 percent of principals responded to the contrary. This statistics shows that, most schools haven't sought the services of an ICT assistant.

The respondents were further asked to state the kind of support given by the technician of the school on ICT matters. Table 4.15 below is a summary of the responses obtained.

Table 4.15: Support given by the ICT assistants according to HOD's

	Support	Frequency	Valid Percent
Valid	Donation of ICT equipment	2	6.3
	Provision of maintenance services	21	65.6
	Creation of internet connectivity	7	21.9
	Training of ICT staff	2	6.3
Total		32	100.0

From Table 4.15 ICT technicians are important to the schools through the provision of maintenance services (83.8%), creation of internet connectivity (21.9%), assisting other ICT users (22.2%), designing of ICT programs (11.1%), and training of ICT staff and donation of some ICT equipment (6.3%). This means that, ICT technicians play a very important role in as far as integration of ICT in school management is concerned.

Table 4.16: Support given by the ICT assistants according to the principals

Support		Frequency	Valid Percent
Valid	Maintenance	5	55.6
	Training ICT Staff	1	11.1
	Designing programs	1	11.1
	Assisting ICT users	2	22.2
Total		9	100.0

From Table 4.16, 55.6 of deputy principals said that ICT assistants played an important role in maintenance of equipment, 11.1 percent said that they provided training services to ICT staff, with a similar percentage saying that they designed programs for use with ICT's. 22.2 percent feel that they provided some technical assistance to other ICT users.

The findings of this study concur with Lewis (2003) who noted that technical support is required to overcome the barriers that prevent institutions from using ICT in management. The Becta (2004) report indicates that lack of technical support in school may cause lack of technical maintenance to be carried out regularly resulting to a higher risk of technical breakdown. According to Gomes (2005), ICT integration in administration needs a technician and if one is not available then lack of technical support can be an obstacle.

The findings support the assertion by Sicilia (2005) that, having adequate technical support will mean that the administration 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. According to silica, technical support is also required in the

maintenance of technology, and in designing programmes such as excels, word processing, and spreadsheet. This creates an opportunity for the administrations to not only encourage the members of the school to embrace ICT in administrative roles, but also to use ICT as a tool of effective administration and management of secondary schools by the school administration itself.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study and presents conclusions, recommendations, and suggestions for further research.

5.2 Summary

Information Communication and Technology infrastructure plays a great role in encouraging secondary schools to take on ICT in administration roles. The availability of electricity and the availing of ICT infrastructures have the capacity to boost the administration's willingness to integrate ICT into the administration tasks. However, the integration of these resources in school administration has not been embraced optimally by many secondary schools managers because of challenges related to the institution. The purpose of this study was to investigate the institutional factors that influence integration of information and communication technology in administration of secondary schools in Mbita Sub-county in Homa Bay County. The study was guided by four research objectives which were; the extent to which the availability of ICT infrastructure, the level of technical support and the influence of Boards of Management and school ICT plan on ICT integration in the administration of secondary schools in Mbita sub-county.

The study adopted descriptive survey research design which was considered useful in identifying the standards against which the existing conditions can be compared. The target population for this study comprised of all 32 principals, 32 deputy principals and 160 heads of departments in the 32 public secondary schools in Mbita sub-county. The actual schools who participated in the study were picked using random sampling. The sample size comprised of 16 public schools, 16 principals, 16 deputy principals, and 80 head of department (Language, Science, Mathematics, Technical and Humanities).

Data was collected using two instruments namely questionnaires and Interview schedules. Content validity was used to measure the degree of accuracy of the data collected using the questionnaires. To enhance the validity of the questionnaires expert advice of the supervisors was contacted to assist in ensuring that the instruments items were in relation to the set objectives and content area under the study. Before collection of data, the participating schools were contacted and appointments and their consent to participate in the study were sought. Data was analysed quantitatively and qualitatively according to the study objectives. The recorded discussions through interview guide were transcribed before analysis. The qualitative data was processed by first categorizing responses by coding and labelling each item according to themes. This also included the narratives and the direct quotes from the informants. The findings were then presented in Tables and charts with interpretations, conclusions and recommendations. The quantitative data was analysed by use of computer software SPSS (Statistical Package for Social Sciences-version 20). Data from field questionnaires were sorted out, coded and entered into the computer for analysis to give descriptive statistics namely frequency distributions and percentages. Tables and figures were used to present a summary of the data.

5.3 Summary of findings.

From data analysis, the study established that ICT facilities such as internet overhead projectors, telephones, radios, computers, and digital cameras were either missing or available but inadequate. This was as attested by 83.3 percent of deputy principals and 60.9 percent of head of departments. However, it was noted that, printers were generally available and adequate in schools. On their part, 88.9 percent of the principals indicated that there were between 1 and 5 computers in their schools, while only one of them said that, computers in his/her school were between 11 and 15. When asked to state any other ICT facility present in their schools, 44.4 percent mentioned printers, 77.8 percent said photocopiers, and 22 percent mentioned projectors.

On the issue of the presence of an ICT plan, 25.5 percent of head of departments and 36.4 percent of deputy principals said that there existed a budget aimed at providing classrooms with infrastructure. 45.1 percent of HOD's and 45.5 percent of deputies also said that emphasis was laid on the purchase of software and hardware materials. Furthermore, 91.6 percent of the deputies and 45.5 percent of HOD's said that the existing budget concentrated on the training of administrators and provision of classroom infrastructure respectively. Only 9.8 percent of HOD's and 9.1 percent of deputies thought that, the budget addressed itself to the hiring of technicians.

The study also established that school Board of Management played a very important role in the mobilization of funds for acquisition of ICT resources. This fact was attested by 48.2 percent of HOD's and 50.0 percent of deputy principals who responded in affirmation. 16.1 percent of HOD's and 20 percent of deputy principals also said that the Boards of Management were responsible for the provision of funds, for the

employment and professional development of staff. The BOG was responsible for championing implementation of ICT by involving all stakeholders in provision of ICT infrastructure in their schools. On their part, principals supported ICT integration by providing funds, 11.1 percent said that the BOM donated some software, and 66.7 percent said that they authorized the acquisition of hardware.

Finally, the study established that, most schools haven't sought the services of an ICT assistant. This was attested by 66.7 percent of HOD's, 50.0 percent of deputy principals and 22.2 percent of principals responded who responded in affirmation. The study also found that, ICT assistants played a very important role to the success schools of ICT integration in the administration of schools, through the provision of maintenance services (83.8%), creation of internet connectivity (21.9%), assisting other ICT users (22.2%), designing of ICT programs (11.1%), training of ICT staff and donation of some ICT equipment (6.3%). In addition, 55.6 of deputy principals said that ICT assistants played an important role in maintenance of equipment, 11.1 percent said that they provided training services to ICT staff, with a similar percentage saying that they designed programs for use with ICT's. 22.2 percent feel that they provided some technical assistance to other ICT users. This meant that, ICT technicians played a very important role in as far as integration of ICT in school management is concerned.

5.4 Conclusions

From the empirical findings it can be concluded that of this study, indicate that board of management serve a key role in influencing the manner in which things are done in schools and thus their support in regard to ICT is of great importance when it comes to the integration of ICT into administration functions of schools. This is because they are

entrusted with so many responsibilities including the provision of physical ICT infrastructures, such as computer rooms and electricity, which can influence the administration's decisions to integrating ICT into their executions. It is then deduced that the availability of electricity and the availing of ICT infrastructures has the capacity to boost the administration's willingness to integrate ICT into the administration tasks.

In addition to ICT infrastructure ICT technical support is critical in building and maintaining confidence in the administration in regards to the access and maintenance of ICT hardware, software and other equipment. Having adequate technical support will mean that the administration 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 administrations to not only encourage the members of the school to embrace ICT in administrative roles, but also to use ICT as a tool of effective administration.

Also required for effective and successful integration of ICT in administration is proper planning at the school level given that the institution is required to provide ICT resources for the staff and administrators. A good plan indicates methods of acquisition, use, and maintenance of ICT materials which is necessary for optimum integration into the management of schools. The plan also provides a basis for the steps and methods needed to translate ICT vision into reality. Although school administrators are expected to ensure provision of these required ICT facilities, they are also faced with the challenge of lack of funds to enable them implement ICT policies alongside many other pressing needs.

Finally, if the school Boards of management become proactive in ICT integration through the development of vibrant ICT plan, purchase of necessary ICT resources and employment of well-trained support staff, then the integration of information communication and technology in the management of schools will be a success

5.5 Recommendations

Based on the above conclusions and the research findings, the researcher recommends the following;

- i. The Board of Management of schools should give priority to the acquisition of ICT equipment and infrastructure so as to ensure successful integration of ICT's in all the management practices of schools.
- ii. The management of schools should develop a comprehensive plan for the acquisition of adequate and quality ICT resources. This can be done through proper budgeting that ensures that, adequate funds are set aside for the same
- iii. The school management should also ensure that well trained personnel in the area of ICT are employed to take care of the available ICT resources, and assist the users with the technical know-how of the materials
- iv. The government should continue training of teaching staff and administrators on the use of relevant ICT technologies, and also enhance giving assistance to the school boards of management to acquire some of the ICT equipment necessary for proper management.

5.6. Recommendations for Further Research

Based on the findings of this research and gaps identified in reviewed literature, the study recommends further research on;

- i. The influence of the age of the school principal on the integration of ICT in the management of secondary schools.
- ii. The influence of ICT integration on management practices in public secondary schools
- iii. The level of partnership between government and private sector in ensuring successful integration of ICT in the management of schools.

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APPENDICES

Appendix I: Letter of Introduction

James Odero Omogi
Department of Educational Administration and Planning
University of Nairobi
P.O. Box 92
Kikuyu.

October 7th 2016

The Principal

Dear Sir/ Madam,

RE: PERTICIPATION IN RESERACH

I am a Post graduate student in the Department of Educational Administration and Planning of the University of Nairobi. I am conducting a research for my project for the fulfilment of the requirement for the award of Master degree in education administration. My research topic is entitled **“Institutional factors influencing integration of Information Communication Technology (ICT) in administration of Secondary Schools in Mbita Sub-County, Homa Bay County Kenya.”**

I kindly request you to spare sometime to respond to this questionnaire items to the best of your knowledge. Any information provided will be treated with utmost confidentiality and only for the purpose of this research.

Thanks in advance for your corporation.

Yours faithfully,

James Odero Omogi

Appendix II: Questionnaire for Deputy Principal and HODS

This questionnaire is designed to gather information on institutional factors influencing ICT integration in secondary school administration in Mbita Sub-county. You are assured that your answers will be used to research purpose only and will be treated with utmost confidentiality. Please respond to all questions in this questionnaire. Do not write your name or that of your school anywhere in this paper.

SECTION A: Demographic Information

1. Indicate your gender.

Male () Female ().

2. Indicate your age.

25-30years () 31-40 years ()

41-50 years () 51 years and above ()

3. Indicate the number of years you have been a teacher.

Below 10 years () 10-20 years ()

21-30 years () 31 years and above ()

4. (a) Indicate whether you are a deputy Principal or Head of Department.

Deputy Principal () Head of Department ()

5. (b) If you are HOD indicate the department you are in charge of

Mathematics () Languages ()

Science () Humanities () Technical ()

6. Indicate the number of years you have been Deputy Principal or HODs.

Below 10 years () 10-20 years ()

21-30 years () 31 years and above ()

7. Indicate your Highest Academic/ Professional qualification.

PhD () MA () M.Ed () B.Ed ()

B.A/B.S.C with PGDE () Diploma () Any Other ()

8. Category of School.

National () Extra-County ()

County () Sub-County ()

9. Type of School.

Boys Boarding () Girls Boarding ()

Mixed Boarding () Mixed Day () Mixed Day/Boarding ()

SECTION B: Availability of ICT Infrastructure

10. Use the following key to rate availability of ICT infrastructure in your school

3- Available and Adequate; 2- Available and Inadequate; 1-Not Available

Statement	3	2	1
Computer for Office use			
Internet facilities			
Overhead Projectors			
Telephone			
Electricity			
Television			

Printer			
Digital camera			
Radio			

11. Are ICT Facilities Reliable in terms of speed?

Yes () No ()

12. Is it easy for all staff to get access to the ICT facilities when they need them?

Yes () No ()

Section C: School ICT Plan

13. Does your school have ICT plan?

Yes () No ()

14. (a) What is the estimate budget of ICT in your school?

(b) How do you finance this budget?

15. Indicate areas of budget allocation as used on ICT Integration as shown below.

Task	
i. Provide classroom infrastructure	()
ii. Purchase hardware and software materials	()
iii. Maintenance expenses	()
iv. Hiring a technician	()
v. Training of administrators	()
vi. Motivation to administrators	()

16. Indicate any other area

Section D: Boards of Management Support on ICT and Integration.

17. Does the school have a properly constituted Boards of Management?

Yes () No ()

18. Indicate the kind of support the Boards of Management provide to school in ICT integration as shown in the Table below.

Support	
(i) Mobilization of funds for ICT acquisition.	
(ii) Provision of funds	

(iii) Funding teachers for Continuous Professional Development	
(iv) Employment of ICT staff	

19. Give any other support

Section E: Technical Support on ICT Integration

20. Has the school employed any technical assistant in ICT integration?

Yes () No ()

21. What kind of support does the technician provide to the school on ICT use?

Support	Tick
i. Donation of ICT equipment	()
ii. Provision of maintenance services	()
iii. Creations of internet connectivity	()
iv. Training of ICT staff	()

22. Indicate any other support offered by the technician.

SECTION F: Tasks Performed using Computers

23. Indicate how often you use computer for the following tasks

1-More oftenly, 2- Oftenly, 3-Rarely, 4-Not at all, 5-Not aware.

		1	2	3	4	5
i.	Attendance					
ii.	Finance					
iii.	News letters					
iv.	Letter to students					
v.	Store keeping					
vi.	Student performance					
vii.	Student admission					
viii.	Timetabling					

Thank you for your corporation!

Appendix III: Interview Guide for Principals

Section A: Demographic Information

1. What is your gender?
2. What is your age?
3. What is your highest academic/professional qualification?
4. How long have you served as a principal?
5. What category is your school?
6. What type is your school?

Section B: Availability of ICT Infrastructure

7. Does the school have computer for office work?
8. If No, is your school planning to buy some?
9. (a) If Yes, please give the number of computers
(b) Are they adequate?
(c) Are they accessible for use by staff?
10. Which other ICT technology besides computers does the school possess?

SECTION C: Tasks Performed using Computers

11. Do you use computer for the following tasks in the school?
 - a) Attendance _____
 - b) Finance _____
 - c) News Letter _____
 - d) Letters to students _____
 - e) Store Keeping _____

- f) Policy issues _____
- g) Student performance analysis _____
- h) Student admission _____
- i) Timetabling _____
- j) Supervision _____

Section D: Boards of Management Support

- 12. Does the school have a functional Boards of management?
- 13. What kind of support does the Boards of Management contribute to the integration of ICT in administration of the school?

Section E: Technical Support

- 14. Does your school have ICT technician?
- 15. What is the support provided by the ICT technician in the ICT integration in administration of the school?

Section F: School ICT plan

- 16. Does your school have ICT plan?
- 17. (a) What is the estimate budget of ICT in your school?
(b) How do you finance this budget?
- 18. Does the government grant any extra funds for the ICT integration in administration of the school?
- 19. If yes, do you use the budget allocation in:
(a) Classroom infrastructure, purchase of hardware and software materials.

(b) To supplement on the running and working expenses

(c). Human resource development including hiring and training administration.

20. What do you think should be done to enhance ICT integration in your school administration?

Thank you for your corporation!

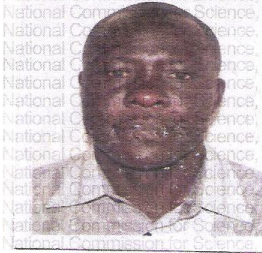
Appendix VI: Research Permit

THIS IS TO CERTIFY THAT:
MR. JAMES ODERO OMOGI
of UNIVERSITY OF NAIROBI, 312-40305
MBITA, has been permitted to conduct
research in Homabay County

Permit No : NACOSTI/P/16/43499/14530
Date Of Issue : 7th November,2016
Fee Received :Ksh 1000

on the topic: INSTITUTIONAL FACTORS
INFLUENCING INFORMATION
COMMUNICATION AND TECHNOLOGY
INTEGRATION IN ADMINISTRATION OF
SECONDARY SCHOOL IN MBITA
SUB-COUNTY, HOMA-BAY COUNTY

for the period ending:
7th November,2017



.....
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 Officer will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice



REPUBLIC OF KENYA

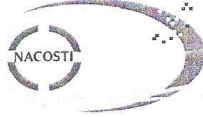


National Commission for Science,
Technology and Innovation
RESEACH CLEARANCE
PERMIT

Serial No. A1658

CONDITIONS: see back page

Appendix V: Research Authorization Letter



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@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. **NACOSTI/P/16/43499/14530**

Date:

7th November, 2016

James Odera Omogi
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Institutional factors influencing Information Communication and Technology Integration in administration of secondary school in Mbita Sub-County, Homa-Bay County,*" I am pleased to inform you that you have been authorized to undertake research in **Homa Bay County** for the period ending **7th November, 2017.**

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


BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Homa Bay County.

The County Director of Education
Homa Bay County.

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

Appendix IV: Ministry of Education Science and Technology

MINISTRY OF EDUCATION SCIENCE & TECHNOLOGY STATE DEPARTMENT OF EDUCATION



Telegrams: "SCHOOLING", Homa Bay
Telephone: +254726961531
When replying please quote

**COUNTY DIRECTOR OF EDUCATION OFFICE
HOMA BAY COUNTY
P.O. BOX 710
HOMA BAY.**

DATE: 23rd NOVEMBER, 2016.

REF: MOEST/CDE/HBC/ADM/11/VOL.1/169

**James Odera Omogi,
University of Nairobi,
College of Education and External Studies,
P.O. Box 92- 00902,
KIKUYU.**

RE: RESEARCH AUTHORIZATION.

In response to the letter from the National Commission for Science, Technology and Innovation dated 23rd November, 2016 giving you authority to carry out the research on "*Institutional factors influencing Information Technology and Technology Integration in Administration of Secondary schools in Mbita Sub County, Homa Bay County*" I hereby give you permission to carry out the research in **Homa Bay County** for the period ending 7th **November, 2017.**

Please submit a copy of your findings both in soft and hard copies to us.

A handwritten signature in blue ink, appearing to read 'Calleb Omondi'.

**CALLEB OMONDI
For: COUNTY DIRECTOR OF EDUCATION
HOMA BAY COUNTY.**