

**SCHOOL BASED FACTORS INFLUENCING HEADTEACHERS'  
ADOPTION OF INFORMATION AND COMMUNICATION  
TECHNOLOGY IN ADMINISTRATION OF SECONDARY SCHOOLS IN  
MAKADARA DISTRICT, KENYA**

**Rose Bosibori Mouti**

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

**University of Nairobi**

**2012**

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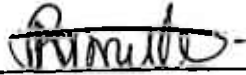
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## **DECLARATION**

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



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**Rose Bosibori Mouti**  
E55/64682/2010

This research project has been submitted with our approval as University Supervisors



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**Dr. Ursulla Okoth**  
Lecturer  
Department of Educational Administration and Planning  
University of Nairobi



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**Mrs. Lucy Njagi**  
Lecturer  
Department of Educational Administration and Planning  
University of Nairobi

## **DEDICATION**

This research project is dedicated to my children Ivy Kemunto, Ingrid Moraa, Immanuel Onunda and Ivah-lynn.

## **ACKNOWLEDGMENT**

**My foremost gratitude is to Almighty God that through His amazing grace I was able to undertake and complete this study. To Him I give honour and glory.**

**I would like to sincerely thank Dr Ursulla Okoth and Mrs. Lucy Njagi for devoting their time for guidance and recommendations during and especially in the course of the preliminaries of research proposal. Your patience, dedication and encouragement made it possible to complete this project.**

**I would like to thank my husband John Mouti for the moral and material support. I extend my appreciation to my daughter Ivy Kemunto for spending time to type this document. I thank my children Ivy, Ingrid, Immanuel and Ivah-lynn for the encouragement and understanding during the many hours I left you alone pursuing my further studies. May you have the same urge to further your education to greater heights.**

**I wish to thank all my colleagues at university of Nairobi for their collective support in group discussions and assignments which contributed greatly to the completion of my course work.**

**I also wish to express my sincere appreciation to headteachers, deputy headteachers and heads of departments who provided primary data, without which this study would not have been possible.**

I cannot forget the good work done by the panelists who attended the defense of my proposal and subsequent research report. They guided and corrected my work so keenly to ensure that no embarrassments should arise in my final piece of work.

May the Almighty God bless and reward each one of you abundantly.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>BOG</b>	<b>Board of Governors</b>
<b>EFA</b>	<b>Education-For-All</b>
<b>Email</b>	<b>Electronic mail</b>
<b>E-learning</b>	<b>Electronic Learning</b>
<b>FSE</b>	<b>Free Day Secondary Education</b>
<b>HOD</b>	<b>Heads of Departments</b>
<b>ICT</b>	<b>Information Communications Technology</b>
<b>ILS</b>	<b>Integrated Learning Systems</b>
<b>KPUC</b>	<b>Kenya Polytechnic University College</b>
<b>NCST</b>	<b>National Council for Science and Technology</b>
<b>MOE</b>	<b>Ministry of Education</b>
<b>R&amp;D</b>	<b>Research and Development</b>
<b>S&amp;T</b>	<b>Science and Technology</b>
<b>ST&amp;I</b>	<b>Science Technology and Innovation</b>
<b>SPSS</b>	<b>Statistical Package for Social Sciences</b>
<b>TIVET</b>	<b>Technical, Industrial Vocational and Entrepreneurship Training</b>
<b>TSC</b>	<b>Teachers Service Commission</b>
<b>UNESCO</b>	<b>United Nations Educational, Scientific and Cultural Organization</b>

## **ABSTRACT**

The purpose of this study is to assess the school-based factors influencing adoption of ICT in administration of public secondary schools in Makadara district, Kenya, specifically to establish the availability of ICT resources for use in administration, assess the attitudes of school administrators towards adoption of ICT, determine the availability of ICT technical support to help in the use of ICT, and to establish the ICT skills use in the administration of public secondary schools in Makadara district. The study was guided by Hammer & Champy's theory of business processes reengineering. The study targeted all the 10 public secondary schools in Makadara district with a population of 10 headteachers, 10 deputy headteachers and 80 heads of departments. A sample of 100 respondents was selected purposively. A response rate of 61% achieved. Descriptive survey research design was adopted as it brings out quantifiable information from the sample. Three sets of questionnaires were developed and administered to headteachers, deputy headteachers and heads of departments respectively. To determine the validity, the instrument was pretested in one school with one headteacher and five teachers. Data was analyzed quantitatively by the use of Statistical Package for Social Scientists computer program.

The findings show that the school administrators had very few computers for administration work in the district. The computers were used for capturing school enrolment, storage of student bio data, registration of KCSE candidates, data entry on students' marks, analysis of student's results, typing examinations, accessing the internet, and for research on the subjects they taught. All the schools administrators in the district were computer literate. Most of the schools had plans in place to upgrade ICT skills of their administrators. Only one third of the schools in the district had school management systems and only one school had a web enabled system. Most of the schools either used manual records or selected computer programmes including Microsoft's Word, Excel, and Email/Internet to perform their duties.

Procurement for ICT equipment and servicing of computers in schools within the district was not advised by computer experts. Only a few of administrators had a good proficiency of computers suggesting that majority of them were only average users. Challenges faced by the head teachers when using ICT in administration included breakdown of computers, lack of technical support on the acquisition usage and maintenance of the computers, inadequate finances to procure computers, low Computer literacy levels among the administrators, and regular Power breakdowns in the district were the key challenges in the usage of ICT. The study recommended that the Ministry of Education should encourage the adoption of ICT in administration in schools in the district through provision of computers to schools, ICT skills courses relevant to administration work, and ICT technical support to advice head teachers on procurement, usage and maintenance of computers.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background to the study**

Before the introduction of computers, information and communication technology, data processing used to be done manually, this produced late and inaccurate reports. Due to the repetitive nature of some of the information needed time and again, many hours of human labour are saved by use of ICT because of the storage and retrieval ability of the computer. Information and communication can therefore be defined as the technologies and tools that people use to source, process, share, and distribute information through the use of computers and computer technology Mandell, (1992).

In the last decade ICT has been a principal driver of economic development and social change worldwide. The need for economic and social development has been a justification for investments in educational reform and in educational ICT Kozma,( 2005).

Kelles, (2005) upheld that ICT plays a major role in all aspects of national life, in politics, in economic life, as well as in social and cultural development. Information Communication Technology is rapidly transforming the way people do business, access information and services communicate with each other and even entertain themselves. The potential of ICT to enhance human capabilities

and revolutionize the administration of institutions was first realized in other sectors of human society, mostly in the business world and the military, other than in education Ray & Davis, (1991).

African countries have only recently begun to show the macroeconomic stability needed for educational development thus need to use ICT is real than ever. It is against this backdrop, that one expects an increase in revenue allocations for education to keep pace with technological changes Nduati & Bowman, (2005).

The United Nations Educational, Scientific and Cultural Organization (UNESCO) Ministerial Declaration (2000) provided special attention to the application of ICT for development, for which urgent and concerted actions internationally have increased aimed at ensuring that the popularity of ICT in management of educational institutions and consequently research activity is maturing.

In Kenya, the 21st century advancement in ICT is increasingly becoming complex and multidimensional thus requiring a tremendous input in terms of human, financial, and physical resources to ensure that secondary schools administration is efficient Waema, (2005). With change in ICT paradigm school working environments are bound to overwhelm the abilities of today's administration if not aided by in the performance of their school administrative duties. The



importance of ICT in schools has therefore led to a contribution widely recognized in the workplace and at home, demonstrating that ICT is becoming a vital enabling tool that can no longer be ignored in the administration of schools in Kenya. It is amidst this favorable gesture that the Government of Kenya has not only embraced ICT but also encouraged the application of ICT in the administration of secondary schools in Kenya Dawes, (2010).

As a measure to address some of these concerns, the Government of Kenya came up with a national ICT education policy and strategy, which endeavors to work with stakeholders to ensure implementation of e-school initiatives and to promote expanded use of ICT as a tool for effective management, research and development at all education levels and use of internet for educational training and research. Republic of Kenya (2005), Sessional Paper No.1 of 2005 captures stakeholders' recommendations on how education needs to be responsive for the 21<sup>st</sup> century needs of education and training.

While some countries have reported up to 41% of ICT integration into school management and learning, the proportion remains substantially low in Kenya despite colossal amounts invested in ICT Kelles, (2003). In addition, training programs in ICT for the education management sector have been necessary since the rapid change in ICT demands continuous training at all levels despite the fact

that most school administrators have not systematically integrated ICT into administration MoE, (2009).

The number of people expected to embrace technology within the education sector is very huge making it difficult to convince them why and how ICT will make life easier for them. ICT involves big expenditures and returns on it are not immediate. The government investment in education is huge especially with the subsidized secondary school tuition fees and therefore leaving infrastructural development to parents and other partners. This is burdensome in the face of high levels of poverty, high cost of internet provision and cost associated with ICT equipment and support, most school environments are conservative with a formal way of doing things and therefore trying to introduce new ways of doing things is a challenge. The level of skills and literacy, technical support available, resource availability, and attitudes of administrators to embrace ICT therefore becomes a stumbling block to ICT adoption in schools.

However, it should be clear that as head teachers and other policy makers continue to take increasing interest in the scope of this field, relatively little research work has been undertaken in school administration. Although wide interest in the field has been apparent, there is little awareness of any extent of research being carried out in this area Becta, (2001). With all the efforts towards achieving the goal in enhancing ICT integration and adoption in learning institutions in Kenya, many schools have not yet adopted ICT in their school

management systems. Hypotheses as to why this could have happened include lack of management support, lack of technical support, lack of time, limited understanding on how to integrate ICT into administration, lack of software, high investment cost, insecurity, and lack of infrastructure Ministry of Education, (2007). Theoretically, schools are encouraged to adopt ICT in tandem with the changing environments in form of process simplification, process improvement and automation, Hammer & Champy, (1993). Those that will not embrace ICT in tandem with the changing environment will find it very difficult in future simply because they will have to invest in re-engineering process which is quite expensive and require costly expertise to implement.

It is against this background that this study seeks to find out the critical variables that affect adoption of ICT in administration including resources, technical support, ICT skills and knowledge level and the attitude of the administrators towards ICT adoption in education with special focus on secondary schools in Makadara District of Nairobi County.

## **1.2 Statement of the problem**

The role of ICT in schools cannot be underestimated due to the many advantages associated with it including easy presentation of work, easy access to information, easy monitoring and evaluation and substituting almost anything in administration. Given that the school administrators are concerned with issues of

student registration, students discipline, class attendance, curriculum and instruction, personnel management, school community relationship, provision and maintenance of physical facilities and financial management, managing such high numbers of students can be quite a challenge in absence of ICT resources in a school Okumbe, (2001).

A report from Ministry of Education, Computers for Schools Kenya (2007) shows that the entire education system in Kenya is characterized by a very low application of e-technology, a situation most apparent in the resource-starved public education sector. This suggests that school administration in the entire district probably relies on manual systems. The teachers in urban Nairobi county and North eastern Arid and Semi-Arid lands (ASALS) to less extend or do not at all apply ICT in their professional practice, especially most public schools which should contribute to the ICT-based benefits and opportunities Republic of Kenya, (2010). These observations therefore seeks to assess the school-based factors affecting adoption of ICT in secondary schools administration in makadara district despite all that the government has put in place to enable the process to roll out.

### **1.3 Purpose of the study**

The purpose of this study was to assess the school-based factors influencing adoption of ICT in administration of public secondary schools in Makadara district, Kenya.

#### **1.4 Objectives of the study**

The study aims at achieving the following objectives:-

1. To establish the availability of ICT resources for use in administration in public secondary schools in Makadara district.
2. To assess the attitudes of school administrators towards adoption of ICT in the administration of public secondary schools in Makadara district.
3. To determine the availability of ICT technical support to help in the use of ICT in the administration of public secondary schools in Makadara district.
4. To establish the ICT skills level in the administration of public secondary schools in Makadara district.

#### **1.5 Research questions**

The study intends to address the following specific questions:

1. Which ICT resources are available for use in administration in public secondary schools in Makadara district?
2. What attitude do school administrators have towards adoption of ICT in administration of public secondary schools in Makadara district?
3. What ICT technical support is available to help in the use of ICT in the administration of public secondary schools in Makadara district.
4. What ICT skills level are used in the administration of public secondary schools in Makadara district?

### **1.6 Significance of the study**

Ministry of education may use the findings of the proposed study in providing leads to interventions that would help improve the adoption of ICT in schools management. The TSC may use the study findings to determine the ICT set of skills required of teachers and headteachers before they are promoted to administrative positions. The KIE and the universities the study findings may shed light on the curriculum and course content that graduate teachers should have in readiness to taking up administrative positions.

### **1.7 Limitations of the study**

According to Best and Khan (1998), limitations are conditions beyond the control of the researcher that may place restrictions on the conclusion of the study and their application to other situations. There might have been cases of exaggerated feedback or outright misinformation. Before the questionnaires were distributed, a briefing was done to the respondents for them to understand the purpose of this research. The briefing was therefore used to develop rapport with the respondents thereby minimizing dishonest responses and fear of victimization.

### **1.8 Delimitations of the study**

The study was delimited to the public secondary schools in Makadara District only. Its findings therefore can only be generalized to other parts of the country cautiously. This is because Makadara district has different conditions from the

other parts of the country. The study was restricted to responses obtained from the Headteachers, their Deputies and respective Heads of Departments in order to establish accurate and reliable information to justify the study results.

### **1.9 Assumptions of the study**

The study was carried out with the assumption that ICT could be used to improve efficiency in administration of schools. The study further assumed that positive attitudes towards ICT and the correct ICT skills set among school administrators could ease adoption of ICT in administration of schools. The study was also assumed that the respondents provided truthful and honest responses to the items in the research instruments.

### **1.10 Operational definitions of significant terms**

The following are definitions of some of the key terms as used in this research work;

**Adoption** refers to formal acceptance as one's own.

**Administration** refers to the formalized system which is intended to control, supervise, plan and make decisions about various activities of the organization on the basis of established authority.

**Hardware** refers to physical computers, printers, scanners, copiers, fax machines, digital/video cameras, telephones, projectors and surveillance cameras.

**ICT** refers to diverse set of information, communication and, technological tools and resources used to transmit, store, create, share or exchange information.

**ICT literacy** refers to knowledge about ICT and its application.

**ICT Policy in Education** refers to a government-issued document which sets out the principles, guidelines and strategy for ICT in education.

**Influence** here refers to the act or power of producing an effect indirectly or without apparent use of force or exercise of command.

**School- based factors** refers to ingredients that will contribute to production of good results in administration of schools.

**School administrative function** refers roles and responsibilities assigned to schools administrators as outlined by the Teachers Service Commission in Kenya. They are product outcomes, student-focused outcomes, financial analysis, work-force outcomes, process effectiveness outcomes and leadership with social responsibility.

**Software** refers to computers programs for example MS-office suite, e-mail and the Internet.

**Technical Personnel** refers to staff tasked with maintenance of ICT equipment.

### **1.11 Organization of the study**

The study consists of five chapters. Chapter one is the introduction and deals with the background information of the study, the statement of the problem, the objectives and purposes of the study, justification of basic assumptions, limitation



and delimitation of the study and definition of significant terms. Chapter two presents the literature review including ,computer usage in management and administration ,administrative tasks, adoption of ICT in schools, availability of ICT resources, attitudes of school administrators towards adoption of ICT, ICT technical support, ICT skill level among the school administrators, theoretical framework and conceptual framework.

Chapter three comprises of the research design, target population, sample size and sampling techniques, research instruments, validity and reliability, data collection methods and data analysis procedures. Chapter four comprises of data analysis and interpretation while chapter five comprise of the research summary, conclusion and recommendation as well as areas of further studies.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter reviews literature related to the topic under study under the following subheadings; Computer usage in management, administrative tasks, availability of ICT resources, attitudes towards adoption of ICT, availability of ICT technical support, ICT skills level in the administration of public secondary schools, theoretical framework, and conceptual framework.

#### **2.2 Computer usage in management and administration**

Change has been happening at an uneven pace in any growth-oriented industry, and the education sector is no exception. Rapid growth in the field of education has made governance in academic sector a very complex task. The 21st century has witnessed tremendous advancements in technology which has led to far-reaching developments in the administrative system. Cost-effective technology combined with the flexibility in learning and administrative activities is essential to enhance efficiency Dawes, (2010).

Computers can be used extensively for educational administration. Areas where computers can be used for effective educational accounting, Administration include: general administration, pay roll and financial of Student data, inventory management, personnel records maintenance and the library system Barta, (1995).

Information and Communication Technology plays a vital role in supporting powerful, efficient management and administration in education sector. It is specified that technology can be used right from student administration to various resource administration in an education institution Maki, (2008).

As a part of strategy, many challenges in school administration could be overcome with the proper usage of technology. Moreover many studies reveal the need for ICT integration into administrative activities of higher education institutions. There are various ways of introducing technology in education institution administration including sending e-mail notices and agendas to staff, rather than printing and distributing them, Submission of lesson plans through e-mail, Foster technology growth by asking parents to write e-mail addresses on medical forms, and insisting that all teachers create a class Web page.

Other ways include attending technology conferences to see what other schools are doing, what other teachers are doing to integrate technology, and what principals are doing to encourage the use of technology in their schools and classrooms. Admissions through web-enabled services and monitoring of day-to-day activities of the institution including Staff administration are some other key areas that ICT integration would come in handy in general administration of academic institutions Salerno, (2009).

### **2.3 Administrative tasks in schools**

In Kenya, the role of a school head teacher is clearly spelt out in the Headteacher's manual, Ministry of Education (1987). The manual highlights among others that the organization and control of the staff, both teaching and subordinate is all part of the headteacher's duties. The tasks performed by the headteacher includes, curriculum and instruction, personnel management, school community relationship, provision and maintenance of physical facilities (school plant) and financial management Okumbe, (2001).

#### **2.3.1 Curriculum Administration**

The headteacher is responsible for the proper selection of subjects appearing in the school curriculum to ensure a well balanced education. He should acquire appropriate staff and facilities for the implementation of the curriculum. He is also charged with the duty to attend any in service training. He is also supposed to evaluate the whole instructional programme MoE, (1999).

#### **2.3.2 School Plant Management**

School plant management is the act of planning the school site, construction and maintenance of the buildings, equipment and the grounds. When an administrator is charged with the duty of selecting a new school or a classroom site, he needs to consider the suitability of such a site. In addition to designing the physical facilities, administrators are charged with the duty to maintain the school plant. This includes the day to day running of the plant, keeping the plant safe, ensuring

good sanitation and attractiveness. Cleanliness must be ensured as it is the only way to maintain the compound attractive and pleasant to work in. This includes planting trees, shrubs and flowers. This can only be done by careful supervision of the non-teaching personnel Ministry of Education, (1999).

### **2.3.3 Personnel Management**

Personnel management is the art of establishing the need for personnel, recruitment, selection, induction, orientation, maintenance and supervision of the personnel. Hicks & Jameson (1957) noted that the ability to get along with people is one of the most important assets in becoming an effective school principal. In a school setting, a head teacher is faced with two kind of personnel namely the student personnel and the staff personnel. Ministry of Education (1999) says that the pupils are the key stakeholders within a school management.

### **2.3.4 Finance and business Management**

Okumbe (2001) brings out the following sub tasks under the finance and business management. The first one is to understand the source of revenue for the school, second is the preparation of the school budget third is monitoring expenditure in light of the approved budget and fourth is management of services of non-certified personnel. This sub-task includes things like travel and transport, catering services, insurance and legal services. Annan (2001) in his study observed that some head teachers use school funds for their personal needs, some delay in auditing school books of accounts and that head teachers were unable to

collect fees from parents and therefore unable to provide quality services expected of them.

### **2.3.5 School- Community Relations**

Castle, (1996) states that a good school community is one in which the personnel is united for common interests. The administrator works as a mediator between the school and the surrounding community. He is expected to improve relations through a two-way exchange of ideas and activities. He needs to familiarize himself with the leaders and members of the community so as to learn how they can contribute to his school and how the school can help the community, Ministry of Education, (1999).

## **2.4 Adoption of ICT in schools**

Successful adoption of ICT in schools needs to address interlocking frameworks for change Hoffman, (2001). They include ICT resources, attitude, technical support and staff development.

### **2.4.1 Availability of ICT resources**

Physical access to ICT is the first step towards making technology accessible to schools. Collins, (1996) defines infrastructure as the physical equipment (hardware and software) that enables a network to function. These include; Hardware costs, Software costs, Connectivity costs, Services cost which include maintenance technical support, Infrastructure-utilities costs like electricity consumption, furniture , security and insurance.

Technology needs to be affordable by schools if it is adopted. At the national level, affordability could be limited by the high cost of putting infrastructure in place, and is linked with the issue of poverty. At institutional level, expensive hardware and software as well as high cost of communication and services restrict access to ICT. Most schools in Kenya do not have means to purchase expensive computers and hardware and provide training for their staff. Schools could adopt cost cutting measures such as those suggested by James, (2001); cited in Minishi-Majanja, 2001)

Affordability could be achieved through the use of open source software or cheaper versions of software which can operate on older hardware, Procurement of refurbished computers, Redesigning of hardware so as to lower the cost of internet access, merging internet technology to use television connection with modification and using community wireless LANs (Local Area Networks). However, Wells et al, (2007) cautions against adopting technology for which local expertise is not available, as it would result in high maintenance costs for the user.

Very few secondary schools have sufficient ICT tools for teaching and learning. The schools with ICT infrastructure have acquired it through initiatives supported by parents, the governments, NGOs, or other development agencies and the

private sector, including the new partnership for African Development (NEPAD) e-school programme Unwin, (2005).

#### **2.4.2 Attitudes of school administrators towards adoption of ICT**

The personal willingness of teachers and administrators to adopt and integrate innovations into their work is of crucial importance for the innovation to be successful Johnstone & Woudbury, (2003).

Akker, (2003) argues that teachers' perceptions of educational innovations and curriculum reform initiatives are significant factors for researchers when studying implementation processes. Watson, (2006) describes teachers' perception as a specific form of educational innovation. Groff & Mouza, (2008) argue that teachers act as innovators when integrating ICT into their work. In most secondary schools, many teachers and administrators are not willing to change the way they do things. They look at it as extra work mostly due to their computer skills which are want making it more difficult to embrace ICT in school activities.

#### **2.4.3 ICT technical support**

Specialized personnel in ICT are crucial for ICT to function effectively and efficiently. To ensure viability of ICT use in schools, MOE needs to train more specialized ICT personnel through external and internal projects that aim at creating cadre of self-sufficient systems in schools by building technical capacity



in ICT and also building educational capacity such as BBC capacity building project.

In the magazine for managers of change in education technology, Ali, (2003) says that the best approach in implementation of technology is to focus on the ability to use technology rather than simply providing machines. This calls for competencies in installation, operation, maintenance of the equipment, network administration and network security for implementation in schools. Without this, much time and money may be lost due to technical breakdowns. This study will assess the availability and accessibility of ICT technical support within the Kenyan secondary schooling system.

#### **2.4.4 ICT skills level among the school administrators**

According to surveys; the majority of in-service teachers both at primary and secondary school have minimal to no ICT literacy or integration skills. Computer for schools, Kenya and to a small extent school net Kenya and KTTC are conducting ICT foundations and integration workshop for inset teachers CFSK, (2007). This probably explains why very few schools administrators are computer literate.

Large scale ICT capacity building workshops for inset teacher training should build off any existing structures that deliver ongoing professional development for teachers. The programme should be consistent with the workshops for administrators and pre-service teachers at teachers training colleges. The

foundational skills should not be the end goal. Instruction goal and activities should be highly conceptualized to address educational and administrative outcomes and the teacher reality CFSK, (2007).

In a study carried out by Gakuu & Kidombo, (2010) on pedagogical integration of ICT in selected Kenyan secondary schools it was observed that most schools in Africa use computers as an object of study rather than a tool for teaching and learning. The study results showed that the integration of ICT in administration is influenced by the schools ICT policy and school manager's level of ICT skills.

Menjo (2010) in his study on challenges of using ICT in school administration in Kenya, the major study results included lack of adequate training in ICT, limited computer hardware dedicated to administrative work, lack of time and absence of appropriate administrative software.

## **2.5 Theoretical frame work**

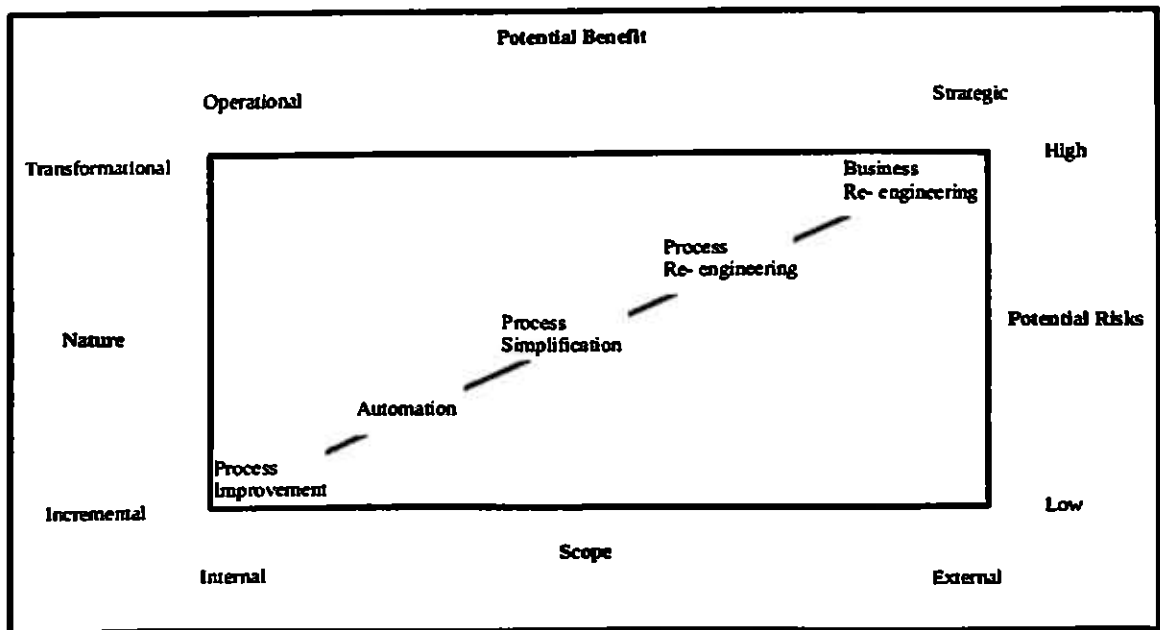
Singh (2008) has specified that ICT has played a major role in reducing operational inefficiency and improving decision-making in many areas of governance. An integrated Higher Education Service System is one such concept that can empower the governing bodies to administer the progress of the education plan in the whole country and serve various stakeholders in a much better manner. According to Maki (2008), administrative subsystems include

Personnel administration, student administration, resources administration, financial administration and general administration.

Mugenda (2006) upheld that ICT fosters the dissemination of information and knowledge by separating content from its physical location. This flow of information is largely impervious to geographic boundaries allowing remote communities to become integrated into global networks and making information, knowledge and culture accessible, in theory, to anyone. It is also mentioned that ICT enhances day-to-day management of institutions and the various functional areas in which it could be used. This includes: timetabling, student admission and tracking, financial management, medical services, procurement and store management, and data distribution and management.

This study will be guided by Hammer & Champy's, (1993) theory of business processes reengineering whereby schools are encouraged to adopt ICT in little increment which is summarized in Figure 2.1.

**Figure 2.1 Theoretical framework**



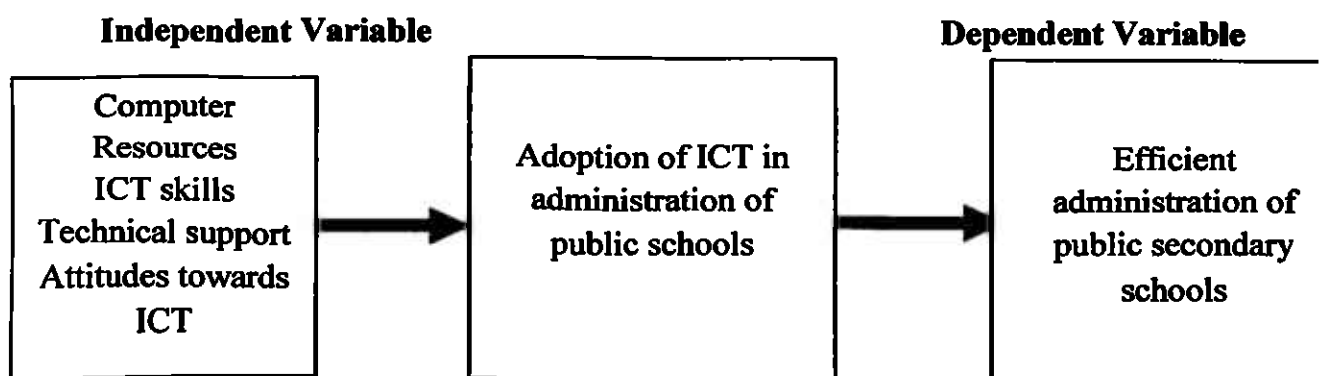
The theory postulates that organizational environments are dynamic and operations strategies may reflect compromise more than radical leaps into new service areas. Existing facilities, processes and control structures are seldom ideal and may be patched to roughly fit requirements. Evolution (one step at a time) is more likely to be adopted by the organization unless there are funds for major long-term investment. Reengineering is defined as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service, and speed Hammer & Champy, (1993).

The theory focuses on business processes where the processes are re-conceptualized to work in a different way. It offers the opportunity to rethink individual processes and emphasis on identifying the key core processes. It is through this process that organizations change the way their business work by Rethinking and redesigning the entire business behind a more competitive strategy. Under this theory, schools are encouraged to adopt ICT changes in little increments in form of process simplification, process improvement and automation. Those that will not embrace ICT in tandem with the changing environments will find it very difficult in future simply because they will have to invest in re-engineering processes which are quite expensive and require costly expertise to implement.

## 2.6 Conceptual frame work

The research study conceptualized that adoption of ICT is influenced by perceived availability of equipment, availability of skills, technical support, and attitudes of stakeholders among others.

**Figure 2.2: Conceptual Framework**



The conceptual framework above shows causes which affect ICT adoption and implementation in administration of secondary schools. These causes are grouped broadly into computer resources, ICT skills, technical support, and attitudes towards ICT. Computer resources being the physical equipment both hardware and software required to enable a network to function can affect adoption of technology. Schools lacking computer labs, computers, digital learning aids and even storage devices may not be able to carry on with the ICT adoption in administrative activities. On the other hand schools well endowed with all required infrastructure would be expected to be in a better position to take advantage of the new technology and adopt it into administrative activities.

To moderate this setback, MOEST developed in its ICT policy a policy to provide adequate infrastructure at all levels of education and training by stakeholders. . The government reduced tax on ICT to reduce internet access rates and allocated 13 billion to the ministry of education to purchase mobile computer laboratories in each constituency for use by both primary and secondary schools.

Technical support availability or non availability can affect ICT adoption and its implementation in secondary schools administration. Effective technical support enables the adoption and implementation of ICT to function effectively and efficiently. The schools need to have technical support provided for whether by the school staff or external providers. The support needed would come in handy in installation, operation and maintenance of technical equipment and network

administration. The administrators themselves need to have basic trouble-shooting skills to overcome technical problems while using ICT in carrying out administrative work. The administrators need to upgrade their ICT skills through the in-service courses provided by the ministry of Education and other sponsors.

Finally attitude is a very powerful variable because it determines whether all the other variables will be embraced by all stakeholders. The ability to use technology is basically driven by attitude. The Provision of machines which may never be used due to lack of interest, or even technical know-how leads to slow or no adoption of ICT in many schools. Many administrators and other stake holders are not ready to change from the old way of doing things to the modern technology driven way. The government needs to do a lot of capacity building through seminars and short courses which may or may not be welcomed by the stakeholders due to the negative attitude they may be having towards ICT. The attitude will vary depending on the age of the stake-holders, beliefs about education, and the location of the schools plus the interests of individual persons in general.

The study conceptualizes that if schools adopt ICT in administration by investing in computer resources, ICT skills, ICT Technical support and positive attitudes towards ICT, then efficiency would be achieved in running public secondary schools.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter focuses on the research methodology adopted for the study. It highlights the research design adopted for the study, the target population of the study, the sample size and sampling procedures, research instruments to be used in the study together with their validity and reliability, data collection procedures and data analysis techniques to be used in the study.

#### **3.2 Research design**

A descriptive survey research design was adopted to establish school based factors that influence headteachers' adoption of ICT in administration of secondary schools in Makadara district. Descriptive survey research design was adopted as it brings out quantifiable information from the sample Mugenda & Mugenda, (1999). Descriptive survey research is intended to produce statistical information about aspects of education that interests the policy makers and educators. The choice of the descriptive survey research design was made based on the fact that in this study, the researcher is interested on the state of affairs already existing in the field and no variable will be manipulated Borg & Gall, (1989).



### **3.3 Target population**

The study was carried out in Makadara district and targeted all the 10 public secondary schools in Makadara district. The district consisted of 10 secondary schools with a population of 10 headteachers, 10 deputy headteachers, 80 heads of departments, and 5744 students DEO Makadara, (2012) as of the time of study.

### **3.4 Sample size and sampling procedures**

The district had 10 public secondary schools with an equivalent number of headteachers, deputy headteachers and eight (8) heads of departments. This being a small population all the headteachers, deputy headteachers and heads of departments were selected for the study. In public schools the departments include languages, mathematics, humanities, sciences, technical and applied, guidance and counseling, boarding and games and sports. The sampling procedure was summarized as shown in Table 3.1.

**Table 3.1:**  
**Sample size**

	<b>No of schools</b>	<b>head teachers</b>	<b>deputy head teachers</b>	<b>Heads of department</b>
<b>Population</b>	10	10	10	80
<b>Sample</b>	10	10	10	80

### **3.5 Research instrument**

Three sets of questionnaires were developed for headteachers, deputy headteachers and heads of departments respectively. All the three sets of questionnaires had five sections. Section A collected demographic data on the school administrators while section B solicited information on the availability of ICT resources in their respective schools. Section C collected information on the attitudes of the school administrators towards adoption of ICT, while Section D was on the availability of ICT technical support within the schools. Lastly, Section E was on the ICT skills level among the administrators.

The questionnaires tools included both open ended and closed questions for ease of analysis. Questionnaires gave respondents freedom to express their views or opinion and also to make suggestions while maintaining anonymity Gay, (1992). Further, questionnaires are generally less expensive and they do not consume a lot of time in their administration Wiersma, (1995).

### **3.6 Instrument validity**

According to Borg & Hall, (1989) validity is the degree to which a test measured what it purported to measure. Borg & Hall, (1989) noted that content validity was used to examine whether the instruments answered the research questions. The research instrument was appraised by the project supervisors who were also

lecturers at the Department of Education Administration and Planning at the University of Nairobi. To determine the validity of the instrument in this study, a pilot study was conducted in one school with one headteacher and five teachers. The school which was chosen for the pilot study was also included in the final study.

### **3.7 Instrument reliability**

Mugenda & Mugenda (2003) define reliability as a measure of the degree to which research instruments yield consistent result. A scale reliability analysis was conducted on the data using the Statistical Package for Social Scientists (SPSS) computer program. The Pearson's correlation co-efficient of 0.84 was obtained for headteachers and 0.89 for teachers indicating a high degree of stability. Mugenda, (2003) posit that a Pearson value of 0.8 and above indicates a good instrument reliability confirming that the instruments were reliable.

### **3.8 Data collection procedure**

A research permit to conduct the study was sought from the National Council of Science and Technology and was presented to the headteachers of the participating schools. The headteachers and teachers involved in the study were briefed on the purpose of the study. The researcher delivered the questionnaires to the respondents in the sampled schools and later picked them on the agreed date and time. The researcher also paid the District Education Officer a courtesy call to build a rapport and in the process informed him of the intended study in his District.

### **3.9 Data analysis**

Data analysis started with checking raw data from the closed-ended items on the two categories of questionnaires to establish accuracy, usefulness and completeness. For ease of analysis the data were then coded and entered into the computer by use of the SPSS program. Descriptive statistics of frequencies and percentages were used to summarize the data. Data from the open-ended items in all the categories of questionnaires were read thoroughly and recorded for qualitative data analysis. Themes and categories for all types of questionnaires were generated using the SPSS computer program version 17.0. The data were then evaluated and analyzed for usefulness in answering research questions and also for report writing.

## **CHAPTER FOUR**

### **DATA ANALYSIS, PRESENTATION AND INTERPRETATION**

#### **4.1 Introduction**

This chapter presents the analysis and findings of the study. It provides the general information on school based factors influencing headteachers' adoption of Information and Communication Technology in administration of secondary schools in Makadara District, Kenya. The chapter starts with the questionnaire return rate, and then the background information the respondents. It proceeds to confirm the availability of ICT resources for use in administration in the schools. It then assess the attitudes of school administrators towards adoption of ICT in the administration, and there after determines the availability of ICT technical support to help in the use of ICT in the administration. Finally the study assesses the ICT skills use in the administration of public secondary schools in Makadara district.

#### **4.2 Questionnaire return rate**

A total of 100 questionnaires were distributed to 10 headteachers and 10 deputy headteachers and 80 heads of department out of which 61 questionnaires were returned giving a response rate of 61% which was deemed sufficient for data analysis. Mulusa (1990) argues that 50% return rate is adequate, 60% and 70% very good.

### 4.3 Demographic information

The study enquired about the demographic information of the headteachers, and teachers in terms of their gender, age, qualification, teaching experience, and duration in their profession and the findings were presented in tables and charts.

To determine the distribution, the headteachers, deputies head teachers and heads of department were asked to indicate their gender.

#### 4.3.1 Gender

The gender representation of the headteachers, deputy headteachers and heads of the departments were analyzed and results presented as shown in Table 4.1

**Table 4.1**  
**Distribution of administrators by gender**

<b>Gender</b>	<b>Headteachers</b>		<b>Deputy Headteachers</b>		<b>Heads Of Department</b>	
	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>
Female	2	33	2	33	17	36
Male	4	67	4	67	30	64
<b>Total</b>	<b>6</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>47</b>	<b>100</b>

As shown in Table 4.1, it was observed that 67 percent of the school heads and their deputies were males while 33 percent were females. Consequently (63%) of the HODs in the district were females with only 35 male representations. The

above findings show that gender representation of the respondents was taken into consideration.

#### 4.3.2 Age

The age representations of the respondents were the other demographic information that was taken into consideration and the distribution were presented as shown in Table 4.2.

**Table 4.2**  
**Distribution of administrators by age**

Age Range	Headteachers		Deputy Headteachers		Heads of Department	
	F	%	F	%	F	%
20 - 30 years	0	0	0	0	11	24
31 - 40 years	0	0	0	0	12	27
41 - 50 years	5	83	4	67	18	40
51 - 60 years	1	17	2	33	4	9
<b>Total</b>	<b>6</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>45</b>	<b>100</b>

As shown in Table 4.2 on the age distribution of the headteachers, their deputies were aged above 40 years, while 49% of the of the heads of departments were aged over 40 years an indication that all the respondents were mature people to

provide reliable information on the school based factors that influence information technology in administration of secondary schools.

### 4.3.3 Academic qualification

To determine the academic qualification of the respondent's headteachers, teachers and HODs were asked to indicate their education level and the results were presented as shown in Table 4.3.

**Table 4.3**

**Distribution of administrators by academic qualification**

Education Level	Headteachers		Deputy Headteachers		Heads Of Department	
	F	%	F	%	F	%
Masters in Education	2	33	3	60	1	2
Bachelor of Education	4	67	2	40	13	30
Post-graduate Diploma in	0	0	0	0	28	64
Diploma in Education	0	0	0	0	2	5
<b>Total</b>	<b>6</b>	<b>100</b>	<b>5</b>	<b>100</b>	<b>44</b>	<b>100</b>

As shown in table 4.3, the results revealed that all of the headteachers, their deputies and a third of HODs held at least a degree level of education implying that most of the administrators in the district were well equipped to head their respective institutions implying that respondents had the academic qualification to provide analytical opinions on the school based factors that influence information



technology in administration of secondary schools. On the school set up in the district, the study found out that one third were boy schools, the other third were girls schools and the remaining one third were mixed schools.

#### **4.4 Availability of ICT resources for use in administration in public secondary schools**

ICT plays a major role in reducing operational inefficiency and improving decision-making in many areas of governance. To establish the the availability of ICT resources for use in administration in public secondary schools in the district, the study enquired whether the schools had ICT equipment like computers, printers telephones, scanners and faxes. The study found out that all the schools had computers, 83 percent had printers, 83 percent had telephones, 50 percent had scanners, and 17 percent had fax suggesting that ICT equipment were present in the district but varied from school to school. The headteachers indicated that the computers were distributed to the headteachers, their secretaries, deputy headteachers, school bursars, and heads of departments. The distribution of computers to deputy headteachers was as shown in table 4.4.

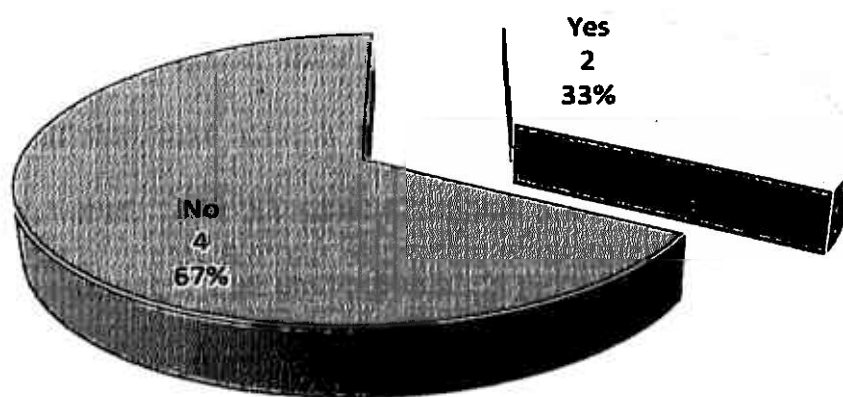
**Table 4.4****Allocation of computers to deputy head teachers**

	<b>Headteachers</b>		<b>Deputy headteachers</b>		<b>HODs</b>	
	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>
<b>Yes</b>	<b>10</b>	<b>100</b>	<b>3</b>	<b>50</b>	<b>6</b>	<b>13</b>
<b>No</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>33</b>	<b>32</b>	<b>67</b>
<b>Did not respond</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>17</b>	<b>10</b>	<b>20</b>
<b>Total</b>	<b>10</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>48</b>	<b>100</b>

As shown in Table 4.4, whereas all the headteachers in the district had computers, findings indicate that only 50 percent of the deputy headteachers and 13 percent of HODs had been allocated computers in schools within the district suggesting that majority of the administrators used manual records to perform their tasks. Further analysis indicated that those who had computers used them for capturing school enrolment, analysis of students' marks, student bio-data storage, accessing the internet, registration of KCSE candidates, typing examinations and for teaching where they used the computers for research on the subjects they taught. The study enquired on the availability of internet in schools. The results are as shown in Figure 4.1

**Figure 4.1**

**Headteachers' response on availability of internet in schools**



Findings show that only 33 percent of the schools had internet suggesting that most of the schools in the district did not enjoy internet services. Further findings indicate that for the schools that had internet, the offices that had internet included Administration block, staffroom, students' computer lab, and some subject's room. This finding suggests that in as much as 33 percent of the schools, the internet service was highly regulated and localized within the watch of the headteachers. The finding confirms study by James, (2001) cited in Minishi-Majanja, (2001) that schools are adopting cost cutting measures to ensure technology is sustainable.

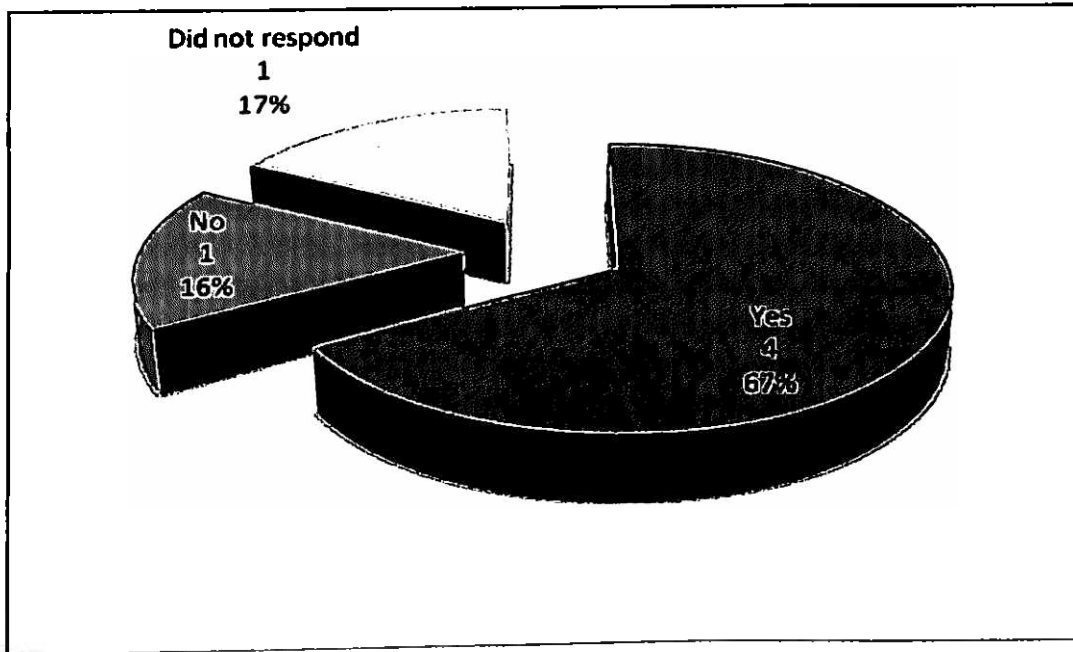
#### **4.5 Attitudes of school administrators towards adoption of ICT in the administration**

To assess the attitudes of school administrators towards adoption of ICT in the administration of public secondary schools in the district The study enquired whether the headteachers, their deputies and HODs were computer literate. The findings indicate that all the headteachers and their deputies were computer literate. However only 83 percent of the HODs in the district were computer literate, an indication that the respondents were aware of ICT and hence, adoption of ICT with a computer literate administration would be easier than when a community that is not computer literate. The good adoption of ICT in the district can partly be attributed to the above skills levels. This finding is in line with study carried out by Menjo, (2010) that computer literacy enhance ICT adoption in school administration in Kenya.

When the headteachers were asked whether there were plans in their respective schools to have their administrators taught computer skills, the results were as shown in Figure 4. 2.

**Figure 4.2**

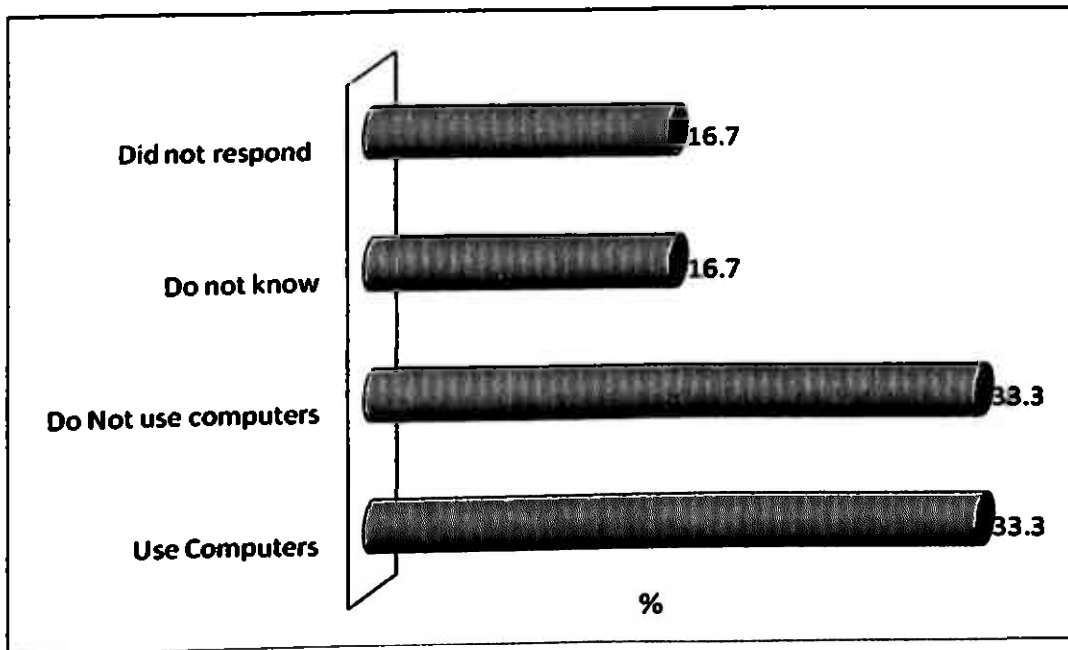
**Does the schools plan to have all the school administrators taught ICT skills**



On whether there were plans in the schools to have administrators taught computer skills, findings show that majority of the schools had prepared to upgrade ICT skills of their administrators. This was confirmed by the headteachers and collaborated by the deputies and HODs in similar proportions who indicated that the ministry of education, the PTA and respective administrators would be the sponsors of such training. However, 17 percent of the schools in the district did not have such plans to have their administrators upgrade their ICT skills. The study further enquired on how various administrative tasks like admission of students, class attendance, report forms, timetabling, schemes of work, library books, fees statements school budgeting and management of store

records were performed. On registration of new students, the results were as shown in Figure 4.3.

**Figure 4.3**  
**Method used on Registration of new students**



Finding show that in as much as the computer literacy level was high in the district among the administrators, only 33 percent of the schools used computers to capture details of new students upon admission to their schools.

This could be an indicator that in as much as the administrators were computer literate, enough of them did not have the confidence of using computers, this finding is in agreement with study by Menjo,( 2010) that lack of adequate training in ICT is a major challenges towards using ICT in school administration in

Kenya. It could also be an indicator that the schools were not in the process of ICT adoption in administration within the district. On class attendance, results were as shown in Table 4.5.

**Table 4.5**

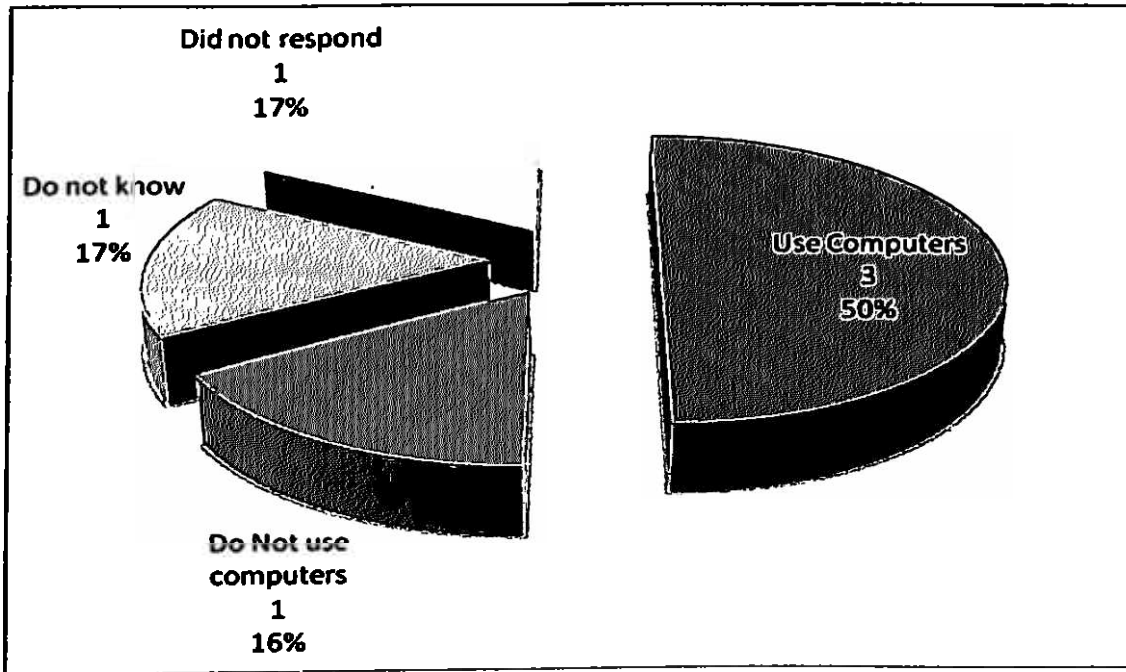
**Method used to manage Records of class attendance**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Use Computers	1	16.7
Do Not use computers	3	50.0
Do not know	1	16.7
Did not respond	1	16.7
<b>Total</b>	<b>6</b>	<b>100.0</b>

Findings show that only 16 percent of the schools in the district managed students' records of class attendance further suggesting that there was either a computer resource shortage in the district or that the administrators were not competent enough to manage such records using computers. Results on students report forms were as shown in Figure 4. 4.

**Figure 4.4**

**Method used on Preparation of students report forms**



The study found out that 50 percent of the schools adopted computers on the preparation of students report forms suggesting that there was a considerable attempt among the schools in the district to adopt computers in administration work. On students' discipline records the results were as shown in table 4.6.

**Table 4.6**

**Method used on maintenance of students' discipline records**

Method	Frequency	Percent
Use Computers	1	16.7
Do Not use computers	2	33.3
Do not know	1	16.7
Did not respond	2	33.3
<b>Total</b>	<b>6</b>	<b>100</b>



Data revealed that only 17 percent of the schools used computers to maintain students' discipline records. It was observed that majority of the schools maintained manual records in the nick name of 'black books'. On preparation of school time tables, the results are as shown in Table 4.7.

**Table 4.7**  
**Method used on Preparation of school timetable**

	<b>Frequency</b>	<b>Percent</b>
Use Computers	3	50.0
Do Not use computers	2	33.3
Did not respond	1	16.7
<b>Total</b>	<b>6</b>	<b>100.0</b>

The study found out that 50 percent of the schools adopted the use of computers in preparation of school time tables. The rest of the school used manual record books for the preparation of the time tables. On lesson plans and schemes of work, the study found out that only 33 percent of the schools adopted computers in their preparations agreeing with Gakuu & Kidombo, (2010) that secondary schools in Africa use computers administratively rather than a tool for teaching and learning.

To determine the usage of computers in schools the headteachers we asked if they use the computers for selected tasks and the findings were presented as shown in table 4.8.

**Table 4.8**  
**Computer usage in schools**

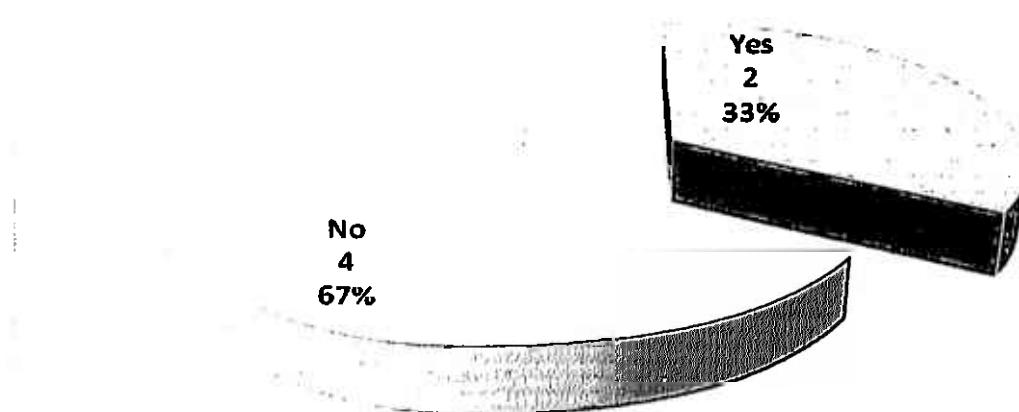
<b>Response</b>	<b>Yes</b>		<b>No</b>	
	<b>frequency</b>	<b>%</b>	<b>frequency</b>	<b>%</b>
<b>Usage of computers</b>				
Preparation of record of work and teachers notes	5	50	5	50
Maintenance of library records and issuing books to students,	5	50	5	50
Maintenance of teachers attendance records,	5	50	5	50
Maintenance of teachers' leave and sick offs,	2	17	8	83
Maintenance of teachers leaves applications,	2	17	8	83
Keeping teachers performance records,	3	33	7	67
For issuance of receipts for money paid,	3	33	7	67
Preparation of students fees statements,	5	50	5	50
Preparation of workers payrolls,	3	33	7	67
preparation of school budget,	5	50	5	50
Preparation of schools income and expenditure reports,	5	50	5	50
Preparation of community speeches, and	2	17	8	83
Preparation of board minutes.	5	50	5	50

As shown in table 4.8 the level of usage of the computer in school varied from one task to the other, with none using the computer for actual teaching learning process supporting the observation by Gakuu & Kidombo (2010) that most schools in Africa use computers as an object of study rather than a tool for teaching and learning.

The study further enquired whether the schools had school management systems for administration work. The results are as shown in Figure 4.5.

**Figure 4.5**

**Headteachers' response on school management systems (SMS)**



Findings show that only 33 percent of the schools in the district had school management systems and only 17 percent had a web enabled system where parents would enquire on their students' welfare through internet. The rest of the schools either used manual records or selected computer programmes to perform

their duties. On further analysis, the study observed that those who adopted computers used stand alone packages with Microsoft Word, Excel, and Email/Internet being the most widely used.

#### **4.6 Availability of ICT technical support in schools**

To determine the availability of ICT technical support to help in the use of ICT in the administration of public secondary schools in the district, the head teachers were asked to indicate who advised the schools on the matters of equipment purchases within the schools and the results are as shown in Table 4.8.

**Table 4.9**  
**Headteachers' response on who advised on computer purchases**

<b>Advisor</b>	<b>Frequency</b>	<b>Percent</b>
Do not seek advice	2	33.3
Advised by the board members	2	33.3
Advised by the computer teacher	2	33.4
<b>Total</b>	<b>6</b>	<b>100</b>

As shown in Table 4.9, the study found out that headteachers, board members and computer teachers provide advice on the procurement for ICT equipment in schools within the district. The finding indicates that there is a need for building capacity on the headteachers on matters relating to procurement of ICT equipments to ensure viability. Further MOE needs to train more specialized ICT personnel through external and internal projects that aim at creating cadre of self-

sufficient systems in schools by building technical capacity in ICT. This finding demonstrated that most of the headteachers sought help from either the computer teacher or from the board of governors of their respective schools.

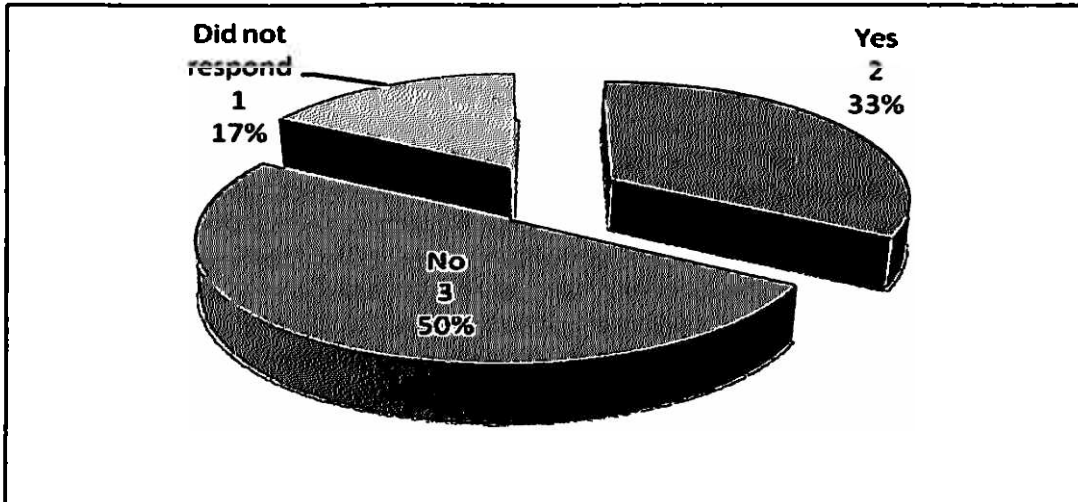
The study further enquired what happened if computers broke down. The headteachers confirmed that they hired computer technicians whenever computers broke down further suggesting that schools needed capacity building on the maintenance of computers.

The study further found out that Maintenance of computers was also done by hired technicians as confirmed by 67 percent of the headteachers.

The study further enquired whether the schools had any computer maintenance service contracts with the computer vendors. The results are as shown in Figure 4.6.

**Figure 4.6**

**Does the school have computer service contracts**



Findings show that only 33 percent of the schools had computer maintenance service contracts in place, an indication that service delivery will be at risk should the computer equipment be out of warranty within the useful life time. The findings indicate that there is need for the school management to ensure that provision of IT services and procurements are accompanied with a valid maintenance contracts to ensure sustainability of ICT services within the school community. This finding supports the recommendation by Ali, (2003) that without competencies in installation, operation, maintenance of the equipment, network administration and network security for implementation in schools, much time and money may be lost due to technical breakdowns.

**4.7 ICT skills level in administration in schools**

To establish the ICT skills use in the administration of public secondary schools in Makadara district the study posed several questions to the administrators on

whether they ever attended training on the use of ICT and the relevance of such training. On whether they attended training, the results are as shown in table 4.9.

**Table 4.10**  
**Headteacher's attendance of training on ICT skills**

<b>Response</b>	<b>Headteachers</b>		<b>Teachers</b>		<b>HODs</b>	
	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>
<b>Yes</b>	2	33.3	4	66.7	23	48
<b>No</b>	4	67	2	33.3	25	52
<b>Total</b>	<b>6</b>	<b>100.0</b>	<b>6</b>	<b>100.0</b>	<b>48</b>	<b>100</b>

Findings indicate that only 33 percent of the headteachers had ever attended such training. Further analysis indicated that 67 percent of the deputies and 42 percent of the HODs attended training on ICT skills. Finding show that the training revolved around Microsoft word, Microsoft excel, email and internet.

On the relevance of the training to the respective line of or work all the respondents who attended indicate that the training was relevant probably because most of them are involved in the use of word editor to type letter and memos, spreadsheets for analysis and internet for sending and receiving mails. As such Microsoft's word, excel and internet explorer adequately met those needs.

#### 4.8 Proficiency of commonly used computer applications in schools

The study then enquired on the proficiency level of the most commonly used computer programmes in schools. On the use of Microsoft's word, the results are as shown in table 4.10.

**Table 4.11**

**Head teachers response on proficiency in Microsoft word**

<b>Proficiency</b>	<b>Headteachers</b>		<b>Deputy headteachers</b>		<b>HODs</b>	
	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>
Very good	3	50			29	50
Good	1	17	3	50	11	19
Average	2	33	3	50	8	13
<b>Total</b>	<b>6</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>48</b>	<b>100</b>

As shown in Table 4.11, the findings show that 67 percent of the headteachers, 50 percent of the deputies and 68 percent of the HODs had a good proficiency and command of Microsoft's' word suggesting that they were in a position to type letters, memos, minutes, notes report forms and such like documents that required word editors. However 33 percent of the headteachers, 50 percent of the headteachers and 12 percent of the HODs were only average users with another 18 percent HODs totally incapable of using the programme.

On the use of Microsoft's excel, the results are as shown in Table 4.12.



**Table 4.12**  
**Proficiency in Microsoft Excel**

Proficiency	Headteachers		Deputy Headteachers		HODs	
	F	%	F	%	F	%
Very good	2	33			14	29
Good	1	17	2	33	11	23
Average	2	33	3	50	9	19
Poor	1	17	1	17	3	6
Did not respond	-	-	-	-	11	23
<b>Total</b>	<b>6</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>48</b>	<b>100</b>

Findings show that 50 percent of the headteachers, 53 percent of the deputies and 68 percent of the HODs had a good proficiency in Microsoft's excel suggesting that they were in a position to do analysis such as students marks and accounting tasks that required spreadsheets. However 50 percent of the headteachers, 47 percent of the deputies and 32 percent of the HODs were only average users incapable of fully exploiting the programme.

On the usage of the other programmes, findings show that the level of competence was quite low on Microsoft PowerPoint, Microsoft Access, Microsoft Outlook, Microsoft Publisher, QuickBooks, Photoshop and PageMaker, suggesting that the

administrators in secondary schools could not efficiently perform tasks such as making presentations for speeches, creating databases, developing brochures, accounting statements within their schools.

However the competence and usage of email and internet was quite high among the administrators where 67 percent of the headteachers, 80 percent of the deputies and 81 percent of the HODs were competent enough in its use for communication suggesting that most of the administrators in the district used internet and emails.

#### **4.9 Challenges faced by the administrators when using ICT**

On the challenges faced by the headteachers when using ICT in administration, the headteachers cited breaks down of computers to be quite high which could be attributed to the fact that they got very scanty technical support on the acquisition usage and maintenance of the computers. The headteachers also indicated that finances were not adequate to procure computers for the school administrators. Computer illiteracy levels were found to be too low among the administrators which were a major hindrance in the adoption of computers in administration. Power breakdowns were found to be major hindrances to ICT adoption given that computers solely rely on electricity and in absence of electricity, the whole of the administration would be grounded to a halt if it solely relied on computers. Some

headteachers also complained that use of computers led to a lot of printing which had a major cost implication on printer toners and paper used.

On the coping strategies, the headteachers encouraged the teachers to type exams for pupils on their own because only then would they become computer literate. Others offered to train all the staff (both teaching and non teaching) basic ICT skills through the computer teachers.

The headteachers recommended the bursars' offices be fitted with financial management software, while the staffroom is fitted with a centralized place for keying in student marks. They also recommended introduction of computer lessons for teachers to help them upgrade their computer skills.

In summary, the study established that there is a positive attitude towards adoption of ICT in administration of secondary schools in Makadara District, Kenya. However, there is need to strengthen the capacity in procurement of computers, service contracts for computers, proficiency skills and availability of ICT resources.

#### **4.10 Summary**

**This chapter comprises of data analysis, presentation and interpretation. This presented information on findings on questionnaire return rate, demographic information, availability of resources for use, attitudes of school administrators towards adoption of ICT, availability of ICT technical support in schools, ICT skill level amongst the administrators in schools, challenges faced by the administrators when using ICT and the chapter summary.**

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

**This chapter deals with the summary, conclusion and recommendations of the study on school based factors influencing headteachers' adoption of information and communication technology in administration of secondary schools in Makadara District, Kenya**

#### **5.2 Summary of the study**

**The purpose of this study was to assess the school-based factors influencing adoption of ICT in administration of public secondary schools in Makadara district, Kenya. The objectives of the study were to establish the availability of ICT resources for use in administration, assess the attitudes of school administrators towards adoption of ICT in the administration, to determine the availability of ICT technical support to help in the use of ICT in the administration and to establish the ICT skills level in the administration of public secondary schools in Makadara district.**

**A descriptive research design was adopted where a total of 100 questionnaires were distributed to 10 headteachers and 10 deputy headteachers and 80 heads of department out of which 61 questionnaires were returned giving a response rate of 61% which was deemed sufficient for data analysis. The questionnaires tools included both open ended and closed questions for ease of analysis.**

Questionnaires gave respondents freedom to express their views or opinion and also to make suggestions while maintaining anonymity Gay, (1976). The returned questionnaires were coded, cleaned and analyzed using Statistical Package for Social Sciences (SPSS) version 17.0. The Pearson's correlation co-efficient was obtained as 0.84 for headteachers, and 0.89 for teachers indicating a high degree of stability Mugenda,( 2003) confirming that the instruments were reliable.

To determine the validity of the instrument in this study, a pilot study was conducted in one school with one headteacher and five teachers. The school which was chosen for the pilot study was also included in the final study. The following are the findings of the study.

### **5.3 Summary of the findings**

On the availability of ICT resources for use in administration in public secondary schools in the district, the study found out that all the headteachers and half the deputy headteachers had been allocated computers mainly used for typing and storage of school information. Only a third of the schools had internet connectivity.

On the attitudes of school administrators towards adoption of ICT in the administration of public secondary schools in the district, the study found out that all the headteachers and their deputies were computer literate. Majority of the heads of department in the district were computer literate. This was a positive

attribute in the district as it was an indicator that adoption of ICT with a computer literate administration would be easier than with a community that was not computer literate. Most of the schools had plans in place to upgrade ICT skills of their administrators where the ministry of education, the PTA and respective administrators would sponsor such a training.

It was found out that only one third of the schools in the district had school management systems and only one school had a web enabled system where parents would enquire on their students' welfare through internet. The rest of the schools either used manual records or selected computer programmes to perform their duties. The other schools that had adopted computers used stand alone packages with Microsoft Word, Excel, and Email/Internet.

On the availability of ICT technical support to help in the use of ICT in the administration of public secondary schools in the district, the study found out that procurement of ICT equipment in schools within the district were advised by either headteachers, board members or the computer teacher.

On ICT skills level in the administration of public secondary schools in the district, the study found out that only a few headteachers, half of the deputies and half of HODs ever attended training on ICT where the training revolved around Microsoft word, Microsoft Excel, Email and Internet. The training was relevant

because most of them are involved in the use of word editor to type letter and memos, spreadsheets for analysis and internet for sending and receiving mails. As such Microsoft's word, excel and internet explorer adequately met those needs.

Only a few of the headteachers, their deputies, and HODs had a good proficiency of Microsoft's word and were in a position to type letters, memos, minutes, notes report forms and such like documents that required word editors, Majority of the administrators were only average users. Similarly, only a few of the administrators had a good proficiency in Microsoft's excel to do analysis such as students marks and accounting tasks that required spreadsheets. Findings show that the level of competence was quite low on Microsoft's PowerPoint, Access, Outlook, Publisher, QuickBooks, Photoshop and PageMaker. However the competence and usage of email and internet was quite high among the administrators.

On the challenges faced by the headteachers when using ICT in administration, the headteachers cited breaks down of computers and scanty technical support on the acquisition usage and maintenance of the computers were the key challenges in the usage of ICT. It was established that finances were not adequate to procure computers in schools. Computer literacy levels were found to be too low among the administrators and Power breakdowns given that computer relied on



electricity. Some headteachers also complained that use of computers led to a lot of printing which had a major cost implication on printer toners and paper used.

On the coping strategies, the headteachers encouraged the teachers to type exams for pupils on their own because only then would they become computer literate. Others offered to train all the staff (both teaching and non teaching) basic ICT skills through the computer teachers.

#### **5.4 Conclusion of the study**

The study found out that the school administrators had very few computers for administration work in the district. The procurement for ICT equipment in schools within the district was advised by headteachers, board members or the computer teacher. Headteachers therefore needed a lot of capacity development on procurement of ICT equipments since they are solely responsible for the purchase by the fact that they were the schools' accounting officers.

It was further revealed that the headteachers hired computer technicians whenever computers broke down and Maintenance purposes. This indicated that schools needed capacity building in computer maintenance services to ensure sustainability of ICT services within the schools.

The schools administrators in the district were computer literate and that most of the schools had plans in place to upgrade ICT skills. School management systems exists either as stand alone or web enabled system. A few head teachers, half of the deputies and half of HODs ever attended training on ICT which revolved around Microsoft word, Microsoft Excel, Email and Internet, however, only a few of them had a good proficiency of computers suggesting that Majority of them were only average users.

The ability to use technology is basically driven by attitude. The study established that there is a positive attitude towards adoption of ICT in administration of secondary schools in Makadara District, Kenya. However, the government needs to do a lot of capacity building through seminars and short courses which may or may not be welcomed by the stakeholders due to the negative attitude they may be having towards ICT.

Finally, the study observed that the administrators faced challenges when using ICT in administration which included breakdowns of computers, lack of technical support, inadequate finances to procure computers, low computer literacy level among the administrators and regular power breakdowns in the district.

## **5.5 Recommendations**

- 1. The Ministry of Education, teachers services commission and school boards should encourage the adoption of ICT in administration in schools in Makadara district through provision of computers to schools.**
- 2. The teachers' service commission, KIE and Ministry of Education and headteachers should ensure that that schools are equipped with professionally trained teachers in ICT skills courses to guide and assist in use of the computers thereby encouraging the adoption of ICT in administration in schools.**
- 3. The Teachers Training Colleges and universities should incorporate basic procurement, usage and maintenance of computer skills in the training curriculum to enhance efficient utilization of ICT in schools.**
- 4. The City council through the Ministry of Education' Quality Assurance and Standard office should ensure that the head teachers are adopting ICT in carrying out school administration activities.**
- 5. The Kenya Educational Staff Institute should encourage ICT adoption in schools by training administrators in ICT courses relevant to administration work like procurement, usage and maintenance of computers.**
- 6. The Headteachers should also encourage ICT adoption in schools by setting out school level policies on ICT use and sponsoring teachers for ICT on work courses through the school Board of Governors.**

## **5.6 Areas of Further Research**

The study observed that further research would be necessary in the following areas.

- i. The same research can be replicated in wider population to establish consistency of the finding for generalization.
- ii. Study the relationship of headteachers competency in procurement matters of ICT equipments and technology sustainability in public secondary schools.
- iii. The relationship between technology adoption in schools administration and schools performance.

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**APPENDICES**  
**APPENDIX 1**  
**A LETTER OF INTRODUCTION**

University Of Nairobi  
P.O. Box 30197,  
NAIROBI.

The Principal  
\_\_\_\_\_ Secondary School

Dear Sir/Madam,

**RE: PERMISSION TO CONDUCT RESEARCH IN YOUR SCHOOL**

I am a post-graduate student pursuing a Master of Education (M.Ed) degree in Educational Administration at the University of Nairobi. I am conducting a research on school-based factors influencing headteachers' adoption of information and communication technology in administration in secondary schools in Makadara District, Kenya.

I request you to kindly spare time to fill this questionnaire. The information obtained will be purely for academic purposes. I would like to assure you that the information gathered will be used solely for research purposes and your identity will be kept confidential.

Thank you for your cooperation.

Yours faithfully,

Rose B. Mouti,

## APPENDIX 2

### HEADTEACHERS' QUESTIONNAIRE

#### Instructions

You have been selected to participate in an education administration research at the University of Nairobi. You are requested to respond to each question thoughtfully and honestly. Your independent view is required and your cooperation is highly appreciated. You are not required to write your name unless you choose to. Your responses will be treated confidentially.

#### Part A: Personal Information

1. What is your gender? Male ( ) Female ( )

2. What is your age bracket?

20-30 yrs ( ) 31-40 yrs ( ) 41-50 yrs ( ) (51-60) yrs ( ) over 60 yrs ( )

3. What is your highest academic qualification?

Masters in Education ( )

Bachelor of Education ( )

Post-graduate Diploma in Education ( )

Diploma in Education ( )

Any other? (Please specify) \_\_\_\_\_

4. For how long have you been in the teaching profession?

Below 1 yr ( ) 1-5 yrs ( ) 6-10 yrs ( ) 11-15 yrs ( ) over 15 yrs ( )

5. For how long have you taught in your current station?

Below 1 yr ( )      1-5 yrs ( )      6-10 yrs ( )      11-15 yrs ( )      over 15 yrs ( )

6. What is your school set up?

a. Boys ( )      Girls ( )      Mixed ( )

b. Boarding ( )      Day ( )      Boarding and day ( )

**Part B: Availability of ICT resources for administration**

7. Do you have computers in your school? Yes       No

a. If yes, how many do you have in your school? \_\_\_\_\_

b. If yes, how are they utilized?

\_\_\_\_\_

i) For students computer lab      Yes       No

ii) For administration work      Yes       No

8. Has the headteacher been allocated a computer in his office?

Yes       No

If yes, who uses it?      Headteacher       Secretary       Both

9. What tasks do you use the computer to accomplish? List all \_\_\_\_\_

\_\_\_\_\_

10. Who else uses a computer for administration work in your school? List all \_\_\_\_\_

\_\_\_\_\_

11. Which other equipment is available for administrators at your school? Please tick

<b>Equipment</b>	<b>Available</b>	<b>Not available</b>
Printers,		
Telephones,		
Scanners,		
Fax,		

12. Do you have internet connection in your school? Yes  No

If yes, which offices have been connected to the internet?

\_\_\_\_\_

\_\_\_\_\_

**Part C: Attitudes of school administrators towards adoption of ict**

13. Is you deputy headteacher computer literate? Yes  No

14. Are your heads of department computer literate? Yes  No

15. Are there plans in place to have the school administrators taught about ICT skills

Yes  No

If yes, who is the sponsor?

PTA  The individual  Ministry of Education  Donors

NGOs

16. The following are some administrative tasks involving students and teachers in your school. By use of a tick, please indicate the schools' attitude towards the use of computers in the following tasks.

Statement	Like using computers	Do Not like using computers	Do not know
Registration of new students in your school?			
Records of class attendance?			
Preparation of students' report forms?			
Discipline records of students in your school?			

Preparation of the school timetable?			
Preparation of schemes of work, and lesson plans?			
Preparation of record of work and teachers notes?			
Maintenance of library records (issuing books to students)			
Maintenance of teachers' attendance records?			
Maintenance of teachers' sick off applications?			
Maintenance of teachers' leaves applications?			
Keeping teachers performance records?			
Issuance of receipts for money paid			
Preparation of students fees statements?			
Preparation of workers payrolls?			
Preparation of the school budget?			
Preparation of schools income and expenditure statements?			
Maintenance of school supplies records (food stuffs, firewood etc )			
Preparation of community speeches?			
Preparation of board minutes?			



17. Do you have a computer School Management System? Yes   
No   
If yes, are parents able to access it on the internet? Yes   
No

18. If you do not have a school management system what computer programs do you use? List all

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**Part D: Availability of ICT technical support**

19. Who advises on the commuter equipment to be bought in the school?  
Myself  Board Member  Computer Teacher  Hired Technician
20. When the computer breaks down who repairs the computer  
Computer teacher  hired technician
21. Who cleans the computer?  
Myself  Secretary  Computer Teacher  Hired Technician
22. Do you have a contract with any organization to service your computers?  
Yes  No

**Part E: ICT skills level among the administrator**

23. Have you ever attended a training on ICT

Yes                   No

a) If yes, list the courses you were taught \_\_\_\_\_

b) If yes, was the training relevant to your current line of work?      Yes

No

24. Following is a list of the most common computer programs available in a secondary school administration setting. Please tick your proficiency in the following computer packages

	Very good	Good	Average	Poor	Very poor
Microsoft word					
Microsoft Excel					
Microsoft Powerpoint					
Microsoft Access					
Microsoft Outlook					
Microsoft Publisher					

Email & Internet					
QuickBooks					
Photoshop					
PageMaker					
Others: _____					

**25. What challenges do you face when using ICT in administration of the school?**

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**26. What strategies do you use to encourage the use of ICT in administration at your school?**

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## APPENDIX 3

### DEPUTY HEADTEACHERS' QUESTIONNAIRE

#### Instructions

You have been selected to participate in an education administration research at the University of Nairobi. You are requested to respond to each question thoughtfully and honestly. Your independent view is required and your cooperation is highly appreciated. You are not required to write your name unless you choose to. Your responses will be treated confidentially.

#### Part A: Personal Information

1. What is your gender? Male ( ) Female ( )

2. What is your age bracket?

20-30 yrs ( ) 31-40 yrs ( ) 41-50 yrs ( ) (51-60) yrs ( ) over 60 yrs ( )

3. What is your highest academic qualification?

Masters in Education ( )

Bachelor of Education ( )

Post-graduate Diploma in Education ( )

Diploma in Education ( )

Any other? (Please specify) \_\_\_\_\_

4. For how long have you been in the teaching profession?

Below 1 yr ( )      1-5 yrs ( )      6-10 yrs ( )      11-15 yrs ( )      over 15 yrs ( )

5. For how long have you taught in your current station?

Below 1 yr ( )      1-5 yrs ( )      6-10 yrs ( )      11-15 yrs ( )      over 15 yrs ( )

6. What is your school set up?

c. Boys ( )      Girls ( )      Mixed ( )

d. Boarding ( )      Day ( )      Day and boarding ( )

**Part B: Availability of ICT resources for administration**

7. Do you have computers in your school? Yes       No

If yes, how many do you have in your school? \_\_\_\_\_

If yes, how are they utilized?

\_\_\_\_\_

For students computer lab      Yes       No

For administration work      Yes       No

8. Has the deputy headteacher been allocated a computer in his office?

Yes       No

If yes, who uses it?      The deputy       Secretary       Both

9. What tasks do you use the computer to accomplish? List all \_\_\_\_\_  
\_\_\_\_\_

10. Who else uses a computer for administration work in your school? List all \_\_\_\_\_  
\_\_\_\_\_

11. Which other equipment is available for administrators at your school? Please tick

<b>Equipment</b>	<b>Available</b>	<b>Not available</b>
Printers,		
Telephones,		
Scanners,		
Fax,		

12. Do you have internet connection in your school?      Yes       No

If yes, which offices have been connected to the internet?

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**Part C: Attitudes of school administrators towards adoption of ICT**

13. Is your headteacher computer literate?          Yes           No
14. Are your heads of department computer literate?          Yes           No
15. Are there plans in place to have the school administrators taught about ICT skills
- Yes           No

If yes, who is the sponsor?

- PTA           The individual           Ministry of Education           Donors
- NGOs

16. The following are some administrative tasks involving students and teachers in your school. By use of a tick, please indicate the schools' attitude towards the use of computers in the following tasks.

<b>Statement</b>	<b>Like using computers</b>	<b>Do Not like using computers</b>	<b>Do not know</b>
Registration of new students in your school?			
Records of class attendance?			
Preparation of students' report forms?			
Discipline records of students in your school?			
Preparation of the school timetable?			
Preparation of schemes of work, and lesson plans?			
Preparation of record of work and teachers notes?			
Maintenance of library records (issuing books to students)			
Maintenance of teachers' attendance records?			
Maintenance of teachers' sick off applications?			
Maintenance of teachers' leaves applications?			
Keeping teachers performance records?			
Issuance of receipts for money paid			
Preparation of students fees statements?			
Preparation of workers payrolls?			



Preparation of the school budget?			
Preparation of schools income and expenditure statements?			
Maintenance of school supplies records (food stuffs, firewood etc )			
Preparation of community speeches?			
Preparation of board minutes?			

17. Do you have a computer School Management System? Yes

No

If yes, are parents able to access it on the internet? Yes

No

18. If you do not have a school management system what computer programs do you use? List  
all \_\_\_\_\_  
\_\_\_\_\_

**Part D: Availability of ICT technical support**

19. Who advises on the commuter equipment to be bought in the school?

Myself     Board Member     Computer Teacher     Hired Technician

20. When the computer breaks down who repairs the computer

Computer teacher           hired technician

21. Who cleans the computer?

Myself       Secretary       Computer Teacher       Hired Technician

22. Do you have a contract with any organization to service your computers?

Yes           No

**Part E: ICT skills level among the administrator**

23. Have you ever attended a training on ICT

Yes           No

c) If yes, list the courses you were taught \_\_\_\_\_

d) If yes, was the training relevant to your current line of work?      Yes

No

24. Following is a list of the most common computer programs available in a secondary school administration setting. Please tick your proficiency in the following computer packages.

	Very good	Good	Average	Poor	Very poor
Microsoft word					
Microsoft Excel					
<i>Microsoft Powerpoint</i>					
Microsoft Access					
Microsoft Outlook					
Microsoft Publisher					
Email & Internet					
QuickBooks					
Photoshop					
PageMaker					
Others: _____					

**25. What challenges do you face when using ICT in administration of the school?**

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**26. What strategies do you use to encourage the use of ICT in administration at your school?**

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## APPENDIX 4

### QUESTIONNAIRE FOR HEADS OF DEPARTMENT

#### Instructions

You have been selected to participate in an education administration research at the University of Nairobi. You are requested to respond to each question thoughtfully and honestly. Your independent view is required and your cooperation is highly appreciated. You are not required to write your name unless you choose to. Your responses will be treated confidentially.

#### Part A: Personal Information

1. What is your gender? Male ( ) Female ( )
2. What is your age bracket?  
20-30 yrs ( ) 31-40 yrs ( ) 41-50 yrs ( ) (51-60) yrs ( ) over 60 yrs ( )
3. What is your highest academic qualification?  
Ph.D ( )  
Masters in Education ( )  
Bachelor of Education ( )  
Post-graduate Diploma in Education ( )  
Diploma in Education ( )  
Any other? (Please specify) \_\_\_\_\_

4. For how long have you been in the teaching profession?

Below 1 yr ( ) 1-5 yrs ( ) 6-10 yrs ( ) 11-15 yrs ( ) over 15 yrs ( )

5. For how long have you taught in your current station?

Below 1 yr ( ) 1-5 yrs ( ) 6-10 yrs ( ) 11-15 yrs ( ) over 15 yrs ( )

6. What is your school set up?

a) Boys ( ) Girls ( ) Mixed ( )

b) Boarding ( ) Day ( ) Day and boarding ( )

**Part B: Availability of ICT resources for administration**

7. Do you have computers in your school? Yes  No

c. If yes, how many do you have in your school? \_\_\_\_\_

d. If yes, how are they utilized?

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iii) For students computer lab Yes  No

iv) For administration work Yes  No

8. Has the headteacher been allocated a computer in his office? Yes  No

If yes, who uses it?

Headteacher

Secretary

Both

9. Have you as a head of department been allocated a computer? Yes  No

If yes, who uses it?

Myself  my department  it is a common computer with many users

10. What tasks do you use the computer to accomplish? List all \_\_\_\_\_

11. Who else uses a computer for administration work in your school? List all \_\_\_\_\_

12. Which other equipment is available to you as a head of department? Please tick

Equipment	Available	Not available
Printers		
Telephones,		
Scanners,		
Fax,		

13. Do you have internet connection in your school? Yes  No

If yes, which offices have been connected to the internet?

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**Part C: Attitudes of school administrators towards adoption of ict**

14. Is your headteacher computer literate? Yes  No

15. Is your deputy headteacher computer literate? Yes  No

16. Are your fellow heads of department computer literate? Yes  No

17. Are there plans in place to have the school administrators taught about ICT skills? Yes  No

If yes, who is the sponsor?

PTA  The individual  Ministry of Education  Donors  NGOs

18. The following are some administrative tasks involving students and teachers in your school. By use of a tick, please indicate the schools' attitude towards the use of computers in the following tasks.



<b>Statement</b>	<b>Usage of computers</b>		
	<b>Like using computers</b>	<b>Do Not like using computers</b>	<b>Do not know</b>
Records of class attendance?			
Preparation of students' report forms?			
Discipline records of students in your school?			
Preparation of the school timetable?			
Preparation of schemes of work, and lesson plans?			
Preparation of record of work and teachers notes?			
Maintenance of library records (issuing books to students)			
Maintenance of teachers' attendance records?			
Keeping teachers performance records?			
Examinations analysis?			

19. Do you have a computer School Management System? Yes  No

If yes, are parents able to access it on the internet? Yes  No

20. If you do not have a school management system what computer programs do you use? List all

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**Part D: Availability of ICT technical support**

21. Who advises on the computer equipment to be bought in the school?

Myself  Board Member  Computer Teacher  Hired Technician

22. When the computer breaks down who repairs the computer

Computer teacher  hired technician

23. Who cleans the computer?

Myself  Secretary  Computer Teacher  Hired Technician

24. Do you have a contract with any organization to service your computers?

Yes  No

**Part E: ICT skills level among the administrator**

25. Following is a list of the most common computer programs available in a secondary school administration setting. Please tick your proficiency in the following computer packages

	Very good	Good	Average	Poor	Very poor
Microsoft word					
Microsoft Excel					
Microsoft Powerpoint					
Microsoft Access					
Microsoft Outlook					
Microsoft Publisher					
Email & Internet					
QuickBooks					
Photoshop					
PageMaker					
Others: _____					

**26. What challenges do you face when using ICT in administration of the school?**

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**27. What strategies do you use to encourage the use of ICT in administration in school?**

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**APPENDIX 5**  
**AUTHORIZATION LETTER**

REPUBLIC OF KENYA



**NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY**

Telephone: 254-020-2213471, 2241349  
254-020-310571, 2213123, 2219420  
Fax: 254-020-318245, 318249  
When replying please quote  
secretary@ncst.go.ke

P.O. Box 30623-00100  
NAIROBI-KENYA  
Website: www.ncst.go.ke

Our Ref: **NCST/RCD/14/012/914**

Date: **4<sup>th</sup> July 2012**

Rose Bosibori Mouti  
University of Nairobi  
P.O.Box 30197-00100  
Nairobi.

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on "*School based factors influencing headteachers' adoption of Information and Communication Technology in administration of secondary schools in Makadara District, Kenya.*" I am pleased to inform you that you have been authorized to undertake research in Makadara District for a period ending 31<sup>st</sup> August, 2012.

You are advised to report to the Provincial Commissioner and the Provincial Director of Education, Nairobi Province and the District Commissioner, Makadara District before embarking on the research project.


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

  
**DR. M. K. RUGUTT, PhD, HSC.**  
**DEPUTY COUNCIL SECRETARY**

Copy to:

The Provincial Commissioner  
The Provincial Director of Education  
Nairobi Province.

**APPENDIX 6  
RESEARCH PERMIT**

PAGE 2	PAGE 3
<p><b>THIS IS TO CERTIFY THAT:</b>  <b>Prof/Dr./Mr./Mrs./Miss/Institution</b>  <b>Rose Bosibori Muthi</b>  <b>of (Address) University of Nairobi</b>  <b>P.O.Box 30197-00100, Nairobi</b>  <b>has been permitted to conduct research in</b></p>	<p><b>Research Permit No. NCST/RCE/14/012/914</b>  <b>Date of Issue 4<sup>th</sup> July, 2012</b>  <b>Fee received KSH. 1,000</b></p>
<p><b>Makadara</b> <b>Nairobi</b></p>	<p><b>Location</b>  <b>District</b>  <b>Province</b></p>
<p><b>on the topic: School based factors influencing</b>  <b>headteachers adoption of Information and</b>  <b>Communication Technology in administration</b>  <b>Of secondary schools in Makadara District,</b>  <b>Kenya.</b></p>	
<p><b>for a period ending: 31<sup>st</sup> August 2012.</b></p>	<p><b>Applicant's Signature</b>    <b>Secretary</b>  <b>National Council for Science &amp; Technology</b></p>