STATUS AND EXTENT OF USE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN MANAGEMENT OF PUBLIC SECONDARY SCHOOLS IN MURANG'A EAST AND KAHURO DISTRICTS, MURANG'A COUNTY, KENYA

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A RESEARCH PROJECT SUBMITTED IN THE DEPARTMENT OF EDUCATIONAL MANAGEMENT, POLICY AND CURRICULUM STUDIES, SCHOOL OF EDUCATION, KENYATTA UNIVERSITY

APRIL, 2014
DECLARATION

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

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DEDICATION

I dedicate this research project to my family for their ultimate patience and sincere support during my entire Master's degree education programme. Your love and motivation kept me strong when the going got tough. I owe you every success.
ACKNOWLEDGEMENT

First recognition rises to God for giving me the inner strength I needed to see the end my master’s degree education. More so am grateful for the divine strength I received in writing this work. Sincere appreciation goes to my supervisors Dr. George Onyango and Dr. Martin Ogola. Your suggestions and advice in writing this proposal has been of overwhelming assistance. You have expanded my knowledge in research: The knowledge gained will help me beyond the limits of this project to the responsibilities ahead.

I can’t fail to recognise the time and efforts spent by Lydia and Phyllis in typing and arranging this research proposal. The labour you put in this work was of great encouragement.
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<th>Definition</th>
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<tbody>
<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
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<tr>
<td>LEA</td>
<td>Local Education Authority</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Mpesa</td>
<td>M for mobile, <em>pesa</em> is Swahili for money</td>
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ABSTRACT

In the 21st century the ICT industry has grown widely affecting almost every area of life. The problem in our secondary schools is not that there are no ICT equipment, but, there is minimum use of the same in management and administration. Though the impact of ICT has been seen widely, this study sought to find out the level at which it was used in the Management of Kenya Public Secondary Schools. By a mixed method research paradigm, descriptive survey and naturalistic designs were adopted. The study specifically sought to find out the status of ICT use in financial management, student management, and management of personnel in public secondary schools in Kenya. The study was conducted in public secondary schools in Murang’a East and Kahuro Districts of Murang’a County which provided both urban and rural settings. The county is located approximately 100km North of Nairobi which is the capital city of Kenya and goes deep to the south of Nyeri County. Murang’a East and Kahuro Districts have a total of 64 public secondary schools. Both probability and non-probability sampling procedures were used to sample the schools used in the study. These are simple random, stratified random and purposive sampling methods. Twenty public secondary schools were selected to participate and all categories and types of schools were represented in the sample. All the principals, bursars and deans of studies of the selected schools participated in the study. Three instruments were used for data collection; an interview guide, questionnaire, and participant’s observation guide. A pilot study was conducted in three schools across each of the two homogeneous groups of the population; the rural and the urban part. Reliability wasted using a spearman rank correlation coefficient to ensure reliability of the instruments. The data collected was analysed using both qualitative and quantitative procedures. Quantitative data was analysed using Statistical Package for Social Sciences (SPSS) version 17.0 and the findings presented using frequencies, percentages, graphs, charts and tables. Qualitative data was analysed and presented in form of discussions, explanations and in a narrative form. The study established that ICT was utilized in the administration of public secondary schools in keeping students data, analysis of students’ results, preparation of payrolls, storage of documents, internet connectivity and e-mail. Challenges faced by the school administrators in ICT management include high cost of ICT infrastructure, poor quality/lack of Internet services, leaking of students’ marks data, inadequate computer programs to assist in management, inconsistent electricity supply; and high cost of ICT infrastructure maintenance. Based on the findings of the study, was concluded that storage of records is the main administrative utilization of ICT infrastructure in secondary schools, perception of the secondary school administrators on the use of ICT in management is generally positive, financial constraints is a key challenges facing the school administrators in the use ICT. It can be recommended that teachers be encouraged to make use of ICT in teaching and learning process. Again there is need to training programmes to equip all members of the administration with ICT skills. Software developers should create interactive software to suit the needs the current Kenyan secondary school system. The findings from this research provide schools with a framework of reference on successful adoption of ICT in education management. The school principals are likely to benefit from this study, since the study provides information on ICT integration.
CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The growth of ICT has created a huge challenge for education; in particular implementation of ICT in the management of education is at the forefront of both local and international fronts. Indeed, The UNESCO (2006) contend that ICT development is now central to advancing of education goals to meet the knowledge based economy demands of the 21st century. Additionally, use of ICT to manage and improve the quality of secondary education is fundamental to the creation of effective human resource in any country. World bank (2005) states that secondary education provides vital link between basic education and world of work and further training on the other. This reaffirms an earlier observation by Lewis and Callods (2001) that success in secondary schooling will continue to be highly correlated with subsequent employment and income distribution patterns.

ICT is now increasingly used in schools and educational institutions and established in professional and classroom practice. However, although headteachers, Local Education Agencies (LEAs), companies and policy makers continue to take increasing interest in the scope of this field, relatively little research work which considers aspects of ICT and school management is being undertaken (Don, 2002). ICT covers Internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services, and other related information and communication activities (UNESCO, 2003). Following this description secondary school management can embrace ICT in
its documentation, Commercial Information, Networking and Libraries amongst other information and communication activities which include training.

Though efforts have been made to introduce computers in secondary schools, the computers have been used basically to teach computers as an optional subject and rarely integrated to the study system of students or even school management. Liverpool (2002), acknowledges that developing use of ICT to enhance teaching and learning in East African schools has been painfully slow. This is caused mostly by unavailability of resources because as Sara (2010) observes, effective introduction of technology into schools is also largely dependent upon the availability and accessibility of ICT resources (e.g. hardware, software and communications infrastructure).

Though challenges meet implementation of every project, the responsibility of implementing ICT use in management of secondary schools lies squarely with the school administrators. According to Don's (2002) report, senior managers in schools have a major impact upon classroom and curriculum practices, and that the use of ICT within schools is permeating aspects of school practice to the extent that it will impact upon the practice of all staff (both teaching and non-teaching).

The benefits of ICT use in management of secondary schools will be felt broadly in every area of the institution. According Hepp (2004), if implemented, ICT would have very important roles to play in making school administration less burdensome and more effectively integrated to the official information flow about students,
curricula, teachers, budgets and activities through the educational system information pipelines.

1.2 Statement of the Problem

Kenya has identified ICT in education as a strategic tool to advance education goals in line with both local and international social economic and education blueprints. Indeed, use of ICT in the management of education is a key ingredient of recent education policies which have largely guided education initiatives in the last decade. Particularly, Sessional Paper, No 1, 2005, KESSP (2005-2010), the assertive National ICT strategy for education and training (2006), Vision 2030 underscore the significance of ICT in the provision of quality education for the achievement of the time bound both MDGs and EFA and markedly creating a knowledge and industrial based economy. Additionally, the recent Basic education Act (2013) and Sessional Paper No 14, 2012, route for Education Management Information System to improve both quality education and internal efficiency in the school. Consequently, the government in partnership with local communities and NGOs has embarked on ICT facilitation and capacity building for the last decade. In Murang’a County, Schools have been beneficiaries of ICT facilitation courtesy of the government, USAID, local communities and constituency development funds. Despite heavy financial, physical and human resource investment in ICT mostly borne by the government to advance education and development goals, penetration of ICT is yet to be realized. Moreover, little has been done to examine the status and extent of use of ICT in management of public secondary schools. Sessional Paper No 14, 2012 laments insufficient evidence on use of ICT in school besides acknowledging the inadequate capacity of MOE to monitor and evaluate ICT integration in schools. Aleksander (2012) observes that
although there has been overwhelming support and advocacy on how ICT can transform management of secondary schools, studies on the same are rare. This indicated inconsistency justifies the need for research. This study therefore intends to examine the status and extent of use of ICT in Murang’a East and Kahuro District in Murang’a County.

1.3 Purpose of the Study

The purpose of this study was to investigate the status of Information Communication Technology in management of secondary schools in Kenya.

1.4 Objectives of the Study

The study sought to:

i. Determine the current utilization of ICT infrastructure in Kenyan public secondary school administration in terms of financial, students and personnel management

ii. To determine the perception of the secondary school administrators on the use of ICT in management.

iii. To establish the challenges being faced by the school administrators in the use of ICT in management of schools.

iv. To seek for suggestions on how to enhance the use of ICT in management of schools.
1.5 Research Questions

This study sought to answer the following questions

i. How is ICT infrastructure currently utilized in the administration of Kenyan public secondary schools in terms of financial, students and personnel management?

ii. What are perceptions of the school administrators on the use of ICT in management?

iii. What challenges are faced by the school administrators as they use ICT in management?

iv. What strategies can be put in place to overcome the challenges faced by the school administrators as they use ICT in management?

1.6 Significance of the Study

The findings from this research provide schools with a framework of reference on successful adoption of ICT in education management. The school principals are likely to benefit from this study, since the study provides information on ICT integration. On the other hand, evaluation of the extent of use of ICT in education management will rationalize the heavy investment in ICT facilitation. Effective use of ICT as a whole saves human energy hence creating a relaxed mind to serve clients. This study will generate information on the value ICT use would add to management of Secondary schools. With its implementation, communication will be easier amongst the staffs; the teachers will be able to access their timetable changes without having to struggle in tracing the wall hanging, handwritten timetable. The findings of this study will help ease financial management in secondary schools of Kenya. The financial data will be easily accessible for future reference for government auditors seeking for
financial accountability. For the students, it will be easy to access all the information they need without necessarily having to go through paper archives. ICT enhancement will also serve as a motivation to the students learning. Their interest in learning computers will be increased since it’s will be a culture in secondary schools in Kenya. Finally, the study may also make contributions to the seldom existing research and scholarly efforts to provide empirical evidence on factors significant to ICT adoption and associated quality education outcomes.

1.7 Delimitations of the Study

i. This research work is delimited to the study of the use of ICT in management of Secondary Schools in Murang’a East and Kahuro districts in Murang’a County.

ii. The researcher investigated the skills of the personnel in use of the existing ICT structures

iii. The research did not carry out an in-depth study into the issues of ICT studies.

1.8 Limitations of the Study

i. The study was limited by time and resources.

ii. The researcher conducted the study when the schools were in session so as to observe the ICT use in management practices.

iii. Financial resources were also a limiting factor since the researcher used his own finances to conduct the study.
1.9 Assumptions of the Study

In this study, there were three key assumptions:

i. The first being that senior managers in schools have a major impact on management practices, and the ways in which changes are introduced.

ii. Secondly, that the use of ICT within schools is permeating aspects of school practice increasingly, and impact upon the practice of all staff (both teaching and non-teaching, and if not at this present time, then in the near future).

iii. The final assumption is that secondary schools in Kenya have not effectively embraced the use of ICT in management activities.

1.10 Theoretical Framework

Extensive scholarship in ICT has identified many theories and models that can be used to examine adoption of ICT in the institutions of learning. This study was informed by Rogers (2003) Innovation Diffusion Theory to examine the administrators’ perceptions towards ICT and Kurt Lewin’s Force Field Theory (1951) to summarize forces for or against adoption of ICT. The use of the two theories is essential because not a single model that can predict use of ICT across. The models accommodated all the variables lined for study and pointedly provide a wider framework for developing local needs based ICT use in the management of schools.

1.10.1 Innovation Diffusion Theory

Rogers (2003) studied the processes that communities use in incorporating new ideas and developed a theory of diffusion describing how new ideas spread through a given population of people. Diffusion of innovation is the process by which an innovation is adopted and gains acceptance in a community. Rogers explains the variables that
influence how and why users adopt a new information medium such as the internet. Individuals start with the knowledge and perception of usefulness of an innovation and form an attitude towards innovation to a decision to adopt or reject an innovation. Thus, according to Rogers, attributes; relative advantage, compatibility, trialability, complexity, and observeability may affect rate of adoption of technology. This study postulates that individuals (school administrators) may base their perception on ICT on how they see and observe the structure and function of both soft and hard ICT device. Consequently, the individuals form an attitude based on relative advantage of using the device and complexity/ease of use in its manipulation. Hence the theory was suitable in examining the perception of school administrators on ICT attributes

1.10.2 Kurt Lewin’s Force Field Theory (1951)

The force field theory was proposed by Kurt Lewin (1890-1947) a famous charismatic German psychologist now viewed as the father of social psychology (Neill, 2004). His work had a reflective impact on social psychology in regard to experiential learning, group dynamics and action research (Smith, 2008). He believed that for effective change to take place, the total situation has to be taken into account. The entire behavior is influenced by the totality of an individual’s situation. In his field theory, a field is defined as the totality of co-existing facts, which are conceived to be mutually dependent (Lewin, 1951) as cited by Neill, 2004). Consequently, adoption of ICT may be a function of school in terms of ICT facilities available, adequacy and function and individual characteristics in relation to perception skills and readiness to change. These characteristics may pose challenges or present opportunities for ICT adoption. In other words according to Lewin the existing behavior is a function of driving and restraining forces which pull in opposite directions. This theory was
suitable particularly in the analysis of data to summarize the prospects and challenges which according to Lewin they act antagonistically. This may perhaps provide a framework for needs based interventions for effective ICT use in the management of schools.

1.11 Conceptual Framework

Independent Variables

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<tr>
<th>STATUS</th>
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<tbody>
<tr>
<td>1. Perception</td>
</tr>
<tr>
<td>• Ease of use</td>
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<td>• Relative advantage</td>
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<tr>
<td>2. ICT Facilities</td>
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<tr>
<td>• Availability</td>
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<td>• Function</td>
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<td>• Adequacy</td>
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<th>EXTENT</th>
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<tbody>
<tr>
<td>1. Finance</td>
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<tr>
<td>• Accounting</td>
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<tr>
<td>• Payrolling</td>
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<tr>
<td>• e-banking</td>
</tr>
<tr>
<td>2. Student Personnel Management</td>
</tr>
<tr>
<td>• Student admissions</td>
</tr>
<tr>
<td>• Registration of KCSE candidates</td>
</tr>
<tr>
<td>• Analysis of student performance</td>
</tr>
<tr>
<td>• Use of website to display students’ performance</td>
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Effective Use of ICT in the management of schools

Figure 1.1 Conceptual Framework

Effective use of ICT in the management of school is defined by; the status of ICT facilitation and perception of the user on the attributes of ICT and the level at which ICT is used in financial and student personnel management.
1.12 Definition of Terms

ICT : This was used in this study to mean the combination of Informatics technology with other, related technologies, specifically for education management purposes. i.e. technological tools and resources used to communicate, and to create, disseminate, store, and manage information e.g. computers, scanners printers, modems and LCD projectors.

Management : This term is used to refer to a series of administrational procedures intended to give systematic and smooth running, in this case, of secondary schools

System: This term was used for the purpose of this study to mean use of more than one ICT based medium of communication to ensure an optimum education management environment

Strategy: In this study, this term refers to a pattern in actions over time that determine what an institution is to become.

Skills: This term will refer to an ability obtained through training to be utilized in a given field, in this case ICT abilities in education management.

Structure: For the purpose of this study, this term meant, a chain of networks geared towards convenient accessibility of educational management information

Curriculum: In this study, this term mean the group of related courses, often in a special field of study in this case, courses of study offered by secondary schools utilizing ICT in management

Instructions: This term was used to refer to imparted or acquired items of knowledge in ICT oriented secondary schools
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Past studies related to the status of ICT use in management of Secondary schools are revised in this chapter. The literature has been reviewed under the following subheadings; Overview of ICT use in Management of Secondary Schools, use of ICT in Financial Management of Secondary Schools, ICT use in Student Management of Secondary Schools, ICT use in management of personnel in Kenya secondary schools.

2.2 Overview of ICT Use in Management of Secondary Schools

Pelgrum and Law (2003) state that near the end of the 1980s, the term ‘computer work’ was replaced by Information Technology (IT) signifying a shift of focus from computing technology to the capacity to store and retrieve information. This was followed by the introduction of the term ‘ICT’ information and communication technology around 1992.

Hepp (2004) puts it that Schools are knowledge handling institutions and therefore, ICTs should be fundamental management tools on all levels of an educational system, from classrooms to ministries. Be it in teacher practice and professional development, curriculum and assessment, and school organisation and administration. ICT plays a unique, but complementary role in each of these approaches (UNESCO, 2008). This means that ICT should be used in all levels of secondary school management starting from strategic management to implementation management. At a school policy level, those who are responsible for curriculum management, classroom management, site
management, or personnel management should embrace the use of ICT (Don.2002).

To effectively achieve the benefits of ICT in management of secondary schools, Levine (1998) emphasizes on the importance of having a plan that is based on real school needs and one that is realistic, achievable, and effective. The plan should be produced, not for the sole purpose of putting technology in the classroom but to reflect the real needs of schools in order to make effective technology deployment and to produce enhanced learning environments. Similarly, Don (2002), adds that the likely width of shift to full ICT use means that management will need to be informed in order to address educational change effectively, through techniques that adopt appropriate knowledge of the management of change, using pertinent management approaches, and in ways that consider organisational impacts that could arise.

2.3 Use of ICT in Financial Management of Secondary Schools

Over the past few years the investment patterns on ICT in educational systems have changed dramatically. However, the patterns of financial and procurement management have not necessarily paralleled this shift. The literature that exists often points to the fact that managers feel inadequate and shy off ICT in management of finances in secondary schools (Ian, 2007). As a result many clerical staff in schools handles financial statements manually, while Christine (2010) reports lack of computerised system with financial software to help them cope with their work, and save time and human energy.
Lack of records and information on ICT use in management of finances in secondary schools is a setback to its implementation. Ian (2007) concurs that the impact ICT is making upon the needs for monitoring and evaluation are not yet fully documented. As a consequence, managers may not be fully aware of how to address monitoring and evaluation processes adequately, since they are not clear what needs to be monitored or how it can be monitored using the existing technology.

Research by Ian (2007) in Nigeria shows that, over half of school managers (53%) do not use ICT effectively to manage resources and even in decision making. Christine (2010) recommends use of worksheet software as basic software schools to manage finances. She illustrates the main use of worksheet as to perform calculations, data bases to store, sort, extract, and analyse quickly. Worksheets also produce charts and graphics to present information in an easily understood way.

Mobile phone technology has reduced communication costs in many parts of the developing world from prohibitive levels to amounts that are, in comparison, virtually trivial. Nowhere has this transformation been as acute as in sub-Saharan Africa, where networks of both fixed line communication and physical transportation infrastructure are often inadequate, unreliable, and dilapidated (William, 2010). In management of Secondary Schools this benefit has not been fully felt since banker’s cheques and money orders remain the most common means of payment of schools fees. Mobile phone providers have provided easier means of money transfer, this include Mpesa, Orange Money and ZAP. ICT works (2010) reveals that Mobile money transfers flourish by generating good volume and willingness to pay but also generating a willingness to try. Secondary schools in Kenya therefore, must be willing to step up
their willingness to try mobile money transfer in collection of their client’s school fees payments.

Compared to the Banks, mobile money transfer service is more easily accessible. Today customers can deposit and withdraw cash at any of 20,000 M-PESA locations that’s twenty times the number of bank branches in Kenya (ICT works, 2010). This simply facilitates trade, making it easier for people to pay and receive payment services. William (2010) cites that bills can be paid with a push of a few buttons instead of travelling to an often distant office with a fistful of cash and waiting in a long queue.

A household head with access to M-PESA who suffers a mild health shock might receive a small amount of money via M-PESA that allows him to keep his children in school. If this money was delayed, or the sender waited until the recipient “really needed it”, the children might have quit school, the effects of which may be hard to reverse (William, 2010).

2.4 ICT Use in Student Management of Secondary Schools

School year evaluation is an action necessary amongst schools. ICT could help retrieve information in relation to student’s enrolment, academic results including percentages of class repeaters and absenteeism. School administrators and managers are responsible for their end of year reports regarding human resource, technical infrastructure (computers for students and staff). Christine (2010) report shows that today much of planning in our school is done manually by school managers.
If ICT is used in student data management in secondary schools Ian (2007) cites that data banks could save time since all of the information is gathered together and could be found when needed for immediate actions. Christine (2010) adds that a computerised system provides managers an opportunity to manage things timely, accurately, precisely, reliably, and in an effective and efficient way.

Passey (1997) identified the need for schools to consider purpose carefully before investing heavily in communication technologies, since practical use did not merge unless users had some pre-existing concepts of potential applications. Visscher (2001) argues that most concern currently in ICT use in management of secondary schools is being focused on data entry and collation. The technology used by schools should therefore be that if an administrator keyed in the students name or admission number, all the personal data, medical records, academic performance, absenteeism, extra curriculum activities and indiscipline record cases could be retrieved or updated.

Christine (2010) found out that use of ICT could help librarians build database in relation to books available in the library and information regarding those books. This would help easy search of books in the library and their positions. With the correct database a student can type the author and all the books available in the library by that author would appear.

According to Christine (2010), it's vital for the school effective operation to create a database and firm foundation to up-to-date contact details for parents essential for emergencies and the student's detailed home contact. Passey et al (1997) adds that parents would be likely to use ICT more in the future for communication with
schools, and that this would require managing, just as any other area of important relationship needs to be managed between homes and schools.

In the disaster mitigation and preparedness process ICT is widely used to create early warning systems. An early warning system may use more than one ICT media in parallel and these can be radio, TV, telephone, SMS, cell broadcasting or the internet (Christine, 2010). In case there is a misfortune in the school, administrators can use the safest mode of communicating to the parents without necessarily waiting for public media to go on air.

2.5 ICT Use in Management of Personnel Secondary Schools in Kenya

It is becoming increasingly clear that as ICT becomes more pervasive within educational systems, and becomes more usable in wider circumstances, this has an effect upon the abilities and qualities of those who need to be employed by organizations. The implications for educational organizations, including schools, are just becoming evident from the outcomes of some studies, but these are not being reported often in the wider public literature, Ian (2007).

North et al (2000), has it that an important feature to consider will be the relationship of data collection and comparison to data use, since school managers need quite different forms of analysis in some respect to those that are needed by teachers. Ian (2007) adds that the impact of on-line resources on the management of teaching and learning, and the impact of out-of-school learning on the personnel needs at a policy and at a school level, are clearly key features that should be considered in this respect. Twining (2001), suggests use of a particular technique as a means to bring strategic
vision and implementation need closer together. He argues that strategic vision is important, but that implementation requires the use of techniques which will offer the teacher more opportunity to plan for educational practice.

In regard to implementation of ICT in personnel management Browning (1990), offered what might be considered a realistic viewpoint on commercial change. He argued that change for individuals was not easy, and that change for groups or organizations was even more difficult. However, he argued further that the need for change was certain, and that therefore the control of change must be a major consideration for all organizations. He suggested that those who had some control over processes of change would be more successful than those who did not.

Pettigrew (1985) also, identified at an early stage, existing attitudes could shape internal change, and how interest groups needed to be managed. Ian (2007) concurs that even though teachers are generally positive about ICT and its ability to support their administrative and management duties, the findings point to low levels of use of ICT infrastructure for administration and management. Becta (2003), however views that though teacher workloads is extensive, there is relatively little on the role ICT can play in reducing teacher workloads. This arguments boil down to attitude, if the right esteem is picked by all the stakeholders to invest and implement the new technology, it would be easy to manage staff work.

In resource use and resource development management, Ian (2007) argues that resources that were at one time available from boxes off-the-shelf are becoming increasingly enhanced by the opportunities that ICT-based resources can offer.
However, both the management of the development and use of these resources are not well documented within the public domain. Using ICT, school administration can document all filed or boxed information for easier access by ICT. With a networked system every staff can access relevant information at the comfort of the staff room.

Christine (2010) sums up that in effective management of the staff, ICT can be used for personal data processing; address, phone numbers, physical address. A software programme like Microsoft access could be implemented in for the school principals and coordinators to portray some personal aspects, like for example reasons for teacher’s absence. Also, teachers professional development could be described (seminars attendance, postgraduate courses). Furthermore, this program will enable managers to observe teachers performance in relation to students grades. Data regarding student’s grades could be provided as well.

2.6 Challenges facing Use of ICT in Management in Secondary Schools

Researches prove that ICT use in management has met enormous challenges including the unavailability of facilities. This challenge is not singled out in Kenya but in many African countries. The facilities needed to fully implement ICT in management of secondary schools include computers, internet services, and projector screens, laptops, scanning machines, printers, relevant software, radio cassettes, television, satellite dishes, handset, xeros machines and fax machine. In a recent study carried, Adeyemi et al (2010) found out that many schools are deficient in the availability of information communication and technology (ICT) equipment. Although most schools have computers (92.5 %) and printers (90.6 %), almost all the schools did not have projectors, projectors screen, scanning machines and fax
machines. This is an indication that ICT materials are not vigorously provided for the schools.

An earlier study by Venezky (2008) study also revealed that ICT facilities such as computer, projectors, electronic notice boards, and internet filmstrips were not available in secondary schools. This could be as a result of inadequate funding of the schools by the government. This finding has grave consequences on the ICT use in management of secondary schools. Even if the staffs is willing to learn and use ICT in their duties, the non-availability of the facilities will hinder them. According to Venezky (2008) ICT could be used in any subjects if the computer labs were free, but that in reality they were very rarely unoccupied. To this effect Ayajiet el (2009) recommends that the government should increase funding to improve the level of ICT facilities in the schools.

For development of any sector, the policymakers are obligated with duty of ensuring success of that sector. In this discussion, Kozma (2004) concurs that the biggest barriers to the ICT use is the lack of a national policy on the use of computers in schools. In similarity, Jhurree (2005) concurs that successful integration of ICTs into the secondary school management depends largely on how well policy makers understand and appreciate the dynamics of such integration. In Australia, the Government policy is strongly supporting developments in ICT in schools through the provision of resources and guidance. However, this has not solved the entire problem since schools have not fully developed a clear vision for ICT that is right for them and that will meet their projected needs and aspirations (Schreurs, 2007).
A clear vision can only be built if it's facilitators develop the right attitude. In Kenya, however, Hennessy & Onguko (2010) reports that ultimate challenge in ICT implementation is the negative attitude among school leaders towards computers and the internet. Further problem is that many teachers are intimidated by technology and are very comfortable with their established teaching styles. To effect change, the pedagogical and educational gains that use of the technology might bring need to be made explicit (Sara, 2010).

Lack of personnel capacity to handle ICT is a major problem. According to Pelgrum, (2002) Many school leaders still perceive the lack of ICT-related knowledge of staff as a major obstacle to the realisation of their ICT-related goals. This problem is exacerbated by growing poverty and lack of funding for their salaries (National Universities Commission, 2005). In the right hands and used appropriately, ICT can be an effective tool in management and teaching of secondary schools Sara (2010). Though this is true, not all countries are currently able to benefit from the developments and advances that technology can offer (Kozma, 2002).

Changing landscape of communications and information exchange in the 21st century requires secondary schools staff to be at the cutting edge of knowledge production, modification and application rather than consumption. They need to be prepared for this by being educated to use ICT effectively and creatively. In many developing countries, however, most teachers have minimal or no ICT skills themselves and therefore cannot develop these in learners (Venezky, 2004).
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This study sought to investigate the status of ICT use in management of secondary schools. This chapter explains how the researcher investigated the research problem providing the researchers work plan and describe the activities necessary for the completion of this project.

This section describes the methods applied in carrying out the research study and shall be organized into relevant manageable subsections, location of study, target population, sampling strategy, and sample size, methods of data collection describing the instruments. This is followed by a section that determines the validity and reliability of those instruments, data collection procedure, ethical considerations. Finally, this chapter indicates the methods that will be used for data analysis and mode of presentation of the data.

3.2 Research Design

This study adopted a descriptive survey design in which qualitative and quantitative approaches were used to assess status and extent of use of ICT in management of secondary schools. This study adopted a mixed method research paradigm which employed both quantitative and qualitative methods. This is because by using multiple approaches, one can capitalize on the strengths of each approach and offset their different weaknesses. It could also provide more comprehensive answers to research questions, going beyond the limitations of a single approach. Gay (1992) argues that descriptive survey research method of study is used to investigate social problems and
to determine and report the way things are or were. Similarly according to Lockesh (1984), descriptive survey research studies are designed to obtain pertinent and precise information concerning the current status of phenomenon and wherever possible to draw valid general conclusions from the facts obtained. For this study, descriptive approach was appropriate because it sought to find the factors associated with a certain occurrences. This is in line with the purpose of the study, which sought to investigate of the status of the ICT use in management of secondary schools in Kenya.

3.3 Location of the Study

The study was conducted among the public secondary schools in Murang’a East and Kahuro Districts of Murang’a County. Since the researcher sought to investigate the status of ICT in management of Secondary Schools in Kenya, Murang’a provided a good choice given that it has both an urban and a rural setting. The County is located approximately 100km North of Nairobi which is the capital city of Kenya and goes deep to south of Nyeri County.

3.4 Target Population

The target population of the study was sixty four (64) public secondary schools, 64 principals, 64 Deans of Studies and the 64 bursars in Murang’a East and Kahuro Districts. The researcher used the principals since they are in charge of the management of their respective schools and are responsible for providing ICT resources and infrastructure for use in management of the schools. They are also users of these resources. The bursars and the dean of studies were targeted because they are users of the ICT equipment in student management, personnel management and in
financial management. The researcher sought to find out their qualifications, attitudes and perceptions towards ICT and the extent to which they had integrated ICT in the management of the school.

3.5 Sample and Sampling Technique

3.5.1 Sample Size

Gay (1992) states that a minimum sample of 20% is adequate for educational research when the population is small. The sample of this study comprised 20 public secondary schools, all the principals, all the bursars and all the deans of studies in these schools. There are two (2) national schools in the districts; to attain the sample size, one (1) school was selected to participate in the study. This formed a sample (n) of 1 which constituted 50% which is a good representation of the total population. There are three (3) county schools in the districts. One (1) school was selected to participate in the study. This formed a sample (n) of 1 to constitute 33.33% of the target population. The district has 59 district secondary schools. Eighteen (18) schools were selected to participate in the study which gave a sample (n) of 18 to constitute 30.5% of the target population.

All categories of schools were represented in the study as follows; 2 boys’ boarding schools, 2 girls’ boarding schools, 4 mixed day and boarding schools, and 12 mixed day schools. These formed 31.25% of the target population, which is in line with Gay’s (1992) recommendation.
Table 3.1 Sampling Frame

<table>
<thead>
<tr>
<th>Category of school</th>
<th>Type of school</th>
<th>Population</th>
<th>Sample</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>G.B</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>G.B</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>County</td>
<td>B.B</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>G.B</td>
<td>2</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>M.B</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>District</td>
<td>B.B</td>
<td>3</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>G.B</td>
<td>3</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>M.B</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>M.D/B</td>
<td>8</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>M.D</td>
<td>45</td>
<td>12</td>
<td>26.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>64</strong></td>
<td><strong>20</strong></td>
<td><strong>31.25</strong></td>
</tr>
</tbody>
</table>

**KEY**

G.B – Girls Boarding  
B.B – Boys Boarding  
M.B – Mixed Boarding  
M.D/B – Mixed Day and Boarding  
M.D – Mixed Day

3.5.2 Sampling Techniques

This is the procedure that the researcher used to select the subjects that were included in the study. Both probability and non-probability sampling techniques were used to get the sample size. This ensured that all the subjects had an equal chance of being selected to participate in the study. Non probability sampling is a method that ensures that the elements in the target population have an unknown chance of being selected in the sample (Ogula, 2005). The two sampling techniques were applied as follows:

Public Secondary Schools

There are 64 secondary schools in the districts. Two (2) of the schools are national, 3 are county schools and 59 are district schools. One of the national schools was purposively selected to participate in the study because it has received a lot of...
government funding to purchase ICT equipment and has also received training on ICT implementation, integration and use, both in school management and in curriculum delivery.

The researcher used random stratified sampling to select one (1) secondary school out of the three (3) county secondary schools in the two districts. This method was used in order to ensure that boys' schools, girls' schools and mixed schools are well represented in the sample. To select the district schools, the researcher used stratified random sampling in order to achieve desired representation from various subgroups in the population (Mugenda & Mugenda, 2003). The strata include girls' boarding schools, boys' boarding schools, mixed boarding schools, mixed boarding and day schools and mixed day schools. The schools that were selected to participate in the study include; 1 girls' boarding school, 1 boys' boarding school, 4 mixed boarding and day schools, and 12 mixed day schools. The sample to be selected therefore constituted 18 district secondary schools.

Principal, Bursars and Deans of Studies
The two districts have 64 public secondary schools. Out of these, 20 had been selected to participate in the study. Therefore, all the principals, the bursars and the deans of studies of all the selected schools participated in the study. A total of 20 principals, 20 bursars and 20 deans of studies participated in the study. This is because they are the administrators of the schools, and hence are users of ICT equipments in their management practices. The principals also supervise ICT use in the school and provide the required ICT resources in the schools.
3.6 Data Collection Instruments

In choosing the methods of data collection the researcher considered the questions to be answered and the information sources available. The researcher put into account how the information could be organized, analysed, interpreted and then reported to various audiences (Cohen, 1992). The study had a combination of instruments as suggested by Kane (1995) that use of complimentary methods reveals discrepancies since a single method can neither be sufficient nor reliable. Interview guide, questionnaires, and observation checklist were the instruments chosen for this study.

3.6.1 Interview Guide

Qualitative researchers rely quite extensively on in-depth interviewing. There are three general categories of interviews: the informal conversational interview; the general interview guide approach; and the standardized, open-ended interview. In this study the researcher used semi-structured interviews which according to Gall, et al (1996) involve a series of structured questions, and then probing more deeply using open forms questions to obtain additional information. This enabled the researcher to obtain in-depth details about ICT use in the management of the schools.

Interview Guide for Principals (Appendix I)

The interview guide consisted of six (6) sections; Section A: sought to get the demographic information of the principals which included sex, academic qualifications, years of service as a principal, level of computer literacy, type of school, and category of school. Section B: sought to find out the ICT infrastructure in the school and whether it is adequate for use in management in the school. Section C: sought to find out the extent of use of the ICT equipment in student management,
financial management, personnel management and in general administration of the school. Section D: sought to find out the attitude of the principals’ towards use of ICT in management of the school. Section E: sought to find out whether there are any challenges faced by principals while using ICT in management. Section F: sought suggestions from the principals on how to overcome the challenges and how to enhance ICT use in management of the schools.

3.6.2 Questionnaires

A questionnaire is a carefully designed instrument (written, typed or printed) for collection of data directly from people (Ogula, 2005). Mugenda (2003) asserts that researchers should administer questionnaires to some samples of a population to learn about the distribution of characteristics, attitudes, or beliefs. In deciding to survey a group of people, researchers make one critical assumption that a characteristic or belief can be described or measured accurately through self-reporting.

In using questionnaires, researchers rely totally on the honesty and accuracy of participant’s responses. In this study, the questionnaires typically entailed several questions that are semi-structured into response categories; open ended questions which enabled the respondents to discuss issues without their responses confined. The questions examined quite the bias, sequence, clarity, and validity. Closed questions included an array of choices/answers from which the respondents chose. Such questions are easier and quicker to answer and the responses are more comparable among respondents. The closed questions had multiple choices where the participants ticked to indicate their opinion without necessarily giving details. The questionnaires were selected for use because they enabled the researcher to gather a lot of
information from a large number of respondents. Two sets of questionnaires were used, that is: one questionnaire for the bursars and another one for the deans of studies. (Appendix II and Appendix III)

Questionnaire for Bursars (Appendix II)
The questionnaire for the bursars consisted of six (6) sections. Section A: sought to collect demographic information which included; sex, age, category of school, type of school, level of computer literacy, length of period as a bursar and the academic qualifications of the bursars. Section B: sought to find out the ICT equipments that are available for use by the bursar for financial and personnel management of the school and whether they were adequate. Section C: sought to establish the extent of use of these ICT equipments in management. Section D: sought to find out the attitude of the bursars towards use of ICT in management. Section E: sought to establish whether there are any challenges that the bursars face while using ICT in management. Section F: sought suggestions from the bursars on how to overcome these challenges and on how to enhance ICT use in financial and personnel management in schools.

Questionnaire for Deans of Studies (Appendix III)
The questionnaire for the dean of studies consisted of six (6) sections. Section A: sought to collect demographic information which included sex, age, academic qualifications, level of computer literacy, category of school, type of school, and length of service as a dean of studies. Section B: sought to find out the ICT equipments available in the school for use in management of students and examinations. Section C: sought to establish the extent of use of ICT equipments in management of students and examinations. Section D: sought to find out the attitude
of the deans of studies towards ICT use in management of schools. Section E: sought to establish the challenges that are faced by deans of studies in the management of students and examinations while section F: sought suggestions on how to enhance ICT use in management of students and examinations.

3.6.3 Participant Observation Guide

Observations with a checklist were carried out in all the schools that have been picked for sampling. Orodho, (2004) defines observation as a method of collecting data in which a researcher notes things or occurrences as they naturally occur. The researcher attended the schools observing their activities in relation to objectives of study. These observations were recorded on the checklist. This enabled the researcher to make conclusions on the observable factors that reinforced the information obtained from the questionnaires on status of ICT use in management of secondary schools.

The researcher keenly checked on the availability of the ICT infrastructure in secondary schools and the reflections were integral to the emerging analysis of this cultural group, because they provided the researcher with new vantage points and with opportunities to note on the status of ICT use in management of secondary schools.

3.7 Piloting of the Research Instruments

Piloting is important because it helps to identify ambiguities of the items and vague questions for improvement. A pilot study will be conducted before the main study. For this purpose, three schools across each of the two homogeneous groups of the
population; the rural part and the urban part. Pilot study was done in order to test whether there were any items that the respondents may have had difficulty in understanding, inadequate wording, identify items that may have been omitted during the construction of the questionnaire and provide an indication on how the data collecting instrument performed in the field. The data obtained from the piloting was analyzed to see if the suggested methods of analyzing were suitable for the study. The schools that were used for the pilot study did not participate in the final study.

3.7.1 Validity of the Research Instruments

The content validity was ascertained by lecturers in the field of education; these lecturers were provided by the university as the supervisors of the entire research work. Their recommendations and suggestions were put into consideration and for the preparation of the final instruments. The researcher presented the instruments to panel of judges from the department of education who further gave their recommendations which were incorporated in the final instruments. The final instruments were then taken to the supervisor for approval before being presented to the field of research.

3.7.2 Reliability of the Research Instruments

To measure the consistency of the instruments, a test-retest procedure was used in the piloting. Management personnel from the schools selected for piloting filled the questionnaire and were requested after one week to fill the same copy of the instrument. The responses given were correlated. For every similar response two marks were allocated and for every different response one mark were allocated. The results obtained were correlated using a spearman rank correlation co-efficient. A correlation co-efficient of 0.6 and above was considered high enough and hence the
instrument was deemed reliable. This is because according to Orodho (2009) a reliability index of 0.6 is satisfactory for any research instrument.

3.8 Data Collection Procedure

These are the procedures that the researcher used to collect data. The researcher sought authority from the Ministry of Education to collect data in the secondary schools. Upon getting a research permit from the MOE, the researcher sought authority from the district education officers of the two districts to access the schools. He then visited the secondary schools to seek permission from the principals. In this initial visit, the researcher explained the purpose of the study and made the relevant appointments on the date he would visit the school to collect the data.

On the agreed dates, the researcher visited the schools and collected data using the validated instruments. The researcher clearly pointed out his intentions and the purpose of the study to the targeted respondents. He conducted the interview while the questionnaires were given for filling in by the bursar and the dean of studies. He later used the observation guide to collect more data on the use of ICT in management. This was done in all the participating schools.

3.9 Data Analysis and Presentation

Data analysis involves organizing, accounting for and explaining the data; that is making sense of the data in terms of respondents' definitions of the situation, noting patterns, themes, categories and regularities (Gay 1992). Data analysis was based on the research questions designed at the beginning of this research. Mugenda & Mugenda (2003) asserts that, data obtained from the field in raw form is difficult to
interpret. Such data must be cleaned, coded, and key punched into a computer and analyzed. The researcher used both quantitative and qualitative data analysis techniques to analyze the data.

Quantitative Data Analysis

Descriptive statistics were used to analyze the data. The information gathered was organized in different categories and was coded to make the data reduction possible and manageable for analysis. After coding the data was entered into a computer and analyzed using the statistical package (SPSS) version 10.0. The data was then interpreted and presented using percentages, tables and showing frequencies. Charts and graphs based on the percentages and frequencies were also used to make it easy to understand the findings.

Qualitative Data Analysis

Qualitative data was derived from the interviews to be conducted on the principals and from the open ended questions in the questionnaires. The researcher categorized the responses and organized them in relation to the research questions. To add to the above, field notes and interviews were carefully structured, paying particular attention to comments, ideas and concerns from the respondents. The information was then coded and cleaned to ensure only the relevant information was analyzed. The researcher then sought to establish categories, themes and patterns that may be brought about by the respondents. From this information, the researcher wrote a narrative and an interpretive report in order to give a vivid description of the extent of ICT use in management of secondary schools.
3.10 Ethical Considerations

Before data collection exercise commenced, the researcher obtained permission from the permanent secretary, Ministry of Education. Once the permit was given, the District Education Officer and the principals of the schools under study were informed by the researcher on the intention to carry out the study. Only consenting school administrators were involved in the study. The researcher did not use any bribery or inducement to have the people participate in the study.

The researcher was fully responsible for maintaining the dignity and welfare of all participants. This obligation also entailed protecting them from harm, unnecessary risks, or mental and physical discomfort that may be inherent in the research procedure. In presentation of this study, the researcher was fully ethical not to fabricate or falsify data in this publication. In addition, the researcher did not present the work of others as his own. This study did not fail to give appropriate credit for the work of others through citations.

The highest level of anonymity was taken to minimize risk of the subjects; their opinion was treated with the highest level of confidentiality. The participants were assured that their names and identities would not be mentioned in the report. Finally, the information collected in general was treated with as much confidentiality as possible and was not used for any other purpose other than research work.
CHAPTER FOUR
FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the data and findings of the study, which is presented in tables and figures. The first section presents the background characteristics of the respondents, that is, deans of studies, bursars, and principals in the sampled schools in Murang’a East and Kahuro districts. Other sections are as follows:

a) ICT infrastructure currently utilized in the administration of public secondary schools in terms of financial, students and personnel management

b) Perceptions of the school administrators on the use of ICT in management

c) Challenges faced by the school administrators as they use ICT in management

d) To seek suggestions on how to enhance the use of ICT in management of schools

4.2 Background Characteristics of the Respondents

The researcher considered the background information of the schools in the study. Background information of deans of studies, bursars, and principals who took part in the study was also examined.

4.2.1 Background Characteristics of the Schools

Various categories and types of schools took part in the study. Table 4.1 shows their distribution
Table 4.1 Background Characteristics of the Schools

<table>
<thead>
<tr>
<th>Category of school</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>District</td>
<td>11</td>
<td>55</td>
</tr>
<tr>
<td>County</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>National</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of school</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Day</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Mixed Day and Boarding</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Boys Boarding</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Girls Boarding</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Mixed Boarding</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4.1 shows that with regard to category, majority of the schools in the study, (11 (55%)) were district schools, 7 (35%) were county schools, and 2 (10%) were national schools. In terms of types of school, a good number of the schools in the districts, 8 (40%) were mixed day, mixed day and boarding schools, and boys boarding schools, were each presented by 4 (20%), girls boarding schools and mixed boarding schools were presented by 3 (15%), and 1 (5%) respectively. Perhaps the predominance of mixed day and district secondary schools may be attributed to CDF funded secondary schools which were established to cater for the added demand of secondary school education that followed the introduction of free day secondary education by the government in 2007.

4.2.2 Background Characteristics of Deans of Studies, Bursars, and Principals

Background characteristics determined from deans of studies, bursars, and principals included gender and level of computer literacy. This is shown in Table 4.2
Table 4.2 Background Characteristics of the Deans of Studies, Bursars, and Principals

<table>
<thead>
<tr>
<th></th>
<th>Background Characteristics</th>
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</tr>
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<td>Female</td>
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<tr>
<td>Level of computer literacy</td>
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<td>Bursars</td>
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</tr>
<tr>
<td>Gender</td>
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</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Level of computer literacy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate</td>
<td>10</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>10</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Principals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>12</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Level of computer literacy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate</td>
<td>16</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2 shows that a majority of the participants, that is, 11 (55%) of the deans of studies, 13 (65%) of the bursars, and 12 (60%) of the principals in the study were male. This could be attributed to apparent reluctance of female teachers to partake administrative positions in the schools, in the districts.

With regards to level of computer literacy, a majority of the deans of studies, that is, 15 (75%) had a certificate in computer literacy, 4 (20%) of the deans had a diploma, whereas only 1 (5%) of them had a degree. Half of the bursars, that is, 10 (50%) had a
certificate, and the other half, 10 (50%) had a diploma. A majority of the principals, that is, 16 (80%) had a certificate in computer literacy; the remainder, that is, 4 (20%) had a diploma, none of the principals had a degree. This relatively low computer literacy among deans of studies, bursars, and principals is attributable to the great demands of their administrative careers that leave them with no time to advance their ICT literacy.

4.3 ICT Infrastructure Currently Utilized in the Administration of Public Secondary Schools in Terms of Financial, Students and Personnel Management

The study aimed at establishing the ICT infrastructure currently utilized in the administration of public secondary schools in terms of financial, students and personnel management.

4.3.1 Deans of Studies Response on the ICT Infrastructure Currently Utilized in the Administration of Public Secondary Schools in terms of Financial, Students and Personnel Management

The deans of studies were first asked to indicate whether they make use of ICT in students’ studies management, to which all the deans of studies 20 (100%) indicated that they did.

The deans of studies were further asked to indicate how often they utilized certain aspects of ICT in the management of students’ studies in their respective offices. Table 4.3 shows their response.
Table 4.3: Utilization of ICT Infrastructure in Students’ Management

<table>
<thead>
<tr>
<th>Utilization</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Keeping data on all students, their admission numbers and classes</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>b) Using the computer to store and retrieve past examination papers</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>c) Using the printer to print all examination analysis results and merit lists and to make copies of official documents</td>
<td>18</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>d) Using the computer to analyze the student’s academic results and to process the students report forms</td>
<td>17</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>e) Using the computer and the internet connectivity to register KCSE candidates and to access information on good administrative practices</td>
<td>15</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>f) Using the school website to display the school’s academic performance to the public</td>
<td>-</td>
<td>-</td>
<td>19</td>
</tr>
<tr>
<td>g) Using the LCD projector to display data on academic progress of students to stakeholders during meetings</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.3 shows deans of studies response on the how often they utilized certain aspects of ICT in the management of students’ studies in their respective offices. All 20 (100%) deans of studies, that is, pointed out that they utilized ICT in the management of students’ studies often in terms of keeping data on all students, their admission numbers and classes.

With regard to using the printer to print all examination analysis results and merit lists and to make copies of official documents, a vast majority (18 (90%)) of the participating deans of studies indicated that they often utilized ICT in this area. Only 2 (10%) indicated that they utilized ICT that way, sometimes.
Pertaining to using the computer to analyze the student’s academic results and to process the students report forms, 17 (85%) of the deans of studies indicated that they often utilized ICT in this practice, 3 (15%) of them observed that they only utilized it sometimes.

With respect to using the computer and the internet connectivity to register KCSE candidates and to access information on good administrative practices, majority, 15 (75%) of the deans of studies, were of the view that they utilized ICT this way, often, 4 (20%) utilized ICT this way, sometimes, while 3 (15%) never utilized ICT this way.

Regarding to the use of the school website to display the school’s academic performance to the public, none of the deans of studies indicated that they utilized ICT this way often, 19 (95%) utilized ICT this way, sometimes, whereas 1 (5%) that they never utilized ICT this way.

Concerning using the LCD projector to display data on academic progress of students to stakeholders during meetings, again none of the often used it this way, 2 (10%) used it sometimes while 18 (90%) indicated that they never used it. These results indicate that the deans of studies mainly use computers in areas related to administrative work more that in curriculum implementation and classroom instruction. This is in agreement with (Pelgrum & Law, 2003; Hepp, 2004) who state that a shift of focus is occurring from using computers to the capacity to store and retrieve information to a fundamental management tool on all levels of an educational system, from classrooms to ministries. Be it in teacher practice and professional development, curriculum and assessment, and school organization and inadequate
infrastructure coupled by low levels of computer literacy continues to compromise its full implementation.

4.3.2 Bursars’ Response on the ICT Infrastructure Currently Utilized in the Administration of Public Secondary Schools in Terms of Financial, Students and Personnel Management

The bursars were first asked to indicate whether they make use of ICT in financial management; again all the 20 (100%) bursars indicated that they did. The bursars were further asked to indicate to what extent they utilize certain aspects of ICT in financial management in their respective offices. Their response is shown in Table 4.4

Table 4.4: Utilization of ICT infrastructure in Financial Management

<table>
<thead>
<tr>
<th>Utilization</th>
<th>To a large extent</th>
<th>To some extent</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Storing information on all students in the school and their fees payment</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>records</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Generating the monthly trial balances</td>
<td>19</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>95%</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>c) Typing receipts upon fees payment by students</td>
<td>17</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>85%</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>d) Preparation of payrolls for the support and non-teaching</td>
<td>11</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>55%</td>
<td></td>
<td>35</td>
<td>10</td>
</tr>
<tr>
<td>e) Using the printer to print all financial records</td>
<td>9</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>45%</td>
<td></td>
<td>40</td>
<td>15</td>
</tr>
<tr>
<td>f) Using the internet connectivity to access information on good financial</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>management, and to access the school bank account, and school bank</td>
<td>35%</td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>balances without having to go to the bank</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4 shows bursars’ response on the extent to which ICT was utilized in financial management in their respective offices. With regard to storing information on all students in the school and their fees payment records, all the bursars in the study indicated that utilized this aspect of ICT in financial management, to a large extent.
Pertaining to generating the monthly trial balances, a vast majority (19 (95%)) of the participating bursars, pointed out that they utilized ICT this way, to a large extent, only 1 (5%) observed that they utilized ICT this way, to some extent.

With respect to typing receipts upon fees payment by students, 17 (85%) of the bursars indicated that they utilized ICT this way, to a large extent, 3 (15%) indicated that, to some extent, they utilized ICT this way.

Concerning preparation of payrolls for the support and non-teaching, 11 (55%) of the bursars observed that they utilized ICT for this purpose to a large extent, 7 (35%) indicated that they utilized ICT for this purpose to some extent, whereas 2 (10%) pointed out that they did not utilize ICT for this purpose at all.

Regarding to using the printer to print all financial records, 9 (45%) of the bursars observed that they utilized ICT for this function to a large extent, 8 (40%) indicated that they utilized ICT for this function to some extent, whereas 3 (15%) pointed out that they did not utilize ICT for this function at all.

With regard to using the internet connectivity to access information on good financial management, and to access the school bank account, and school bank balances without having to go to the bank, 7 (35%) of the bursars observed that they utilized ICT for this purpose to a large extent, again 7 (35%) indicated that they utilized ICT for this purpose to some extent, whereas 6 (30%) pointed out that they did not utilize ICT for this purpose at all.
Again these results attest to the fact that the bursars utilization of ICT infrastructure in financial management seems to be limited to applications that involve basic storage/retrieval of information on all students fees payment records, typing receipts and generating the monthly trial balances.

This concurs with Ian (2007) who observed that the patterns of financial and procurement management have not necessarily paralleled this shift to ICT implementation in schools. Managers feel inadequate and shy off ICT in management of finances in secondary schools. As a result, many clerical staff in schools handles financial statements manually, while Christine (2010) arguing in the same vein points out that there is lack of computerised system with financial software in schools.

**4.3.3 Principals' Response on the ICT Infrastructure currently Utilized in the Administration of Public Secondary Schools in Terms of Financial, Students and Personnel Management**

Principals in the study observed the following to be the various ways in which ICT is utilized in student and personnel management in their respective schools:

a) Using the computer to type, store and retrieve administrative documents and examinations

b) Using the Internet connectivity to access information on good management practices

c) Using scanners to scan official documents for administrative use

d) Using the computer to send E-mail to communicate with various stakeholders

e) Using internet connectivity to register our KCSE candidates online

f) Using the printer to print official documents and reports
The above findings indicate that storage, analysis and presentation of students’ and staff’s records are the main administrative utilizations of ICT infrastructure in secondary schools in the Murang’a East and Kahuro districts. These findings are in agreement with Christine (2010) who found out that use of ICT could help librarians build database in relation to student and staff performance. Through ICT, if an administrator keyed in the student’s name or admission number, all the personal data, medical records, academic performance, absenteeism, extra curriculum activities and indiscipline record cases could be retrieved or updated. There are also computer programs that enable managers to observe teachers performance in relation to students grades. Data regarding student’s grades could be provided as well.

4.4 Perceptions of the School Administrators on the Use of ICT in Management

The study was also interested in determining the perceptions of the school administrators on the use of ICT in management.

4.4.1 Perception of the Dean of Studies on the Use of ICT in Students Management

To attain the perception of the dean of studies on the use of ICT in management, the dean of studies was provided with a number of statements on the use of ICT in management of students and examinations and asked to indicate how much they agreed or disagreed with them. Table 4.5 shows their response.
Table 4.5: Perception of the Dean of Studies on the Use of ICT in Management

<table>
<thead>
<tr>
<th>Statements</th>
<th>SA</th>
<th>%</th>
<th>A</th>
<th>%</th>
<th>NS</th>
<th>%</th>
<th>D</th>
<th>%</th>
<th>SD</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using a computer helps me to retrieve the students’ data faster</td>
<td>20</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I use the computer since it makes analysis of students’ results easier.</td>
<td>17</td>
<td>85</td>
<td>3</td>
<td>15</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I process report forms while using a computer because it is fast and accurate.</td>
<td>15</td>
<td>75</td>
<td>5</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I find storage of information easy while using ICT equipment</td>
<td>14</td>
<td>70</td>
<td>4</td>
<td>20</td>
<td>2</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I find online registration of KCSE candidates better than the manual registration.</td>
<td>11</td>
<td>55</td>
<td>5</td>
<td>25</td>
<td>4</td>
<td>20</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT use has enabled me to ensure safe storage of examination materials</td>
<td>9</td>
<td>45</td>
<td>7</td>
<td>35</td>
<td>5</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I do not use the school E-mail address and the website since they do not benefit the management of students’ data and examinations</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>10</td>
<td>8</td>
<td>40</td>
<td>4</td>
<td>20</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>I do not feel adequate to use ICT in management of students and examinations</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>30</td>
<td>4</td>
<td>20</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>I believe that purchase of ICT resources is a waste of money</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>25</td>
<td>15</td>
<td>75</td>
</tr>
</tbody>
</table>

Table 4.5 shows the perceptions of the deans of studies in the study on the use of ICT in management. A great majority of the deans of studies, that is, 17 (85%) strongly agreed that they used the computer since it made analysis of students’ results easier, 3 (15%) agreed. A majority of the deans of studies, that is, 15 (75%) strongly agreed that they processed report forms while using a computer because it is fast and accurate, 5 (25%) agreed.

A majority of the deans of studies, that is, 14 (70%) strongly agreed that they found storage of information easy while using ICT equipment, 4 (20%) agreed, whereas 2
(10%) were undecided. A close majority of the deans of studies, that is, 11 (55%) strongly agreed that they found online registration of KCSE candidates better than the manual registration, 5 (25%) agreed, 4 (20%) remained undecided.

Nine (45%) of the deans of studies participating in the study, strongly agreed that ICT use has enabled them to ensure safe storage of examination materials, 7 (35%) agreed, whilst 5 (25%) were undecided. Two (10%) of the Deans of Studies in the study, agreed that they do not use the school E-mail address and the website since they do not benefit the management of students’ data and examinations, 8 (40%) was undecided, 4 (20%) disagreed, whereas 6 (30%) chose to strongly disagree.

A section of the deans of studies in the study, 6 (30%) were undecided as to whether they do feel adequate to use ICT in management of students and examinations or not, 4 (20%) disagreed, whereas 10 (50%) chose to strongly disagree. Regarding the view that purchase of ICT resources is a waste of money, 5(25%) and 15 (75%) chose to disagree and strongly disagree respectively with the view.

The findings of this study indicates that the perception of the dean of studies on the use of ICT in management revolves around, faster retrieval the students’ data, analysis of students’ results, processing report forms, online registration of KCSE candidates and storage of information. This is in agreement with Hennessy and Onguko (2010) who observed that a clear vision can only be built if facilitors develop the right attitude. In Kenya, however, ultimate challenge in ICT implementation is the negative attitude among school leaders towards computers and the internet. Sara (2010) further
adds that the problem is that many teachers are intimidated by technology and are very comfortable with their established styles.

4.4.2 Perception of the Bursars on the Use of ICT in Financial Management

To attain the perception of the bursars on the use of ICT in financial management, the bursars were provided with a number of statements on the use of ICT in financial management and asked to indicate how much they agreed or disagreed with them. Table 4.6 shows their response.

<table>
<thead>
<tr>
<th>Statements</th>
<th>SA F</th>
<th>A F</th>
<th>NS F</th>
<th>D F</th>
<th>SD F</th>
</tr>
</thead>
<tbody>
<tr>
<td>I use the computer because it is faster to generate financial statements</td>
<td>20</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I use the computer since it makes financial management easier</td>
<td>20</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT helps me to retrieve data very fast.</td>
<td>17</td>
<td>85</td>
<td>3</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>Processing of payrolls for workers is faster and easier when I use a computer</td>
<td>16</td>
<td>80</td>
<td>4</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>I do not use the internet because it doesn't help in the financial management of the school</td>
<td>14</td>
<td>70</td>
<td>4</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>ICT use will not make any difference in the financial and personnel management of schools.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>I am not computer literate because training in ICT use is very expensive</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>I do not use ICT in financial management because it wastes a lot of time</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 4.6 shows the perceptions of the bursars in the study on the use of ICT in management. A great majority of the bursars, that is, 18 (90%) strongly agreed that ICT helps them to retrieve data very fast, 2 (10%) of the bursars simply agreed. Again
a great majority of the bursars, that is, 16 (80%) strongly agreed that processing of payrolls for workers is faster and easier when they use a computer, 4 (20%) of them simply agreed.

Half 10 (50%) of the bursars, disagreed that they do not use the internet because it doesn’t help in the financial management of the school, the other half 10 (50%) strongly disagreed with the view Six (30%) of the bursars participating in the study, disagreed with the view that ICT use will not make any difference in the financial and personnel management of schools, 14 (70%) of the bursars strongly disagreed with the view. Five (25%) of the bursars participating in the study, disagreed with the view that they are not computer literate because training in ICT use is very expensive, 15 (75%) of the bursars strongly disagreed with the view. All (20 (100%)) the bursars in the study strongly disagreed that they do not use ICT in financial management because it wastes a lot of time.

These results indicate that bursars perceive the use of ICT in management good because computer because it is faster to generate financial statements, makes financial management easier, helps to retrieve data very fast and that processing of payrolls for workers is faster and easier. On the other hand bursars perceived their failure to make use of the internet because it doesn’t help in the financial management; ICT use does not make any difference in the financial and personnel management of schools, bursars are not computer literate and because of the feeling that use ICT in financial management is wastes a lot of time. This is in agreement with a study by Ian (2007) in Nigeria who found out that over half of school managers do not use ICT effectively to manage resources and even decision making. Christine (2010) recommends use of
worksheet software as basic software schools to manage finances. She illustrates the main use of worksheet as to perform calculations, data bases to store, sort, extract, and analyse quickly. Worksheets also produce charts and graphics to present information in an easily understood way.

4.4.3 Perception of the Principals on the Use of ICT in Financial Management

To measure the perception of the principals on the use of ICT in financial management, the dean of studies was provided with a number of statements on the use of ICT in management of schools and asked to indicate the extent to which they agreed or disagreed with them. Table 4.7 shows their response.

<table>
<thead>
<tr>
<th>Statements</th>
<th>SA</th>
<th>A</th>
<th>NS</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT ensures speedy results</td>
<td>20</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>It makes my administrative work easier</td>
<td>20</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Use of ICT produces good quality work</td>
<td>20</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Communication is fast while using e-mail</td>
<td>16</td>
<td>80</td>
<td>4</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>Management of students’ records is the same whether I use ICT or not.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>The school prepares the support staff payroll manually since it is easier than to use the computer</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>It is not certain that use of ICT will improve management in schools</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>I do not purchase ICT equipments because it is a waste of resources</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>20</td>
</tr>
</tbody>
</table>

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Table 4.4 shows the perceptions of the principals in the study on the use of ICT in management. A great majority of the principals, that is, 16 (80%) strongly agreed that communication is fast while using e-mail, 4 of the principals (20%) simply agreed that

5 (25%) of the principals participating in the study, were not sure whether management of students’ records is the same whether they use ICT or not, 7 of the principals (35%) disagreed while 9 of them (45%) strongly disagreed with the view. 6 (30%) of the principals participating in the study, that is, disagreed with the view that they are not computer literate because training in ICT use is very expensive, 14 of the principals (70%) strongly disagreed with the view.

5 (25%) of the principals participating in the study disagreed with the view that it is not certain that use of ICT will improve management in schools, 15 of the principals (75%) strongly disagreed with the view. All (20 (100%)) of the principals in the study strongly disagreed that they did not purchase ICT equipment because it is a waste of resources. The findings in this section reveal that perception of the secondary school administrators on the use of ICT in management in the secondary schools is generally positive, with the administrators hailing it for speed and convenience. Ian (2007) concurs with this finding by pointing out that school administrators view ICT as god sent due to its ability to support their administrative and management duties, the level to which ICT infrastructure has reduced administration and management workloads is extensive. Using ICT, school administration can document all filed or boxed information for speedy access by ICT. With a networked system every staff can access relevant information conveniently at the comfort of the staff room.
The results of this study established that principals perceived the use of ICT in management beneficial due to; speedy results, administrative work is made easier, communication is fast while using e-mail that ICT produces good quality work. To effectively achieve the benefits of ICT in management of secondary schools, Levine (1998) emphasizes on the importance of having a plan that is based on real school needs and one that is realistic, achievable, and effective. The plan should be produced, not for the sole purpose of putting technology in the classroom but to reflect the real needs of schools in order to make effective technology deployment and to produce enhanced learning environments.

4.5 Challenges Faced by the School Administrators as they Use ICT in Management

The study also sought to determine the challenges faced by the school administrators as they use ICT in management.

4.5.1 Deans of Studies and Bursars’ Response on the Challenges Faced by the School Administrators as they Use ICT in Management

The deans of studies and bursars’ were provided with a number of perceived challenges are faced by the school administrators as they use ICT in management and asked to indicate to what extent they faced the challenges. Their response is shown on figure 4.1
Figure 4.1: Challenges Faced by the School Administrators as they Use ICT in Management

![Bar Chart]

- **Harmonizing old ICT infrastructure data with the new**
  - To a Greater Extent: 80%
  - To Some Extent: 15%
  - Not at All: 5%

- **High cost of ICT infrastructure**
  - To a Greater Extent: 65%
  - To Some Extent: 20%
  - Not at All: 15%

- **Poor quality/lack of Internet services**
  - To a Greater Extent: 50%
  - To Some Extent: 10%
  - Not at All: 15%

- **Sabotage of data by students and malware**
  - To a Greater Extent: 55%
  - To Some Extent: 15%
  - Not at All: 15%

- **Lack of adequate ICT skills among administrators**
  - To a Greater Extent: 40%
  - To Some Extent: 45%
  - Not at All: 40%

Figure 4.1 shows the response of the deans of studies and bursars on the challenges faced by the school administrators as they use ICT in management.

Pertaining to harmonizing old data with the new ICT infrastructure, a vast majority of the participating deans of studies and bursars (80%) pointed out that it was a challenge to a great extent, 15% observed that it was a challenge, to some extent, 5% indicated that it was not a challenge at all.

With regards to high cost of ICT infrastructure, 65% of the deans of studies and bursars indicated that it was a challenge to a great extent, 20% observed that it was a challenge, to some extent, and 15% indicated that it was not a challenge at all.
Concerning poor quality/ lack of Internet services, 50% of the deans of studies and bursars observed that it was a challenge to a great extent, 7 (35%) indicated that they utilized ICT for this purpose to some extent, whereas 10% pointed out that it was not a challenge at all. Regarding sabotage of data in computers by students and malware, 30% of the deans of studies and bursars observed that it was a challenge to a great extent, 55% indicated that it was a challenge to some extent, whereas 15% pointed out that it was not a challenge at all. With respect to lack of adequate ICT skills among administrators, 15% of the participating deans of studies and bursars pointed out that it was a challenge to a greater extent, 40% observed that it was a challenge, to some extent, 45% indicated that it was not a challenge at all.

4.5.2 Principals' Response on the Challenges Faced by the School Administrators as they Use ICT in Management

The principals in the study identified the following to be the challenges faced by the school administrators as they use ICT in management:

a) Possible leaking of students' marks data;  
b) Inadequate computer programs to assist in management;  
c) Inconsistent electricity supply;  
d) High cost of ICT infrastructure maintenance;  
e) Rapid change in ICT trends.

(2010) found out that owing to financial inadequacy many schools in Africa are deficient in the availability of information communication and technology (ICT) equipment. Kozma (2004) concurs with privacy as a challenge, pointing out that the biggest barriers to the ICT use is the lack national privacy policy on the use of ICT in schools. For development of any sector, the policymakers are obligated with duty of ensuring matters of data confidentiality in that sector. In agreement to the rapid change in ICT trends as a setback, Venezky (2004) argues that changing landscape of communications and information exchange in the 21st century requires schools staff to be at the cutting edge of knowledge production, modification and application rather than consumption; in many developing countries, however, most administrators have minimal or no ICT skills themselves

4.6 **How to Enhance the Use of ICT in Management of Schools**

The study further aimed to establish how to enhance the use of ICT in management of schools.

4.6.1 **Deans of Studies Response on how to Enhance the Use of ICT in Management of Schools**

Deans of studies in the study were asked to point out how to overcome the challenges faced by the school administrators as they use ICT in management. Their response is shown in Figure 4.2
According to figure 4.2, a majority of the deans of studies in the study indicated that the challenges faced by the school administrators as they use ICT in management could be overcome through acquisition of low maintenance ICT infrastructure (50%); digitizing all students' performance records (30%); installation of cable internet in schools to ensure consistent connectivity (15%); and installation of robust antivirus and online firewall to ensure security of students' performance records (5%). These results are in agreement with a study carried Adeyemi et al (2010) which found out that most secondary schools are deficient in ICT facilities needed to fully implement management.
4.6.2 Bursars' Response on the Strategies put in Place to Overcome the Challenges Faced by the School Administrators as they Use ICT in Management

Bursars in the study were also asked to point out ways challenges faced by the school administrators as they use ICT in management can be resolved. Their response is shown in figure 4.3.

Figure 4.3: Bursars Response on Strategies to be put in Place to Overcome the Challenges Faced by the School Administrators as they Use ICT in Management

According to figure 4.3, a majority of the bursars in the study indicated that the challenges faced by the school administrators as they use ICT in management can be resolved through reduction of the cost of ICT facilities to schools (65%); design of comprehensive computer programs for assistant administrators (20%); enhancement of internet connectivity to schools (10%); and improvement of infrastructures (like electricity) (5%).
4.6.3 Principals’ Response on the Strategies Put in Place to Overcome the
Challenges Faced by the School Administrators as they Use ICT in
Management

The principals in the study identified the following as ways to resolve challenges
faced by the school administrators as they use ICT in management:

a) Development of computer programs tailor-made for administrators;
b) Enhancement of basic infrastructures (like electricity);
c) Conducting workshops to equip administrators with adequate ICT skills;
d) Installation of strong antivirus and online security mechanisms to ensure
security of school records; and
e) Installation of cable internet in the schools.

The response from the deans of studies, bursars, and principals on how to enhance the
use of ICT in management of schools indicate that this can be done by curbing the
challenges that they face during utilization of ICT in their respective schools.
Findings show that these challenges can be curbed through reduction of ICT
infrastructure costs, fast adoption of ICT trends in schools, development of
customized schools software and sustenance of basic infrastructure like electricity. In
concurrence with this finding, (Schreurs, 2007) observes that, to ensure successful
integration of ICTs into the school management, the management staff should be
willing to learn and use ICT in their duties; availability or non-availability of the
facilities should not hinder them. In developing countries, the governments should
ensure inadequate funding of the schools by on matters of basic ICT infrastructure
such as adequately equipped and consistently powered computer labs. They should
also offer sufficient ICT support by, for instance, ensuring that there are enough
curriculum-oriented computer programs and there is cable internet to each school

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CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Summary
The main purpose of this study was to investigate the use of ICT in management of Secondary Schools in Murang'a East and Kahuro districts in Murang’a County. The study was guided by the following research objectives: To:

1. Determine ICT infrastructure currently utilized in the administration of public secondary schools in terms of financial, students and personnel management
2. Determine the perception of the secondary school administrators on the use of ICT in management
3. Establish the challenges are faced by the school administrators as they use ICT in management
4. To seek for suggestions on how to enhance the use of ICT in management of schools

This study used a mixed method research paradigm which employed both quantitative and qualitative methods. This was because by using multiple approaches, the researcher capitalized on the strengths of each approach and offset their different weaknesses. It also provided more comprehensive answers to research questions, going beyond the limitations of a single approach. Random stratified and purposive sampling procedure was used to arrive at the sample of the respondents.

The researcher used SPSS (Statistical Package for Social Sciences) version 16.2 for windows to process the collected data. Descriptive statistics such as frequencies and percentages were used to summarize the data. The analysis of the data enabled the researcher to come up with the following major findings:
a) The study found the main ways in which ICT infrastructure is currently utilized in the administration of public secondary schools in terms of students' management to be: Keeping data on all students, their admission numbers and classes (100%); store and retrieve past examination papers (100%); print all examination analysis results and merit lists and to make copies of official documents (90%). In terms of financial management: Storing information on all students in the school and their fees payment records (100%); generating the monthly trial balances (95%); typing receipts upon fees payment by students (85%); preparation of payrolls for the support and non-teaching (55%). In terms of personnel management: Using the computer to type, store and retrieve administrative documents; using the Internet connectivity to access information on good management practices; and using the printer to print official documents and reports.

b) The school administrators perceived ICT to be useful in their management practices with all of them (100%) indicating that they had a computer for use in their respective offices because it makes them work faster. Deans of studies indicated that they use the computer since it makes analysis of students' results easier (85%); they process report forms while using a computer because it is fast and accurate; and they find storage of information easy while using ICT equipment. Bursars observed that they use the computer since it makes financial management easier (100%), and processing of payrolls for workers it is faster and easier when they use a computer (80%). Principals pointed out that ICT produces good quality work (100%); and communication is fast while using e-mail (80%)
c) Major challenges faced by the school administrators as they use ICT in management according to the deans of studies and bursars include: harmonizing old data with the new ICT infrastructure (80%); high cost of ICT infrastructure (65%); poor quality/ lack of Internet services (50%). According to the principals the main challenges were: Possible leaking of students’ marks data; inadequate computer programs to assist in management; inconsistent electricity supply; and high cost of ICT infrastructure maintenance.

d) Deans of studies observed that the strategies put in place to overcome these challenges to be mainly: acquisition of low maintenance ICT infrastructure (50%); and digitizing all students’ performance records (30%). The bursars pointed out reduction of the cost of ICT facilities to schools, and design of comprehensive computer programs for assistant administrators. The principals indicated: Development of computer programs tailor-made for administrators; enhancement of basic infrastructures (like electricity); and conducting workshops to equip administrators with adequate ICT skills.

5.2 Conclusions of the Study

These conclusions of the study were derived from the major findings and were based on the research objectives:

- Storage and presentation of students’ and staff’s records are the main administrative utilizations of ICT infrastructure in secondary schools in Murang’a East and Kahuro districts.

- Perception of the secondary school administrators on the use of ICT in management in the secondary schools is generally positive, with the administrators hailing it for speed and convenience.
Financial constraints coupled with privacy concerns and rapid change in ICT trends are the key challenges facing the school administrators as they use ICT in management in Murang’a East and Kahuro districts.

These challenges can be curbed through reduction of ICT infrastructure costs, fast adoption of ICT trends in schools, development of customized schools software and sustenance of basic infrastructure like electricity.

5.3 Recommendations of the Study

The following recommendations were made to various relevant stakeholders concerning the use of ICT in management of Secondary Schools in Murang’a East and Kahuro districts in Murang’a County. These stakeholders are namely: School administrators; software developers; the ministry of education.

**School administrators:** School administrators should take keen interest in encouraging all members of teaching and non-teaching staff to make use of ICT in teaching and learning process. They should ensure that they organize ICT training programmes meant to equip all members of their administrative structure with ICT related skills to be able to apply ICT dynamically in various areas of its application in education. They should also encourage students to make use of the available ICT facilities.

**Software Developers:** Local software developers should create interactive software content based on activities in the day to day transactions in the current Kenyan secondary school system. This will not only help to produce competent software applications in touch with Kenya’s secondary schools needs but also enhance quality and effective management of education in the schools.
The ministry of education: The ministry of education, and private sector should have a collective responsibility in broadening the knowledge base of application of ICT in administrative processes in schools. This can be done through formulation of sound ICT policies aimed at creating conducive environment for the growth of the sector. Government should also put in place both material and human resources to enhance application of ICT in the administrative process in schools. This could probably be done by tabling a bill in parliament to cater for the enhancement of school administration using ICT at all levels of education in the country.
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Christine, M. (2010).*Information and Communication Technology for administration and Management for Secondary Schools in Cyprus*. Faculty of Philosophy,


QUESTIONNAIRE FOR DEAN OF STUDIES

I am a post graduate student at Kenyatta University pursuing a masters' degree in Education Administration and Planning. The purpose of this questionnaire is to gather information on the status and extent of use of ICT in management of public secondary schools in Murang'a East and Kahuro districts. You are requested to answer all the questions because your responses are very important to this study. Your answers will be highly appreciated and will be treated confidentially. Do not write your name or the name of your school in the questionnaire. This will help to keep your identity confidential.

SECTION A: DEMOGRAPHIC INFORMATION

INSTRUCTIONS: Kindly indicate the appropriate response with a tick (✓) in the spaces provided. Where an explanation is required, use the space provided.

1. Gender
   a) Male [  ]
   b) Female [  ]

2. Types of school
   a) Boys Boarding [  ]
   b) Girls Boarding [  ]

3. Category of school
   a) National [  ]
   b) County [  ]
   c) District [  ]

4. Types of school
   a) Boys Boarding [  ]
   b) Girls Boarding [  ]
   c) Mixed Boarding [  ]
   d) Mixed Day [  ]
   e) Mixed Day & Boarding [  ]

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5. Level of computer literacy
   a) Certificate [ ]
   b) Diploma [ ]
   c) Degree [ ]
   d) Any other (Specify) ..............................................................

SECTION B: CURRENT UTILIZATION OF ICT INFRASTRUCTURE IN TERMS OF FINANCIAL, STUDENTS AND PERSONNEL MANAGEMENT

6. a. Do you make use of ICT in students’ studies management?
   a) Yes
   b) No

b. If YES, please indicate how often you utilize the following aspects of ICT in the management of students’ studies in your office

<table>
<thead>
<tr>
<th>No</th>
<th>ICT Aspects</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Keeping data on all students, their admission numbers and classes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>Using the computer to analyze the student’s academic results and to process the students report forms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Using the computer and the internet connectivity to register KCSE candidates and to access information on good administrative practices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Using the computer to store and retrieve past examination papers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>Using the printer to print all examination analysis results and merit lists and to make copies of official documents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f)</td>
<td>Using the LCD projector to display data on academic progress of students to stakeholders during meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g)</td>
<td>Using the school website to display the school’s academic performance to the public</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other, please specify ........................................................................................................
SECTION C: PERCEPTION OF THE DEAN OF STUDIES ON THE USE OF ICT IN MANAGEMENT

7. Please indicate the level of agreement or disagreement with the following statements on the use of ICT in management of students and examinations.

Strongly Agree (SA) = 5;    Agree (A) = 4;    Not Sure (NS) = 3;    Disagree (D); = 2    Strongly Disagree (SD) = 1.

<table>
<thead>
<tr>
<th>Statement</th>
<th>(SA)</th>
<th>(A)</th>
<th>(NS)</th>
<th>(D)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) I have a computer for use in my office</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) I use the computer since it makes analysis of students' results easier.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Using a computer helps me to retrieve the students' data faster</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) I find storage of information easy while using ICT equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) I process report forms while using a computer because it is fast and accurate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) ICT use has enabled me to ensure safe storage of examination materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>g) I find online registration of KCSE candidates better than the manual registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) I believe that purchase of ICT resources is a waste of money.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) I am not computer literate because training in ICT use is very expensive.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j) I do not feel adequate to use ICT in management of students and examinations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k) I do not use the school E-mail address and the website since they do not benefit the management of students’ data and examinations in any way.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l) I find management of student data more difficult while using ICT equipment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m) I do not use computers to generate students merit lists because it is slow and inaccurate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION D: CHALLENGES BEING FACED BY THE DEAN OF STUDIES
IN THE USE OF ICT IN MANAGEMENT OF SCHOOLS

8. a) Do you face any challenges as you utilize ICT in the management of students' studies?
   
   a) Yes [ ]
   
   b) No [ ]

   b. If YES, please indicate by ticking, to what extent you face the following challenges

   i. Harmonizing old student performance data with the new ICT infrastructure
      
      To a greater extent [ ]
      To some extent [ ]
      Not at all [ ]

   ii. Sabotage of data in computers by students during rampages
      
      To a greater extent [ ]
      To some extent [ ]
      Not at all [ ]

   iii. Inconsistent internet connection to upload student performance data online
      
      To a greater extent [ ]
      To some extent [ ]
      Not at all [ ]

   iv. High cost of ICT infrastructure maintenance
      
      To a greater extent [ ]
      To some extent [ ]
      Not at all [ ]

   v. Unauthorized online leaking of students' marks data
      
      To a greater extent [ ]
      To some extent [ ]
      Not at all [ ]

   Any other, please specify........................................................................................................
..................................................................................................................................................
SECTION E: HOW TO ENHANCE THE USE OF ICT IN MANAGEMENT OF SCHOOLS

9. a) Use of ICT in your department can be enhanced
   i) Agree [ ]
   ii) Disagree [ ]

b) If you AGREE, please indicate by ticking whether the following are some of the ways in which use of ICT in your department can be enhanced

<table>
<thead>
<tr>
<th>No</th>
<th>Ways</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Digitizing all students’ performance records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>Storing students’ performance records on encrypted online portals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Installation of cable internet in schools to ensure consistent connectivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Acquisition of low maintenance ICT infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>Installation of robust antivirus and online firewall to ensure security of students’ performance records</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other, please specify ........................................................................................................
..................................................................................................................................................

Thank you for your co-operation
APPENDIX II

QUESTIONNAIRE FOR BURSAR

I am a post graduate student at Kenyatta University pursuing a masters’ degree in Education Administration and Planning. The purpose of this questionnaire is to gather information on the status and extent of use of ICT in management of public secondary schools in Murang’a East and Kahuro districts. You are requested to answer all the questions because your responses are very important to this study. Your answers will be highly appreciated and will be treated confidentially. Do not write your name or the name of your school in the questionnaire. This will help to keep your identity confidential.

SECTION A: DEMOGRAPHIC INFORMATION

INSTRUCTIONS: Kindly indicate the appropriate response with a tick (✓) in the spaces provided. Where an explanation is required, use the space provided.

1. Gender
   a) Male [ ]
   b) Female [ ]

2. Types of school
   a) Boys Boarding [ ]
   b) Girls Boarding [ ]

3. Category of school
   a) National [ ]
   b) County [ ]
   c) District [ ]

4. Types of school
   a) Boys Boarding [ ]
   b) Girls Boarding [ ]
c) Mixed Boarding [ ]
d) Mixed Day [ ]
e) Mixed Day & Boarding [ ]

5. Level of computer literacy
a) Certificate [ ]
b) Diploma [ ]
c) Degree [ ]
d) Any other (Specify) .................................................................

SECTION B: CURRENT UTILIZATION OF ICT INFRASTRUCTURE IN TERMS OF FINANCIAL MANAGEMENT

6. a. Does your office utilize ICT in financial management?
   Yes [ ]
   No [ ]

   b. If YES, please indicate by ticking, to what extent you utilize the following aspects of ICT in financial management in your office

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>To a greater extent</th>
<th>To some extent</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Preparation of payrolls for the support and non-teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>Typing receipts upon fees payment by students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Generating the monthly trial balances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Storing information on all students in the school and their fees payment records</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>Using the printer to print all financial records</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f)</td>
<td>Using the internet connectivity to access information on good financial management, and to access the school bank account, and school bank balances without having to go to the bank</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other, please specify ..............................................................................................................
SECTION C: PERCEPTION OF THE BURSAR ON THE USE OF ICT IN MANAGEMENT

7. Please indicate the level of agreement or disagreement with the following statements on the use of ICT in management of financial and personnel in your school.

Strongly Agree (SA) = 5; Agree (A) = 4; Not Sure (NS) = 3; Disagree (D) = 2; Strongly Disagree (SD) = 1

<table>
<thead>
<tr>
<th>Statement</th>
<th>(SA)</th>
<th>(A)</th>
<th>(NS)</th>
<th>(D)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) I have a computer for use in my office</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>b) I use the computer since it makes financial management easier</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) I use the computer because it is faster to generate financial statements.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) I store financial records using ICT equipment because it is safer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Processing of payrolls for workers is faster and easier when I use a computer.</td>
<td></td>
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<tr>
<td>f) ICT helps me to retrieve data very fast.</td>
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<tr>
<td>g) I use mobile money transfer in fees payments because it is fast and convenient.</td>
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<tr>
<td>h) ICT use will not make any difference in the financial and personnel management of schools.</td>
<td></td>
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</tr>
<tr>
<td>i) I do not use ICT in financial management because it wastes a lot of time.</td>
<td></td>
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</tr>
<tr>
<td>j) I am not computer literate because training in ICT use is very expensive.</td>
<td></td>
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<tr>
<td>k) I do not use the internet because it doesn’t help in the financial management of the school.</td>
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</tr>
<tr>
<td>l) I do not feel adequate to use ICT in management of finances</td>
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<tr>
<td>l) I do not use the school E-mail address and the website since they do not benefit the schools’ financial and personnel management in any way.</td>
<td></td>
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</tbody>
</table>
SECTION D: CHALLENGES FACED BY THE BURSAR IN THE USE OF ICT IN MANAGEMENT OF SCHOOLS

8. a) Does the use of ICT in financial management in your office face any setbacks?
   
   a) Yes
   
   b) No
   
   b. If YES, please indicate by ticking how often the following setbacks facing ICT in financial management

i) High cost of ICT infrastructure

<table>
<thead>
<tr>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

ii) Lack of the right computer programs to assist in financial management

<table>
<thead>
<tr>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

iii) Poor quality/ lack of Internet services

<table>
<thead>
<tr>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

iv) Invasion of financial data by such malwares as viruses

<table>
<thead>
<tr>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
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</table>

v) Lack of adequate ICT skills among assistant financial administrators

<table>
<thead>
<tr>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
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<tbody>
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<td></td>
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</table>

vi) Unstable and unreliable electricity supply

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<thead>
<tr>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
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</table>

Any other, please specify.................................................................................................................................................
SECTION E: HOW TO ENHANCE THE USE OF ICT IN MANAGEMENT OF SCHOOLS

9. a) Use of ICT in management of schools can be enhanced

a) True [ ]

b) Not sure [ ]

c) Not True [ ]

b) If TRUE, please indicate by ticking whether the following are some of the ways in which use of ICT in management of schools can be enhanced

a) Reduction of the cost of ICT facilities to schools [ ]

b) Design of comprehensive computer programs for assistant administrators [ ]

c) Equipping school assistant administrators with adequate ICT skills [ ]

d) Enhancement of internet connectivity to schools [ ]

e) Improvement of infrastructures (like electricity) with the aim of enhancing effective application of computer in school administration [ ]

Any other, please specify

Thank you for your co-operation
I am a post graduate student at Kenyatta University pursuing a masters’ degree in Education Administration and Planning. The purpose of this interview is to gather information on the status and extent of use of ICT in management of public secondary schools in Murang’a East and Kahuro districts. You are requested to answer all the questions because your responses are very important to this study. Your answers will be highly appreciated and will be treated confidentially. Do not write your name or the name of your school in the interview guide. This will help to keep your identity confidential.

SECTION A: BACKGROUND INFORMATION

1. Gender
   a) Male [ ]
   b) Female [ ]

2. Types of school
   a) Boys Boarding [ ]
   b) Girls Boarding [ ]

3. Category of school
   a) National [ ]
   b) County [ ]
   c) District [ ]

4. Types of school
   a) Boys Boarding [ ]
   b) Girls Boarding [ ]
   c) Mixed Boarding [ ]
   d) Mixed Day [ ]
5. Level of computer literacy
   a) Certificate [ ]
   b) Diploma [ ]
   c) Degree [ ]
   d) Any other (Specify)  

SECTION B: STATUS AND EXTENT OF USE OF ICT IN MANAGEMENT
OF PUBLIC SECONDARY SCHOOLS IN MURANG’A EAST AND KAHURO
DISTRICTS

1. What are the various ways in which ICT is utilized in your school administration in
   the following areas?

   i. In general management

   ii. Financial management

   iii. Students and personnel management
SECTION C: PERCEPTION OF THE PRINCIPAL ON THE USE OF ICT IN MANAGEMENT

2. Indicate the level of agreement or disagreement with the following statements on the use of ICT in management of schools.

Strongly Agree (SA) = 5; Agree (A) = 4; Not Sure (NS) = 3; Disagree (D) = 2; Strongly Disagree (SD) = 1

<table>
<thead>
<tr>
<th>Statement</th>
<th>(SA)</th>
<th>(A)</th>
<th>(NS)</th>
<th>(D)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. I have a computer for use in my office</td>
<td></td>
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<tr>
<td>ii. It makes my administrative work easier</td>
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<td>iii. ICT ensures speedy results.</td>
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<td>iv. Use of ICT produces good quality work.</td>
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<tr>
<td>v. Communication is fast while using e-mail</td>
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<tr>
<td>vi. The bursar uses the computer since it ensures quick generation of financial statements.</td>
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<tr>
<td>vii. I am not certain that use of ICT will improve management in schools.</td>
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<tr>
<td>viii. I am not ICT literate since training in ICT is very difficult.</td>
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<tr>
<td>ix. I do not purchase ICT equipments because it is a waste of resources</td>
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<tr>
<td>x. Use of ICT will not make any difference in the financial management of the school.</td>
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<tr>
<td>xi. Management of students' records is the same whether I use ICT or not.</td>
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<tr>
<td>xii. The school prepares the support staff payroll manually since it is easier than to use the computer.</td>
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</tbody>
</table>
SECTION D: CHALLENGES FACED BY THE PRINCIPALS IN THE USE OF ICT IN MANAGEMENT OF SCHOOLS.

3. What are some of the key challenges that you face as an administrator in the use of ICT in school management

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

SECTION E: SUGGESTIONS TO ENHANCE ICT USE IN MANAGEMENT

4. How can these challenges be countered

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
APPENDIX IV

OBSERVATION CHECK LIST

With assistance from the school authorities the researcher will observe the following facilities to establish their availability, adequacy and extent of use in management.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Available (1)</th>
<th>Adequate (1)</th>
<th>In use (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Available (0)</td>
<td>Not adequate (0)</td>
<td>Not in Use (0)</td>
</tr>
<tr>
<td>Computer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scanner</td>
<td></td>
<td></td>
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<tr>
<td>Printer</td>
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<td></td>
<td></td>
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<tr>
<td>Copy Printer</td>
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<tr>
<td>Photocopier</td>
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<td></td>
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<tr>
<td>School website</td>
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<td></td>
<td></td>
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<tr>
<td>Internet</td>
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<td></td>
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<tr>
<td>connectivity</td>
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<tr>
<td>Mobile telephone</td>
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<td>Modem</td>
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<tr>
<td>LCD projector</td>
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<td>Digital camera</td>
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<tr>
<td>Any Other (Specify)</td>
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</table>