APPLICATION OF INFORMATION COMMUNICATION TECHNOLOGY IN SCHOOL ADMINISTRATION IN PUBLIC SECONDARY SCHOOLS IN LANG’ATA DIVISION, NAIROBI COUNTY, KENYA

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E55/CE/10524/2006

A PROJECT SUBMITTED TO THE DEPARTMENT OF EDUCATION MANAGEMENT, POLICY AND CURRICULUM STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTERS OF EDUCATION OF KENYATTA UNIVERSITY

14TH APRIL, 2014
DECLARATION

I declare that this project is my original work and has not been presented in any other university/institution for consideration. This research proposal has been complemented by referenced sources duly acknowledged. Where text, data (including spoken words), graphics, pictures or tables have been borrowed from other sources, including the internet, these are specifically accredited and references cited in accordance in line with anti-plagiarism regulations.

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To my family, my husband Geophrey Odhiambo and children Joan Achieng and Gregory Odhiambo.
ACKNOWLEDGEMENT

First I appreciate all those who have played a prominent role either directly or indirectly leading to the completion of this research project. I wish to express my gratitude to my supervisor Dr. Itegi and Dr. Dorothy Kyalo for their commitment and interest in the progressive stages of this study. Their patience, guidance, encouragement as well as corrective criticism inspired me to work very hard.

Acknowledgement also goes to my husband Geophrey, son Gregory and daughter Joan for the support they gave me in the course of this Masters programme. I appreciate my college mates for the group assignments sharing during our time together in the University. I also take this opportunity to acknowledge the research assistants for their support in handling various critical concepts and in the collection of data from the respondents. I thank you all.
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ACRONYMS AND ABBREVIATIONS

CAL : Computer Assisted Learning
CAT : Computer Assisted Teaching
CPT : Computer Programmed Teaching
EPZ : Export Processing Zone
ICT : Information and Communication Technology
MIS : Managed Information System
USA : United States of America
VLE : Virtual Learning Environment
ABSTRACT

This study intended to examine the application of Information Communication Technology in school administration in selected public secondary schools in Lang’ata Division, Nairobi County. The objectives of the study sought to examine: the extent to which school administrators apply Information Communication Technology in human resources administration, the application of Information Communication Technology in administration of physical resources, the extent to which school administrators apply Information Communication Technology in financial administration, challenges facing administrators in application of ICT in school administration and the measures that can be taken to improve the application of ICT. A survey research design was used in the study. The target population of this study was four hundred and thirty (N=430). Simple random sampling and purposive sampling procedures were used to arrive at the sample (Students, computer teachers, and the school administrator (principal). In total the sample size was one hundred and thirty (n=130). However, from the analysis, one hundred and six of them participated in the study. Questionnaires were used to collect data from the students whereas interview guides were used for the teachers and school administrators. The collected data was analysed using descriptive statistics, employing both quantitative and qualitative approaches. Data from questionnaires were purely analysed quantitatively, and presented in frequencies and percentages while those collected through the interview method was analysed qualitatively. They were synthesized to a presentable data and the key points emerging were reported in narrative form based on the key study themes. From the analysis, the following conclusions were made: most of the public secondary schools in Lang’ata have embraced Information Communication Technology in the administration of human resources for instance in monitoring attendances, performance, staff training and recruiting of the staff. In terms of the administration of physical resources, Information Communication Technology has been limited only to the monitoring of classroom facilities, advertisement of tenders, monitoring lab facilities and stationeries. For financial administration process, most schools are limited in terms of the ICT application. This is mainly because they only apply it in the collection of school fees and salary payment. However, the effectiveness of ICT application in executing administration roles in public schools in Lang’ata have been hindered by various issues such as lack of facilities, poor training among key stakeholders, financial constraints and insecurity due to no security checkup software for the computers and power outages. These challenges have hindered 100% effective application of ICT by the school administrators in the school administration. As such, the following recommendations were given: the school administration in collaboration with the government and any other stakeholders should join hands and see into it that programs are started and implemented which will see that the school members are provided with adequate training on the effectiveness and appropriate techniques on how they can utilize ICT in executing administration roles and duties. Moreover, parents, the government and school administration should also work hand in hand to ensure that schools are equipped with not only adequate but also up-to-date Information Communication Technology facilities.
CHAPTER ONE

INTRODUCTION

This chapter presents a general overview of the application of information communication technology in school administration in public secondary schools. The chapter is divided into the following sections: background of the study, statement of the problem, purpose of the study, objectives of the study, significance of the study, limitations of the study, scope of the study, theoretical framework, conceptual framework and operational definition of terms.

1.1 Background of the Study

The in-cooperation of Information Communication Technology in the administration of schools has positive effects. These may include improvement of the school standards in terms of academics, financial status and in co-curricular activities. The Information and Communication Technologies (ICT) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer, and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. When such technologies are used for school administrative purposes, namely to support and improve School Administration, ICT can be considered as a sub field of Educational Technology (Kumar, 2008).

The potential of information communications technology (ICT) in enhancing human capabilities and revolutionizing the management of organizations was first realized in other sectors of human society, mostly in the business world and the military, other than
in education (Ray & Davis, 1991). The importance of ICT contribution is also widely recognized both in the workplace and at home (Dawes, 2001; Preston et al. 2000). These examples are just a few pointers which show that ICT is becoming a vital enabling tool that can no longer be ignored in the administration of schools.

Computers made their first appearance in certain African schools in North Africa at the end of the 1960s. This was mainly for management applications (Clark & Mayer, 2003). It was only in the 1970s that they were used in educational institutions in North America and Europe. In Africa, the first computers arrived in educational institutions at the end of the 1970s. Governments at this time were apparently motivated by a dual goal which were: to initiate students to the computer and to introduce certain software programs.

According to the Time Magazine (1982), the introduction of computer courses in Africa were offered only in a few elite schools and some universities. Information and communication technologies were largely ignored and instead computer processing was considered a requisite discipline. This urgency was particularly felt in Africa and in January 1982 Time Magazine acknowledged the importance of the computer by naming it “Man of the Year”, this was the first time a machine was honored (Time Magazine, 1982).

The dominance of the behaviorists’ educational approach influenced the development of computer-programmed teaching (CPT). This made teachers to become more interested in applying technology while teaching certain subjects. From teaching computer programming and computer programmed teaching, teachers adopted the system of computer-assisted teaching (CAT), which was widely adopted in North America and
Europe. Tutorials or educational software, were designed to help learners acquire knowledge and develop skills (Clark & Mayer, 2003).

By the early 1980s, computer-assisted learning (CAL) emerged on the scene, and in the mid 1990s, ICT was being applied in a variety of disciplines. Since the late 1990s, the integration of ICT in school administration appears to be on the ascendant in educational circles (EPZ, 2005). The growth of ICT in Kenya has been influenced by the global trend. Thus, there is a terrific increase in the technology in the country. This is evident in terms of number of fixed and mobile telephone lines; the number of computers and services; Internet Service Providers (ISPs), the number of Internet users; broadcasting stations; and market share of each one of them. Due to the prevailing business climate and economic growth, Kenya has witnessed rapid growth in ICT sector in the recent past. The rapid growth of ICT has also influenced the rapid introduction of computer application in School Administration thus setting up computer training colleges in major urban centers all over the country (EPZ, 2005).

Education encompasses teaching and learning specific skills, and also something less tangible but more profound: the imparting of knowledge, positive judgment and well-developed wisdom (Alexis, 2003). Education has as one of its fundamental aspects, the imparting of culture from generation to generation. School administration plays a critical role in ensuring that education is passed to the students as recommended. It is also the duty of the school administration to monitor the enrollment of students in the school, availability of educational resources, human labor and availability of finance to sustain the daily activities of the school (Meador, 2011). Alex (2003) argues that schools administrations had to monitor all these records of the school activities by entering the
details manually on the books and records of the schools. But with the introduction of ICT in the country, there are various programs that come in handy to minimize the efforts put by the administration in monitoring and managing the school activities. These programs help the administration to monitor their daily activities in the school by a click on button. Today, the applications of ICT in School Administration and education are numerous yet it is not known how they are being used in public secondary schools in Nairobi County. Thus, this study sought to find out the application of ICT on effective administration of public secondary schools with respect to Lang’ata Division, Nairobi County.

1.2 Statement of the Problem

While different people debate the obvious advantages of ICT in School Administration, systematic research is needed to confirm that the school administration is actually acquiring and using the skills that are being taught on use of ICT in administration, and that the use of ICT in School Administration is the best way to achieve the outcomes in a school environment.

Application of ICT in any field is perceived having potentials of improving the standards from a lower level to a high level. In this case, application of ICT in schools is expected to improve the standards of the school from one level to the other. There are a number of the schools that have embraced the use of ICT in administration, but still they never improve in the standards (academically and financially). These schools have been faced by various challenges such as mismanagement of financial resources, low academic performance of students of which have resulted due to poor school administration
strategies (Karsenti (2004). The question that beckons for an answer is: has ICT been effectively used in school administration? Based on this question, this study sought to establish the ways in which ICT is used in schools in administration by examining the application of ICT in school administration in selected Secondary Schools with respect to Lang’ata Division, Nairobi.

1.3 Purpose of the Study

The study intended to examine the application of Information Communication Technology in School Administration in public secondary schools in Lang’ata Division in Nairobi County. Further, the study sought to identify the challenges and the measures that could be taken to improve its application.

1.4 Objectives of the Study

The study was guided by the following research objectives:

a) To find out how school administrators apply ICT in human resources administration in public secondary schools in Lang’ata Division, Nairobi County.

b) To determine the application of ICT in administration of physical resources in public secondary schools in Lang’ata Division, Nairobi County.

c) To find out how school administrators apply ICT in financial administration in public secondary schools in Lang’ata Division, Nairobi County.

d) To investigate the challenges facing administrators in application of ICT in school administration in public secondary schools in Lang’ata Division, Nairobi County.
e) To suggest the measures that can be taken to improve the application of ICT in school administration in public secondary schools in Lang’ata Division, Nairobi County.

1.5 Significance of the Study

The study was expected to be of significance to a number of stakeholders in education. These include School Management, Policy Makers, and teachers.

Today, ICT application remains a fundamental component in administration of any organization. Schools are such organizations that require this very component. The findings of this study are hoped to be of benefit to school management in terms of shedding more light on the various areas that school managers can apply ICT. These include instructional leadership, management of school facilities, and teaching and learning resources and financial management.

The findings will be of significance to the policy makers. The measures on improving the application of ICT is hoped to form ground for policy makers to come up with ICT policy design and implementation strategies to be used in the public administration of schools.

Additionally, teachers, students and other members of school community may also benefit if only the recommendations of the study are considered. Application of ICT in administration can bring about renewed vigor in terms of enhancing decision making processes, communication process and ultimately, the overall performance.
Moreover, the findings of the study is also hoped to arouse curiosity to scholars and researchers who may embark on conducting further research on the Application of ICT in administration that had been previously given only a little considerations.

1.6 Limitation of the Study

According to Best and Kahn (1993), limitations are conditions beyond the control of the researcher that may place restriction on the conclusions of the study and their applications to other situations. One key limitation that was encountered in this study included failure of some of the respondents to truly answer to the questions asked about the application of ICT in School Administration. To be seen as ignorant was the key hindrance to a comprehensive answer. However, this was countered by triangulating the instruments where students and teachers participated in the study. Another challenge that was faced in the study was the aspect of time. The researcher worked under tight time restrictions both from work and school and thus wasn’t able to comprehensively reach to other respondents within the sampled size so as to fill in the collected instruments. Some of the other limitations that were faced in this study included but may not be limited to access to experts for editing and proofreading of the work.

1.8 Scope and definition of the Study

The study focused on the application of ICT in school administration in public secondary schools in Lang’ata Division, Nairobi County. Other areas where the study covered include the challenges facing the application of ICT in School administration and the measures that can be put in place to improve the application of ICT in school Administration. The principals were the key informants since they are directly involved
with the day to day school administration. Students and teachers were also part of the study since they constituted a major component of school administration.

1.9 Theoretical Framework

Open System Theory

According to Scott (2002), open system theory was initially developed by Ludwig von Bertalanffy in reaction to earlier theories of organizations which treated the organization largely as a self-contained entity. After its development, the theory immediately became applicable in all disciplines. It is mainly formed on the concept of a system. This is whereby all bodies or organizations are systems that come into existence within the combination of various other parts whose relations make them interdependent. In other words, the concept best conceptualizes that organizations or any other system is strongly influenced by their surrounding (Bastedo, 2004).

This theory of Open systems has intensely altered how one understands a school as organizations and the demands placed upon educational leaders. In cooperation of ICT application in some of the environments that form up the school system may help in increasing the success of the school. This is in the form that the school administration is the key player that plays a great role in maintaining and coordinating the other parts of the school system. ICT being formulated in making work easier, school administrators are able to coordinate the other parts of the school system by just a click of a button and thus they play their role effectively in organizing the other parts of the school environment (Human resource, financial resources, and educational resources among). Contemporary studies of accountability movements, teacher professionalization, and
Instructional leadership all benefit from a strongly open systems approach to understanding environmental demands and the resulting adaptation in school policy and its implementation, or lack thereof (Scott, 2002).

The theory is much relevant to this study since its concept best suits the fact that a school set up is also a system on its own way. In order for it (school system) to be fully functioning, there are various aspects that are considered within its environment and especially in the administration of the school. The school administrations interact with their environments in a complex series of interrelated sphere (Pfeffer & Salancik, 2003). Like individual organisms, a school's success depends on how well their characteristics and behavior align with their surrounding. The environment also provides key resources that sustain the organization and lead to change and survival.

1.10 Conceptual Framework

The conceptual framework of this study shows the interaction between the dependent and independent variables. In this study, ICT application in school administration is a dependent variable which relies on Human resource administration, physical resource and financial Administration (See Figure 1.1).
As shown by figure 1.1, ICT application influences the administration of human resources, physical resource administration and financial resource administration.

ICT has been used in administering all human resources in schools, which include day to day instructional guidance of students, keeping records of students, teachers, counselors, librarians, coaches, and other employees (Nadler, 1984).

ICT has also been influential in the administration of physical resources. It can be used in record keeping of physical resources as well as educational materials. Procurement process among other operations can be transacted with the help of ICT (Cheryl, 2005).
ICT can be also applied in financial administration through record keeping, preparation of budgets, and many other duties (Grey, 2000). Effective School administration thus requires effective application of ICT in various spheres of administration.

1.11 Operational Definition of Terms

**Challenges:** These are to things that are imbued with a sense of difficulty in the application of ICT in schools’ administration

**Human Resource Administration:** This is referred to as the overall role of provision direction, guidance, and managing the growth, operation, and maintenance of any human resource systems and programs in schools.

**E-learning:** This term has also been used in the study to refer to is a general term that has been used to refer to computer-enhanced learning.

**Financial administration:** Consists of those operations the object of which is to make funds available for the schools’ activities, and to ensure the lawful and efficient use of these funds.

**Human Resources:** In this study, this term refers to all the employed staff members in the school set up.

**ICT:** this term has been used in the study to refer to the application of information and technology in school administration in secondary schools. These include the use of computers and its constituent programs. It also covers other technologies involved in the transaction of financial resources and management of human and physical resources.

**Measures:** This refers to interventions or strategies that can be undertaken in order to solve a given challenge.
Physical Resource Administration: This is the possessions that are made by man Technology and buildings through his abilities and skill.

School Administrators: This term has been used to refer to those who are involved in day to day administration of schools. e.g. B.O.G chairman, PTA chairman, principals, D. principals, senior master among others
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents detailed information on literature review on the application of ICT in school administration. The sources of literature include books, journals articles and published studies. The chapter is divided into the following: general concept of ICT and its applications, application of ICT in human resource administration, application of ICT in administration of physical resources, application of ICT in financial administration, challenges facing the application of ICT in school administrators and measures that can be taken to improve the application of ICT in school administration.

2.2 Concept of ICT and Its Application

ICT is often used as an extended synonym for information technology (IT), but is usually a more general term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage- and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information. Basically, ICT consists of IT as well as telecommunication, broadcast media and all the other types of audio and video processing and transmission and network based control and monitoring functions (Howe, 2010). Thus, it supports all the activities involving information. ICT is based on the notion that using ICT involves matching it to one’s purposes of which it requires a rationale for using it.
ICT basically depends on the local culture and the particular technology available and how it is configured and managed. The understanding, management and configuration of the available technology might vary the concept of ICT. This variation may differ from a collection of tools and devices used for particular tasks, an organized set of equipment (like a 'workshop') for working on information and communication, components of integrated arrangements of devices, tools, services and practices that enable information to be collected, processed, stored and shared with others and to the components in a comprehensive system of people, information and devices that enables learning, problem solving and higher order collaborative thinking, that is, ICT as key elements underpinning a (sharable) workspace (University of Tasmania, 2011).

ICT application in schools covers a wider scope. This includes the comprehensive approach to innovate education systems, methods, and management through Information Communications Technology, restructuring education system, diversifying teaching-learning methods & practices, engaging all stakeholders of education and adapting rapid to changes in society and the environment and enhancing education efficiency, effectiveness, and productivity (Gwang-Jo, 2009). In the administration of the school, ICT can also be applicable in the administering of human, physical and financial resources.

2.3 How School Administrators Apply ICT in Human Resource Administration

ICT has been applied in all spheres: in health delivery, engineering, industry, business, and agriculture, military, security, law, politics and governance, all aspects of arts, science and education among others (Vernon, 2001). Studies have shown that ICT has been applied in
the administration of human resources. Abdul Razak & Zohora (2012) conducted a study to investigate the areas of ICT utilization among teachers and principals of Malaysian schools. Quantitative method was used in this study with a representative sample of 260 school teachers, teachers-supervisors and principals. The finding of the research demonstrates that 84% of the teachers were not aware of national ICT policy though it exists. Finding shows that most of the schools (80%) do not have ICT policy at the school level though the facilities and equipment of ICT were available in most Malaysian schools. Almost all the teachers have a high level of skills in using computer and profoundly the basic skills needed for teachers in IT are attained by all the teachers. Likewise, 95% schools had photocopy machines and scanners while the multimedia projector is available in 85% schools. Besides, 72% schools are equipped with a video camera, overhead projector and laptop. However, it was interesting that their expertise and skills were not integrated with educational management or with teaching/ classroom purposes. Rather they are used for daily administrative purposes. However, the study did not specify the type of schools that was carried out and it only used questionnaire for quantitative analysis. Moreover the study was done in Malaysia which a developed country as compared to Kenya. Thus there is need to find out the application of ICT in public secondary schools in Kenya.

Raby (2004) conducted another study on ICT integration in public secondary schools in Uganda. The sample consisted of 12 secondary, 12 principals, 3 education officers, 3 curriculum developers and 20 students. Qualitative data were collected using interviews of principals, education officers and curriculum developers whereas questionnaires were administered to students. The study revealed that in most public secondary schools, ICT
application in human resource administration was the responsibility of the school principal. According to the study, ICT could aid instructional supervision through facilitating decision making process, planning, organizing, communicating, influencing, coordinating and evaluating. For a principal running a big school or institution, running various human resource areas like curriculum development, instructional supervision, staff and student, personnel administration, guidance and counseling, finance, community relations, construction and maintenance of facilities and special services could be tasking and time consuming. For the principal to function efficiently and effectively in the present computer age, he/she must rise to the challenge of adopting new technological resources and services in the management of the school.

Etudor-Eyo, Ante and Emah (2011) carried out a study on the Use of ICT and Communication Effectiveness among Secondary School Administrators. The study obtained data from 396 secondary school administrators through the Administrators’ Use of ICT Questionnaire (AUIQ) and Administrators’ Communication Questionnaire (ACQ) to investigate how the use of ICT predicts communication effectiveness among secondary school administrators in Akwa Ibom State, Nigeria. From the study, it was found that the extent of administrators’ use of ICT and the extent of administrators’ effectiveness in communication are high. It was further noted that there is a significant positive relationship between administrators’ use of ICT and administrators’ effectiveness in communication; the effectiveness of secondary school administrators in communication is significantly predicted by the use of ICT. Based on the findings, conclusions were drawn and recommendations made that Government should make ICT tools available in
all secondary schools for the administrators; workshops on the use of ICT should be organized from time to time by the governments and NGOs for school administrators who are not yet ICT literate; a constant power supply should be made available to schools so that administrators would be able to make use of ICT for communication; skilled manpower should be employed to teach those administrators who are still illiterate in this regard by NGOs, the government, and individuals.

A study was conducted by Telem (2001) on the Computerization of school administration: Impact on principals’ role: a case study of school 4 in Hougang, North Zone of Singapore. From the study it was found that ICT helped in streamlining administrative processes of the human resource especially in the area of communication. This is whereby, teachers used to refer to big log books to know which rooms were available for booking and who booked same and for how long, but with ICT, they could see the schedule for an entire month and know who booked them and which date the rooms may be vacant. It was further noted that ICT was a very important tool for information dissemination. This is because it helped communicate whatever information was available to the staff the moment they logged in as they read, know, and acted.

Additionally, Anamuah-Mensah (2009) in his study on the Impact of ICT upon local development and digital inclusion for small and medium business observed that the use of computer-mediated communication is of great gain both at work places and business ventures. It was further reported from the study that the use of computer applications is useful in accounting and finance, financial control, sales and marketing and
manufacturing. Consequently, Kalusopa (2005) also carried out a study on the challenges of utilizing information communication technologies (ICT) for the small-scale farmers in Zambia. To achieve the aim of the study, Kalusopa carried out in survey of information needs of small-scale farmers in two selected provinces, in order to establish and prioritize their information needs. The findings that were obtained from the study included weak human capital and technical infrastructure, lack of clear national information policy and lack of a coordinated agricultural information support system for small-scale farmers anchored on ICTs. This pointed to the necessity of using ICTs in organizations for effective communication and on members of that organization, which schools are not left out.

2.4 Application of ICT in Administration of School Physical Resources

Physical resources include land, buildings, machinery, equipment for manufacturing/processing, materials handling, safety, transporting, electricity generation, warehousing, roads and communications network buildings and equipment required to serve the needs of the firm or institution in relation to its stated purpose, programs and activities (Karl, 2000). ICT is widely used in administration of physical resources in secondary schools. Maki (2008) observes that Information and Communication Technology (ICT) plays a vital role in supporting powerful, efficient management and administration in education sector. She further specifies that technology can be used right from student administration to various resource administrations in an education institution.
Cheryl (2005) conducted a study on ICT Application in administration of physical resource in South Africa. The sample for the study comprised of 10 firms in Johannesburg, 10 C.E.O of these firms and 50 staff members randomly sampled. The study findings revealed that in the past few years, ICT application in administration of physical resource has evolved beyond expectation. From the study, ICT was found to be applied in administration of physical resource through online procurement, advertisement of the firm goods and transactions. The study looked into the application of ICT in relation to companies. This study attempts to examine the application of ICT in relation the administration of physical resources in schools.

ICT application in the administration of physical resources may include various elements. This is whereby, some school administrators may use technological tools such as computers to monitor the ratio of which various facilities are being utilized in the schools (Cheryl, 2005). Out of these records they may be able to understand as to whether there are adequate chairs, tables and teaching and learning resources in the school. Without the help of technology school administrators may find it more difficult to monitor the school physical facilities. Thus, this study is set to determine the application of ICT in administration of physical resources in selected public secondary schools in Nairobi.

2.5 Application of ICT in Administration of School Financial Resources

Application of ICT offers a wonderful potential for increasing school accountability, transparency and participation among various stakeholders (Bertot et al., 2010). ICT has been successfully used in various activities ranging from monitoring campaign finance spending to reporting election fraud in through SMS messages. This underscores ICT’s ability to empower stakeholders in civil society, government, and the broader population.
to achieve better outcomes in transparency and anticorruption efforts (Olabe and Khan, 2012). With specific reference to the administration of school financial resources among other things, information and communication technology can help solve the centralization/decentralization dilemma by making relevant revenue and expenditure data easily available at all school levels. It can also be used to facilitate budget analysis and school programming and thus improving the timeliness of the school budget information.

A study was conducted by Grey (2000) on ICT application in finance administration in a firm in London. The findings of the study revealed that most institutions have accounting software packages to help produce statutory accounts and reports for bankers and management, as well as to help with the day-to-day control of its finances. One very popular package amongst small to medium UK businesses is Sage which also has modules to manage, for example, payroll and debt factoring facilities. The study established that spreadsheets were also widely used by finance departments to help manage cash flow.

Application of ICT in financial transactions made by the school helps in creating transparency. This prevents most of the school administrators from misusing the financial resources that are available in the school and thus channeling the resources to their appropriate designations. The increase in transparency in the financial management referred to by the World Bank is one of the central elements in the assumed democratizing role of ICTs. This greater transparency would have been possible by
means of two factors which usually characterize the digital revolution, and a third aspect far less explained (Almiron, 2007).

ICT application has efficient and safer ways of carrying out financial transactions over a short period of time. School administrators can adopt the use of ICT in paying of their staff members, making orders for school supply (Cheryl, 2005). This enables the school administration to be able to keep record of all the transactions done. Thus they are able to gauge themselves on the basis of the amount spend and the amount received. This in turn gives the school administrators a chance to gauge how sustainable they are in terms of finance.

According to a study by Razae, Elam & Sharbatoghlie (2009), entitled “Continuous Auditing: the Audit of the Future Manage”, it can be observed that the records of purchases, budget, grants administration, cash flow, audits and other financial transaction carried out by institutions needs proper documentation for reference purposes. The study noted that in various institutions, these records were kept in hardcopies before the introduction of ICTs. Fortunately, the availability and accessibility of ICTs and their integration in financial sector makes it possible and easy for accountants and financial administrators to process all transaction on-line via the system called an e-accounting. Electronic accounting (e-accounting) as the name implies, makes it possible for transactions to be captured, measured, recognized and reported electronically.
According to Grey (2000), use of ICT enables schools to take advantage of electronic banking which allows them to check their bank account records in real time, saving time and helping ensure that payments due have been made and received, and also to operate the bank account within any agreed overdraft limit. Large and overseas payments can be made quickly and securely with on-line banking, as long as the school has its own security checks to protect against theft by staff or by anyone else who managed to obtain account details and passwords.

In school set up, ICT has widely been used in financial management. Accounting software and spreadsheets like MS Excel have been used widely in financial accounting (Karl, 2000). However, the extent to which ICT has been used to facilitate financial administration in public schools remains to be unclear.

2.6 Challenges of ICT Integration in School Administration

There are several explanations for the failure of ICT utilization in public secondary schools. A study by Howell and Lundall (2000), on the key factors blocking educational institutions from using ICT as an administrative tool was conducted in Indonesia. The study sample constituted of 10 schools, in rural Indonesia. 10 head teachers, 30 students randomly sampled and 20 teachers purposively sampled. From the study Howell and Lundall identified major challenges such as lack of electricity, lack of funds, and insecurity. On top of that, very little of the equipment available nationally is allocated for ICT use in education, in schools. Howell and Lundall also cited insufficient funds, insufficient number of computers, lack of teachers with IT skills, teachers’ inability to integrate the computer into the different subject areas and lack of appropriate
microcomputer teaching programmes as the major challenges facing introduction of ICT in school administration.

Karsenti (2004) conducted another study on the problems blocking public secondary schools from equipping themselves with computers in Kenya. The study involved 8 public secondary schools in Nyanza province, 8 Principals of these school, 24 students randomly sampled and 16 teachers purposively sampled. The study established that hardware was one of the major constraints on the use of innovative technologies in school administration. Also the high costs of equipment greatly exacerbate the group usage ratio. There was also the mind-boggling difficult feat of achieving a student-computer ratio of 10:1 and 100% Internet connection in most of the primary, secondary, and higher educational institutions in Kenya. Furthermore, in Kenya, the low density of telephone lines and the high costs of installing and maintaining them constituted a major barrier. A good number of authors (Intsiful, Okyere and Osae, 2003; Selinger, 2001; Tunca 2002; Bakhoum 2002) have also cited lack of tools, inoperative telephone lines; marginal, disparate, inadequate and obsolete communications networks; fluctuating electric power supplies; recurrent power brownouts and blackouts; ailing road systems an major problems facing the application of ICT.

Moulton (2002) in a study on how infrastructure may affect ICT use in school administration found that there was a thorny issue of infrastructure, which is indispensable for ICT use by educational institutions for administrative purposes. The study emphasized on the participation of all public secondary school teachers in the ICT
integration process of school administration. Further, the study suggested that principals should be mobilized and encouraged to use ICT.

It is observable that aside from the issue of unequal distribution of technological equipment across public secondary schools, lack of appropriate equipment, and qualified human resources, further contribute to the challenges facing application of ICT in school administration. This implies that without the establishment of necessary interventions, many schools will lag behind in the application of ICT in their administration.

2.7 Summary

From the review of literature, it is evident that there are a number of scholars; Razak & Zohora (2012), Ruby (2004), Etudor-Eyor, Ante and Emah (2011), Telem (2001), Kalusopa (2005), Cheryl (2005), Grey (2000), Howel & Lundal (2000), Kasenti (2004) and Moulton (2002) that have carried out various studies on the application of ICT in school administration. Razak & Zohora (2012) conducted a study on the areas of ICT utilization among teachers and principals of Malaysian schools. The study findings revealed that majority of the teachers were not aware of the existence of ICT national policy. However the study only concentrated on whether the schools administrations were aware of the existence of ICT policy in Malaysian schools hence failing to adequately addressing the perception of ICT in the administration of the schools. Raby (2004) conducted yet another study on the application of ICT in Human resource in Uganda. The study revealed that in most public secondary schools, ICT application in human resource administration was the responsibility of the school principal who needed to ensure that
the best interest of his human resource were served through effective ICT infrastructure and staff professional development.

Additionally, a study by Cheryl (2005) focused on organizations and firms. Focusing on secondary schools could offer more insights. Regarding the application of ICT in financial administration Grey (2000) found that most institutions have accounting software packages to help produce statutory accounts and reports. However the study did not inform on how administrators could apply ICT in financial administration in public secondary schools.

Several challenges on ICT Integration in school administration have been identified in several studies (Karsenti, 2004). However, these challenges have not been examined in light of on the challenges facing administrators in application of ICT in administration of in public secondary school. Lack of adequate empirical literature on the application of ICT in school administration makes it essential to examine various areas of application, namely in human resource management, physical resources, and administration of financial resources.
CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology that will be used in this study and provides a general framework for this research. The chapter presents details of the research design, target population, sample and sampling procedures, description of research instruments, questionnaire, interview schedule, validity and reliability of instruments, data collection procedures, data analysis techniques and ethical considerations.

3.2 Research Design

A study design is the plan of action the researcher adopts for answering the research questions. This is in line with Orodho (2003) description of a research design as a plan, structure and strategy of investigation to obtain answers to research questions and control variance. It sets up the framework for study and is the blueprint of the researcher (Kerlinger, 1973).

Survey research design was used because of the following reasons: The design is useful in describing the characteristics of a large population, makes use of large samples, thus making the results statistically significant even when analyzing multiple variables, many questions can be asked about a given topic giving considerable flexibility to the analysis, the design allows use of various methods of data collection like questionnaire and
interview methods and it also makes use of standardized questions where reliability of the items is determined (Owen, 2002).

The researcher used survey design to collect data from school administrators’ students and teachers of public schools in Lang’ata Division, Nairobi County. The study used both quantitative and qualitative research paradigms. The quantitative research paradigm was used to obtain a sample from a large data and performed statistical analysis in order to produce results that could be generalized to the target population.

3.3 Location of the Study

This study was taken in Lang’ata Division. Lang'ata is a suburb of Nairobi in Kenya, lying south west of the city centre and east of Karen. The suburb consists of many smaller housing developments, referred to as estates. They include Nairobi Dam, Otiende, Southlands, Ngei, Jambo estate, Onyonka, Madaraka Estate and many others (Danielle, 2010). These developments are primarily maisonettes or apartment blocks. The Division has a number of both private and public schools from nursery to secondary that are well spaced and easily accessible throughout the Division.

3.4 Variables of the study

This study was based on various variables as per the objectives of the study. These variables were categorized as independent and dependent variables. Independent variables included human resource administration, physical resource administration and financial resource administration whereas the dependent variable was effective administration of schools.
3.5 Target population

A population is any set of persons or objects that possesses at least one common characteristic (Basha and Harter, 1980). The target population for this study consisted of all public secondary schools in Lang’ata Division, all the principals (n=15), all computer studies teachers (n= 15) and four hundred form four students in the targeted public secondary schools (n=400).

3.6 Sample and Sampling Procedures

3.6.1 The Sample

A sample is a smaller group or sub-group obtained from the accessible population (Mugenda and Mugenda, 1999). This subgroup is carefully selected to be representative of the whole population with the relevant characteristics. Each member or case in the sample is referred to as subject, respondent or interviewees. Sampling on the other hand is a procedure, process or technique of choosing a sub-group from a population to participate in the study (Ogula, 2005). It is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected. This study applied both probability and non-probability sampling procedures to obtain the respondents for questionnaires and interviews.
Table 1: Summary of the respondents

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Population</th>
<th>Sample size (30%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students (form 4)</td>
<td>400</td>
<td>120</td>
</tr>
<tr>
<td>Teachers (computer studies)</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>School administrators (principals)</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>430</strong></td>
<td><strong>130</strong></td>
</tr>
</tbody>
</table>

Sample of Schools

The sample of schools in this study consisted of a representative number of schools selected from all the public secondary schools in Lang’ata Division in Nairobi County. The sample must be as representative as possible of the population from which it is drawn. At least 30% of the total population is representative (Borg and Gall, 1989). Thus, 30% of the accessible population is enough for the sample size. Hence, five (5) schools out of fifteen (15) schools were picked as a representative number.

Sample of Students

Using purposive sampling procedure, only form 4 students were selected since they belong to the most senior class and bear more experience in relation to the use of ICT in the school. Thus, they were expected to contribute more on the application of ICT in school administration. In the selected public secondary schools to be sampled, there are two streams. Simple random sampling procedure was used to arrive at 30% of form 4 students from each stream. The names of the students were written on small pieces of papers and then mixed in a bucket. Out of the bucket, each name was picked randomly. Hence the first twelve names to be picked in each stream were used as the sample. In
total there were twenty four students sampled from the school. This was done in all the other sampled schools. Each school has roughly 80 form 4 students bearing in mind that each stream has roughly 40 students. A representative sample of 30\% of this population was selected, namely twenty four (24) students from each of the five selected schools. This gave a total of one hundred and twenty students (n=120).

**Sample of Teachers**
The study targeted all the computer studies teachers in schools in Lang’ata Division in Nairobi County. In total there were fifteen teachers in the whole district. However, being that the target sample must be as representative as possible of the population from which it is drawn. Thus, 30\% of the accessible population was enough for the sample size (Borg and Gall, 1989). Hence, five (5) computer studies teachers out of fifteen (15) teachers were picked as a representative number. Computer studies teachers were picked based on the fact that they are knowledgeable on matters related to the application of ICT in administration. Their contribution was valuable towards answering the research objectives.

**Sample of School Administrators**
The sample of school administrators was arrived at through purposive sampling procedure owing to their position in the school. Moreover, they also play a great role when it comes to the application of any system in the school compound. Thus, the school administrators of the schools selected to participate in the study were selected and they were five (n=5) in number.

The research instruments to be used in this study include, questionnaire for ICT teachers and students. Interview schedule were used to collect data from the Principals.
3.7 Data Collection Instruments

3.7.1 Questionnaires for Students

Questionnaires were used to collect data from the students. This instrument was considered simply because it can be used to reach a large number of respondents within a short time, it gives the respondents adequate time to respond to the items, offers a sense of security (confidentiality) to the respondents and lastly it tends to be objective since there is no bias resulting from the personal characteristics (as in interview) (Ogula, 1998). The questionnaire was divided into various sections based on the research objectives. The first part of the entire questionnaire dealt with demographic characteristics of the respondents while the other parts solicit information about ICT Application in administration of Public Secondary Schools. The variables captured in this section include application of ICT in human resource management, ICT and physical resource administration and ICT and financial administration.

3.7.2 Interview Guide for Principals and Computer Studies Teachers

Interview guide was used to collect data from the principals and computer studies teachers. This instrument was considered appropriate in this study because it enables the researcher to yield highest cooperation and lowest refusal rates; it offers high response quality, takes advantage of interviewer presence and its multi-method data collection (Owen, 2002). The guide comprises of both closed and open ended questions. The first part covers background information such as, sex, marital status, age group and level of education. The second part solicits data on the application of ICT in school administration in human resources management, physical resources and financial resources.
3.8 Validity and Reliability of Research Instruments

3.8.1 Pilot Study

A pilot study was carried out by the researcher for the purpose of establishing the reliability and consistency of the data collection instruments. In the pilot study, three (3) schools, fifteen students (15), three computer studies teachers and three principals were picked randomly. It however needs to be noted that this population that participated in the pilot study did not participate in the actual study. Data collection instruments were distributed to the population and the responses provided were closely monitored by the research who in turn after completion picked them and used the data to calculate the reliability of the instruments as well as to ensure that the instruments were clear, precise and comprehensive enough.

3.8.2 Validity of Research Instruments

This is the degree to which evidence and theory support the interpretation of test scores entailed by use of tests (Nachmias, 1996). It can also be taken as the extent to which the research instrument measures what it is supposed to measure. According to Mugenda and Mugenda (1999), Validity is the accuracy and meaningfulness of inferences, which are based on the research results. It is the degree to which results obtained from the analysis of the data actually represent the variables of the study.

The researcher validated the research instruments in terms of content and face validity. The validation of the questionnaires and interview guide was done through the following ways: the researcher requested research experts, professionals of education and
administration to review the items on the instrument to determine whether the set of items accurately represented the variables under study after which the request research experts or professionals of education judge, make recommendations and give feedback back to the researcher. Their recommendations were used to improve the instruments.

3.8.3 Reliability of Research Instruments

The term reliability points to the level of internal consistency or stability over time of a research instrument. Therefore, for a research instrument to be reliable, it must be capable of yielding consistent results when used more than once to collect data from two samples drawn randomly from the same population (Mugenda and Mugenda, 1999). To establish the reliability of the research instruments, the researcher carried out a pilot test of the instruments using another similar group with the same characteristics as the one targeted in the study.

The Split-half method was used to establish reliability of the instruments. The method involved splitting each instrument into two halves (odd and even items) then calculating the Pearson’s correlation coefficient (r) between the responses (scores) of the two halves. This was done using both the instruments separately. The scores for all odd and even numbered items for each of the 10 respondents in the pilot study were computed separately. From the computation, a correlation of 0.7 was obtained. This is inline with George and Mallery (2003) who observed that if the value found falls within the accepted levels (0.6-0.9), the data collection instruments being tested for reliability are considered or held reliable. As such, the questionnaire was thus held reliable. Interview guides, being mainly open ended, were not be tested for reliability.
3.9 Data Collection Procedures

Data collection is a process of gathering information from respondents or interviewee. This is done through the use of research instruments. The researcher obtained a research permit from the Ministry of Education, in Nairobi. This was an authorization to conduct the research in public secondary schools in Nairobi County. The Ministry provided a letter that was copied to District Commissioner and District Education Officer Nairobi County. The researcher reported to both district commissioner and education offices for further letters of introduction to the Principals of the public secondary schools that were participants in the study.

The management of each public secondary school was contacted with the view of seeking permission to collect data and to explain the purpose of the study. Once this was done, the researcher distributed the questionnaires to the students with the help from the class teachers. Completed questionnaires were collected immediately, where not possible, arrangements were made to pick them on a later date. The researcher made an appointment with both the computer studies teachers and principal to schedule for an interview. The interview was conducted in a conductive ambiance while assuring the participants confidentiality of the provided information.

3.10 Data Analysis Procedure

The collected data was analyzed using both quantitative and qualitative data analysis approaches. Quantitative approach was descriptive where simple frequencies and percentages were used. Data was presented in tables and figures. The quantitative data was derived from the students’ questionnaires which covered information from the
following areas: application of ICT in human resource management, ICT and physical resource administration, ICT and financial administration and measures that can be put in place to improve the application of ICT in school administration.

Qualitative data analysis approach was used to analyze data which was collected using interview method from the principals and computer studies teachers. The following steps were employed in the analysis: recording of data, with prior consent from the respondents. The recorded data was transcribed. This is conversion of taped or recorded data into a written or electronic text document. Representation of audible and visual data into written form is an interpretive process which is therefore the first step in analyzing qualitative data.

The second step involved grouping the responses according to their respective themes. The themes basically fell under respective research areas which were informed by research objectives. The key responses based on respective themes were cited verbatim. The qualitative data was presented based on narrative forms and integrated within the quantitative data. These, along with quantitative data, formed the basis of discussion in the light of the available literature.

3.11 Ethical Considerations

In this study, the confidentiality of the research participants were ensured. This was done based on ensuring that the principles governing research participants were followed. The researcher ensured that the principle of voluntary participation which requires that people are not coerced into participating in research was followed. The informed consent of the
participants was also ensured by explaining the aim of the study and the procedures involved. The researcher also guaranteed the participants of the confidentiality. They were assured that information provided will not be made available to anyone who is not directly involved in the study. Further the principle of anonymity was also adhered to. The participant remained anonymous throughout the study.
CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents data analysis, presentation, interpretation and discussion of the findings on the application of ICT in school administration in selected public secondary schools in Lang’ata Division, Nairobi County. The data was analyzed with the help of a computer program, SPSS version 11.5. This enabled the research data to be presented in frequencies, percentages, tables and figures. It is subdivided in the following sections: background information of the respondents, ICT application in Human Resource Administration, ICT application in the administration of physical resources in schools, ICT application in financial administration and the challenges facing ICT application in school administration.

4.2 Background Information

This section describes the general background information of the three categories of the respondents: students, Teachers and principals. The background information is meant to make use of the respondents’ characteristics in cross tabulations in order to establish more trends on the respondents’ responses on the application of ICT in schools’ administration.

4.2.1 Students’ Background Information

The background characteristics of the students include sex and age category. The students were asked to indicate their sex. This was categorized into either male or female.
Figure 2: Distribution of the Students by their Gender

As observed, slightly more than a half, (57%) of the students who participated in the study were male whereas 43% of them were female. This shows that the distribution of the students based on gender was fair.

Age Brackets

The age bracket of the students was also sought. This was categorized into 14-16 years, 17-19 years and 20-22 years.
Figure 3: Distribution of the Students by Their Age Bracket

In terms of age bracket, 51% of the students who participated in the study were 17 years and above. However, slightly less than a half of them 52 (49.1%) were between the ages of 14-16 years.

4.2.2 Teachers and Principals’ Background Information

Background information of the teachers and principals who took part in the study was also determined. These characteristics included: sex, age category and professional training background for teachers.

Table 2: Demographic Information of Teachers

<table>
<thead>
<tr>
<th>Teachers (n=5)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3</td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>25 years and below</td>
<td>1</td>
</tr>
<tr>
<td>26-30 years</td>
<td>2</td>
</tr>
<tr>
<td>31-35 years</td>
<td>2</td>
</tr>
<tr>
<td>36 years and above</td>
<td></td>
</tr>
<tr>
<td><strong>Professional Training Background</strong></td>
<td></td>
</tr>
<tr>
<td>Computer</td>
<td>4</td>
</tr>
<tr>
<td>Sciences</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 2 shows that a good number of teachers who participated in this study (3) were male while the remaining (2) were female. The same trend was also observed in regard to principals in that, out of the five (5) principals, three (3) were male while only two (2) were females.

In regard to age, almost all of the teachers (4) were between the ages of 26-35 years. Only one of them was noted to be within the age of 25 years and below. On the other hand, all the principals in the study were 36 years of age and above.

In regard to professional training background, majority of the teachers indicated that they had been trained on computers. This may be due to the fact that during the sampling process only the computer study teachers were selected. It may however, be noted that one of the teachers who participated in the study was trained in sciences and not in computers.

4.3 ICT Application in Human Resources Administration

This study was set to find out how school administrators applied ICT in human resources administration in schools in Lang’ata Division in Nairobi County. To answer this objective, this section is divided into a number of sections. These include: Whether ICT is applied by the school in human resource administration, types of technology applied in the administration of human resource, extent to which technologies have been applied in monitoring various human resource administration practices, ICT application in communication between various stakeholders, policies on ICT application in the human resource administration and extent to which ICT is applied in administration of human resource.
4.3.1 Whether ICT is applied by the school in Human Resource Administration

Students were asked to indicate whether ICT was applied in the administration of human resources in their respective schools. Various responses were given.

![Pie chart showing the distribution of responses.](image)

**Figure 4: Whether ICT is applied in the Human Resource Administration**

Majority of the students 74 (69%) were in agreement that their schools utilized ICT in the administration of human resource. This finding is in line with an earlier study by Savoie-Zajc & Larose (2001) on ICT utilization in Human Resource Administration by school administration in Botswana. This study revealed that ICT application was more widespread in private secondary schools in Botswana, where it was used by the administration whereas in technical and professional schools, it was being applied more specifically to administer record keeping and prepare budgets. However, slightly less than a quarter of the students in the current study indicated that they were not sure. This
may be a reflection that despite the utilization of ICT in schools for human resources administration no adequate publicizing of its use has been made to the students.

The students were further asked to indicate by a tick beside the types of technologies that were being used by the school in the administration of human resources. The technologies given included the following access (Data Based Application), desktop, spreadsheet and word processing.

![Figure 5: Technology Applied in the Administration of Human Resources](image)

From the findings, majority of the respondents, (48.1%) indicated that the technology used by the school administration in the human resource administration is word processing. Additionally, other technologies such as access (Data Based Application) 15.1% and spreadsheets 6.6% were indicated by the students as being among the most common in human resource administration in the school. However, slightly more than a quarter of the students, (28.3%) were not sure of the types of technologies available in the
school for human resource administration. These findings align with an earlier study conducted by Mtanga, Imasiku, Mulauzi & Wamundila (2012) on the Use of ICT in Education: A Case Study of Selected Urban Based High Schools in Lusaka, Zambia. The study found that most schools that used ICT in the human resource administration had computers with various application software ranging from word processing, database, spreadsheet and presentation software.

4.3.2 Application of IT in Monitoring Various Human Resource Administration Practices

The respondents were further asked to indicate their responses on which the technologies listed in a (ii) above were being applied by the school in monitoring various human resource administration practices in the school. Various responses were provided.

Table 3: Application of ICT in Monitoring Various Human Resource Administration Practices

<table>
<thead>
<tr>
<th></th>
<th>To a very Great Extent (5) F (%)</th>
<th>To a greater Extent (4) F (%)</th>
<th>To some Extent (3) F (%)</th>
<th>Not at all (2) F (%)</th>
<th>Don’t Know (1) F (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Attendance of students</td>
<td>43 40.6</td>
<td>10 9.4</td>
<td>23 21.7</td>
<td>16 15.1</td>
<td>14 13.2</td>
</tr>
<tr>
<td>Performance records of students</td>
<td>30 28.3</td>
<td>35 33.0</td>
<td>21 19.8</td>
<td>10 9.4</td>
<td>10 9.4</td>
</tr>
<tr>
<td>Managing absenteeism of students</td>
<td>14 13.2</td>
<td>13 12.3</td>
<td>41 38.7</td>
<td>23 21.7</td>
<td>15 14.2</td>
</tr>
<tr>
<td>Other students records</td>
<td>14 13.2</td>
<td>20 18.9</td>
<td>11 10.4</td>
<td>24 22.6</td>
<td>37 34.9</td>
</tr>
<tr>
<td>Class Attendance of teachers</td>
<td>31 29.2</td>
<td>19 17.9</td>
<td>19 17.9</td>
<td>15 14.2</td>
<td>22 20.8</td>
</tr>
</tbody>
</table>
4.3.2.1 Class Attendance

In terms of students class attendance, half of the students (50%) were positive that ICT was being applied in the school in monitoring class attendance of students either to a very greater extent or to a greater extent. Additionally, slightly less than a quarter of them (21.7%) were in agreement that it was being used but to some extent.

In terms of teacher class attendance, 47.1% of the students indicated that ICT was being used by the school administration in monitoring the class attendance of teachers either to a very greater extent or to a greater extent. However, a few of them (20.8%) indicated that they didn’t know as to whether technology was being used in monitoring the teacher class attendance in their school.

4.3.2.2 Monitoring Teacher and Student Performance

A majority of the students (61.3%) who participated in the study indicated that the school administration applied technology while monitoring performance records of students either to a very greater extent or to a greater extent. A few of them (19.8%) also agreed that it was being applied but to some extent. in line with this finding, a previous study carried out by Valasidou and Bousiou (2005) indicated that ICT was being used in the overall monitoring and enhancing of students academic performance. This they reported
was simply because, ICT improved the overall communication between the students and the instructors in general. In addition, this study also found that ICT was being used in monitoring not only the students’ performance but also the teachers. This is whereby slightly, more than a quarter of the students (26.4%) indicated that ICT was being applied by the school administration in monitoring teacher performance to a greater extent. However, slightly more than a half of the students (55.6%) either indicated that technology was not being applied in monitoring teacher performance or they didn’t know whether it was being used in the school for that purpose.

4.3.2.3 Monitoring Absenteeism

In terms of absenteeism of students, slightly more than a third of the students (38.7%) indicated that technology was being applied by the school administration in monitoring the absenteeism of the students to some extent. On the other hand, 21.7% of the students indicated that ICT wasn’t being applied in the monitoring of student absenteeism.

In terms of teachers, slightly more than a third of the students (34.9%) indicated the school administration did use the technology in monitoring teacher absenteeism either to a very greater extent or to a greater extent. On the other hand, 28.3% of them did not know as to whether the school even used ICT in monitoring teacher absenteeism.

4.3.2.3 Monitoring Other Records

Slightly more than a third of the students (34.9%) didn’t know whether the school administration applied ICT in monitoring various other students’ records within the school. Additionally, a few of them (22.6%) indicated that ICT was not being used by the
school administration in monitoring student records in the school. On the other hand, a third of the students (33.0%) indicated that they didn’t know whether the school administration used ICT in the monitoring teachers’ personnel records. However, 30.2% of them were positive that the school did integrate ICT in the monitoring of teachers’ personnel records either to a very greater extent or to a greater extent.

From this section it may be noted that there are ICT in the administration of human resource has been used in monitoring various practices such as monitoring class attendance, teachers and students’ performance, absenteeism and monitoring other records. These findings align with Horn and Siew (2011) who observe that in the administration of human resource, ICT has been used in administrating students’ services like records, admission / recruitment, class schedules, attendance, registration, time tabling and accessing result. This they noted could also be achieved via student portal which is a network of computers and other communication avenues connected together. Additionally, Thomas (2004) observed that in most of the schools ICT was generally being used in the maintenance of student and staff records and for communication and document management.

4.3.3 ICT Application in Communication between Various Stakeholders

The students were also asked to indicate how often the school administration applied the use of computers and internet in facilitation communication between various stakeholders. These included parents, other educational institutions and administration authorities.
Table 4: Application of Computers and Internet in Facilitating Communication between School and Other Stakeholders

<table>
<thead>
<tr>
<th></th>
<th>Always F (%)</th>
<th>Often F (%)</th>
<th>Never F (%)</th>
<th>Not Sure F (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>30 28.3</td>
<td>11 10.4</td>
<td>9 8.5</td>
<td>56 52.8</td>
</tr>
<tr>
<td>authorities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other institutions</td>
<td>14 13.2</td>
<td>20 18.9</td>
<td>6 5.7</td>
<td>66 62.3</td>
</tr>
<tr>
<td>Parents</td>
<td>15 14.2</td>
<td>4 3.8</td>
<td>5 4.7</td>
<td>82 77.4</td>
</tr>
</tbody>
</table>

From the findings, it may be noted that use of computers and internet for communication purposes is most commonly used among the school administration authorities. This is whereby, 38.7% of the students indicated that it was being used among the administration authorities either always or often. A few of them (32.1%) however indicated that computers and internet were being used to facilitate communication between the school and other institutions of learning. In line with this finding, Fredriksson & Gajek (2009) mentioned that Communication and general administration are the two main areas in which ICT is used in the management of education institutions. Additionally, Magni (2009) observed that ICT helps in providing a good communication system in higher education system.

4.3.4 Policies on ICT Application in the Human Resource Administration

The students were asked to indicate whether there were any policies in the school that required the application of ICT in the human resource administration.
Slightly more than a half of the students (56%) indicated that the school did have a policy which facilitated the application of ICT in human resource administration. However, 38% of them indicated that there were no such policies that facilitated the application of ICT in the human resource administration in the school while 6% were not sure. This finding coincides with an earlier study by Kulospa (2005) which observed that lack of clear national information policy affected the utilization of ICT. Some of the policies included quality control policies, recruitment policies of the academic institutions and policies guiding the responsibilities of each of the human resource in the school.

Additionally, the students were further asked to indicate the level from which these ICT policies available in the school for application in the human resource administration were being formulated.
As shown in the figure, a distributed response was noted. This is whereby 40% of the students who participated in the study indicated that the policies for the application of ICT in human resource administration were formulated at the school level while 20% said that it was done at the ministry level. On the other hand, 40% of them indicated that they were not sure from which level these ICT application policies were being formulated.

4.3.5 Extent to Which ICT Is Applied In Administration of Human Resource

The students from the public secondary schools in Lang’ata were asked to tick in their opinions on the extent to which ICT was being applied in the by the school administration for the purposes of human resource administration.
Table 5: Students’ Responses on the Extent to Which ICT Is Applied In Administration of Human Resource

<table>
<thead>
<tr>
<th>To a very Great Extent (5)</th>
<th>To a greater Extent (4)</th>
<th>To some Extent (3)</th>
<th>Not at all (2)</th>
<th>Don’t Know (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F (%)</td>
<td>F (%)</td>
<td>F (%)</td>
<td>F (%)</td>
<td>F (%)</td>
</tr>
<tr>
<td>In our school, the administration applies ICT in students’ admission process.</td>
<td>48 45.3</td>
<td>27 25.5</td>
<td>5 4.7</td>
<td>12 11.3</td>
</tr>
<tr>
<td>Teachers apply ICT in processing students’ Assessment Tests.</td>
<td>41 38.7</td>
<td>32 30.2</td>
<td>9 8.5</td>
<td>10 9.4</td>
</tr>
<tr>
<td>ICT is applied in the school to monitor the daily activities of teaching and non-teaching staff members.</td>
<td>19 17.9</td>
<td>20 18.9</td>
<td>29 27.4</td>
<td>25 23.6</td>
</tr>
<tr>
<td>Computers and internet are mainly used in the recruiting of staff members in the school.</td>
<td>12 11.3</td>
<td>24 22.6</td>
<td>18 17.0</td>
<td>23 21.7</td>
</tr>
<tr>
<td>ICT is used in the schools for storing all the data regarding staff members and students in the school.</td>
<td>25 23.6</td>
<td>22 20.8</td>
<td>17 16.0</td>
<td>17 16.0</td>
</tr>
</tbody>
</table>

Majority of the students (70.8%) were positive to the statement that the schools administration applied ICT in students’ admission either to a very great extent or to some extent.
In terms of processing students’ Assessment Tests, a vast majority of the students, (68.9%) indicated that teachers applied ICT in the processing of students’ assessment tests either to a very great extent or to a greater extent. However, less than a quarter of them, (13.2%) didn’t know as the extent to which technology was being used in the processing of students’ assessment tools and in the admission process.

Asked to indicate the extent to which ICT was being applied in the school to monitor the daily activities of teaching and non-teaching staff members, slightly more than a quarter of the students (27.4%) indicated that it was being applied to some extent, 18.9% of them indicated that it was being applied to a greater extent whereas 17.9% of them agreed that it was applied to a very greater extend. However, a few of them (23.6%) appeared to be in disagreement by indicating that ICT wasn’t being applied for such activities in the school. Moreover, 12.3% of them said they did not know if ICT was being applied in the school to monitor the daily activities of teaching and non-teaching staff members.

In terms of ICT usage in the recruitment purposes, slightly more than a quarter of the students 29 (27.4%) indicated that they didn’t know whether the school used computers and internet in recruiting staff members in the school. Additionally, 21.7% of them however noted that computers and internet were not being used in the school for recruitment purposes. In contrary to this, a few of the students (22.6%) indicated that computers and internet were mainly used in the recruiting of staff members in the school to a greater extent and 11.3% to a very greater extent.
Asked to indicate the extent to which ICT was being used in the schools for storing all the data regarding staff members and students in the school, a distributed response was noted. This is whereby, 44.4% of the students were positive that it was being used either to a very great extent or a greater extent. On the other hand, slightly less than a quarter of the students (23.6%) indicated that didn’t have an idea as to whether ICT was being used for storing data in the school whereas 16.% of them were negative to the statement by indicating that it was being applied to no extent at all.

In trying to find out how ICT was being applied in the human resource administration, both the teachers and principals were not left behind. From the interview, a good number of the teachers reported that ICT was being applied by the school administration in the administration of the human resources in most of the public secondary schools in Lang’ata. There were however mixed responses pertaining to the extent to which ICT was being applied for human resource administration function. This is whereby, some of the teachers from the public secondary schools in Lang’ata that participated in the study reported that to some extent, ICT was being applied for teacher training, staff recruitment, evaluating employee performance and facilitating E-learning and communication processes. On the other end, some of them were either not sure or had no idea on the extent to which ICT was being applied in human resource administration.

In response to the application of ICT in Human resource administration, a good number of the principals from the public secondary schools in Lang’ata that participated in this study reported that it was being applied but to some extent. They reported that it was
being applied in monitoring class attendance, performances, process of students’ admission and other school records within the school. They however noted that these applications were not that effective due to various challenges such as poor attitudes among teachers and students towards the ICT. Further, it was reported that the school administration was the ones who supervised and monitored ICT application in Human resource administration in the school. The extent to which it was effective was however limited due to various other factors such as inadequate training and facilities.

As observed in this section, ICT application in the administration of human resources has been implemented to some extent. This finding aligns with that of Etudor-Eyo, Ante and Emah (2011) in their study on the Use of ICT and Communication Effectiveness among Secondary School Administrators. The study found that the extent of administrators’ use of ICT and the extent of administrators’ effectiveness in communication was very high in most of the public secondary schools in Lang’ata. It was further noted that there is a significant positive relationship between administrators’ use of ICT and administrators’ effectiveness in communication; the effectiveness of secondary school administrators in communication is significantly predicted by the use of ICT. This study, however also noted that despite ICT being applied in the administration to some extent, still there were some secondary schools where ICT application wasn’t to a greater and this was limited due to a number of issues that were later reviewed.

A study by Krishnaveni & Meenakumari (2010) observed that ICT in the human resource administration was specifically being used in the recruitment and work allotment of
faculty and staff in the institution, their attendance and leaves management, and performance appraisal. Another study by Mtanga, Imasiku, Mulauzi & Wamundila (2012) also noted that ICT was being applied for storing of information regarding the human resource, compiling reports and for communication. Besides these findings, this study found that in the human resource administration ICT was being used in for monitoring of teachers and students performance, absenteeism, class attendance and other school records. It was also noted that it was being used in the monitoring of students’ registration in the respective schools. This finding coincides with a report by Hadjithoma-Garstka (2011) which states that in the school management level, ICT is used in detailed student data management, on the level of test and term mark; teacher data management, such as attendance and weekly lesson plans.

4.4 ICT Application in Physical Resources in Schools

ICT application in physical resources does have various roles. This may range from keeping of records of the physical resources available in the school to procurement practices of obtaining the required resources for effective teaching and learning practices of the school (Cheryl, 2005). This study was set to determine the application of ICT in administration of physical resources in selected public secondary schools in Nairobi.

4.4.1 Areas of ICT Application in Physical Resources in the School

The respondents were asked to indicate whether ICT has been applied in various activities such as administration of school facilities, advertisement of tenders and procurement process of the physical facilities in the school.
Table 6: Students’ Responses on the Areas of ICT Application in Physical Resources

<table>
<thead>
<tr>
<th>Area</th>
<th>Yes F</th>
<th>Yes %</th>
<th>No F</th>
<th>No %</th>
<th>Not Sure F</th>
<th>Not Sure %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration of school physical facilities</td>
<td>59</td>
<td>55.7</td>
<td>41</td>
<td>38.7</td>
<td>6</td>
<td>5.7</td>
</tr>
<tr>
<td>Advertisement of tenders</td>
<td>55</td>
<td>51.9</td>
<td>43</td>
<td>40.6</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>Procurement process of physical facilities in the school</td>
<td>53</td>
<td>50.0</td>
<td>46</td>
<td>43.4</td>
<td>7</td>
<td>6.6</td>
</tr>
</tbody>
</table>

From the findings, one of the key areas that ICT has been applied in relation to the school physical facilities in most of the schools is the administration of these facilities. This is whereby, slightly more than a half of the students (55.7%) indicated that ICT was being used in the administration of the school physical facilities. 38.7% of them indicated that they did not know while 5.7% were not sure. Other areas of ICT application in the administration of physical resources as indicated by the students include advertisement of tenders (with 51.9% affirming that ICT was applied, 40.6% of them saying that ICT was not applied in the advertisement of tenders and 7.5% of them saying they were not sure) and procurement process of physical facilities in the school (with 50% affirming that ICT was applied, 43.9% refusing that it was used and 6.6% saying that they were not sure respectively). A study earlier conducted by Martin (2004) observed that most of the public institutions carried out their tendering through the use of electronics and ICT. This they said eased up the documentation process of the both the tendering and procurement of facilities. Further, Knudsen (2003) suggests that procurement can be condensed into
the following six processes e-sourcing, e-tendering, e-informing, e-mro (Maintenance, Repair and operating materials), ERP (Enterprise resource planning) and e-collaboration.

4.4.2 Extent to which ICT is applied in monitoring Various Physical Facilities

In terms of the administration of the physical resources in secondary schools in Lang’ata, the students were asked to indicate the extent to which ICT was being applied in the monitoring of various physical facilities such as books, classroom facilities like desks, lab facilities, kitchen facilities and sports facilities among many others.

Table 7: Distribution of Students on the Extent to which ICT is applied in Monitoring Physical Facilities

<table>
<thead>
<tr>
<th>Physical Resources</th>
<th>To a very Great Extent (5) F (%)</th>
<th>To a greater Extent (4) F (%)</th>
<th>To some Extent (3) F (%)</th>
<th>Not at all (2) F (%)</th>
<th>Don’t Know (1) F (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books (Text/ Exercise)</td>
<td>32 30.2</td>
<td>21 19.8</td>
<td>20 18.9</td>
<td>16 15.1</td>
<td>17 16.0</td>
</tr>
<tr>
<td>Lab facilities</td>
<td>23 21.7</td>
<td>27 25.5</td>
<td>19 17.9</td>
<td>14 13.2</td>
<td>23 21.7</td>
</tr>
<tr>
<td>Kitchen facilities</td>
<td>17 16.0</td>
<td>13 12.3</td>
<td>14 13.2</td>
<td>35 33.0</td>
<td>27 25.5</td>
</tr>
<tr>
<td>Classroom facilities like desks</td>
<td>14 13.2</td>
<td>25 23.6</td>
<td>23 21.7</td>
<td>20 18.9</td>
<td>24 22.6</td>
</tr>
<tr>
<td>Sports facilities</td>
<td>12 11.3</td>
<td>13 12.3</td>
<td>25 23.6</td>
<td>18 17.0</td>
<td>38 35.8</td>
</tr>
</tbody>
</table>

Asked to indicate the extent to which ICT was being applied in the monitoring of books in the school, a majority of students (68.9%) appeared to be positive by indicating that it was being applied either to a very great extent, greater extent or to some extent. However,
(15.1%) said that it was not used at all, while (16%) indicated that they didn’t know the extent to which ICT was being applied in the monitoring of books.

In terms of laboratory facilities, 47.2% of the students in secondary schools in Lang’ata were positive that ICT was being applied in the monitoring of laboratory facilities in the school either to a very greater, greater or some extent. However, slightly less than a quarter of them (21.7%) indicated that they didn’t know the extent to which ICT was being applied in the monitoring of laboratory facilities. 13.2% of them indicated that it was not used at all.

Asked to indicate the extent to which ICT was being applied in the monitoring of kitchen facilities, a third of the students (33.0%) indicated that it was being applied to no extent at all. Moreover, slightly less than a quarter of them (25.5%) also indicated that they were not aware of the extent to which ICT was being applied in the monitoring of kitchen facilities. However, 41.5% of them indicated that it was used either to some extend, to a greater extent or to a very greater extent.

In terms of the extent to which ICT was being applied in the monitoring of classroom facilities, slightly more than a half of the students (58.5%) were positive that it was being applied either to a very greater, greater or some extent. On the other hand, 22.6% of them indicated that they didn’t know to what extent it was being applied in the school. However, 18.9% of them were sure that it was not applied at all.
Schools sport facilities may include but not limited to football and athletics fields, basketball, volleyball and netball courts, balls and skipping ropes among many others. Thus, in response to the extent to which ICT was being applied in the monitoring of these facilities, slightly more than a third of the students (35.8%) indicated that they didn’t know the extent to which it was being applied. On the other hand, (47.2%) of them were positive by indicating that it was being applied either to a greater extent, to some extent or to a very greater extent.

As observed, application of ICT in the monitoring of physical facilities has been noted as to being to a greater extent. This may be due to the fact that the main concept of ICT application in the monitoring of physical facilities is that it provides a faultless system of transmitting input by removing the inefficiencies, delays and cost involved in manually processing information and re-transcribing for contract management activity for the facilities (Knudsen, 2003).

4.4.3 Effectiveness of ICT Application in the Administration of Physical Facilities

The students were finally, asked to indicate whether the application of ICT in the administration of physical facilities in their respective schools were effective.
As shown by the figure, a good percentage of the students (47\%) indicated that ICT application in the administration of physical facilities was effective. On the contrary, 39\% of them indicated otherwise. Only 14\% of them indicated that they were not sure.

In terms of ICT application in the administration of physical resources, both the views of the teachers and principals were not left out. In this regard, a representative sample of the principals reported that ICT was being applied in the administration of physical resources such as books, classroom, lab, kitchen and sports facilities but to some extent. However, a few of them reported that it was not being applied. Additionally, all the principals also explained that the only record management application system that was used in the administration of physical resources in the school was MS Excel and MS Word. However, they also noted that there was no particular record management system. This was furthered supported by a number of teachers who reported that ICT was being applied in the administration of physical facilities in their school only to some extent. It
was further reported that some schools tried to apply ICT in the procurement of facilities and administration of school facilities. However, this is not the case among most of the schools that had participated in the study.

From the analysis in this section, it may be concluded that public secondary schools in Lang’ata are trying as much as possible to apply ICT in the administration of physical resources. However, not all the schools have been able to experience its effectiveness in the application due to various challenges. Maki (2008) specifies that technology is used right from student administration to various resource administrations in an education institution. A further finding by Cheryl (2005) noted that ICT was found to be applied in administration of physical resource through online procurement, advertisement of the firm goods and transactions. This is inline with the findings of this study whereby a considerable number of respondents indicated that ICT in their respective schools was being used for the purpose of procurement process of physical facilities and tendering.

4.5 ICT Application in Financial Administration

The application of ICT has been conceptualized as to curb various challenges faced especially when it comes to financial transactions. Moreover, Berto, Jaeger & Justin (2010) indicate that the application of ICT offers a wonderful potential for increasing school accountability, transparency and participation among various stakeholders. Additionally, it has also been noted that ICT has the ability to empower stakeholders in the civil society, the government, and the broader population to achieve better outcomes in transparency and anti-corruption efforts. Thus, this study was to find out the extent to
which school administrators applied ICT in financial administration among the selected secondary schools.

4.5.1 Key Players in the Application of ICT in Financial Administration

The students were asked to indicate the key players who were involved in the administration of financial resources in the school. This was categorized into principals, teachers or accountants/ Bursars.

![Figure 9: Key Players in the Application of ICT in Financial Administration in Schools](image)

As shown by the figure, the key players involved in the financial administration in most of the public secondary schools in Lang’ata are the principals (41.5%) and the accountants/ bursars respectively (34%). However in some schools as indicated by a few of the students (16%), teachers are also involved in financial administration.
4.5.2 Functions of ICT application in the Financial Administration

After identifying the key players involved in financial administration, the students were further asked to indicate the functions that they felt ICT played in the financial administration.

Table 8: Students’ Responses on the Functions of ICT Application in Financial Administration

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
</tr>
<tr>
<td>Fees Collection</td>
<td>64</td>
<td>60.4</td>
<td>32</td>
</tr>
<tr>
<td>Salary Payment</td>
<td>56</td>
<td>52.8</td>
<td>39</td>
</tr>
<tr>
<td>External payments (to suppliers and government fees)</td>
<td>48</td>
<td>45.3</td>
<td>47</td>
</tr>
</tbody>
</table>

An earlier study carried out by Kumar and Kumar (2005) noted that ICT was generally being used in the administration of financial records of students in schools. However, this current study went ahead to pinpointing out exactly the areas in which ICT was being used in the administration of financial resources. From the findings, majority of the students (60.4%) indicated that in their schools ICT was mainly being used in the collection of school fees. Additionally, slightly more than a half of the students (52.8%) pointed out salary payment as another key function of ICT application in financial administration in the school.
4.5.3 Effectiveness of ICT Application in Financial Administration in Schools

The students were further asked to indicate the effectiveness of ICT application in financial administration in the school. This was categorized into very effective, effective, not effective and not sure.

![Figure 10: Effectiveness of the ICT Application in Financial Administration in Schools](image)

Majority of the students (74.5%) were positive by indicating that ICT application in financial administration of their school was either very effective or effective. Only a few of them (18.9%) indicated that it wasn’t effective, and {6.6%} of them not sure of its effectiveness.

The teachers and principals had their own views and opinions regarding the extent to which ICT had been applied in the administration of financial resources. When asked to explain the key players in the application of ICT in financial administration, a good number of the principals reported that ICT in financial administration was mainly being
used by the school accountants/ bursars. This they stated was due to the fact that they were the ones in charge of all the financial resources. This was further echoed by a representative number of the teachers. Further, both the teachers and principals indicated that ICT in financial administration was being used by only a small percentage of the teachers and principals and to a smaller extent.

The school principals were also asked to indicate whether they used any accounting management system. In response, most of the principals explained that they had an accounting system. They however went ahead to explain that the system was only used by the school accountant. It was also explained among a few of the principals that other ICT facilities such as M pesa and M Shwari were being used more at a personal level as compared to the school level.

ICT application in the administration of financial resources is considered as a greater way of ensuring transparency (Almiron, 2007). Further, Anamuah-Mensah (2009) in his study on the Impact of ICT upon local development and digital inclusion for small and medium business observed that the use of computer applications was useful in accounting and finance and financial control. Based on the findings, most of the public secondary schools in Lang’ata have utilized ICT especially when it comes to the collection of fees and salary payments. This is mainly because of ensuring transparency in the procedures and avoiding mishandling of school financial resources. According to Bertot et al., (2010), application of ICT offers a wonderful potential for increasing school accountability, transparency and participation among various stakeholders.
4.6 Challenges Facing ICT Application in School Administration

There are various challenges that hinder the effective application of ICT in the school administration. From the previous reviewed sections in this chapter, it may be noted that ICT has not been fully utilized in the administration of various elements such as physical resources, financial administration and human resource. This study was set to find out the challenges that the school administration faces in the application of ICT in school administration. The respondents were asked to indicate the major challenges faced by the school administrators in ICT application in school administration.

Table 9: Students’ Responses on the Challenges Facing ICT Application in School Administration

<table>
<thead>
<tr>
<th>NO.</th>
<th>Challenges</th>
<th>Frequency (F)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Illiteracy</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>b)</td>
<td>Lack of adequate ICT facilities (e.g. computers)</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>c)</td>
<td>Financial constraints</td>
<td>16</td>
<td>15.1</td>
</tr>
<tr>
<td>d)</td>
<td>Inadequate trained Personnel</td>
<td>12</td>
<td>11.3</td>
</tr>
<tr>
<td>e)</td>
<td>Out dated systems</td>
<td>12</td>
<td>11.3</td>
</tr>
<tr>
<td>f)</td>
<td>Insecurity</td>
<td>10</td>
<td>9.4</td>
</tr>
<tr>
<td>g)</td>
<td>Embezzlement of funds</td>
<td>10</td>
<td>9.4</td>
</tr>
<tr>
<td>h)</td>
<td>Expensive Maintenance</td>
<td>6</td>
<td>5.7</td>
</tr>
<tr>
<td>i)</td>
<td>Poor management of tools and facilities</td>
<td>5</td>
<td>4.7</td>
</tr>
</tbody>
</table>
As shown in the table above, there are indeed quite a number of challenges that have hindered the effectiveness of ICT application by the school administrators in the overall administration of the school. One of the major challenges that was stated by a good number of students 18 (17%) was illiteracy. This slightly inline with Bertot, Jaeber & Justin (2010) who observed that illiteracy in the application of ICT might be attributed to lack of various factors like lack of skills in carrying out activities ranging from monitoring, finance spending to reporting teacher or student absenteeism through SMS messages.

In terms of facilities, a good number of students 17 (16%) indicated, that the school didn’t have adequate ICT facilities such as computers and to support the effective application of it in the school administration. Additionally, 15.1% of the students also indicated that a major challenge that hindered the effective application of ICT in the school administration was lack of finance to purchase such ICT facilities as listed above. Other major challenges as indicated by the students include but may not be limited to, inadequate trained personnel, out dated systems, insecurity and embezzlement of funds.

The teachers and principals on the other hand through the interview had their own opinions pertaining the challenges that were hindering the effective application of ICT in the school administration. From the teachers point of view, it was reported that the key challenges which were affecting the effective application of ICT were lack of enough computer and their required components and facilities for functionality, lack of training on how to utilize the available facilities effectively and insecurity which in most cases
were being brought about through system attacks by viruses due to lack of adequate protection software and devices. In fact one of the teachers reported that:

“Lack of inadequate facilities has been a great challenge in the school. At times, teachers may not use the facilities simply because; the bursar or the principal is using them. Moreover, this also poses a challenge in integrating it to the day-to-day running of activities within the school. Additionally, most of the available facilities especially the computers are outdated in terms of software and programs in it, thus this make it even not interesting to work while using them.” (Teacher 2, 2012).

On the other hand, the school principals also did have a lot to report pertaining to the challenges facing the administrators in effectively applying ICT in the day to day activities of the school administration. The key challenges that emerged as reported by the principals of the schools included limited facilities, financial constraints, poor linkages, poorly trained teachers on effective use of ICT in teaching and learning, poor attitude towards the adoption of various ICT system and lack of internet connectivity. On the same note, one of the principals reported that:

“Application of ICT is very important on our day-to-day activities in the school. However, limited facilities and financial constraints have really hindered its effectiveness in schools. This is whereby, due to lack of adequate facilities, not everyone can have access or even humble time to use it. On the other hand, financial constraints have also made it hard for the school to invest on new
facilities or upgrade the current machines to meet the current standards of ICT.” (Principal 1, 2012).

Another principal also reported that:

“Lack of training among the teachers or the key individuals expected to use ICT is also a challenge to its effective application in the school and especially when it comes to executing administration functions. Due to lack of training, much time is wasted while trying to figure out what to do and when to do it while administrating various elements such as human, physical and financial resources.” (Principal 5, 2012).

As observed in this section of challenges facing ICT application in school administration, it may be concluded that there are indeed a number of challenges that need to be addressed to improve the ICT application. The key challenges hindering effective ICT application in school administration include but not limited to lack of facilities, poor training and key stakeholders and financial constraints. These findings coincide with those of a study carried out by Kalusopa (2005) on the challenges of utilizing information communication technologies (ICT) for the small-scale farmers in Zambia. It was reported that weak human capital and technical infrastructure, lack of clear national information policy and lack of a coordinated agricultural information support system were some of the challenges hampering effective ICT application.
However, besides, the challenges presented by Kalusopa, this current study further noted that there were various other challenges that were hindering the effective application of ICT in the school administration. Some of these challenges include insecurity issues of the system, lack of training among the key stakeholders who are to use the system and power black outs.

Additionally, Mtanga, Imasiku, Mulauzi & Wamundila (2012) in their study on *Use of Icts in Education: a Case Study of Selected Urban Based High Schools in Lusaka, Zambia* found that most schools in the region had some formal ICT training program, though in some cases these were not regularly conducted and evidently, ICT skills were low among both teachers and pupils and the computer facilities available were inadequate and time allocated for their use is insufficient.

Another recent study by Hoque, Razak & Zohora (2012) on ICT Utilization among School Teachers and Principals in Malaysia found that even though staffs have basic skills of using ICT, knowledge and technical skills in ICT and educational management is lacking in schools as a whole. As such, this finding was also noted in this study whereby one of challenges raised by the respondents as to influence effective application of ICT in schools was lack of technical skills, training and Knowledge pertaining to ICT usage in the administration processes.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusions and recommendations based on the analysis of the application of ICT in school administration in selected public secondary schools in Lang’ata Division, Nairobi County.

5.2 Summary

The main purpose of this study was to examine the application of ICT in school administration in selected public secondary schools in Lang’ata Division, Nairobi County. The objectives of the study sought to examine: the extent to which school administrators apply ICT in human resources administration, the application of ICT in administration of physical resources, the extent to which school administrators apply ICT in financial administration, challenges facing administrators in application of ICT in school administration and the measures that can be taken to improve the application of ICT.

This study employed a survey research design. Simple random sampling and purposive sampling procedures were used to arrive at the sample (Students, computer teachers, and the principals). In total the sample size was one hundred and thirty (n=130). However, from the analysis, one hundred and six of them participated in the study. The rest were unwilling to participate. Despite this the response rate was 81.5%. Questionnaires were
used to collect data from the students whereas interview guides were used for the teachers and Principals.

The collected data were analysed using descriptive statistics, employing both quantitative and qualitative approaches. Data from questionnaires were purely analysed quantitatively, and presented in frequencies and percentages while that which was collected through the interview method was analysed qualitatively. They were synthesized to a presentable data and the key points emerging were reported in narrative form based on the key study themes. From the analysis, the following key findings were made:

**5.2.1 Application of ICT in human resources administration**

Majority of the students 74 (69%) from the public secondary schools in Lang’ata were in agreement that their schools utilized ICT in the administration of human resource whereas slightly less than a quarter of them, 25 (24%) indicated that they were not sure.

The most common technology used by the school administration in the human resource administration is word processing as it was indicated by almost half of them (48.1%).

Moreover, students further indicated that ICT was being applied in monitoring class attendance of teachers and students and the overall performance of students to some extent.
Slightly more than a half of the students (56%) indicated that their school did have a policy which facilitated the application of ICT in human resource administration whereas 38% of them indicated that there were no such policies in their schools.

A good percentage of the students (40%) indicated policies for the application of ICT in human resource administration were being formulated in the school level. On the other hand, 40% were not sure on which level they were being formulated. The school principals in the public secondary schools in Lang’ata reported that they didn’t use any human resource management system.

5.2.2 Application of ICT in administration of physical resources in schools

Slightly more than a half of the students (55.7%) indicated that ICT was being used in the administration of the school physical facilities. A majority of students (68.9%) appeared to be positive by indicating that it was being applied either to a very great extent, greater extent or to some extent.

In terms of laboratory facilities, 68.9% of the students were positive that ICT was being applied in the monitoring of laboratory facilities in the school either to a very greater, greater or some extent. A third of the students (33.0%) indicated that ICT wasn’t being utilized in the monitoring of kitchen facilities. Slightly more than a half of the students (58.5%) were positive that ICT was being applied in monitoring classroom facilities either to a very greater, greater or some extent.
Slightly more than a third of the students (35.8%) indicated that they didn’t know the extent to which it was being applied. On the other hand, 35.9% of them were positive by indicating that it was being applied either to a greater extent or to some extent. A good percentage of the students (47%) indicated that ICT application in the administration of physical facilities was effective. In the contrary, 39% of them indicated otherwise.

5.2.3 Application of ICT in Financial Administration

In term of ICT application in financial administration, this study found that the key players involved in the financial administration in most of the schools are the principals (41.5%) and the accountants/ bursars respectively (34%).

For financial administration, majority of the respondents (60.4%) indicated that ICT was mainly being used in the collection of school fees whereas slightly more than a half of them (52.5%) indicated that it was being used for salary payment.

Majority of the students (74.5%) were positive by indicating that ICT application in financial administration of their school was either very effective or effective. Only a few of them (18.9%) indicated that it wasn’t effective. As reported by the school principals, secondary schools in Lang’ata have some accounting systems. However, these systems are mainly used by the school accountant. Moreover, financial systems such as M-Pesa and M-Kesho were also noted as to being used by the principals especially in a personal level as opposed to school levels.
5.2.4 Challenges facing the Application of ICT in School Administration

One of the major challenges that was stated by a good number of students 18 (17%) was illiteracy since the school didn’t have adequate ICT facilities such as computers and internet connectivity to support the effective application of it in the school administration. Additionally, 15.1% of the students also indicated that a major challenge that hindered the effective application of ICT in the school administration was lack of finance {financial constraints}.

Other major challenges as indicated by the students include but may not be limited to inadequate trained personnel, out dated systems, insecurity and embezzlement of funds. From the teachers point of view, it was reported that the key challenges which were affecting the effective application of ICT were lack of enough computers and their required components and facilities for functionality, lack of training on how to utilize the available facilities effectively and insecurity which in most cases were being brought about through system attacks by viruses due to lack of adequate protection software and devices.

The key challenges that emerged as reported by the principals of the schools included limited facilities, financial constraints, poor linkages, poorly trained teachers on effective use of ICT in teaching and learning and lack of internet connectivity.
5.3 Conclusion

From the analysis, discussion and summary of the findings, the following conclusions can be made:

Most of the public secondary schools in Langa’ata have embraced ICT in their day to day activities. In terms of human resource administration, ICT is being applied in the areas of monitoring attendances, performance, staff training and recruiting of the staff. However, the application is not that effective due to various challenges such as power shortage and inadequate facilitates hence rendering its application in the human resource administration to a small percentage.

It may also be concluded that public secondary schools in Lang’ata do apply ICT in the administration of physical resources but to some extent. In terms of physical resources, ICT has been limited only to the monitoring of classroom facilities, advertisement of tenders, monitoring lab facilities and stationeries (text/ exercise books). However, it hasn’t been fully applied in monitoring facilities such as kitchen and sports facilities.

The school administrators in public secondary schools in Lang’ata apply ICT in financial administration in various ways. Some of the ways through which ICT is being applied in financial administration include but may not be limited to the following fees collection and salary payment. As such, the key individuals who are engaged in applying ICT in terms of financial administration include school principal and the accountants/ bursars respectively.
Effective application of ICT in school administration in public secondary schools in Langa’ata is being hindered by a number of challenges. The key challenges include but may not be limited to lack of facilities, poor training among key stakeholders, financial constraints and insecurity due to no security checkup software for the computers. These challenges have made not only the school administrators but also the students in the region not to be 100% effective in applying ICT in their day-to-day activities.

5.4 Recommendations

From the findings, summary and conclusion the following recommendations may be given to:

5.4.1 School Management

1) Owing to the fact that lack of adequate facilities affects negatively the application of ICT in the school, it may be recommended that the school administration in cooperation with the parents and other stakeholders in the school should come up together and contribute towards the provision of the facilities to the school. This will help in improving the adequacy of ICT related facilities in the school.

2) The school administration should adopt the resource management practices which will facilitate the process of monitoring the adequacy and status of the available ICT related resources in the school. Moreover, in this line, rules and regulations should be set to ensure adequate security is provided to the available facilities so as to prevent them from being stolen or destruction from viruses.

3) Another element is that students should be encouraged by the school administration to take up ICT classes so as to acquire more knowledge on how they may be able to use ICT effectively. Through these classes, they may also be
taught on how they may opt to use ICT for carrying out financial transactions for instance when paying school fees through e-banking or e-transactions. Further, orientations need also to be provided to the school administration on the benefits of electronic transactions to the organization.

5.4.2 Teachers

1. The school teachers need to be educated on how they can incorporate ICT in the school curriculum effectively. This may be done through seminars and workshops where teachers get to be enlightened with the techniques or modern styles of teaching which support the usage of ICT equipments such as laptops, videos, radios and projectors to teach.

2. Additionally, besides using ICT in the classroom setup, there is need for more education of ICT adoption training among teachers and school principals in using ICT in the administration purposes.

5.4.3 Government and Policy Makers

1. The government through the ministry of education should start a project that will see into it that all the public schools that still do have outdated systems are all upgraded. If not possible, then they should ensure that the schools are supplied with facilities that are current in terms of software and latest systems of operations. This will make it easier for the administration to apply the facilities in various aspects not limiting their selves only to the use of word documents.

2. The government in cooperation with school administrations should come up with a campaign program that will be geared towards enriching all the stakeholders in
secondary schools on the essence and benefits of ICT application in the overall
day to day running of activities in their respective schools.

3. The government through the ministry of education and technology should come
up with policies that will providing a framework on the various functions of ICT
and how the school administrators may utilize it in being a 100% effective in
executing their administration roles in the school. However, during the
formulation of such policies, school administrators and teachers need to be
involved so that they feel as being part of the major step integrating ICT in
schools for administration purposes.

5.5 Recommendations for Further Studies

A further study has to be done to investigate the impact of the application of Information
Communication Technology on the performance of public secondary schools in Kenya.

Another study has to be carried out to examine factor affecting effective implementation
of Information Communication Technology in public secondary schools in Kenya
REFERENCES


Grey, C.J. (2005). Knowledge management practices for sustainable construction: Political tensions in engineering ICT knowledge tools in the private and public sectors, Information, Knowledge and Management: re-assessing the role of ICTs in public and private organizations, Rome Superior School of Public Administration, ESRC, the University of Manchester, UMIST and the University of Pisa,


APPENDICES

Appendix I: Questionnaire for Students

Dear Participant,

I am a student at the Kenyatta University, conducting a research on The Application of ICT in School Administration in Public Secondary Schools in Nairobi, I am glad to inform you that you have been selected to participate in the study. You are kindly requested to sincerely respond to the items in the questionnaire. I would like to assure you that all the information you provide will be used strictly for academic purposes and your identity will be kept confidential. Do not write your name or that of your school on this paper.

Instructions: Please put a tick in the box and fill in the space provided on what is applicable to you.
Section I: Demographic Characteristics

1. Please indicate your sex
   a) Male [  ]
   b) Female [  ]

2. Please state the age category that applies with you

<table>
<thead>
<tr>
<th>Age</th>
<th>Tick</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-16</td>
<td></td>
</tr>
<tr>
<td>17-19</td>
<td></td>
</tr>
<tr>
<td>20-22</td>
<td></td>
</tr>
</tbody>
</table>

Section II: ICT Application in Human Resources Administration

3. i) Are there any ICT applications that the school administration uses in the administration of the human resource?
   a) Yes [  ]
   b) No [  ]
   c) Not Sure [  ]

ii) If yes, what are some of these ICT related technologies that are being applied in the school for human resource administration?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

4. To what extent has ICT been applied in monitoring the following?

<table>
<thead>
<tr>
<th></th>
<th>To a very Great Extent (5)</th>
<th>To a greater Extent (4)</th>
<th>To some Extent (3)</th>
<th>Not at all (2)</th>
<th>Don’t Know (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Attendance of students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance records of students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing absenteeism of students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other students records</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class Attendance of teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Performance records of teachers
Managing absenteeism of teachers
Personnel records of teachers

5. How often does the school administration apply the use of computers and internets in facilitating communication to and from the institutions and among the following peers in the school environment?

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Often</th>
<th>Never</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration authorities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other institutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Are there any policies in the school that required the application of ICT in the human resource administration?
   a) Yes [  ]
   b) No [  ]
   c) Not sure [  ]

If yes, indicate the level from which these ICT policies available in the school for application in the human resource administration are being formulated
   a) Ministry level [  ]
   b) School Level [  ]
   c) Not sure [  ]

7. Please indicate the extent to which ICT is applied in administration of students as human resource in the school.

<table>
<thead>
<tr>
<th></th>
<th>To a very Great Extent (5)</th>
<th>To a greater Extent (4)</th>
<th>To some Extent (3)</th>
<th>Not at all (2)</th>
<th>Don’t Know (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In our school, the administration applies ICT in providing feedback to applicants and monitoring the process for fairness purposes in the admission process.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our teachers apply ICT in evaluating our general academic performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT is applied in the school to monitor the performance of teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computers and internets are mainly used of the recruiting of teachers in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
our school

ICT is used in the schools for storing all the data regarding staff members and students in the school

Section III: ICT Application in Physical Resources in Schools

8. What are the activities that ICT is being applied in the administration of physical resources in your school?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>No</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration of school physical facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertisement of tenders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procurement process of physical facilities in the school</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. To what extent has ICT been used in the administration of the following physical resources in your school

<table>
<thead>
<tr>
<th>Physical Resource</th>
<th>To a very Great Extent (5)</th>
<th>To a greater Extent (4)</th>
<th>To some Extent (3)</th>
<th>Not at all (2)</th>
<th>Don’t Know (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books (Text/ Exercise)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom facilities like desks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kitchen facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sports facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. How effective is the application of ICT in the physical resource administration in your school?
   a) Very effective [ ]
   b) Effective [ ]
   c) Not Effective [ ]

Section IV: ICT Application in Financial Administration

11. Who are the key players in the application of ICT in financial administration in your school?

<table>
<thead>
<tr>
<th>Role</th>
<th>Tick</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Principals</td>
<td></td>
</tr>
<tr>
<td>b) Teachers</td>
<td></td>
</tr>
<tr>
<td>d) Accountants</td>
<td></td>
</tr>
<tr>
<td>e) Others (specify)</td>
<td></td>
</tr>
</tbody>
</table>
12. What are the functions of ICT application in financial administration?

<table>
<thead>
<tr>
<th>Function</th>
<th>Yes</th>
<th>No</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees Collection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salary Payment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External payments (to suppliers and government fees)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. How effective is the application of ICT in the financial administration in your school?
   a) Very effective [ ]
   b) Effective [ ]
   c) Not Effective [ ]

Sections V: Challenges Facing ICT Application in School Administration

14. Which are the major challenges facing teachers and students in ICT Application in school administration in your school?

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiteracy</td>
<td></td>
</tr>
<tr>
<td>Lack of adequate ICT facilities (e.g computers)</td>
<td></td>
</tr>
<tr>
<td>Financial constraints</td>
<td></td>
</tr>
<tr>
<td>Inadequate trained Personnel</td>
<td></td>
</tr>
<tr>
<td>Out dated systems</td>
<td></td>
</tr>
<tr>
<td>Insecurity</td>
<td></td>
</tr>
<tr>
<td>Embezzlement of funds</td>
<td></td>
</tr>
<tr>
<td>Expensive Maintenance</td>
<td></td>
</tr>
<tr>
<td>Poor management of tools and facilities</td>
<td></td>
</tr>
</tbody>
</table>

15. What measures can be taken to improve the application of ICT in school administration

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thank you for your co-operation
Appendix II: Interview Guide for Teachers

Dear Respondents,

I am a student at the Kenyatta University, conducting a research on *The Application of ICT in School Administration in Public Secondary Schools in Nairobi*, I am glad to inform you that you have been selected to participate in the study.

You are kindly requested to sincerely respond to the items in the guide. I would like to assure you that all the information you provide will be used strictly for academic purposes and your identity will be kept confidential. Do not write your name or that of your school on this paper.
SECTION I: Demographic Characteristics

1. Please indicate your gender
   a) Male [ ]
   b) Female [ ]

2. Please state the age category that relates applies with you

<table>
<thead>
<tr>
<th>Age</th>
<th>Tick</th>
<th>Age</th>
<th>Tick</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 and below</td>
<td>36-40</td>
<td>26-30</td>
<td>31-35</td>
</tr>
<tr>
<td>26-30</td>
<td>31-35</td>
<td>41-45</td>
<td>46 and above</td>
</tr>
</tbody>
</table>

3. Please indicate your professional training background

<table>
<thead>
<tr>
<th>No.</th>
<th>Areas</th>
<th>Tick</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Computer</td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>Humanities</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Sciences</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Others (specify)</td>
<td></td>
</tr>
</tbody>
</table>

Section II: ICT Application in Human Resources Administration in Schools

4. Please explain how ICT has been used in the school to manage the daily activities of the non-teaching staff.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

5. How can you rate ICT application in Human Resource management of the teaching, non teaching staff and students in the school? (Probe: poor, average and good). Please explain your answer.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

6. Please explain who supervises or monitors ICT application in Human Resource Administration in your school?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
7. Please explain the extent to which ICT is applied in Human Resource Administration in the school. (Probes: Teacher Training, Staff recruitment, Evaluating employee performance, E-learning and Communication processes)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

8. Please indicate some of the other applications of ICT in human resource administration in the school.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section III: ICT Application in Physical Resources in Schools

9. Please explain the extent to which ICT has been used in the administration of the physical resources in your school. (Books, Classroom facilities like desks, Lab facilities, Kitchen facilities and Sports facilities)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

10. Please explain how ICT has been applied in the administration of physical resources in your school. (Probes: Procurement process, Advertisement of tenders, Administration of school facilities)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

11. How effective is the application of ICT in the physical resource administration in your school? Very effective/ Effective/ Not Effective. Please explain your answer.

________________________________________________________________________

________________________________________________________________________

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Section IV: ICT Application in Financial Administration

12. Who are the key players in the application of ICT in financial administration in your school?

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13. Explain the extent to which ICT has been applied in the financial administration processes in your school? (Probes: Preparation of school budgets, Record keeping, Accounting)

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14. Is the application of ICT in the financial administration in your school effective? Yes/No. please explain your answer.

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Sections V: Challenges Facing ICT Application in School Administration
15. Please explain the extent to which the following challenges affect ICT Application in your School Administration?
   a) Insufficient funds

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________________________________________________________________________

b) Insufficient number of computers

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________________________________________________________________________

c) Lack of teachers with IT skills

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________________________________________________________________________

d) Lack electric power supplies

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________________________________________________________________________

16. Which measures can be taken to improve the application of ICT in school administration

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________________________________________________________________________
________________________________________________________________________

Thanks for cooperation
Appendix III: Interview Guide for Principals

Dear respondents,

I am a student at the Kenyatta University, conducting a research on *The Application of ICT in School Administration in Public Secondary Schools in Nairobi*. I am glad to inform you that you have been selected to participate in the study. You are kindly requested to sincerely respond to the items in the Interview Guide. I would like to assure you that all the information you provide will be used strictly for academic purposes and your identity will be kept confidential.

**Section I: Demographic Characteristics of the B.O.G Chairperson**

1. Please indicate your gender
   a) Male [ ]
   b) Female [ ]

2. Please state the age category that applies with you

<table>
<thead>
<tr>
<th>Age</th>
<th>Tick</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 and below</td>
<td>36-40</td>
</tr>
<tr>
<td>26-30</td>
<td>41-45</td>
</tr>
<tr>
<td>31-35</td>
<td>46 and above</td>
</tr>
</tbody>
</table>

3. Please indicate your highest professional qualification
Section II: ICT Application in Human Resources Administration in Schools

4. In your school, how can you describe ICT application in Human Resource Administration? Please explain your answer

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5. Who supervises or monitors ICT application in Human Resource Administration in your school?

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6. How is ICT applied in Human Resource Administration in your school? (Probes: Teacher Training, Staff members’ recruitment or evaluating employee performance)

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7. To what extent has ICT been used in the administration of the following physical resources in your school (Books, Classroom facilities like desks, Lab facilities, Kitchen facilities and sports facilities among other facilities)

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8. Do you think ICT has been applied effectively in the administration of physical resources in your schools? Please explain your

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9. Who are the key players in the application of ICT in financial administration in your school (Principals, teachers, students)?

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________________________________________________________________________
10. How is ICT applied in financial administration? (Probe: Prepare school budgets, Record keeping or Accounting)

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11. How effective is the application of ICT in the financial administration in your school?

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12. Which is the major challenge facing ICT Application in your School Administration? (Probe: Insufficient funds, Insufficient number of computers or Lack electric power supplies)

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13. Which measures can be taken to improve the application of ICT in school administration

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*Thanks for your cooperation*