

**FACTORS THAT IMPACT ON USE OF EDUCATION MANAGEMENT
INFORMATION SYSTEMS: CASE STUDY OF THIKA WEST DISTRICT,
KIAMBU COUNTY, KENYA**

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DECLARATION

I confirm that this project is my original work and has not been presented in any other university for certification. The project has been complemented by referenced work duly acknowledged. Where text, data, graphics have been borrowed from other works, the sources are specifically accredited through referencing in accordance with anti-plagiarism regulations.


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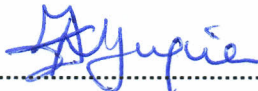
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DEDICATION

This project is dedicated with respect and appreciation to my loving mother Mary Wairimu, who nurtured and educated me.

ABBREVIATIONS AND ACRONYMS

AED	Academy for Educational Development
EFA	Education for all
EMIS	Education Management Information Systems
FPE	Free Primary Education
FDSE	Free Day Secondary Education
GOK	Government of Kenya
HoD	Head of Department
ICT	Information Communication Technology
IS	Information System
LANS	Local Area Networks
MDGs	Millennium Development Goals
MIS	Management Information System
MoE	Ministry of Education
MOHEST	Ministry of Higher Education Science & Technology
NSS	National Statistical System
TIVET	Technical Industrial, Vocational Entrepreneurship Training
TTC	Teacher Training College
TSC	Teachers Service Commission

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ABSTRACT

The central problem of this study is that despite the critical role expected to be played by Education Management Information Systems, in providing data that is crucial to planning for education, quality data from the schools to the district EMIS units is rarely achieved. The purpose of the study was to examine the factors that impact on data management using Management Information Systems by education administrators in public secondary schools in Thika West district, Kiambu County. The objectives of the study were to; assess the existing level of skills and competencies in data management of education administrators; their perception on the use of Education Management Information Systems; assess the availability and use of infrastructure that supports Education Management Information Systems; establish the role played by the Ministry of Education in facilitating data management and determine the challenges facing education administrators in using Education Management Information Systems in Thika West district. The study adopted a descriptive survey design. The study sampled 10 schools using stratified random sampling based on three mutually exclusive strata; national, provincial, and district. Random samples were drawn from each stratum and the sub samples were joined to form the complete stratified sample. The proportional allocation method was used to ensure each stratum contributed to the sample a number that is proportional to its size in the population. From the sample schools the head teacher and 4 heads of departments were selected, and in the district education office 4 officers in charge of data were selected using purposive sampling. Data was collected through self administered questionnaires and analyzed using quantitative methods. The main findings of the study were that education administrators possessed limited skills and competencies to use Management Information Systems, basic infrastructure to support MIS was inadequate in schools and the Ministry of Education played an insignificant role in providing computers to support EMIS. Based on these findings it is recommended that the Ministry of Education and stakeholders enhance training of education administrators to attain the necessary computer proficiency for efficient management of data and step up the provision of infrastructure to support the production of quality data for evidence based policy formulation.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The chapter covers the background to the study, statement of the problem, purpose, objectives, research questions, significance, limitations, delimitations, assumptions, and the theoretical and conceptual frameworks of the study.

1.2 Background to the Study

The potential of Education Management Information Systems (EMIS) to support decision making and planning can not be underscored in this age of technological advancement. An Information System (IS) can be defined as a set of interrelated components working together to gather, process, store, retrieve and disseminate information that support the activities of a programme/project in planning, coordination, control and decision making by management.

Information is the oxygen of good management. It determines the knowledge base from which decisions are made. Information enables education officials to keep their fingers on the pulse of the system and make sensible decisions affecting the status and routine administration Wright (2000). This entails having a wide range of information about learners, teachers, facilities and resources that make up an education system. Most countries still suffer from a range of difficulties including the negative effects of a centralized culture. Wright (2000) pointed out that in some countries education ministries

do not have adequate or reliable disaggregated statistics on education. The problem is often due to poor record keeping, inefficient data collection, and weaknesses in the generation, storage, retrieval and use of information for management purpose.

Management Information Systems (MIS) is computer based or manual. It provides management and other personnel within an organization with up to date information regarding the organizations performance. It is usually linked to computer network, which is created by joining different computers together in order to share data and resources. MIS is designed to capture, transmit, store, retrieve, manipulate, and or display information used in one or more processes or projects (Wendy, 2002). The main reason for using EMIS is to increase managerial effectiveness by processing and transforming data into information that is useful to support decision making in education (Pegler, 1992). Education Management Information Systems ease management through interconnection and integration of the whole organization using equipments such as, faxes and computers. The later taking a bigger role in EMIS. The interconnection can be within the organization between departments or with other external organizations.

Cassidy (2005), observed that in Latin America and the Caribbean, a lot of time and other resources had been invested to computerize administrative and management functions and to encourage more data driven decision making. However, despite years of effort and considerable investment, development of comprehensive, integrated computer- based MIS was slower than anticipated. Data and information operations continued to be diffused across a number of divisions and departments with little or no coordination of

operations. While some operations had been computerized, many continued to be maintained manually, which slowed data processing and integration. Many education leaders and decision makers at all levels, in most countries in the region complained that much of the data and information that they needed was not available when needed, in formats that are useful, and when available it was of questionable reliability, contradictory or ambiguous when compared with other available data. Many observers continued to report that demand for data was limited, capacity for use weak, and that significant examples of data driven decision- making were rare.

In India, apart from the Directorate of Education, the Bureau of Economics and Statistics, the Directorate of Economics produce statistical abstracts and other publications on education but the data that they disseminate is not uniform and varies from state to state. Sporadic attempts have been made to develop computerized educational management information system with an aim to collect and disseminate district-specific information among which the District Primary Education Programme (DPEP) is the most prominent. One of the important aims is to develop Educational Management Information System for which data capture formats have been evolved and infrastructure created at the district level in the office of the District Project Coordinator. All the project districts have been provided with adequate hardware and MIS software (Mehta, 2007). Thus, it can be concluded that proper mechanism for dissemination of district-specific information is not in existence in most parts of India.

Few countries in Africa can measure and locate changes in access, efficiency and quality in education due to lack of data for these basic indicators. Regional capacities to collect and process data need to be strengthened. Based on this observation one of the priorities of the African Union Action Plan for the Second Decade of Education for Africa and Southern Africa Development Community (SADC) education programmes is the development of an efficient and well documented EMIS that can produce reliable information that is a significant element in planning and evidence based decision making (UNESCO 2014).

To formulate policy on education performance in areas such as access, equity, retention rates, quality and relevance in education decision makers need quantities of information. The information on the impact of past decisions, the present levels of demand and supply for education, and estimations provide the basis upon which alternative options in planning and decision making can be adopted. Faced with difficulties of continued provision of education resulting from diminishing resources, policy makers are demanding more effective planning, prudent management and utilization of resources. As the social demand for educational services rises, quality and timely provision of statistical information becomes imperative in this poor region (Tucano, 2005).

In a school, EMIS is responsible for the promotion in use and sharing of information. It facilitates updating of pupils records, managing of attendance records of teaching staff and pupils, tracking achievement of individual pupils, communicating through email to parent on issues pertaining to their children, monitoring and report compilation on pupil's

behavior, storing files and accessing them for sharing among teachers, parents and pupils (<http://www.schools.co.uk>) EMIS thus aids in harmonization of data collection, processing, dissemination and provides a data sharing platform of the analyzed data.

Elimu Yetu Coalition (2003), reports of the existence of a weak information base in Kenya and attributes it to untimely, inaccurate, and incomplete data on teachers. This could be the case in all the data that is collected on enrollments and age of students.

According to MoE (2005), good quality data is critical to effective and efficient educational planning and management as well as implementation of education systems. The Ministry of Education has provided the framework for guiding head teachers on data management in their schools over the years. Despite this, data management remains a challenge in schools and district offices as well as the Ministry of Education headquarters. If it is not a case of incomplete or inaccurate data provided by principals, it is the delay in submitting the data to the field officers and Ministry headquarters. Under the Free Primary Education Programme, a needs assessment on the design of EMIS was carried out and preparatory activities initiated that included the establishment of support in processing of school data returns to the Teachers Service Commission and MoE, and to indicate how far the country is towards achieving Millennium Development Goals (MDGs) and Education for All, (EFA). EMIS is the linkage to National Statistical System (NSS) and therefore enhances generation of crucial statistical data for policy formulation and evidence based decision making at the national level (MoE, 2004).

In 2007, Kenya Education Management Capacity Assessment, (KEMCA) carried out by USAID and the Research Triangle Institute, (RTI) estimated that less than half of the primary schools in Kenya maintained admission and class registers as well as staffing records. In 2008, EMIS data collected in third term achieved a response rate of 79%. Of those institutions returning EMIS data instruments, only 61% had completed the form entirely. This indicates that there are gaps in the management of data in schools (MoE, 2009). Records from the Directorate of Secondary and Tertiary Education, Free Day secondary section in the first quarter of the year 2010; indicate that there were forty nine schools whose grants for FSDE were not disbursed due to either wrong sort codes or invalid bank accounts. There were a further 17 schools that were missed out for FDSE funding because district education officers omitted them from the list of schools within their jurisdiction. EMIS in the Ministry of Education achieves its goals through an information management cycle that continuously goes through stages of data collection, data processing, data analysis, publication, dissemination and feedback. The system targets all education institutions at all levels from early childhood development centres to tertiary institutions. The system also incorporates aspects of validation, monitoring and evaluation in order to ensure that data and information provided is complete, accurate and up to date (MoE, 2005).

Effective management requires that adequate educational information is made available for use and that it is both relevant and useful. The MoE realizes the importance of EMIS particularly in the financing of the Free Primary Education (FPE) and Free Day Secondary Education (FDSE) programmes which require accurate documentation for

disbursement of grants to schools. This study will investigate the factors that impact negatively on the collection, use and flow of data from public secondary schools in Thika West to the district EMIS unit for transmission to the Ministry of Education headquarters EMIS unit for National Policy formulation and Planning.

1.3 Statement of the Problem

From the foregoing background it was clear that despite the setting up of EMIS units in all District Education offices and provision of computers by the Ministry of Education, the challenge of timely, reliable data from schools to the districts education offices still persists. The Ministry of Education recognizes that without an effective and appropriate information system, the capacity to cope with planning and management needs is greatly compromised (MoE, 2004).

The study examined the use of Education Management Information Systems by administrators in public secondary schools and the district education office in Thika West district. This stemmed from the realization that, quality data management at the school level determines the timely delivery of accurate and reliable data to district EMIS units for onward transmission to Ministry of Education for national planning and decision making in the education sector. There were a limited number of researches in the use of MIS in the management of Educational data at school level. The study assisted towards addressing the existing gap.

1.4 Purpose of the Study

The purpose of the study was to examine the factors that impact on data management using Management Information Systems by education administrators in public secondary schools, and the district education office in Thika West district.

1.5 Objectives of the Study

The following objectives were generated for the study:

- i) To assess the existing level of skills and competencies in data management by education administrators in Thika West district.
- ii) To assess the perception of education administrators in Thika West district on the use of Education Management Information Systems.
- iii) To assess the availability and use of infrastructure that supports Education Management Information Systems in Thika West district.
- iv) To establish the role played by the Ministry of Education in facilitating data management in Thika West district.
- v) To determine the challenges facing education administrators in using Education Management Information Systems in Thika West district.

1.6 Research Questions

The research was guided by the following questions:

- i) What is the education administrator's capacity to process data using EMIS in the school and in the district education office?
- ii) How do the education administrators in schools and the district education office perceive the use of EMIS?

- iii) What infrastructure is available to support administrators in data management in public secondary schools and the district education office in Thika West district?
- iv) What role does the Ministry of Education play to facilitate data management using EMIS in public Secondary schools and the district education office in Thika West district?
- v) What are the main challenges faced by education administrators in data management at both the school and district levels?

1.7 Significance of the study

The study could be of importance to policy makers for planning, policy formulation and implementation in the line of EMIS in the school, district and Ministry of Education headquarter. The study may benefit the Ministry of Education policy makers in designing and maintaining a well established information management system focusing on the major source of educational data, the school.

The study came up with findings and recommendations that may possibly assist the Ministry of Education to develop strategies for increasing equity and efficiency in the use of EMIS. The findings of the study could contribute information that would assist to sensitize education administrators on the value of accurate and prompt data to educational planning and management. Administrators in secondary schools would be able to appreciate the need to improve data capture, processing, storage and retrieval in the school as a way to ease management. The findings of the study could provide the ministry with a strong basis to solicit for resources from stakeholders to procure computers and computer soft ware and for capacity upgrading of skills in data

management for education administrators. The study could contribute additional knowledge on data management and also stimulate further research on factors influencing data management in the education sector.

1.8 Limitations and Delimitations of the Study

1.8.1 Limitations

There was limited literature on EMIS use by education administrators in Kenya. The review drew information from within and outside Kenya. It was not possible to control the attitudes of the respondents which affected the validity of responses. This was because the respondents at times gave socially acceptable answers or failed to respond to some items to avoid offending the researcher or authorities. The respondents were assured that information they provided was purely for research purposes.

1.8.2 Delimitations of the Study

The study was limited to Thika West District of Kiambu County as it was not possible to cover all districts due to financial constraints. The results can only be generalized to other areas with caution. The study was confined to public secondary schools, as they were the ones supported financially by the state and thus the data they generated was crucial to national planning for education. The study focused only on the human and economic factors that impact on the use of EMIS by education administrators although there could be other factors.

1.9 Assumptions of the Study

The following assumptions were made in the study:

- i) That the schools and district education office possess the basic infrastructure required for EMIS.
- ii) That the respondent would give honest responses.
- iii) That the researcher would be granted access to EMIS unit.

1.10 Theoretical Framework

The researcher identified the Systems Theory as a guide to the study. The theory was developed in 1950s and 1960s. It attempts to explain and predict the behavior of the entire organization: its people, structure, environment and technology. The organization is viewed as a collection of interrelated parts, that function together to achieve a common purpose (Owens, 1981)

Owens (1981), states that a school is an open system. It receives resources from the environment and transforms them into outputs that it gives to the society. He identifies three basic resources that include; human, financial, and physical resources. In this study the researcher will consider EMIS equipment, skills and competencies in EMIS of educational administrators as the input, the collection, recording, analysis, storage and dissemination of educational data as the process; and accurate, timely data for the development of informed policies and plans as the output. A system comprises of sub systems or subunits that work together in division of labour, so that the entire organization can achieve its goal. The ultimate goal is for all subsystems to perform in

ways that facilitate high productivity for the whole organization. If one sub system fails, the whole system is put in jeopardy (Mugenda & Mugenda, 1988).

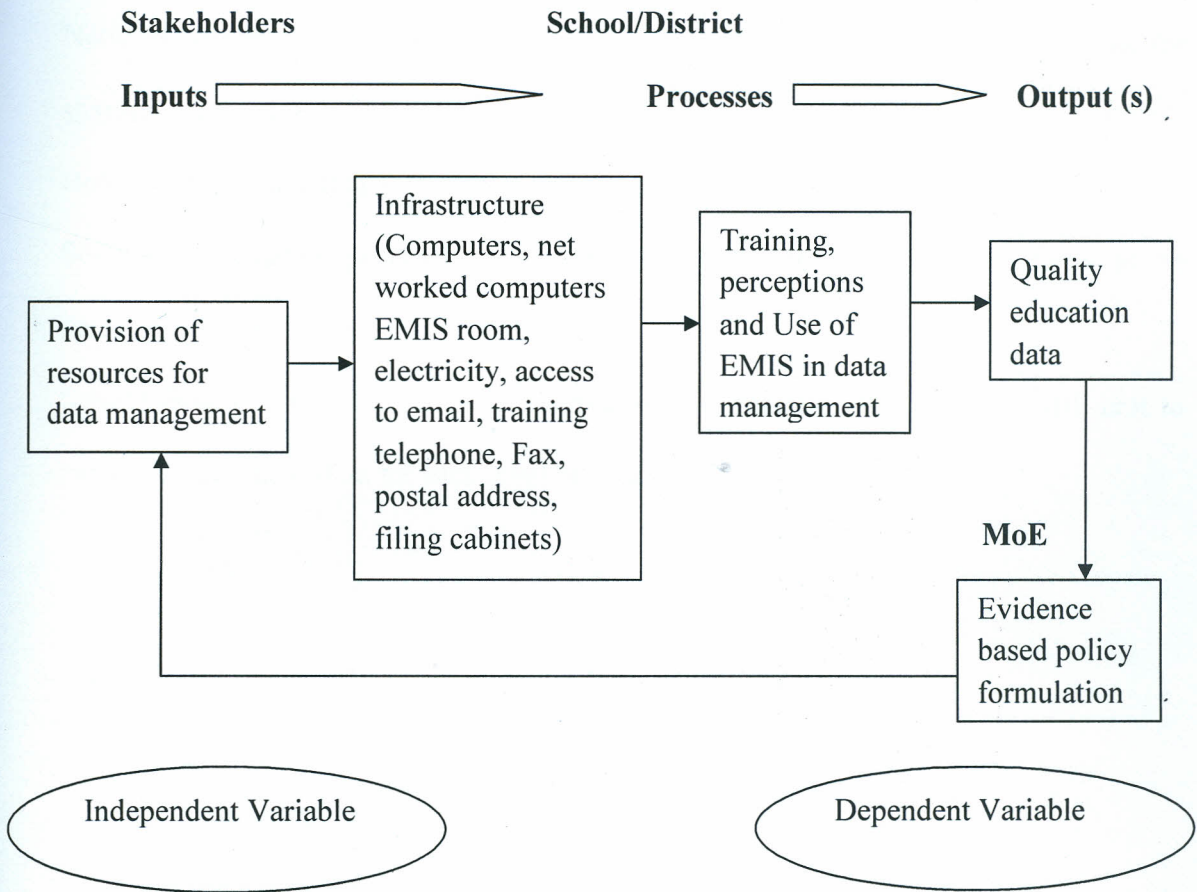
The systems theory is applicable to the study, where education administrators in public secondary schools and district education offices receive resources provided by stakeholders and use them to provide reliable data on education indicators that guide and inform policy makers and planners.

1.11 Conceptual Framework

A conceptual framework is a hypothesized model identifying the variables under study and showing their relationship. The purpose of the model is to help the reader to quickly see the proposed relationship (Orodho, 2002). In this study, the relationship between skills, perceptions of education administrators and the availability of required infrastructure in data management are identified to have influence on the delivery of reliable and timely data from schools to the district EMIS unit for onward transmission to the Ministry of Education headquarters.

The conceptual framework figure 1.1 illustrates the factors that influence data management at school and district education office. The purpose of the study was to determine the factors that impact on use of EMIS in public secondary schools in Thika West district as shown in the figure 1.1.

Figure 1.1 Conceptual Framework



Source: Researcher 2011

1.12 Definition of Operational Terms

EMIS Unit: An administrative section in the district education office whose role is to collect data from schools, store and transmit to the ministry of education headquarters.

Networked computers: computers that are connected and which can communicate for sharing information

Reliable data: Data that is trusted as being accurate by users.

Software: computer programmes that provide instructions that enable tasks to be performed by the computer.

School data returns: Instruments designed by the ministry of education EMIS unit to capture institutional data for each level of education.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter looks at earlier studies that have been conducted on the concept of EMIS in education and related sectors. The emphasis is on collection and processing of reliable data and the role it plays to enhance planning and management of education. The review takes a perspective derived from the objectives of the study.

2.2 Concept of Education Management Information Systems.

The term information management was first used in 1980s. It covers subjects ranging from library services to data based management. It is thus the economic, efficient and effective coordination of the production, control, storage, retrieval and dissemination of information from external and internal sources in order to improve the performance of an organization. The essence of effective management revolves around acquisition and protection of sound, vital information and knowledge. This is what makes it possible to staff, direct, coordinate, report and budget or, in other words to manage (Ouma, 1997).

n EMIS is a set of formalised and integrated operational processes, procedures and cooperative agreements by which data and information about schools and schooling are regularly shared, integrated, analysed, and disseminated for educational use. The information includes facilities, teachers, students, learning activities and evaluative outputs (Tucano, 2006). EMIS aims at establishing efficient systems and infrastructure that support collection, processing and dissemination of educational data for planning and

management. The study provided the challenges that hinder data management and made recommendations to address them

2.3 Importance and use of Education Management Information Systems

Education Management Information Systems provides management and other personnel within an organization with up to date information regarding the organizations performance. It is usually linked to computer network, which is created by joining different computers together in order to share data. It is designed to capture, transmit, store, retrieve, manipulate, and or display information used in one or more processes. Management Information Systems performs three main functions. One, to generate reports such as, financial statements, inventory status reports or performance reports for routine and non routine purposes, two, to answer what if questions from management and to support decision making by integrating the decision maker, the data base and the quantative model being used (Wendy, 2000).

Contribution of Information Systems to schools include among others; support to the school manager and other staff in doing their duties, developing their performances, effectiveness and efficiencies by saving time (Vissher and Wild, 1997). Information supports strategic planning for education and acts as a diagnostic tool to assess the existing capacity and characteristics of the education system. These assist in identifying and setting priorities for future development and areas that need greater resource allocation (Vissher and Wild, 1997).

EMIS is an early warning and learning system for Education leaders that provides a framework for Education Policy and Planning. It provides the basis for monitoring and evaluation, policy development, planning and budgeting. It facilitates the identification of particularly well performing units, so that good practice can be transferred to the poorly performing for intervention (Cassidy, 2006).

Education Management Information Systems is potentially a powerful tool that can contribute to the improvement of education performance. This is because it enables decision makers to identify challenging areas, reduce operational costs and provide a systematic way of addressing challenges. If well implemented EMIS possesses the ability to raise educational awareness and monitor resource distribution by providing information to decision makers (Soh, 2000).

Statistical information especially in the poor countries of the African region is important for the optimal allocation of scarce resource. However, in most of these countries the capacity for providing requisite information is low, limiting the ability of decision makers less ability to make informed decisions. This is a major obstacle to effective planning and management of education in Africa. In twenty one African countries available statistics revealed serious information gaps in terms of coverage, reliability, and timeliness in pupil enrollment, teachers, facilities, teaching and learning materials and finances among others (UNESCO, 2006).

Tucano (2005), in a short case study of Nigeria found that EMIS assists the Federal Ministry of Education towards progress of set targets and is regarded as a planning tool to measure Millenium Development Goal indicators. EMIS in Nigeria is faced by challenges similar to those of other countries, including lack of capacity, limited commitment from stakeholders and difficulties in collection of data. At the school level visits revealed that record keeping was adhoc and there were no records on repeaters, deaths, transfers and details about teachers. The failure of schools to provide accurate data affected the capacity of State Ministry to achieve dispersal of recruitment and per capita expenditures for many primary schools.

In the Ministry of Education in Kenya, the EMIS unit is responsible for promotion and use of information; it facilitates harmonized data collection, processing, dissemination and provides a data sharing platform of the analyzed data. The establishment of the EMIS unit can be traced back to 1998-2000 initiatives. During this period, it was observed that the Ministry and its agencies used a wide range of instruments to collect and maintain data resulting to duplication and insurmountable volumes. This left the Ministry with limited capacity for regular and timely analysis, use and dissemination of relevant information. The mission of EMIS then was to put in place systems and infrastructure that would facilitate decentralisation of processing and use of educational data to the districts and sharing of data and/or information with distributed systems between departments and agencies of the Ministry (MOHEST 2004). EMIS was designed to consist of two main versions namely District EMIS used at the district and head quarter EMIS versions for use at the headquarters and agencies.

The government of Kenya recognizes the crucial importance of good statistics for evidence based decision making in Planning and Policy formulation. It also recognizes the central role played by statistics in supporting implementation of policies, in particular monitoring and evaluation. This in turn aids transparency and accountability (MoHEST, 2005). In addition, an effective EMIS provides the necessary conditions for monitoring and evaluation. It facilitates the measurement of achievements made towards international commitments mainly Millennium Development Goals (MDGs) in education and Education for All (EFA).

This study will seek to find out the capacity of Thika West District of Kiambu County to collect, process, analyse, disseminate and utilize available data using EMIS.

2.4 Perceptions about Education Management Information Systems

Vissher, (1999) in a study carried out in 63 Dutch high schools, found out that school Management Information System were mostly used in routine work. In addition managers and teachers did not have sufficient education on the use of the system. They also indicated that while school management had positive effects on the evaluation of efficiency of the school development, quality of educational programming and communication within the school, it increased their workload and caused stress.

In Ghana head teachers have perceived little benefit from school census activity, and in general have seen the policy of continuous assessment and the consequent need for records as an additional burden tempting some to misreport (Tucano, 2006).

Wright (2000), states that there are many reasons for inaccurate data collected in schools, and attributed it to lack of motivation for proper collection and handling of management information. He lays blame on the failure in instilling in education managers (teachers and principals) a positive perception of the benefit that accrues from accurate data. As a result, principals generally collect data at school as a matter of routine and out of a sense of duty rather than for intrinsic professional reasons. In highly centralized education systems teachers who collect data at the source do not have a stake in the use of much of the information they are expected to collect. They view data collection as a burden since they do not use the data for decision making and management process in the schools but simply transfer it to the higher levels beyond the school (Soh, 2000).

In decentralized systems such as Australia Canada, Nigeria and Britain where many decisions are taken locally, teachers and principals tend to understand the strong link between the information collected and the management process they are expected to perform and tend to provide accurate data (Wright, 2000).

Kenya has a highly centralized education system. This study intends to find out the perception of educational administrators on the benefits that accrue from using EMIS. The findings may assist in the development of strategies that will improve perceptions and thus data Management.

2.5 Education Management Information Systems Infrastructure

To support Education Management Information Systems, Computers are a basic requirement. Computer consists of hardware and Software. The hardware refers to the parts that one can touch, hold and move. These include the monitor, keyboard, mouse and peripheral devices such as printers, disc drivers and scanners. A computer is useless unless it is given instructions that come in form of software. Software is the programme that instructs a computer to process data and how the programme should be used. There are three main types of computer software utilized by administrators. These are; word processing and communication, data base management and spread sheet systems. (Bennet, 1996) In addition, he noted that the ability to connect computers through networks provides a data sharing platform between principals and teachers. Networking allows for an elaborate system of technology such as using email instead of mail box. Email is enabled by the Internet which is an information gathering tool utilizing the world-wide web using search engines and http address Electronic mail or e-mail refers to the procedure of sending messages from one person to another using internet facilities. A personal computer can be connected to the network through internet to send and receive messages and other bulk mail electronically. Network infrastructure connects the access devices in school to the required tools, services and digital resources. It comprises of; internal communication service cabling and equipments, telecommunication services, server computers and associate computer storage devices, environmental management equipment, operating software for server computers and related hardware (Http://www.deewr, go.ke 20/9/2011).

Tucano (2006), states that lack of adequate electricity was a barrier to the operation of EMIS in Nigeria. Most states had generators but usage was limited because fuel was not always available. Most countries of the Caribbean have technical issues on EMIS that are based on what infrastructure is available. The issues include available power, computer soft and hard ware and their maintenance, security of equipment and air conditioning facilities in areas of high temperatures and humidity (Cassidy, 2006).

In East Africa, a country such as Tanzania has limited use of computers in data management due to inadequate supporting infrastructure such as electricity and telecommunication in rural areas and insufficient funding to ensure maintenance of Information Communication Technology equipment (<http://ww.moe.go.tz> 6th June 2011).

A large scale study in Kenya by School Net in which 69 secondary schools responded found that only 46 percent of the sampled schools had computers, with availability of Internet and facsimile rare in these schools. The findings also indicated that email was yet to be recognized as a tool for collaboration among students and teachers. Only one school had a website while another two reported having networked all their computers to the Internet. It went on to affirm that in these schools, access to the Internet was severely limited and that only a third of schools studied had dedicated computer laboratories. The study also found that some schools were making use of very old equipment and there was dependency on donations of computers as opposed to sourcing locally.

Kiptalam and Rodrigues, (2010) in a case study on internet utilization in secondary schools in Kenya, found out that schools with access to the Internet for more than 40

hours in a month were 82% while another 18% reported less than 20 hours in a month of Internet access and this was attributed to non-networked computers in the school laboratories.

Boit, (2012) identified lack of electricity connection from the mains power supply as a major challenge to ICT use in school administration in Western Kenya. This forces schools resort to the use of generators for the provision of electricity needed to power computers. This power is mainly used at night and therefore, few administrators are able to use it. Nowadays all mobile operators provide a 3 G mobile Internet which in theory can give an opportunity of the Internet access in the whole region which is under the mobile coverage. But even in the developed south and center parts of the country there are a great number of villages without electricity where it is completely impossible to use personal computers. That is why we can conclude that the problem of the electrification of African villages still remains one of the most serious obstacles to the use of ICT in rural areas. This study intends to find out what infrastructure is available to support Education Management Information Systems in public secondary schools and the district education office in Thika West district of Kiambu County.

2.6 Challenges Facing Education Managers in the Use of EMIS

In many developing countries schools do not always send the required information in time as envisaged. The problem of timeliness of data is evidence of lack of administrative capacity (Camilleri, 2002).

Limited access to modern computing and communication technology in developing countries is a great challenge. This is due to prohibitive costs of modern ICT to schools and other educational institutions. Use of manual methods in data management is still widely used and which according to Wright (2000), is slow, labor intensive, inefficient and prone to increasing chances of error. He adds that manual data management poses the problem of transfer of data from schools to the districts and then to the headquarters. Often data is transferred physically by head teachers to guarantee safe delivery and the same is replicated from the district officer to the central ministry.

In his studies in Malta, Camilleri (2002) shows the success of electronic data management after the Education Division in the country provided computers to all state schools to facilitate administration and management function. With all schools equipped, information systems in schools were improved. Today, all schools have access to e-mail facilities making communication between schools and the head office more efficient. The project has facilitated management and decision making because information can be accessed quickly. Many developing countries lack adequate and appropriately trained staff in modern computing and communication technology. Despite efforts made to step up supply of computers and training personnel in practical management of information systems in Africa and Asia other debilitating challenges have emerged. The best example is the tendency of training personnel that leave the public sector for more lucrative jobs in private agencies as critical. This leads to assignment of untrained personnel to handle data management at regional and school levels (Camilleri, 2002).

In Kenya there are a limited number of personnel with skills and competencies to support the electronic based system. Manual processing and analysis of data is prevalent. This leads to limited sharing of data among departments and agencies of the ministries and lack of feedback to the districts and schools. The schools record data manually and forward to the zonal office (MoE, 2005).

Large quantities of data are collected which appear to be rarely if ever used. Often large amounts of time are spent at various levels on collecting and processing data which can provide some useful information regarding the workload and priorities for action particularly if presented in a clear way. In an efficient and well organized system the information from schools may be compiled for the entire country and published within the year to aid in national planning. More commonly in many developing countries this mountain of data from all corners of the country gathers dust in files at all levels (Ouma, 1997).

Data is generated by teachers in schools and they may have little or no idea whether the information has been used, retained in the school or reached the decision makers. In many countries the flow of information is only one way from school, to the national level (Moses, 2006). Head teachers have little use of the data largely because they do not receive feedback after data is analyzed (Chapman, 1991a).

A study in Ghana revealed that one of the significant problems with the process of data collection was related to the completion of census forms by head teachers. They did not see the benefits of completing the forms or how they could use the information contained

in the forms. This led to delays in collecting the census forms from the schools (Tucano pp14-15, 2006).

Ministry of Education Kenya, (2005), noted that the capturing, processing and analyzing of data is highly centralized at the headquarters. With expanded education, duplication, and large volume of data, as well as, limited capacity, the processing and analyzing of data are substantially delayed and / or never carried out. This leads to adhoc decision making, planning and resource allocation. This report was the basis of decentralization of EMIS to districts .The onus of EMIS is to support the integration of School development planning, financing and empowerment in decision making. The EMIS system at the ministry headquarters in Kenya targets all institutions at all levels. It is a purpose built system designed to capture core statistics on enrollment, staffing profile, physical facilities and school governance structures among others. Instruments are designed to collect the data and distribute to institutions. At the school level the head teacher is responsible for completing the data return forms accurately and submitting to EMIS unit at the district. This study seeks to establish the challenges faced by education administrators in data management in Thika west District of Kiambu County.

2.7 Trends and gaps

From the foregoing literature, studies previously conducted identified several factors that hinder the application of EMIS in Kenya and other parts of the world. The main factors include limited access to modern computing and communication technology, inadequate skilled personnel and poor perception on data management by education administrators. In the recent past the Ministry of Education has had initiatives to equip all District EMIS

units with computers. However, due to creation of new districts this is yet to be achieved. The ministry has also supplied computers to a few schools for teaching/learning purposes that can also be used in data management for administrative purposes. There are a few studies on EMIS in Kenya focusing on secondary schools but they mainly address the use of Information Communication Technology (ICT) in schools. The available literature is from other countries. The study sought to bridge this gap by focusing on the use of Education Management Information Systems in public secondary schools.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the procedures that were used to conduct the study. It focuses on research design, target population, sample and sampling procedures, research instruments, validity of the instrument, reliability of the instrument, data collection procedures, and data analysis plan.

3.2 Research Design and Locale

The study adopted the descriptive survey design to investigate the factors that impact on the use of EMIS in Thika West district. Descriptive survey designs are used in preliminary and exploratory studies to allow researchers to gather information, summarize, present and interpret for the purpose of clarification (Orodho, 2002). The descriptive survey research design suited the study because it allowed the researcher to study the situation in the schools and district office without manipulating variables.

The study was conducted in Thika West district. It focused on public secondary schools and the district education EMIS unit. The district is located in Kiambu County with its headquarters in Thika town that lies about forty kilometers North East of Nairobi city. The area was chosen because it was listed among districts with a low completion rate of EMIS data returns to the Ministry of Education in the year 2009.

3.3 Population

Orodho (2002) defines population as any group of individuals who have one or more common characteristics that are of interest to the researcher and the sample population as the small portion of the population selected for observation and analysis. The study targeted officers in district education office involved in data management, head teachers and heads of departments from public secondary schools in Thika West district as they are responsible for data management. There are 16 public secondary schools in the district.

3.4 Sampling technique and sample size determination

According to Gay (1992), a minimum sample of 20% of the target population is considered adequate for research in social sciences. The researcher sampled 10 schools out of the targeted 16, which translates to 62.5% of the target population in line with Gay's recommendation. Stratified random sampling was used to select 10 schools. The schools were further subdivided into three mutually exclusive strata; national, provincial and district. Random samples were drawn from each stratum and sub samples joined to form the stratified sample. To determine the sample size from each stratum proportional allocation method was used. Out of the 16 school in the district 25 % are national, 18.75% provincial and 56.25% district. The final sample comprised of 3 national, 2 provincial and 5 district schools.

From each of the sampled 10 schools, the head teachers and four heads of department drawn from the common established departments in national, provincial and district schools; Mathematics, Sciences, Languages and Humanities were selected using

purposive sampling. In addition, the researcher selected four officers in the district education office who were in charge of handling data from schools. Therefore, the study sample comprised of 10 principals, 40 heads of departments, and 4 officers from the district education office who manage data from schools.

3.5 Research Instruments

The study used self-administered questionnaires to collect data. . The questionnaires were used for data collection because as observed by Gay (1992), questionnaires give respondents freedom to express their views or opinion and also to make suggestions. It is also anonymous. Anonymity helps to produce more candid answers than is possible in an interview.

There were three sets of questionnaires; for head teachers, heads of departments and for officers in the district education office. The three sets of questionnaires collected information on; computer literacy levels based on activities respondents could perform using computers; methods frequently used to manage data; perception on use of computers, the sponsor(s) of training and availability of infrastructure to support EMIS. Questionnaires were developed such that they enhanced collection of quality data based on the objectives of the study. The study employed structured and unstructured items that were closed, open ended and matrix to collect data in district education offices and schools on the status of EMIS.

Validity and Reliability of Instruments

Validity

Mugenda and Mugenda (1999), defines validity as the accuracy and meaningfulness of inferences which are based on the research results. In other word, validity is the degree to which results obtained from the analysis of the data actually represent the phenomena under study. According to Borg and Gall (1989), validity of an instrument is improved through expert judgment. As such three competent researchers in the area of EMIS were requested to review the relevance of the questionnaires developed and give feedback. The recommendations made were incorporated in the final questionnaires.

Reliability

Orodho (2009), states that reliability of an instrument is the consistency in producing a reliable result. It focuses on the degree to which empirical indicators are consistent across two or more attempts to measure the theoretical concept. To enhance reliability of the instruments, a pilot study was conducted in four schools in the district that were not covered in the final study. Four schools constituted over 10% of the project sample which is adequate according to Treece and Treece, (1982).

The completed questionnaires of the pilot were manually analyzed and administered to the same group twice within a space of two weeks and responses analyzed. A comparison between the score of the entire first test and the second for each of the respondents in the pilot study was made.

The Pearson Correlation Co-efficient (r) was calculated between the scores of the two tests to establish the extent to which the content of the questionnaire were consistent in eliciting the same responses. (r) was about 0.8 thus , the instrument was considered reliable enough for the study. The purpose of the pre-testing was to assess the clarity of the questionnaire items so that those found to be inadequate or vague were discarded and others modified to improve the quality of the research instrument.

3.6 Data Collection Techniques

Authority to conduct the research was sought from the National Council of Science and Technology. Thereafter, the office of the District Education Officer, Thika west was contacted before data collection. The selected schools were visited and the principals notified of the goal of the study. After this, the researcher administered the questionnaires to each head teacher and four heads of departments in each of the sampled public secondary schools. The respondents were assured that strict confidentiality would be maintained in dealing with their responses. The researcher was available to make clarifications in case of any queries. The completed questionnaires were collected by the researcher on the same day.

3.7 Data Analysis

After data was collected, data cleaning was done to determine inaccurate, incomplete, or unreasonable data. After cleaning, the data was coded and entered in a computer for analysis. Data analysis procedures employed were both quantitative and qualitative. Quantitative data was analysed using descriptive statistics such as frequency, percentage, and measures of central tendency. Quantitative data analysis required the use of a

computer spreadsheet, and for this reason the Statistical Package for Social Sciences (SPSS) was used. Qualitative data was analyzed using content analysis based on theme emanating from responses and comparisons made. The techniques used to present data included descriptive methods such as frequency distribution and proportion trends.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter covers general and demographic data, analysis of data and findings of the study. The general objective of the study was to find out the factors that impact on the use of Education Management Information Systems in Thika West District. Kiambu, County.

The research questions that guided the study were:

- i) What is the education administrator's capacity to process data using EMIS in the school and in the district education office?
- ii) How do the education administrators in schools and the district education office perceive the use of EMIS?
- iii) What infrastructure is available to support administrators in data management in public secondary schools and the district education office in Thika West district?
- iv) What role does the Ministry of Education play to facilitate data management using EMIS in public Secondary schools and the district education office in Thika West district?
- v) What are the main challenges faced by education administrators in data management at both the school and district level?

4.2 General and Demographic Data

The findings are organized according to the research questions of the study.

Three different questionnaires were used in collection of data. These were; for district education officer (4), public secondary school head teachers (10) and heads of

departments (40) making a total of 54 questionnaires. All the district education officers questionnaire were returned duly filled, that is 100%, out of 10 administered to head teachers 9 were returned, while out of the 40 administered to heads of departments 36(90%) were returned. Out of the 54 questionnaires administered 49 were returned duly filled forming 90.7% percent return rate.

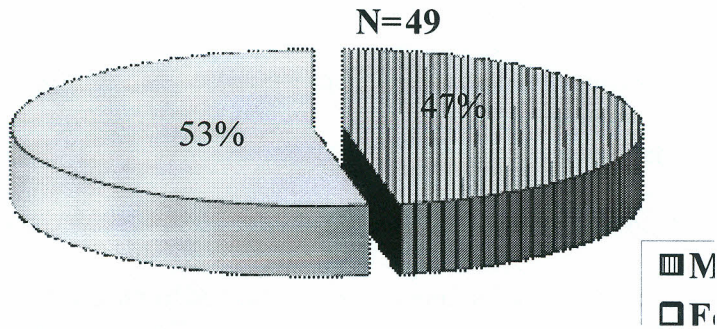
There was a problem of respondents agreeing to fill the questionnaires citing the reason of being overwhelmed by researchers due to proximity of universities and also the fact that the do not get feedback on findings.

The data presented in this chapter was processed using Statistical Package for Social Scientists (SPSS). Responses were received from 54 respondents using self administered questionnaires. The techniques used include descriptive method such as frequency distribution and proportion trends. Demographic and other general information about respondents who participated in the study are presented followed by factors impacting on the use of Education Management Information Systems.

4.2.1 Demographic Data

Presented in this section are findings on the details of the respondents by gender. The researcher sought to establish the gender of respondents. Figure 4.1 shows that most of the sampled respondents who participated in the study were female represented by 53% while male respondents were 47%. This implies that there was gender parity in administrative posts in public secondary school in Thika West district, Kiambu County as shown in figure 4.1

Figure 4.1: Gender of respondents



The study covered 2 national, 2 provincial and 6 district schools out of 16 schools in the district.

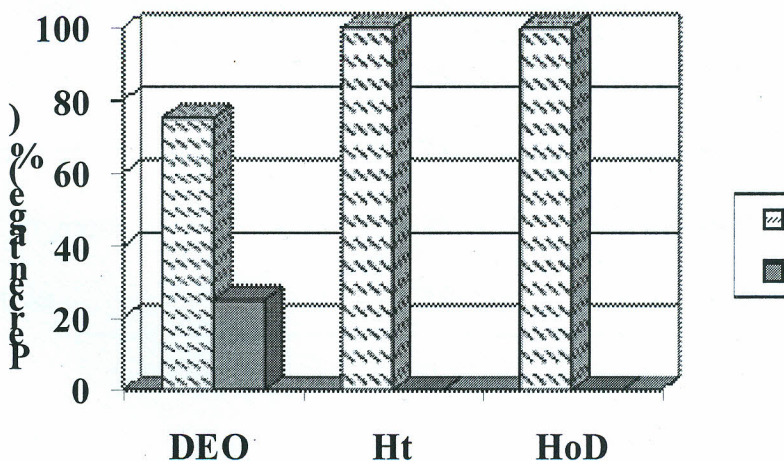
4.3 Findings

4.3.1 Skills and Competencies in Data Management

The first objective of the study was to assess the existing level of skills and competencies in data management of education administrators in Thika West District, Kiambu County. To address this, it was crucial to find out if the respondents were computer literate. The responses are tabulated in figure 4.2.

Figure 4.2: Computer Literacy of Respondents

DEO N=4 Head teachers N=9 HoDS N=36



The findings revealed that over 70% of the respondents were computer literate. Of the respondents at the District Education Office 3 (75%) indicated that they were computer literate and all the head teachers and heads of departments respondents 9 (100%) and 36 (100%) respectively indicated that they were computer literate. The small percentage of 25% of those who indicated that they were illiterate could be due to lack of computers at the district education offices as it corresponds with 25% of the respondents who indicated that they did not have computers as shown in table 4.4 or it could be due to lack of personal initiative to train. The fact that all the head teachers and heads of departments in the area of study were computer literate would be expected to encourage the use of computers in data management. To find out the level of computer literacy, the respondents were further asked to identify from a given list, the activities that they were able to perform using computers. The responses are presented in table 4.1.

Table 4.1: Computer Literacy Level of Education Administrators

Activities	DEO N=4		Head teacher N=9		HoDs N=36	
	Frequency	%	Frequency	%	Frequency	%
Use spread sheet	1	25	1	11.1	12	33.3
Draw graphs	1	25	1	11.1	9	25
Type words	3	75	9	100	36	100
Use internet	3	75	9	100	36	100
Open programs	1	25	5	55.5	28	77.7
Run disks	1	25	4	44.4	24	66.6

Table 4.1 shows that over 70% of the respondents had basic computer skills; Typing words and use of internet could be performed by the highest number 3 (75%) among the officers in the District Education Office, 100% of the head teachers and HoDs respectively. The use of spread sheet and drawing graphs was the activity that the smallest percentage of respondents could perform compared to other activities. Only 25% of the officers in the DEOs office, 33.3 % of the HoDs and 11.1 % of the head teachers could perform the two activities. Though 100% of the head teachers and HoDs were computer literate and 75% of the officers in the District Education Office, they had very low competency in data management as indicated by the low percentages of those with the ability to use spread sheets and draw graphs This means that majority of the administrators had inadequate skills that would encourage the use of computers to manage data. The findings are consistent with those of Adebayo (2013), on an assessment of computer skills among teachers where he found out that though majority were computer literate, only 50% were able to use spread sheet in data management in Nigeria. Ben Theng Lau (2009) found that computer literacy was related to frequency use of word processing that was 71%, emailing 41% and spread sheet 39% among secondary school teachers in Malaysia. The findings show that Kenya is slightly lagging behind Malaysia and Nigeria in terms of computer competency.

The respondents were further asked to indicate if they possessed skills in data collection and report writing. All the officers in the district education office responded to the question and indicated that they possessed both data collection and report writing skills. Similarly seven head teachers (77.7%) and thirty HODs (83.3%) who responded to this question had both skills. The finding show that the possession of the two skill correlate

and that majority of the education administrators possessed data collection and report writing skills. The possession of the two skills if complemented with data analysis skills using computers would greatly improve data management.

The respondents were asked to state the methods that were frequently used in their institutions to manage data and the responses are presented in figure 4.3

Figure 4.3: Methods used to Manage Data in Schools and DEOs Office

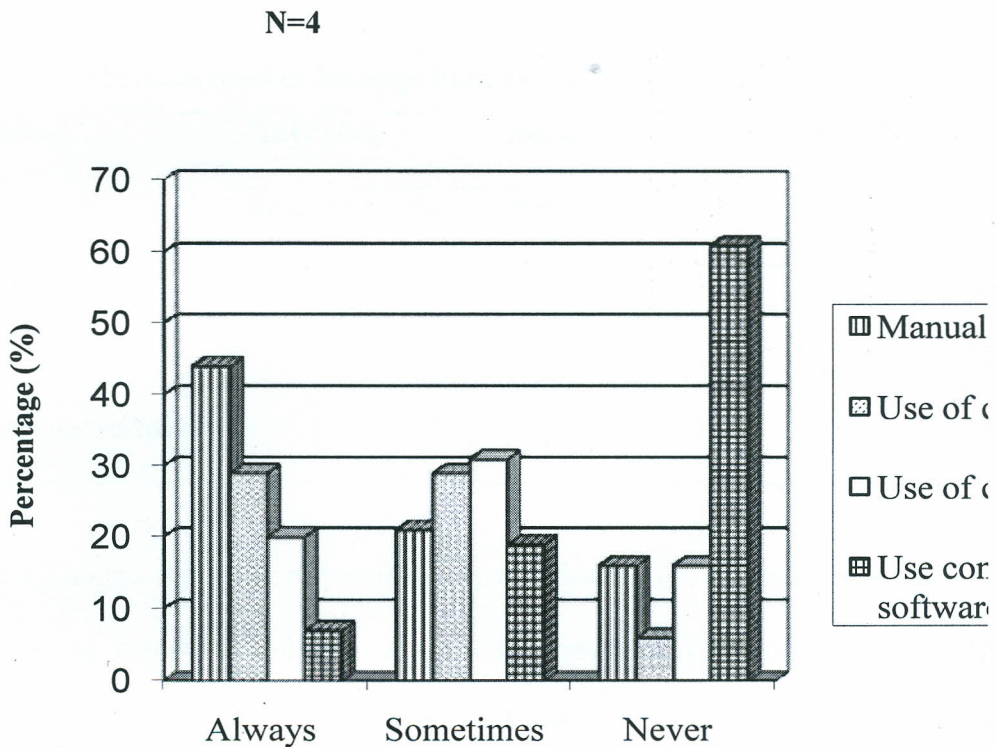


Figure 4.3: shows that 61% of the respondents indicated that their institutions never used computer software and 44% always used manual method to manage data. 29% indicated calculators were always used to manage data compared to only 6% indicated never. There was low use of computers in data management as only 20% of the respondents indicated

that, computers. This implies low levels of computer literacy and limited use of computers in data management. The limited use of computer software agrees with the findings of Visvanath (2011), in a study carried out in South Africa that showed many educators though computer literate did not use computer software that was installed in the computers.

The researcher further sought to find out the methods the respondents personally used to manage data and the responses are presented in Table 4.2:

Table 4.2: Methods used to Manage Data by respondents

Method	DEO N=4		Head teachers N=9		HoDs N=36	
	frequency	%	frequency	%	Frequency	%
Manual	3	75	3	33.3	18	50
Computer	3	75	6	66.6	19	52.7
Computer software	1	50	2	22.2	5	13.8

Table 4.2 shows that most respondents manage data by use of computers and manually and few use computer software. Seventy five percent of the officers at the District Education Officer, 6(66.66%) of the head teachers and 19 (52.7%) of Heads of Departments used computers compared to (1)50% (2) 22.2% 5(13.8%) respectively using computer software. This could mean that there are a limited number of education administrators with advanced skills and competencies to use computers in data management and this would lower effectiveness of data. This could also imply that processing of data could be time consuming and scrutiny of accuracy limited. The

findings agree with those of (Adebayo, 2013) where only a small percentage of teachers used computer software in Ota Ogun, Nigeria. From the findings it can be concluded that the use of computers and computer software for data management was limited in the sampled institutions of Thika West district, Kiambu County.

4.3.2 Perception of Education Administrators on the Use of EMIS

The second objective of the study was to assess the perception of education administrators on the use of EMIS. The respondents were asked to indicate from a given set of statements what they held to be true about the use of computers. Their responses are tabulated in table 4.3

Table 4.3: Perception of Education Administrators on the Use of EMIS

Statement	DEO N=4		Head teachers N=9		HoDs N=36	
	Frequency	%	Frequency	%	Frequency	%
Easy to store	4	100	7	77.7	36	100
Easy to retrieve	4	100	7	77.7	36	100
Tedious to use	0	0	2	22.2	8	22.2
Takes too long	2	50	1	11.1	3	8.33
Difficult to maintain	1	25	1	11.1	8	22.2
Harmful to eyes	2	50	4	44.4	16	44.4

Table 4.3 shows that the respondents had multiple responses. The highest number of respondents agreed with the statements that it was easy to store and retrieve data using computers as was indicated by all the HoDs 36 (100 %) , 7 (77.7%) head teachers and 4(100%) of the officers in the district. All the officers in the District Education Office, 4 (100%) said it takes a long time to enter data in a computer and 2(50%) responded that computers are harmful to eyes compared to 7 (77.7) of the Head teachers who indicated that it is easy to store and retrieve data, and (44.4%) it is harmful to eyes. Whereas 44.4% of the head teachers and HoDs, said it was harmful to the eyes, only 11% and 22.2% respectively indicated it was tedious to use and difficult to maintain. In general the respondents broadly agreed that it is easy to store and retrieve data using computers. This implies that the majority of respondents perceived the use of computers positively as over 77 % of respondents in the three categories perceived it is easy to store and retrieve data using computers. This is in agreement with Adebayo (2011), who found that school teachers were positive about the value of ICT in supporting administration but the actual use was quite, low. From the findings it is observed that perceptions of education administrators do not limit the use of EMIS in Thika West district.

4.3.3 Availability of Infrastructure to Support EMIS

The researcher sought to assess the availability and use of infrastructure to support EMIS in Thika West District, Kiambu County. The respondents were asked to choose from a list, the facilities that were available in their respective institutions. The responses are presented in table 4.4 and figure 4.4, table 4.5 and 4.6.

Table 4.4: Availability of Computers to Officers in the District Education office and Head teachers

Response	DEO N N=4		Head teachers N=9	
	Frequency	%	Frequency	%
Yes	3	75	9	100
No	1	25	0	0
Total	4	100	9	100

Table 4.4 shows varied responses among the three categories of respondents. 3 (75%) of officers in the District Education Office had functional computers for their use and all the head teachers 9 (100%) had functional computers. This implies that availability of computers among the two categories was sufficient. Availability of computers to the HoDs is presented in figure 4.4

Figure 4.4: Availability of Functional Computers to Heads of Department

N=36

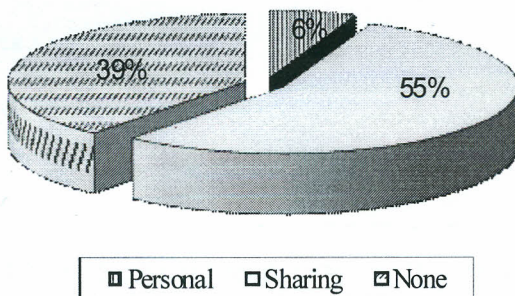


Figure 4.4 shows that 55% of HoDs shared the available computers, 39% had no computers while only 6% had personal computers. Sharing of computers among the HoDs implies that there could be a time lag in data processing as it is likely that they wait to use computers in turns. It can be concluded that limited access to computers among HoDs could have an effect on the efficiency of data management as they are the primary source of school data. The researcher further sought to find out the availability of other infrastructure apart from computers to support EMIS. The responses are tabulated in table 4.5

Table 4.5: Facilities Available to Support EMIS in the District Education Office

Facility	Number Available	Functional
Networked computers	3	Yes
EMIS room/unit	1	Yes
Electricity	-	Yes
Access to Email	-	Yes
Telephone (land line)	1	Yes
Fax line	1	Yes
Postal address	1	Yes
Filing cabinets	8	Yes
Others (specify)	-	-

From table 4.5 it is evident that most of the officers in the district education office responses indicate that basic infrastructure facilities were available. This means that availability of facilities is not a limiting factor to the use of EMIS but, as earlier stated skills and competencies could be a limiting factor at the district education office. The situation in public secondary schools is presented in table 4.6

Table 4.6: Facilities Available to Support EMIS in Schools

Facility	Number with facility		Number with functional facility	
	N=9	%		%
Computers	6	66.6	5	55.5
Networked computers	2	22.22	2	22.2
EMIS room/unit	5	55.5	4	44.4
Electricity	6	66.6	6	66.6
Access to Email	4	44.4	3	33.3
Telephone (land line)	6	66.6	4	44.4
Fax line	1	11.1	1	11.1
Postal address	9	100	9	100
Filing cabinets	9	100	9	100
Others (specify)	-		-	

Table (4.6) reveals that all the 9 (100%) schools had filing cabinets and postal box addresses 44.4% had access to email, 55.5% had a computer room, (66.6%) had computers and a Telephone (land line) and had electricity. Availability of electricity is a fundamental requirement to ensure maintenance of Information Communication Technology equipment. A small percentage had a Fax line (11.1%) followed by 22.2% with networked computers. The low percentage of schools with a Fax line, Email and networked computers could impact negatively on the speed of flow of data from schools to the district education office and the Ministry of Education headquarters for policy formulation and planning. The lack of networked computers in schools was also highlighted by Kiptalam and Rodrigues, (2010) in a case study on internet utilization in

secondary schools in Kenya. The study further found out that schools with access to the Internet for more than 40 hours in a month were 82% while another 18% reported less than 20 hours in a month of Internet access and this was attributed to non-networked computers in the school laboratories. The findings of the study also agree with those of Kinuthia (2009), which indicated that only 65% of secondary schools were connected to electricity and only 15% had access to internet .This also agree with the findings of Kenya School Net (2009), from a study done in 69 secondary schools where it was found that only 46 percent of the sampled schools had computers, with availability of Internet and facsimile rare in these schools. The findings also indicated that email was yet to be recognized as a tool for collaboration among students and teachers. Only one school had a website while another two reported having networked all their computers to the Internet. It went on to affirm that in these schools, access to the Internet was severely limited and that only a third of schools studied had dedicated computer laboratories. The findings of this study however, contradict Visvanath (2012) whose findings showed that 63 % of schools in South Africa have access to internet and 97.3% have computer laboratories provided by the state.

The findings of this study imply that facilities to support EMIS in schools are not adequate and this could hamper data management. The few schools with access to Email, Fax line and Networked computers imply limited levels of data sharing and possibly delay in transmission between schools and the district education office in Thika West district as these are faster than mail box. To improve data management there is need to step up the provision of basic facilities such as electricity which according to this study in

Thika West district was only available in 66.5% of the schools and provision of networked computers to facilitate data sharing and transmission.

4.3.4 The Role of the Ministry of Education in Facilitating Data Management

The respondents were asked to indicate the provider of the computer they used and their responses as shown on the table 4.7:

Table 4.7: Providers of Computers

Provider	Officers in District Education Office		Head teachers		Heads of Departments	
	Frequency	%	Frequency	%	Frequency	%
MoE	1	25	2	22	6	17
NGO	0	0	1	11	1	3
Religious org.	0	0	0	0	1	3
PTA	0	0	4	45	9	25
Other`s	2	50	2	22	7	19
No response	1	25	0	0	12	33
Total	4	100	9	100	36	100

The findings as shown in table 4.7 reveal that, 2(50%) officers in the Thika West District Education Office were provided with computers from sources other than the listed ones but they did not specify those sources, 1 (25%) were provided for by the Ministry of Education while 1(25%) did not respond. Among the head teachers 4 (45%), had computers provided by PTA, MoE provided 2 (22%), NGOs 1 (11%) and none was

provided by religious organization. The highest number of HoDs 12 (33%) gave no response followed by 9 (25%) who indicated that their computers had been provided by PTA and 6 (17%) by MoE. Religious organization and NGOs had provided the least 1 (3%) each. It was expected that the Ministry of Education would be the main provider of infrastructure to the District Education Office but, findings showed that (50%) got computers from other sources. MoE provided 25% and another 25% did not have computers. In secondary schools 45% of the head teachers and 25% of HoDs had computers provided by PTA with MoE providing to only 22% head teachers and 17% HoDs. The non response by 33% of the HoDs means no computers were assigned for their use. The minimal role played by MoE implies low emphasis on the importance of data management in educational administration and planning. This study finding implies that the Ministry of Education has not provided adequate computers to education managers in Thika West district. The findings agree with those of Mussarat (2011) in Karachi public schools where it was found that only 66% of the schools had been provided with computers by the state.

The respondents were further asked to indicate who met the cost of maintaining computers and responses are tabulated in figure 4.5

Table 4.8: Showing those who meet the maintenance cost

Responses	DEO		Headteacher		HoD	
	Frequency	%	Frequency	%	Frequency	%
MOE	3	75	2	22	1	3
NGO	0	0	0	0	0	0
Religious org.	0	0	0	0	0	0
PTA	0	0	5	56	16	44
Others	0	0	2	22	7	20
No response	1	25	0	0	12	33
Total	4	100	9	100	36	100

Table 4.8 shows that 75% of the respondents in the district education office indicated that the maintenance costs of computers were met by the MoE while 25% gave no response. Majority of the head teachers (56%) stated that the maintenance costs were met by the PTA. Compared to 44% of the HoDs while the least (3%) said they were met by MoE. The responses on who meets the cost of maintenance imply that MoE mainly targets the District Education Office and its role is minimal in secondary schools. The findings agree with those of Mussarat (2011) in Karachi public schools where no proper arrangements for computer maintenance were made and for the schools that had been provided with computers. Unachukwu (2010) attributed the failure of the state of Alambra, Nigeria to provide technical support was a key factor to adoption in the use of ICT in administration by school principals. For efficient data management it is crucial

that MoE provides support to schools to maintain computers to avoid loss of data from this primary source that is needed of for planning.

In the area of training, the respondents were asked to select from a given list the sponsors of their training in the use of computers. The findings are represented in the table 4.8

Table 4.9: Sponsors in Computer Training

Sponsor	Frequency	%
MOE	4	8
NGO	1	2
CBO	0	0
Personal initiative	38	77.6
No response	6	12
Total	49	100

Table 4.9 reveals that the highest number 38 (77.6%) of trained respondents was through personal initiative followed by those who gave no response 6 (12%). NGOs sponsored 1 (2%) Ministry of Education 4(2%) and Community Based Organisations sponsored none. This implies that MoE initiative to build the capacity of administrators to embrace ICT and apply it in data management has not reached all administrators in Thika West district. This could explain the low competencies in computer literacy that was limited to typing of words for the majority of respondents, as earlier found out. The high percentage (77.6%) of those who sponsored their own training means that the education administrators could have seen the benefits of being computer literate hence, the personal initiative to acquire basic skills probably for personal social communication. The

findings of this study contrasts those of Unachukwu (2010),in Nigeria where the findings revealed that principals were trained by the state to use ICT in school management but, it did not provide adequate resources.

4.3.5 Challenges Faced by Education Administrators in Data Management

The fifth objective sought to find out the challenges faced by education administrators in using EMIS in Thika West District, Kiambu County. The responses varied among the three categories of administrators as presented in figure 4.5 and table 4.9

Figure 4.5: Challenges facing District Education Office

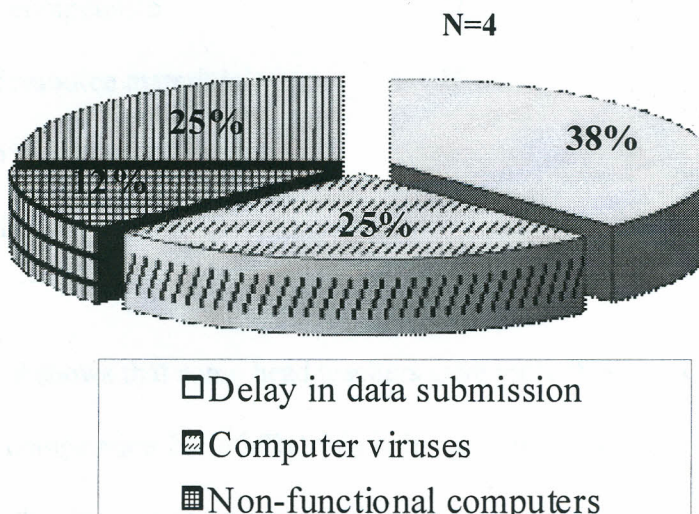


Figure 4.6 illustrates that the major challenge faced in using EMIS by officers in the District Education Office was delay in submission of data from schools represented by 38% followed by computer viruses 25% and inadequate co-ordination in data management represented by 3 (25%) while the least challenge listed was non-functional computers represented by 1 (12%). The delay in data submission from schools could lead to delay in transmission to MoE headquarters as earlier speculated. The delay could be

attributed to manual data processing and/or the delivery methods used as was depicted in the section on infrastructure available to support EMIS which showed that fast methods of data delivery such as access to Email, was available in only 33.3%, of the schools covered in the study and a Fax line in 11.1%.

Table 4.10: Challenges faced by head teachers and HoDs

Challenges	Frequency N=45	%
Computer viruses	9	20.0
Time constraints	15	33.3
Lack of competence	21	46.7
Lack of resource materials	16	35.6
Late arrival of data forms from DEO offices	3	6.7

Table 4.9 shows that some head teachers gave more than one challenge, the leading being lack of competence 21 (46.7%) this is in agreement with the findings of Menjo and Boit (2010) that lack of computer training for teachers and administrators in schools was a major drawback where only 31% of the respondents possessed some form of computer training and 60% of the staff who had not used computers cited their biggest obstacle as inability to use ICT for administrative purposes save for word processing. The second challenge cited was lack of resource materials by 16 (35.6%), time constraints and computers viruses had 15 (33.3%) and 9 (20%) respectively. The least challenge was late arrival of forms from DEO offices represented by 3 (6.7%). These findings imply that

there is need to upgrade the competencies among head teachers and HoDs through training and to provide resources for efficient data management. The Lack of competence in computer use impinge on data management and could influence the timely submission of data from schools to the district office and by extension to MoE headquarters as was contemplated at the conception stage of this study. Computer viruses and poor coordination were also cited as challenges represented by 25% in each case as evidenced in figure 4.5 implying poor maintenance of computers. It is important to note that while the officers in the District Education Office cited delay in submission of data from schools as the main challenge, head teachers and HoDs cited lack of competence as the main challenge. The findings agree with those of Odera (2011) in which teachers in Nyanza region cited their main challenge to effective use of computers as lack of skills and confidence and confirm those of Menjo& Boit (2010) that identified lack of appropriate computer training as the major drawback to the use of ICT in administration.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter covers summary of the study key findings, conclusion of the study, recommendations and suggestions for further studies.

5.2 Summary of the Study Findings

Skills of Education Administrators to Process Data

The study established that all the head teachers in the area of study were computer literate. Most of the officers in the district education office were also literate only, a small percentage (25%) were illiterate. Computer literacy level was however low as majority could only type words and use the internet and, very few were able to use spreadsheet. This means information being communicated from the concerned departments and agencies could be delayed, inaccurate and even incomplete due to low competencies.

The study found out that most of the officers in the district education office, head teachers and HoDs managed data by use of computers but, use of computer software was negligible perhaps due to low computer literacy levels.

Perception of Education Administrators on the use of EMIS

Findings from the study revealed that the respondents had positive perception toward the use of computers as all of them indicated that it is easy to store and retrieve data using the computer. However, due to lack advanced skills and knowledge in the use of computers, a few perceived the use of computers to be time consuming , difficult to maintain and harmful to the eyes.

Availability of Infrastructure/Facilities to Support EMIS

The study found out that, there were inadequate functional computers especially to officers in the district education office and HoDs in schools. Over a half of the HoDs in the area of study, shared the available functional computers. This means that there was time wastage while waiting to use a computer. In some schools there were no computers for HoDs and data was manually managed which could lead to delay in submission to the head teachers office and the DEOs and therefore to the Ministry of Education.

Role Played by MoE in Facilitating Data Management

The study findings revealed that the Ministry of Education had played an insignificant role in providing computers to support EMIS in the district of study. In schools most of the computers used are provided and maintained by PTAs. The ministry had sponsored training of Head teachers only in the use of computer. This implies that the ministry needs to increase investment in the provision of computers and training to realize efficiency in data management that is crucial to inform education policy formulation and planning

Challenges Faced by Education Administrators in EMIS.

From the study it is apparent that there are several challenges facing education administrators in the use of EMIS. The main challenge identified was low level of skills and competencies in computer use. Delay in data submission from schools to the District Education Office was another major challenge, implying delay in communication between the district education offices and schools. Other challenges stated were, computer viruses and inadequate resource materials that are used with computers.

The study participants suggested that the Ministry of Education should provide adequate computers and in-service training on data management to all administrators.

5.3 Conclusion

Based on the findings of the study, it could be concluded that computer literacy levels were low for the majority of education administrators. They were able to type words and use the internet. However, inadequate skills and knowledge could have limited the use of computers in data management. A few were able to use spreadsheet which is currently considered as best for management of data.

The study also concluded that respondents had positive perception towards the use of computers, as 100 per cent of the school administrators indicated that it is easy to store and retrieve data using the computer.

The study further concludes that infrastructure to support EMIS such as computers, electricity and laboratories are inadequate and in-service training of education administrators on EMIS to ensure efficient data management to inform policy was inadequate.

5.4 Recommendations

5.4.1 Policy Recommendations:

The Ministry of Education should formulate a policy on educational data management

5.4.2 Specific Policy Recommendations

The Ministry of Education should:

- i) Develop a strategy to train and in-service education officers and school administrators to attain the necessary computer proficiency and knowledge to make them competent in data management. This would ensure timely submission of data to MoE for policy formulation.
- ii) Install common computer software to be used in all public secondary schools and district education offices in data management
- iii) Facilitate networking of computers in schools and education offices to enable data sharing and timely submission of information.
- iv) The government through the Ministry of Education should provide computers to all the district education offices to facilitate effective management of information that is crucial in policy formulation.
- v) Facilitate Boards of Management in secondary schools to mobilize communities to provide resources to purchase and maintain computers and computer software.
- vi) Undertake sensitization of education administrators on the importance of EMIS in planning and decision making.

5.4.2 Recommendation for Further Research

The study was restricted to only one Thika West district; therefore the researcher recommends that another study be done covering a wider area for example all education offices and schools in the larger Kiambu County. A study could be done to assess the level of knowledge and perceptions of all teachers in embracing computers as a useful tool in data management. A similar study could be undertaken in primary and secondary schools to find out the relationship or difference on the use of EMIS at both levels.

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APPENDICES

Appendix I

Time Plan and Work Schedule

Year 2012								
Month/activity	February	March	April	May	June	July	August	September
Project Proposal writing								
Corrections								
Data collection								
Data analysis								
Report writing								
Submission of report								

Appendix II
Budget Estimate

A) Cost of Proposal	Activity Proposal	Cost /Amount in Ksh
1	Typing and printing	2,500
2	Photocopying	2,000
3	Binding	500
4	Internet browsing	1,000
5	5 travelling	5,000
	Sub Total	11,000

B) Cost of project	Activity Proposal	Cost /Amount in KSh
1	Data Analysis	9,000
2	Typing and printing	6,000
3	Binding	1,000
4	Contingency	8,000
5	5 travelling	12,000
	Sub Total	21,500
	Grand total	50,000

Appendix III

Letter of Introduction to District Education Officer

Peris Mugo,
Kenyatta University,
P.O Box 43844,
Nairobi.

District Education Officer
Thika West District
P. O. BOX 262
Thika

Dear Sir,

**RE: RESEARCH PROJECT ON EDUCATION MANAGEMENT
INFORMATION SYSTEMS**

I am a post graduate student in Kenyatta University, pursuing a Masters Degree Course in Education management. I intend to undertake a research on Education Management Information Systems in Thika West district education office, and all the public secondary schools. The research will be done in the months of September, 2012.

The purpose of this letter is to request for an authority letter to collect data in the district education office and public secondary schools in Thika west district.

Yours Faithfully,

Peris Mugo

Appendix IV

Questionnaire for District Education Office

This questionnaire is designed for the purpose of study for a master's degree in Education Management.

Responses are absolutely confidential.

SECTION A: GENERAL INFORMATION

Name of the District:

Designation:

Gender: Male Female

SECTION B STATUS OF EMIS

Tick as appropriate in the boxes provided

1. Are you computer literate? Yes [] No []

2. If YES, which of the following activities can you perform?
 - a) Typing words
 - b) Use the internet
 - c) Open more than one programme at a time
 - d) Run a disk
 - e) Draw graphs and charts
 - f) Use spread sheet 4.n

3. Do you possess skills in
 - a) Data collection
 - b) Report writing

4. Which of the methods listed below is used frequently in the office to manage data?

- a) Manual
- b) Computer
- c) Computer software

5. Which of the methods listed below do you personally use to manage data?

Method of data management	Frequency of use		
	Always	Sometimes	never
Manual			
Use of a computer			
Use of computer software			

6. According to you, which of the following is true about computer use in data management?

- a) Easy to store data []
- b) Easy to retrieve data []
- c) Tedious to use []
- d) Takes too long to enter data []
- e) Tiring to use []
- f) Difficult to maintain []
- g) Harmful to the eyes []

7. What infrastructure/ facilities listed below are available and functional to support you in data management?

Facility	Number Available	Functional
Computers		
Networked computers		
EMIS room/unit		
Electricity		
Access to Email		
Telephone (land line)		
Fax line		
Postal address		
Filing cabinets		
Others(specify)		

8. Do you have a functional computer assigned to you? Yes No

9. If your answer above is yes, who provided the computer?

a) Ministry of Education

b) Non Governmental Organisation

c) Religious organization

d) Others (Specify).....

10. Who meets the cost of maintaining the computer (s)?

a) Ministry of Education

b) Non-governmental Organisation

c) Community Based Organisation []

d) Others (Specify)

11. If you are computer literate, who sponsored your training?

(a) Ministry of Education []

(b) A Non-governmental Organisation []

(c) A Community Based Organisation []

(d) Personal initiative []

12. What are some of the causes of delay in submitting data required to the Ministry Education?

.....

13. What are the main challenges that you face in data management?

.....

.....

14. What recommendations would you make to the Ministry of Education to improve the Education Management Information Systems?

.....

.....

THANKS FOR YOUR RESPONSES

Appendix V

Questionnaire for Head Teacher

This questionnaire is designed for the purpose of study for a master's degree in Education Management.

Responses are absolutely confidential.

SECTION A: GENERAL INFORMATION

Name of the school:

Type of school: National/Provincial/district

Gender: Male Female

SECTION B: STATUS OF EDUCATION MANAGEMENT INFORMATION SYSTEMS

Tick as appropriate in the boxes provided

1. Are you computer literate? Yes No

2. If YES, which of the following activities can you perform?

a. Typing words

b. Use the internet

c. Open more than one programme at a time

d. Run a disk

e. Draw graphs and charts

f. Use spread sheet

3. Do you possess skills in?

a) Data collection

b) Report writing

4. Which of the methods listed below is used frequently in the school to manage data?

- a) Manual []
- b) Computer []
- c) Computer software []

5. Which of the methods listed below do you use to manage data?

Method of data management	Frequency of use		
	Always	sometimes	never
Manual			
Use of a computer			
Use of computer soft ware			

6. According to you, which of the following statement is true about computer use in data management?

- a) Easy to store data []
- b) Easy to retrieve data []
- c) Tedious to use []
- d) Takes too long to enter data []
- e) Tiring to use []
- f) Difficult to maintain []
- g) Harmful to the eyes []

7. What infrastructure/facilities listed below are available and functional to support you in data management?

Facility	Available	Functional
Computers		
Networked computers		
Computer room		
Electricity		
Access to Email		
Telephone (land line)		
Fax line		
Postal address		
Filing cabinets		
Others(specify)		

8. Do you have a functional computer for your use? Yes [] No []

9. If your answer above is yes, who provided the computer?

a) Ministry of Education

b) Parents Teachers Association

c) A Non Governmental Organisation

d) A Religious organizations

e) Others (Specify)

10. Is the computer well maintained? Yes [] No []

11. Who meets the cost of maintaining the computer?

a) Ministry of Education []

b) A Non-governmental Organisation []

c) A Community Based Organisation []

d) Parents Teachers Association []

e) Others (Specify).....

12. If you are computer literate who sponsored your training?

a) Ministry of Education []

b) A Non-governmental Organisation []

c) A Community Based Organisation []

d) Personal initiative []

13. What are the main causes of delay in submitting data required by District Education Office?

14. What are the main challenges that you face in data management?

15. What recommendations would you make to the Ministry of Education to improve the Education Management Information Systems?

THANKS FOR YOUR RESPONSES

Appendix VI

Questionnaire for School Heads of Department

This questionnaire is designed for the, purpose of study for a master's degree in Education Management.

Responses are absolutely confidential.

SECTION A: GENERAL INFORMATION

Name of school:.....

Type of school National/Provincial/District

Name of department:.....

Gender: Male [] Female []

SECTION B STATUS OF EMIS

Tick as appropriate in the boxes provided

1. Are you computer literate? Yes [] No []

2. If YES, which of the following activities can you perform?

a) Typing words []

b) Use the internet []

c) Open more than one programme at a time []

d) Run a disk []

e) Draw graphs []

f) Use spread sheet []

3. Do you possess skills in

- a) Data collection []
- b) Report writing []

4. Which of the methods listed below is used frequently to manage data in the District

- a) Manual []
- b) Computers []
- c) Computer software []

5. Which of the methods listed below do you use to manage data?

Method of data management	Frequency of use		
	Always	sometimes	Never
Manual			
Use of computer			
Use of computer software			

6. According to you, which of the following is true about computer use in data management?

- a) Easy to store data []
- b) Easy to retrieve data []
- c) Tedious to use []
- d) Takes too long to enter data []
- e) Tiring to use []
- f) Difficult to maintain []
- g) Harmful to the eyes []

7. What infrastructure/ facilities listed below are available and functional to support you in data management?

Facility	Number available	Number functional
Computers		
Networked computers		
Electricity		
Access to Email		
Telephone (land line)		
Fax line		
Postal address		
Filing cabinets		
Others(specify)		

8. Do you have a functional computer assigned for your use?

- a) Personally []
- b) Sharing []
- c) None []

9. If you have a computer who provided?

- a) Ministry of Education []
- b) Parents Teachers Association []
- c) Non Governmental Organisation []
- d) Religious organizations []
- e) Others (specify).....

10. Who meets the cost of computer maintenance?

- a) Ministry of Education []
- b) Self []
- c) The parents []

11. If you are computer literate who sponsored your training?

- a) Ministry of Education []
- b) Non-governmental Organisation []
- c) Community Based Organisation []
- d) Private initiative []
- e) Others (Specify).....

12. What causes can you attribute to the delay in submitting data required from the department to the administration?

.....

13. What are the main challenges that you face in data management?

.....

14. What recommendations would you make to the Ministry of Education to improve data management in the school?.....

.....

THANKS FOR YOUR RESPONSE