

**AN EVALUATION OF SCHOOL MANAGEMENT
INFORMATION SYSTEM:
THE CASE OF BUNGOMA COUNTY IN KENYA**

BY

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DECLARATION

Declaration by the candidate

This thesis is my original work and has not been presented for a degree in any other university. No part of this thesis may be reproduced without the prior written permission of the author and/or University of Eldoret.

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DEDICATION

To my lovely daughters Elizabeth and Noel.

ABSTRACT

This study was motivated by the need to establish the pivotal role of School Management Information Systems (SMIS) in secondary schools in Kenya. Worldwide, SMIS are geared towards assisting principals and teachers in managing core-curriculum by informing their decisions. However, many SMIS in the Kenyan market have failed to play this essential role of filling this information void. This leaves principals and teachers to rely on piece-meal information. This has perpetuated a scenario where lots of data exist, no relevant processing takes place and thus no useful information is extracted from it. In this light, this study examined the effects of SMIS on decision-making process with regard to core-curriculum management. It focused on public secondary schools in Bungoma County in Kenya. The study determined what types of MIS were used in secondary schools. It determined what type of management information these MIS generated. Breiter and Light's Conceptual framework on the process of transforming data into knowledge underpinned this study. This study was a descriptive survey research. A feasibility study was conducted to establish which schools were using SMIS in managing their curriculum. It revealed that 27 secondary schools had timetable management system, results management system and classroom management system. From these 27 schools, 33.3% thus nine schools were randomly selected. Two more schools were randomly selected to participate in the pilot study. Principals of the selected schools were interviewed and were treated as key informants. Thirty percent of teachers in the selected schools completed questionnaires. Descriptive statistical methods were used to analyse data generated by research instruments. The study established that most MIS were purchased from the Kenyan market. It found that electronic sharing of data and information within academic departments in schools was still unattainable for lack of networked systems. Teachers were able to access management information such as students' performance, timetable information and academic performance of classes. However, teachers could not access certain key management information such as information on class attendance of students and teacher performance. Teachers noted that the MIS had influenced positively their curriculum management. Some of the positive impact included: faster generation of information and reduction in the cost of curriculum management. Overall, teachers noted that the MIS was an important tool in curriculum management. They observed that supervision of the core-curriculum had improved with its use. Furthermore, teachers' expressed their satisfaction with the information provided by the MIS. The study concluded that since majority of teachers had access to information that the MIS generated, they were able to make informed decisions based on available information. However, the MIS lacked capability to generate other crucial information that would have enriched decision-making. Lack of networking of MIS compromised the integrity of the stored data. Finally, the study recommended that schools should endeavour to develop their own MIS that are tailored for their specific needs. Schools can achieve this by contracting competent software developers in the area of education. In order to facilitate information sharing among teachers in a school, this study recommended intra-school networking of MIS to interconnect academic departments.

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LIST OF ABBREVIATIONS

ADEA	Association for the Development of Education in Africa
C.E.O.	Chief Executive Officer
COBIT	Control Objectives for Information and Related Technology
CSCL	Computer Supported Collaborative Learning
D.O.S.	Director of Studies
ECA	Economic Commission for Africa
EMIS	Education Management Information System
G.o.K.	Government of Kenya
ICT	Information Communication Technology
IS	Information System
ITEM	Information Technology in Education Management
KESI	Kenya Educational Staff Institute
KICD	Kenya Institute of Curriculum Development
KNEC	Kenya National Examinations Council
MIS	Management Information System
MoE	Ministry of Education, Kenya
MoEST	Ministry of Education, Science and Technology
NACOSTI	National Commission for Science, Technology and Innovation of Kenya
NCLB	No Child Left Behind
NEPAD	National Education Partnership and Development
PASS	Pro Active Software Solutions
SADC	Southern African Development Community

SMIS	School Management Information System
SPSS	Statistical Package for Social Sciences
TPS	Transaction Processing System
UNESCO	United Nations Educational, Scientific and Cultural Organisation
US	United States
YEF	Youth Enterprise Fund

OPERATIONAL DEFINITION OF TERMS

Core-Curriculum - the academic content taught in school. Includes its delivery, testing and grading. This is the formal core-curriculum developed by KICD, evaluated by KNEC and regulated by the MoEST.

Core-curriculum supervision - A continuous process of exercising authority and power through giving instructions, guidance and directions for the purpose of implementing the core-curriculum.

Decision-making- a highly complex individual cognitive process influenced by various environmental factors.

Education Management Information System (EMIS) - An institutional service unit producing, managing, and disseminating educational data and information.

Efficient utilisation of data – is reaping of maximum benefit from data held in a database by availing data and information to authorised users at their request, which facilitates informed decision making.

Formal curriculum - a planned programme of objectives, content, learning experiences, resources and assessment offered by a school.

Information – Processed data that can be interpreted by a human mind and be used in decision-making processes by applying it to the existing context.

Off-the-shelf software - are ready-made computer programs that have been pre-developed by third party software developers and are available for sale to interested buyers.

Raw statistics - are data in unprocessed form. Data that is still in bits as collected in the primary or source documents such as data entered in forms and tables.

Schools – when not specified means secondary schools.

School Management Information Systems - computer software designed to match the structure, management task, instructional processes and special needs of the school

Secondary schools- Secondary Schools funded by the G.o.K.

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CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter discusses the background of School Management Information Systems, statement of the problem and purpose for which this study was conducted. It further discusses the research objectives and research questions that guided this study. In addition, the chapter discusses justification of the study, theoretical framework, scope of the study, limitations of the study and assumptions.

1.1 Background of the study

Information is the basis of management, planning and evaluation of an education system (UNESCO, 2012). The successful management of today's education systems requires effective policy-making and system monitoring. This can be achieved through data and information (Hua & Herstein, 2003). The need for efficiency and effectiveness in school management has led to the adoption of Information Technology (IT) as essential tools for data processing. Schools worldwide are adopting IT in core-curriculum management. By adopting IT, schools expect to manage educational resources and services effectively (ADEA Working Group for Education Management and Policy Support, 2010)

Management Information Systems (MIS) when used in a school setup are commonly referred to as School Management Information Systems (SMIS). When used by schools

and the ministries of education, they are referred to as Education Management Information Systems (EMIS). In the initial stages of their development, the main purpose and usage of SMIS was to improve efficiency of school office activities (Madiha, 2013). That means, initially these systems were simply Transaction Processing Systems (TPS). They were meant to meet the day to day running of school offices.

These MIS were designed to collect and analyse data on the educational system in order to improve planning, resource allocation, monitoring, policy formation and decision-making (UNESCO, 2006). However, as solid information systems, they should not only aim to collect, store data and process information. They should help in the formulation of education policies, their management and their evaluation (UNESCO, 2012).

Whereas many different SMIS exist in the Kenyan market, many are simply TPS. These TPS disguise themselves as SMIS. Such disguised SMIS lack suitable application programs for school management. Apparently, they have not been specifically developed to meet information-processing requirements in secondary schools (Love, 2000). They generate information that has little value and of poor quality for secondary schools' managers.

As noted by Athanne (2012), technical people who are non-professionals in the field of teaching often designed MIS in the education sector. These experts are oblivious of predominant educational policies. Moreover, such MIS were developed with inadequate input from education specialists. In other cases, school MIS had been developed based on process-oriented approach. This approach resulted to data management tools that were scattered in different logical locations with different data files and different

programmes. This made it difficult for a MIS to process information since data existed in piece meals.

In fact, these separate units compromised the integration of data and the MIS system as a whole. It was apparent that fewer MIS systems had been developed on a general perception that features general information and data that existed in schools. Therefore, there was a greater need to determine what kind of management information was generated by these existing SMIS.

Certainly, data that exist in schools can be of meaningful usage. These data can generate information that can be used in assessing the quality of teaching, students' progress, students' and teachers' attendance rate and trend reporting. In this regard, there is need for all relevant data and/or information to be input into the system to be collected, defined, inter-related and integrated in a precise and accurate manner. This would enable schools meet the present and continuous changing demands for data-driven decision-making process.

For an organisation such as a school, to realise the benefits of SMIS, a thorough investigation at the grass root has to be carried out to establish the kind of data that is actually needed. Such an investigation should establish the kind of information that is required by the organisation's management (Valacicy, George, & Hoffer, 2004). Similarly, schools need to carry out grass root studies to determine their information needs.

Data such as student progress, student class attendance, lesson allocation per teacher, syllabus coverage and many others are captured by secondary schools in Kenya. This data reflect information requirements for these institutions. This information serves a major purpose in management of schools. For instance, in core-curriculum management, examination-grading system, subject choices, teacher and student attendance, lesson allocation need to be considered in decision-making processes of schools. This can only be enabled if Information Systems used in schools can capture and process such data through well-defined Management Information Systems.

Unfortunately, not many SMIS have been specifically developed to meet the daily and routine information processing requirements in secondary schools. Madiha (2013) pointed that although every school has its own specific information needs, many schools adopt MIS from outside which have not been developed according to the site-based needs. Such MIS may not meet the requirements of the site-based management. Even those developed lack suitable application programs that are specifically tailored to meet the Kenyan situation. Secondary schools therefore lack Information Technology (IT) processes that deliver the information needs of their respective schools. Consequently, schools lack IT processes to support sound decision-making based on timely, relevant and concise information.

As noted, a successful organisation is built on a solid framework of data and information (COBIT, 2007). Secondary schools, just like organisations, need informative MIS that would add value in the management of curriculum in secondary

schools. When schools lack such systems then it may not be easy to determine the direction in which the core curriculum implementation is heading.

The WorldBank (2013) observed that many researchers have investigated aspects to do with ICT infrastructure but very few are looking at the effect ICT has in supporting policy decisions. This study focused on the management of curriculum at secondary school level. It had special interest in the kind of information generated from school data. It established the effect of this information on decision-making process in core-curriculum management.

1.2 Statement of the problem

Secondary schools collect, compute and store valuable data on curriculum implementation and students' academic progress. To be of any benefit, this valuable data has to be converted into information. The resulting information then is utilised for effective curriculum management and supervisory at school level. However, it has become clear, over time, that utilisation of these data for purposes of curriculum management and informing curriculum related decision-making has been quite difficult. This has led to a scenario where schools have relevant data in their possession, they have SMIS that ideally should convert these data into vital information for effective management of the curriculum, yet stakeholders in education still complain of schools not translating these data into information. Therefore, it is a great concern that SMIS are not accomplishing this conversion.

Apparently, this shortcoming of the SMIS has not gone unnoticed. It was pointed that vast amount of data gathered by schools has not found any good use beyond storage and isolated retrieval (Government of Kenya, 2005). As a result, schools miss opportunities to convert their data into systems that are useful resources for generating the much need accurate information. Which should be at the core of their daily running and decision-making processes. Consequently, schools may be ineffective and unsuccessful in their mission.

As further noted by Mulwa, Kimiti, Kituka & Muema (2011), there is inadequate coverage of the formal curriculum in schools. It results from ineffective core-curriculum supervision and management. A lot of learning time is wasted while school programs are not adhered to. This study sought to establish whether SMIS employed in schools had the ability to generate the much need information for optimum management of core-curriculum in secondary schools. It further sought to establish the types of MIS used and their effects in core-curriculum management functions.

1.3 Purpose of the study

There is great concern over the declining academic standards in Bungoma County. This has been blamed on various causes, among them poor core-curriculum management in schools (AllAfrica, 2014). The purpose of this study was to determine the effect of MIS on core-curriculum management decision-making process. This was with regard to public secondary schools in Bungoma County.

1.4 Research objectives

The objectives of this study were:

- i) To determine the types of management information systems used in secondary schools.
- ii) To determine the kind of management information generated by management information systems in secondary schools.
- iii) To determine the effect of management information systems on curriculum management decisions in secondary schools.
- iv) To determine the extent management information systems meet teachers' expectations in secondary schools.

1.5 Research questions

This study answered the following research questions:

- i) What are the types of MIS used in secondary schools?
- ii) What kind of management information is generated by the MIS systems in secondary schools?
- iii) What effect do the management information systems have on curriculum management decisions in secondary schools?
- iv) To what extent do the management information systems meet teachers' expectations in secondary schools?

1.6 Justification of the study

This study was inspired by Sessional Paper No. 1 of 2005 that noted that educational management would be more effective where an efficient Educational Management Information System provides a smooth flow of information to managers and other stakeholders at all levels of education (Government of Kenya, 2005). Which brings to light the question on the role of SMIS in furnishing school principals with information for effective core-curriculum management. The gravity of ineffective utilisation of school data to generate appropriate information was further observed in the National ICT Strategy in Education and training of 2006.

Both documents pointed that data on school enrolment, facilities, teachers and other related aspects were collected at the district level and sent to the headquarters for analysis thus caused delays in decision making and follow-up actions by both schools and MoEST (Government of Kenya, 2006). This affirmed the problem of existing data in respect to data bank besides managers lacking competence in utilising available information for management purposes (Government of Kenya, 2006). It is in this respect that the SMIS finds its imperative role of converting such existing data into information that school managers can synthesise for decision-making process.

1.7 Significance of the study

The findings of this study brought to light the types of MIS that exist in secondary schools. In addition, the findings assisted in answering the question on whether the School MIS met teachers' expectations in supporting curriculum management functions.

Education managers, policy makers and other stakeholders would consider relevant the findings of this study in planning for development and procurement of proper School MIS. That is, systems which are relevant and specifically tailored for secondary schools' information needs such as decision making on matters regarding the core-curriculum. The findings of the study will play a central role in guiding managers of secondary schools in their choice of management information systems.

Just like in other parts of the world, findings of similar studies have helped to develop actions and policies that govern ICT implementation (Rodriguez-Gomez, Sergi, & Meneses, 2012). The findings complemented the common approach that mainly focused in the learning and teaching process in the classroom. This study will contribute to the recent literature on use of ICT in secondary schools. It broadened this scope of knowledge on the usage of ICT in secondary schools by considering ICT usage from a managerial point. This study further suggested and recommended tangible solutions on what focus MIS in secondary schools should be accorded in order to make MIS powerful tools in curriculum management.

1.8 Theoretical framework

Breiter and Light (2006) introduced a theoretical framework that describes the process of generating knowledge for decision-making in a school environment. The process illustrates how to transform data to knowledge for decision-making in schools. Breiter and Light developed this framework by borrowing from Ackoff's (1986) conceptual framework. Ackoff's conceptual framework was in the field of organization and management theory (Breiter & Light, 2006). The model adapted a simplified conceptual

framework that linked data, information and knowledge. Breiter and Light (2006) explored how schools use information. They focused on the potential of new technologies and new ways of analysis to meet the information needs of educators across different levels of the system.

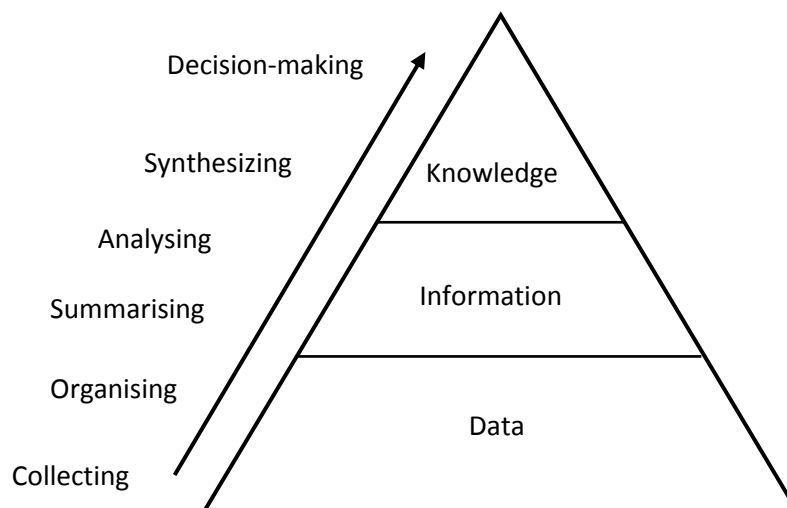


Figure 1.1: The Process Model of Transforming Data into Knowledge

Source: Breiter and Light (2006) pg. 210

The framework has three phases of the continuum that begins with raw data, and ends with meaningful knowledge that is used for decision-making. It is this framework that informed this study. This can be represented as in Figure 1.1. Ackoff (1989) and Drucker (1989) pointed that a person goes through six broad steps to transform data into knowledge (as cited in Breiter & Light, 2006). The process entails collecting and organizing data as the first two steps. The next steps are summarizing and analyzing data. Lastly, synthesizing information prior to acting (making a decision). The sequential process underlies how teachers interact with data.

As illustrated, in phase one; there is data which exist in a raw state (Breiter & Light, 2006). Data in this existence has no meaning in itself. It exists in any form, usable or not. In this phase, data is in the state in which it was captured or recorded. It is in numbers or bits as captured in data collection instruments such as forms and tables. It is isolated from context and is basically meaningless, unless one is familiar with that particular data type.

Breiter and Light (2006) noted that, in this phase, whether or not data became information depended on the understanding of the person looking at the data. Therefore, information derived in this phase is subjective. This first phase predominately dealt with collection and organization of data. It is an important phase in the sense that it ensures gathering of relevant and appropriate data. It determined whether gathered data had the ability to provide the required information. Besides, in this phase the smallest units of data are given description and translations.

This phase ensured that the processes that followed worked on the right format of data. The type of information system mattered a lot at this stage. The system designed highly depended on the intended output. Therefore, collection and organization of data depended on the intended output and the type of IS.

Phase two is information. Information is obtained through summarizing and analyzing of data. The elements existing in forms, tables and observation sheets are turned into information. In this phase, data is given meaning by way of relational connection (Bellinger, Castro, & Mills, 2004). Therefore, data is transformed in order to

comprehend and organize the school environment. Activities in this phase unveil and lead to understanding of the relation between data and context.

This phase alone does not carry any implications for future action. During data summary, facts about a situation are established. To do this, one needs a thorough understanding of purpose for which information will be used. During analysis the context is examined and motives and causes are identified. Analysis of relations between variables such as lesson attendance and performance are generated.

The third phase which is the last phase is knowledge. It involves synthesizing and decision-making. In this phase, information that has been generated in phase two and deemed to be useful is collected and eventually used to guide future actions. Synthesis involves the formulation and production of a plan or a proposal set of operation. It also involves derivation of a set of abstract relations.

In this phase, knowledge is created through a sequential process. Information becomes knowledge when context is applied. For instance, in relation to test information, the teacher's ability to see connections between students' scores on different item-skills analysis and her classroom instruction, then act on them, represents knowledge. Nonaka and Takeuchi (1995) noted that information is a flow of messages and knowledge. However, it is created by that very flow anchored in the beliefs and commitment of its holder. They pointed that essentially, knowledge is related to human action.

Drucker cited in Breiter and Light (2006) claimed that knowledge was information that changed something or somebody - either by becoming grounds for action, or by making

an individual (or an institution) capable of different or more effective action. In this third phase of knowledge there is synthesis and decision making. It entails making judgment based on internal evidence that is demonstrated by earlier phases. It also involves judgment in terms of external criteria.

1.9 Scope of the study

In order to realise the objectives of this study, the researcher operated within a defined scope. The study focused on usage of school MIS in accessing information, analysing data and reporting on core-curriculum matters in secondary schools, in an effort to support curriculum related decisions taken by the schools' principals. It further focused on the extent the MIS met teachers' expectation.

In addition, this study restricted itself to investigating School MIS as a tool in supporting informed decision-making process at secondary school level. The study investigated these variables within the school environment or level. It assessed the MIS from the teacher's point of view.

1.10 Limitations of the study

Reliable information on the use of SMIS is difficult to obtain particularly where the population (thus teachers) under study is inadequately equipped with competent computer skills. Teachers as users of MIS often have challenges in using or implementing computer technology. Since this study relied on information generated by the teachers as users of the SMIS, it was limited to the experience of teachers and their computer literacy level in the use of MIS in secondary schools. The findings of this

study were not generalised to the large population of school managers since the study only focused on public secondary schools.

Delimitations of this study were that the research would have incorporated private secondary schools. Furthermore, to shed more light on the types of MIS in secondary schools it would have been more informative to include software developers of these MIS, as they would have a deeper understanding of what their MIS were capable of achieving. This cushioned the study from overwhelming amounts of data. It would have been possible to investigate the competence level of school managers but other researchers have already carried out such studies. However, these delimitations were necessary in this study due to limited resources on the researcher's part.

1.11 Assumptions of the study

This study assumed the following:

- i) Principals of secondary schools were competent managers and their school decisions were informed by existing MIS.
- ii) Operators of the MIS used most of the features provided in the system to generate required information for the purposes of curriculum management functions and related decision-making processes.
- iii) Schools had qualified staff that was able to process received data into knowledge using existing MIS.
- iv) Respondents were honest in their response to the study question items.

1.12 Chapter Summary

From the discussion above, it was apparent that a problem of monitoring and evaluating core-curriculum implementation process in good time and arriving at timely decisions existed. Timely decisions, feedback and follow-up actions in curriculum management are necessary in order to prevent, guide and rectify situations before they affect the student outcomes adversely. Therefore, secondary schools need sound MIS that facilitated data-driven decision-making.

Researchers in SMIS observe that key priority areas for future research lay in investigation of MIS assistance in effective school management. This study was motivated by such recommendations. It investigated MIS in secondary schools and provided an understanding of these systems. It focused on the use of school MIS systems in management of the curriculum. It established the MIS ability to support decision-making process in curriculum management.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The value of information in a school setup cannot be underscored. Schools strive to acquire MIS with a view of reaping the computing benefit that come with its data processing abilities. This chapter discusses the features of a suitable MIS for schools. It outlines the effects of MIS and its design. Further, it discusses the policy of the G.o.K. pertaining to MIS in education. It also highlights the indicators of quality and standards in assessment and management of curriculum. It pinpoints the challenges faced by schools in implementing School MIS. The chapter explores some of the MIS implemented in several countries in the world and the benchmarks for an efficient management information system. Finally, it reviews a few SMIS systems that are found in Kenya.

2.1 School curriculum

Curriculum refers to the lessons and academic content taught in schools (Great Schools Partnership, 2014) or in a specific course or program (Edglossary, 2015). Wikipedia (2014) defines curriculum as the planned interaction of learners with instructional content, materials, resources and processes for evaluating the attainment of educational objectives. Edglossary (2015) further defines curriculum as the knowledge and skills students are expected to learn including learning objectives and learning standards, they

are expected to meet. Curriculum has components, which include lessons, tests, assessment and assignments for evaluating students' learning process.

Ebert II, Ebert and Bentley (2013) defines curriculum as the means and material with which students will interact for achieving identified educational outcomes. In a secondary school, the curriculum is broken into specific courses called subjects. At any given level, a subject is taught by a specific teacher. Each individual subject has specific learning lessons, objectives, assignments and specific outcomes. A teacher delivering this component of a curriculum can perform independent assessment of the subject to ascertain whether the learner (student) is progressing as desired. In addition, these components form a basis of assessing the performance of teachers and the other shortfalls or successes of the curriculum implementation process.

This study considered curriculum to be the formal core-curriculum; the formal units and lessons that are consciously taught by teachers in secondary schools. In public secondary schools, the Kenya Institute of Curriculum Development (KICD) develops this core-curriculum. Currently, the curriculum in public schools is the 8-4-4 Curriculum. This curriculum entails eight years of primary education, four years of secondary education and four years of university education. Public secondary schools are charged with the responsibility of implementing the 8-4-4 Curriculum developed by KICD. Teachers are expected to organise and plan learning activities with the intention of directly affecting the skills and concepts acquired by their students.

At this phase of implementation, effective core-curriculum management becomes indispensable. This management process demands making of informed decisions that

influence the rate of knowledge acquired by students. Schools, often find themselves generating huge data, thus making the whole process data intensive. Therefore, schools have resorted to using SMIS to enhance speedy processing of these data.

2.2 School Management Information Systems

In today's schools, computerisation of school management is the basic subject of school management (Demir, 2006) citing May (2003). Many principals in secondary schools make use of information systems in daily management of their schools. For management of the core-curriculum, they make use of School Management Information System (SMIS). Telem (1999) defined an SMIS as an information system designed for school management and matches the structure, management tasks, instructional processes and special needs of the school.

An SMIS makes programs more effective, thus making the teaching process and the changes in learning environment professional. It enhances team work and facilitates teachers' exchange of experiences in a more systematic way (Gurr, 2000). It enables teachers to determine academic needs of their students. It is in this respect that this study asked questions on the information sharing and access within the schools' environment. Moreover, a school MIS supports school managers and other staff in doing their duties, developing their performance, effectiveness and efficiencies (Telem & Buvitski, 1995).

Unfortunately, the impact of ICT in assisting school managers to carry out monitoring and evaluation of their systems has not been given much attention by researchers (The

WorldBank, 2013). This has made it difficult for education experts to assess what MIS systems schools use. There exists inadequate evidence to assess the impact of SMIS on schools' formal curriculum management. It remains unclear whether these MIS supported decision-making process in curriculum management.

Evans (2013) urged that the use of IT in education management promotes effective and efficient use of information. He noted that it promoted transparency and accountability as well as promoting the use of decision support systems and promoting educational development. Data and information in the MIS can be shared by other stakeholders in education, such as the MoEST, hence transparency in management. This information can be requested by education planners and policy makers, thus used in developing education at higher levels beyond school.

Demir (2006) observed that SMIS empowers principals of schools to make more efficient decisions by providing accurate and up-to-date information. Demir further indicates that school managers have been required to make more decisions in short times because of the increasing expectations from the educational system. This has made the demand for SMIS as a central tool in management inevitable. Demir notes that the success of schools is based on data based decision making.

Despite the presence of SMIS in schools, education experts still point that schools are not processing data and using it for curriculum management. As noted by Gentry (2005) as cited in Demir (2006), school managers were not able to use data efficiently. It is noteworthy that schools definite their objectives, choose their strategies and formulate their policy decisions based on objective data (UNESCO, 2012). In general, a suitable

School MIS is required to assist school managers make sense of huge data in schools' data banks and apply the information to effectively manage their curriculum delivery processes.

2.3 Types of Management Information Systems in schools

In general, a management information system (MIS) is a system that provides information needed to supervise and direct organizations effectively (Pathak, 2011). Teachers as users of this information are expected to interpret and apply information instead of utilizing raw statistics. A management information system is distinct from a regular information system in that it supports human decision-making needed to carry out management functions. Categories of MIS are based on the organizations that are supported by the MIS in question. Such systems include: Decision Support Systems, Expert systems and Executive Information Systems.

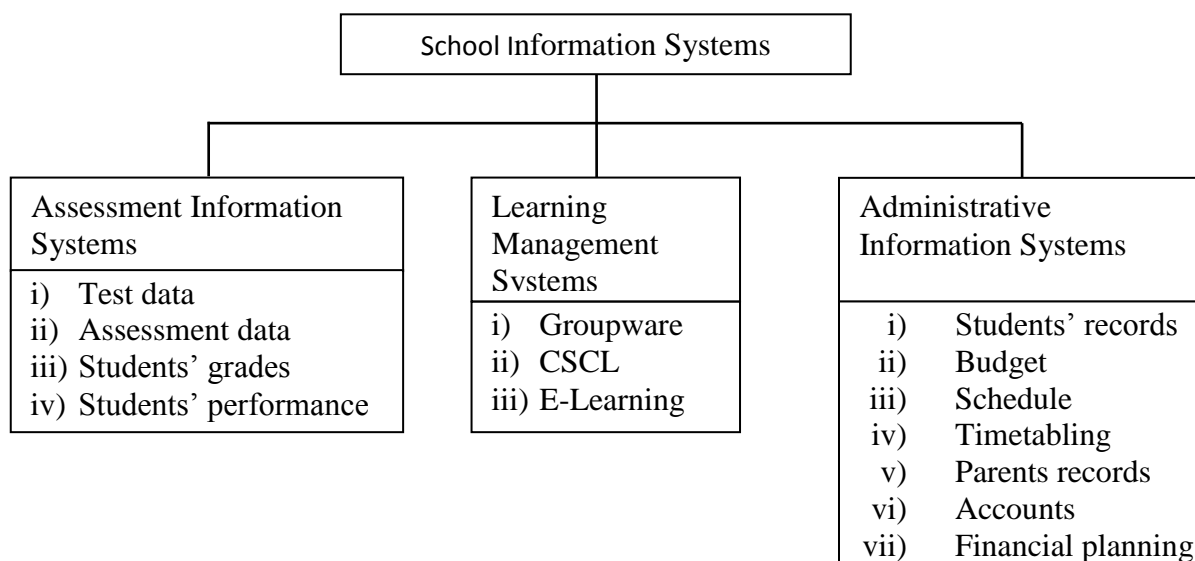


Figure 2.1: Typology of School Information System

Source: Breiter and Light, (2006)

Similarly, as outlined in Figure 2.1, SMIS have subgroups based on what management information they output. Breiter and Light (2006) outline the topology of SMIS based on the types of decisions supported by their subgroups. The three subgroups are administrative information systems, learning management systems and assessment information systems.

In the context of this typology, schools' MIS that are involved in curriculum management are partly Administrative Information Systems and partly Assessment Information System. The relevant systems that were of interest to this study under the mentioned subsystems include students' records, timetabling, test data, assessment data, grades and student performance systems. All these systems are imperative for generating information that is significant and effective for decisions made regarding curriculum management and implementation at school level.

2.4 Management information generated by School Management Information Systems

Education management is a process. During this process, the management information system should inform different actors and partners on the state of the education sector (UNESCO, 2012). It should provide information on internal and external efficiency, its pedagogical and institutional operation, its performance, shortcomings and needs. A school MIS should equip both school and educational managers with reliable management information.

With regard to curriculum management in schools, these systems are meant to provide information which will improve the management of schools' curriculum in all aspects. The systems should be able to lay the foundation for accumulation of knowledge for decision makers and managers of curriculum in schools. SMIS should pay much attention to quality of education in the classroom. They should provide feedback that could be used to develop and improve classroom outcomes.

2.4.1 Using SMIS in quality and standards assessment

Wanzare (2011b) observed that many countries throughout the world have developed some means of monitoring the quality and standards of their education systems. In the same way, the SMIS should monitor these quality and standards. The aim of such monitoring would be to assist curriculum managers to assess the quality of education that is offered in their schools. Standards assessments evaluate the quality of education provision within a school. It focuses on quality teaching, learning and student achievement (Government of Kenya, 2010a).

For SMIS to be effective tools for curriculum management, they should compliment the role of school quality assurance personnel. In this regard, a SMIS designed for curriculum management should evaluate identified areas of standards assessment. This study investigated whether SMIS in secondary schools had the ability to generate essential information in these areas.

In order to make teaching, learning and student achievement effective, the Government of Kenya identified a number of performance indicators. These indicators include; quality of teacher/student interaction, lesson structure, teacher-student ratio, instructional materials, assessment procedures, classroom display, enrolment, progression and completion rates, examination results and student attendance among others (Government of Kenya, 2010a). Therefore, an appropriate SMIS in the Kenyan market today, ought to be loaded with these features.

An SMIS with these performance indicators will definitely point the direction the curriculum implementation is taking. It is therefore expected to reward the school with the same benefits that are derived from supervision practices. Such benefits include facilitating students' academic performance, improving the quality of teachers and teaching. Wanzare (2011a) noted that these practices further enable instructional supervisors to monitor teachers' instructional work.

2.4.2 Factors that make MIS successful

The success of a MIS used in education depends on three factors: the timely and reliable production of data and information, data integration and data sharing among departments and effective use of data and information for educational policy decisions

(Hua & Herstein, 2003). Hua and Herstein noted that development of MIS in education should concentrate on data and information use and institutional behaviour change for modern management. Even without IT, there should be a system or culture of data and information use for management.

Unfortunately, even in countries where educational MIS are available, they are hardly used to guide education policies (UNESCO, 2012). This has made the MIS unsuccessful in achieving their mission. Decision-makers and curriculum managers in schools need clear, comprehensive and easy to interpret information that is accompanied by relevant analyses on which to base their judgement.

For an Educational MIS to be efficient it has to accomplish the following in a timely and reliable fashion (Hua & Herstein, 2003):

- i) Define, collect, and process educational data and statistics; here data that is required by the school should be clearly defined in the database before it can be entered into the system. These definitions of data enable proper analysis such as arithmetic, logical, sorting operation to be done on the data.
- ii) Integrate data from multiple sources, multiple years, and multiple educational levels within and outside the ministry in-charge of education; this feature allows for a clear pattern to be drawn from the database. An emerging pattern will provide the managers with a clear understanding of trends thereby enabling the manager to make an informed decision. This is closely related to data mining.
- iii) Systematically store and manage databases and quickly retrieve them when required. This feature of the MIS should facilitate proper management of MIS as

a system. It minimises the chances of data stored in the school MIS systems turning into a heap of garbage. It ensures that the appropriate data is available to the MIS system. It further ensures that data can be viewed whenever needed for the purpose of decision-making.

- iv) Produce an annual statistical report on the current conditions of the education system to meet ad-hoc data and statistical requests from the senior management of the ministry in-charge of education, as well as all other education information users.
- v) Support requests by educational policy researchers, analysts and planners for supporting activities such as studies of educational effectiveness, monitoring and evaluation.
- vi) Respond to inquiries by educational policy researchers, analysts, planners, and other management personnel for supporting activities such as indicator development, statistical analysis, budgeting, planning and enrolment projection. This capability facilitates the support of ad hoc reports. Such reports are the kind that the planners, managers and researchers need. The ability to generate ad hoc information offers flexibility to the MIS and pushes its functions and benefits to a notch higher.

2.5 Effects of School Management Information Systems on curriculum management

The use of information technology in educational management has rapidly increased due to its efficiency and effectiveness (Madiha, 2013). Researchers in various countries

confirm that SMIS increase organizational and managerial effectiveness (Demir, 2006). Citing Hedberg, Harper, Bloch and College (1992), Demir (2006) stated that studies in American schools indicated that efficiency has increased in decision making at schools where MIS are used. Such are the effects of MIS that this study sought to establish whether they have been realized in Kenyan secondary schools.

Citing Gurr (2000), Demir (2006) further noted that information technologies lessened school managers' workload and made management process more efficient. He noted that the technologies helped managers use time more efficiently. As a result, teachers felt more important and thus having a wish for improving their overall performance. These technologies made important changes in education and teaching, in addition to facilitating communication within the school.

Telem and Buvitski (1995) observed that school managers believed that SMIS led to important changes in school. According to school managers, SMIS improved school standards, helped decisions on the level of control and strategy, increased the quality of teaching programs, facilitated student-teacher interaction, increased the coordination between teachers, facilitated systematic and continuous information transfer to parents. They noted that SMIS increased communication of institutions and the central organization. In addition, Madiha (2013) observed that MIS were being used by schools to support a range of administrative activities including attendance monitoring, assessment records, reporting resource allocation and staff allocation.

From the aforementioned, it is clear that in other parts of the world the SMIS was having such great impact. Unfortunately, in Kenya, government reports indicated quite

different. Reports indicated that even data processing at schools does not take place. For instance, Sessional Paper No. 1 of 2005 pointed that data received by schools for purposes of planning and decision-making is never processed (Government of Kenya, 2005). This meant that despite schools having data, data was lying dormant. Furthermore, a report on the National ICT Strategy on Education and Training stated that:

Currently, MoEST and its agents use a wide range of instruments to collect data. The large volume of data, as well as inability to handle such volumes, causes the processing and analysis to be substantially delayed, and/or never carried out. This leads to ad-hoc decision-making, planning and resource allocation (Government of Kenya, 2006, p. 12).

Note that agents include school managers and teachers who are on ground to facilitate curriculum implementation process. Another report by the World Bank, the World Bank indicated poor management of the curriculum at school level. School management could not detect that most teachers in schools do not teach the required hours and lessons go untaught (The World Bank, 2013). This was purely a management crisis at a school level bearing in mind that time lost would not be recovered after school.

2.6 The extent MIS meets teachers' expectation

Although principals and teachers may rely on SMIS for specific management information, they expect it to operate within certain reasonable standards. Teachers expect processes such as data entry, interpretation of generated information, finding

features on the users interface, printing of reports and many more to be easy. Furthermore, teachers expect the information generated not to contain errors.

Despite teachers having such high expectations, SMIS have not been without disappointments. For instance, Cradan (2013) reported that errors had been identified in existing enrolment system of students of Dagupan City National High School in Philippines. These errors were affecting the efficient enrolment system of students in that school. It was further, noted that the security of students' records was at high risk. It was concluded that the system could fail to protect some important documents. In addition, the SMIS was untimely and inefficient in report generation

2.7 Design of School Management Information Systems

All too often school MIS design and development have been limited to information technology enhancements, and/or data storage and maintenance. This has been done with insufficient attention paid to the management environment in which education MIS operates (Hua & Herstein, 2003). Such designs completely fail to meet the data and information needs for schools in terms of curriculum management. Schools therefore end up utilising MIS for processing of basic information as imagined by the system designers.

Early research insists that before administrators rush to build data-driven MIS in schools, they should make a careful review of existing knowledge about information systems in the education sector (Breiter & Light, 2006). The suggested review should be in light of what business and organizational research already knows about information

systems. Hua and Herstein (2003) noted that countries around the world have invested significant resources into the collecting, processing and managing of data more and better data through education MIS. Such investments needed to yield improved quality MIS.

The design of education MIS should strive to meet the following objectives (UNESCO, 2006):

- i) Provide a timely and informed basis for planning and management of education services.
- ii) Establish a set of relevant indicators for data collection and utilization and establish or contribute to a national system for collection.
- iii) Processing and utilization of education data.

For computer based MIS, a variety of off-the-shelf application software can be purchased to manage an organisation (Valaciy, George, & Hoffer, 2004). However, Valaciy, George and Hoffer (2004) pointed that off-the-shelf software may not fit the needs of a particular organisation, and so the organisation must develop its own product. Therefore, in the design of a curriculum management MIS the designers ought to incorporate the users (teachers and principals) of the systems.

A properly designed MIS in secondary schools will realise the rewards of utilizing information to its full capacity. The huge data in secondary schools will be turned into information. A solid design will create a system that logically organises related data in a manner to efficiently facilitate the capture, storage, processing, retrieval, reporting,

sharing and decision making that is required for the fundamental function of schools - curriculum management.

2.8 Government of Kenya policy on School MIS and school management

Okumbe (1999), Kipnusu (2001) and Ogembo (2005) as cited in Sang (2010) observed that managers of institutions are reported to have no formal training in leadership. They also pointed that schools experience difficulty in keeping school records. This shortfall on the part of school managers can be minimized with proper SMIS. This is one function that a SMIS can perform with sterling results.

The use of SMIS by the school management in curriculum management in Kenya has not received serious attention from the government. Though the government, from time to time has been advocating for the adoption of ICT in all components of education management. In the Sessional Paper No.1 of 2005, the government outlined the policies it seeks to implement regarding ICT in education. The policies aimed at enhancing the capacities of schools to undertake school-based continuous assessment and ensure efficiency in school management.

The policies encouraged the use ICT to improve the efficiency of education management at every level from the classroom, through school to the educational sector as a whole (Government of Kenya, 2005). These policies could be realised through an appropriate system that handles input data and converts such data into useful information. Information that is reliable and generated through credible processes.

2.9 SMIS in the world

As early as 1970's, the increased significance of information as a prime resource in management had been realized. Information and Communication Technology (ICT) became a tool for management in the corporate world including schools towards the end of the twentieth century (Oyier & Mwanda, 2011). Its importance in supporting decision-making processes had led to the development of various approaches to information management. MIS are based on the assumption that availability of relevant information is a necessary condition for decisions (Breiter & Light, 2006).

Several studies in school MIS have been carried out in various parts of the world (Demir, 2006). Demir (2006) noted that the studies investigated different areas of school MIS which included: Perceptions of high school principals on the impact of technology on job effectiveness, principal characteristics and their influence on the use of technology in schools. Previous studies in SMIS have researched in areas such as influence of site-based management on educational technology decision-making strategies as perceived by selected school principals, just but to mention a few.

Principals have been using management information systems to improve efficiency of administrative services (Demir, 2006). Demir (2006) highlighted questions of concern regarding the use of IS in schools' management. These questions further seek to reveal the ideas of managers about managerial IS. These are:

- i) How the information technology facilities management in schools
- ii) Which studies are done by using managerial IS systems in schools

iii) The contributions of MIS and their problems in schools.

In the United States, Beth Wray, the then newly appointed C.E.O. of Pearson Achievement Solutions, noted that K-12 school leaders in the US are seeking evidence-based and innovative solutions to improve student performance. He then asked, “And how do you make a case for collecting and using data more actively in the school setting?” (Success for all: Corporations Managing Data for Schools, 2006).

In the US a program dubbed, ‘No Child Left Behind’ (NCLB) has already had a far-reaching impact (EdTechActionNetwork, 2013). It noted that beyond influencing how teachers teach and students evaluated, NCLB is helping to reshape the way districts and school districts across the United States work. Leading school districts have developed advanced technological system and professional expertise to analyse data and use what they learn to improve operations. The program observed that use of technology in school management has provided administrators with better data that can improve decision-making and policy implementation (EdTechActionNetwork, 2013).

Fulton County Schools, outside Atlanta City in Georgia, have adopted data-driven decision making as part of a comprehensive strategic planning process. In this plan, everyone is involved right from classroom teachers to principals to administrators. The district data management and analysis systems provide increasingly customised and more frequent information to decision makers.

In Britian, teachers, headteachers, senior leaders, administrators use SMIS to understand the quality of teaching and achievement of students in the schools (Capita Business

Services Ltd, 2015). Every student's progress is tracked enables teachers to make decisions that improve students' performance. SMIS are used in effective communication between head-teachers and the teaching staff. The SMIS have lightened teachers' workloads and improved performance.

The British Government through its Department for Education issued a guide on considerations in selecting a SMIS (Department for Education, 2014). It outlined features that MIS should have. These features included data management, reporting to support learning and management in schools, ease of use, user support, sound security, messaging, alerts and remote access. This guide further emphasised on the following functions: ability to capture school attendance, lesson attendance, timetable management including rooms, times and staff allocations, and behaviour management.

2.10 SMIS in Kenya

In Kenya ICT is quickly being embraced in most schools (Oyier & Mwanda, 2011). Many secondary schools introduced computers in great number starting early 1990s (Menjo & Boit, 2010). This is due to a fact noted by the Economic Commission for Africa (ECA) that the ability to access and effectively utilize information is no longer a luxury (Afolakemi, 2008).

The Government of Kenya is cognizant of this fact and has gone ahead to embrace it in the Kenya National ICT Strategy for Education and Training (Government of Kenya, 2006). The strategies envisaged the use of ICT in data processing into information at all levels. It envisaged development of data processing and analysis software and use of

ICT in monitoring and evaluation of education programmes. But with little practical guidance available to help in planning and evaluating such developments in education management systems in developing countries (InfoDev, 2012), the government faces a great challenge in realising this vision.

In order to boost quality management in schools, the Government of Kenya has set strategic objectives in education subsector. One of these objectives is to ensure quality management among managers and other personnel involved in education at all levels by 2015 (Government of Kenya, 2011). The report pointed that over 600 secondary schools were being equipped with computers to support comprehensive teacher capacity building, monitoring and evaluation programmes.

These programmes aim to enable integration of ICT in education and learning. The report singled out some of information that was important as textbook ratio, student completion rate and retention rate. This study sought to establish whether existing SMIS in public secondary schools generated such important information.

In reality, the government has initiated several capacity building programmes such as computer literacy programmes for teachers of mathematics and sciences. Electrification of all secondary schools in Kenya is another program that the government is rolling out to enable secondary schools run computers.

A study in Kenya by Oyier and Mwanda (2011) examined the impact of ICT in day to day management practices in private secondary schools in Nairobi. It found out that principals agreed that ICT helped in reducing the cost of management, widening space

control and improving the quality of school administration. Their findings showed that most private secondary schools in Nairobi had invested heavily on ICT infrastructure. It further established that most head teachers had basic training in ICT.

It noted that ICT had a strong impact in management of private secondary schools especially in financial and human resource management in the fields of accounts, pay roll and staff record management. It had significant impact in the management of curriculum activities especially in school timetabling, examination administration and preparation of students' reports. Finally, the study found out that the major drawback was the cost of putting in place the necessary ICT equipments. However, most head teachers agreed that in the long run ICT helped in reducing cost of management.

Another study was conducted in Nyamira County in Kenya, to examine the challenges faced by principals of secondary schools in the use of ICT to enhance school management (Ombui, 2013). The study showed that ICT as a management tool was not used effectively to address management issues. It also revealed that ICT was being used for clerical issues and to a limited extent on little management issues particularly the processing of examinations.

Kipsoi, Chang'ach and Sang (2012) determined challenges facing the adoption of ICT in educational management in Kenyan schools. They argued that ICT policies must be dynamic, cost-effective, adaptable, and differentiated between the various segments of educational management. This would contribute effectively to education management. They stressed on an urgent need for the integration of ICTs in educational management in schools in Kenya.

It is in this light that the need to study SMIS cannot be overemphasized. ICT provides a window of opportunity for educational institutions and other organizations to harness and use technology. Thus, complementing and supporting the curriculum management process. Despite these benefits, Menjo and Boit (2010) noted that there is very little usage of data to facilitate school administration in secondary schools.

Successful management of today's education systems requires effective policy-making and system monitoring through data and information (Hua & Herstein, 2003). ICT should be used to promote information literacy – the ability to access, use and evaluate information from different sources in order to enhance learning, solve problems and generate new knowledge in schools (Omwenga, 2011). Omwenga (2011) however pointed that clearly defined policies and management support to the use of ICT in schools are missing.

Consequently, this has hindered the progress of the use of ICT in such institutions. Lack of such policies proved to be a great obstacle towards integration of information systems in the education sector in Kenya. In this context, the question that comes up is whether there is a uniform or standard MIS program recommended by the Ministry of Education for use in secondary schools' information systems. Alternatively, whether there is an established criterion.

The dire need for an appropriate MIS in Kenyan schools has resulted to schools purchasing these systems from outside the country. This could further be attributed to either lack of or scarcity of home grown suitable systems. For instance, in earlier 2008 Ernest Njuguna, Bursar from the Peponi Schools in Kenya visited the United Kingdom

(UK) (WCBS, 2008). WCBS (2008) observed that his mission was to find out more about Pro Active Software Solutions (PASS) Management Information System from one Head at one of the Schools, Robert Blake, who had experience with PASS at a school in the UK. After spending a day at the Somerset office, Ernest visited three of PASS users. Following his return to Kenya Peponi School and Peponi House Preparatory School signed a sales contract for PASS.

Another system that is reportedly used in Kenya is the RegSys. This system is a Management Information System and is available in two versions - one optimized for use by Universities and Colleges and the other optimized for use by Schools (Rivotek Kenya Ltd, 2009). It provided modules that enable institutions to manage all aspects of their operations with emphasis on admissions, course registration, performance management, billing and fees management and accounts.

In 2008, the ministry of youth affairs Youth Enterprise Fund (YEF) and the World Bank started a Digital Villages project designed to connect rural and urban areas with ICT. One area that this project targeted was school management system by including recording and reporting of examination (Wanjiku, 2008). Each constituency was to be provided with between five to ten computers (Balancing Act, 2014). To jump start this project, the government plans a three-week training of 1000 managers to manage these Digital Villages. As per the year 2014, the project was yet to take off.

To further accelerate the adoption of MIS in school management, the government of Kenya had initiated a learning resource centre at the Kenya Technical Training College. This resource centre offers training in educational management and integration of ICT

for school managers. In another venture by the MoE, a project termed “ICT equipment for schools” purchased computers for 142 schools in support of the ICT in Education strategy. In Kenya the government is striving to see that curriculum in schools is managed by MIS facilities.

Kenya Educational Staff Institute (KESI) undertakes training in integrating ICT (and EMIS) in educational managers’ training. This training aims to facilitate efficient management and administration in the schools. Similar efforts in training have been taken by NEPAD e-school project. The aforementioned initiatives by the Kenyan government and other stakeholders underscore the dire need to infuse MIS into the management of the school curriculum.

2.11 SMIS systems in Bungoma County

Recent studies have been conducted in the field of ICT in secondary school management in Bungoma County. One of such studies was by Makhanu (2010) to determine the extent of ICT literacy among secondary school principals in Western Province of Kenya. It determined their preparedness to cope with technology change such as SMIS. The study employed a mixed mode methods design involving both quantitative and qualitative approaches. The study population was all principals of public secondary schools in Western Province of Kenya.

It used stratified sampling that saw examination marks from Kenya National Examinations Council (KNEC) used to divide secondary schools into high achieving schools, medium achieving schools and low achieving schools. Ninety-five (95%) of

schools in high achieving and low achieving strata were selected by simple random sampling. The principals and deputy principals responded to questionnaires that tested ICT literacy and school performance respectively. Open-ended questions, semi-structured interviews and observation schedules were used (Makhanu, 2010).

The study concluded that school performance correlated positively with a principal's ICT access, ICT knowledge and ICT application in school leadership functions. It found out that 42% of principals had access to ICT while 27% of principals applied ICT application in school leadership functions. Makhanu (2010) recommended that standardised MIS be provided to schools. The study also recommended that the MoE encourage ICT application in school management.

2.12 Chapter Summary

Principals of schools oversee the organization of their school's departments and allocation of resources within the units in the schools. They monitor teaching and assessment of students as conducted to effectively manage the outcomes (Sang, 2010). The outcome of these goals can be enhanced and simplified by proper use of an effective and efficient school MIS.

In this area of computer usage in school management, research has been carried out in various aspects including computer literacy and skills, and computer phobia of school managers. Despite all these studies, not much work in utilisation of computer for curriculum management in Kenyan secondary schools has been done. In a study on the Impact of ICT in the Management of Private Secondary Schools in Nairobi, Oyier and

Mwanda (2011) recommended for a comprehensive study to examine the impact of ICT usage in public schools be conducted. This study was precisely set to realize this recommendation.

Where data has been collected, it is often quantitative data related to computer infrastructure rather than data that can help policy makers gauge the impact of ICT interventions on student learning (The WorldBank, 2013). Demir (2006) had pointed earlier that although there are many studies on the role of information systems on class and teaching, few studies have been done on the use of them in educational management and their effects on the managers.

It is clear that little research has been done to ascertain whether the path taken by schools to implement school MIS brings significant change in school management. Many studies have been carried out on several areas of school MIS and ICT. However, sufficient knowledge on the effects of these school MIS in making decisions that concern curriculum management is lacking. It is in this light that this study sets out in an attempt to bridge this gap in knowledge.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter discusses research design and methodology, which formed the basis of systematic management of data collection. It further discusses population, sampling techniques, research instruments, validation and reliability of research instruments, data collection methods and data treatment methods. It also discusses ethical considerations that were adopted to realise the objectives of this study.

3.1 Research design

Carroll (2014) noted that the research design of a particular study has to be selected carefully and that even the best statistics cannot save an inferior design. This means that the quality of a piece of research is highly dependent on a wise choice of its design methodology. It is with this in mind that this study adopted a descriptive survey research design. Descriptive research makes use of survey methods (Kothari, 2003). According to Kothari (2003), descriptive research includes surveys and fact-finding enquires on the state of affairs, as it exists at present. In these types of study, the researcher has no control over the variables as opposed to experimental research.

Descriptive research design concerns itself with studies of a specific research problem. It provides answers to questions such as what is the current situation, how is the situation and other similar questions. It deals with: who, what, when, where and how,

that is associated with the particular research problem (University of Southern California, 2012). In this study, the researcher studied MIS as they 'exist' in school today. This study investigated management information currently being generated by the MIS and their effects of the MIS on curriculum management decisions.

It is worth noting that a descriptive study cannot conclusively provide answers to questions such as why a particular state of affairs exists. This design can be used to obtain information concerning the current status of the phenomena and describe "what exists" with respect to variables or conditions in a given situation. Furthermore, this design is suitable in cases where the subject of study is observed in a completely unchanged natural status and as a pre-cursor to more quantitative designs (University of Southern California, 2012). The design describes and explains the present using many subjects and questionnaires to fully describe the phenomenon and it has many advantages (Carroll, 2014).

One limitation of descriptive design is that, it is heavily dependent on instrumentation for measurement and observation (University of Southern California, 2012). In order to cushion this study from this shortfall, the researcher, carefully selected and tested research instruments and question items. In addition, the study gathered evidence from a variety of reliable sources. The researcher then employed triangulation by comparing the responses teachers provided in questionnaires to the responses provided by principals in a face-to-face interview. These responses were further compared to findings derived from document analysis. This approach ensured truthfulness of

gathered evidence. This study optimised on the strengths of a mix of quantitative and qualitative research methodologies.

3.2 Sampling procedure

Many secondary schools in Kenya have tried to acquire and implement software programs to assist in management of the secondary school core-curriculum. It is important to carefully select these schools to maximise what can be learnt from them in the available period of study (Feagin, Orum, & Sjoberg, 1991). In order to gather maximum in-depth knowledge on these SMIS, sampling of schools that had implemented school MIS in Bungoma County was needed. A preliminary study to establish schools of interest to the study was necessary.

A preliminary study was conducted by the researcher. It indicated that at least 46.6% (96) of all the secondary schools in Bungoma County had some form of SMIS for curriculum management (see Appendix X). Twenty seven (27) of these schools had all the three SMIS components namely: timetable management system, result analysis system and classroom management system, which were key to the success of this study. Thus, twenty-seven secondary schools formed the target population of this study as they were the only schools that met the basic requirement for participating in the study.

To eliminate bias in the selection of schools, simple random sampling technique was used. This technique ensured that each school had an equal opportunity to participate in this study. According to Wamalwa, Onkware and Musiaga (2013), an ideal sample of between 10% and 30% of the target population is sufficient depending on the data

requirements of the study. However, a slightly higher percentage than 30% does no harm to the study, as noted by Cohen, Manion and Keith (2007), the greater the sample the better. Greater samples increase reliability of the findings.

Through simple random sampling technique, nine schools were selected for the purpose of this study. This sampled population formed 33.3% (9) of the 27 schools that had the three components of SMIS. It is worth noting that a sample size of at least thirty percent is held by many as the minimum number of cases if the researcher plans to use statistical analysis on the data (Cohen, Manion, & Keith, 2007). However, Babbie and Mouton (2001) suggested that it will be left to the student to weigh the desired sampled size against factors of costs involved in obtaining the elements, their convenience as well as their accessibility.

In each of the selected schools, the deputy principal, Director of Studies (DOS), timetable master, the examination master (if any) and thirty percent (30%) of teachers were selected. Each one of them had to complete a questionnaire. These thirty percent of teachers in the selected schools were randomly sampled. These groups had useful information on the MIS as they played different roles as users of the school MIS. All information gathered from the above groups assisted the study in realising its objectives.

School principals hold key information about SMIS used in their schools. In a study to explore principals' perceptions about MIS systems and how school MIS systems were used in primary schools in Edirne, Demir (2006) considered school principals as key informants. Similarly, in this study, principals of secondary schools were the key

informants. The researcher conducted a face-to-face structured interview with the principals of the selected secondary schools.

3.3 Research instruments

Several data collection instruments were developed. These instruments included; questionnaire, interview schedule and document analysis. Questionnaire was both closed-ended and open-ended. On the other hand, interviews for principals were structured.

In the G.o.K.'s guidelines for assessing quality standards in academics, the G.o.K. acknowledged that most valuable and informative evidence was to be obtained first hand from observation and analysis of institution processes and records, (Government of Kenya, 2010a). In line with this fact, the study analysed the most recent academic records and reports maintained by the selected schools under study. The documents analysed included most recent; analysed reports on syllabus coverage, teacher workload and analysed reports on students' progress. These documents were analysed to ascertain whether they had appropriate curriculum management information that supported decision-making process.

These research instruments formed the basis of investigation on whether indicators of evaluating quality education and key management information form part of existing school MIS in the schools under study. These indicators are student progress and examination results, and student attendance and many others (Government of Kenya, 2010a).

The instruments that were employed in this study had been recommended by various experts in the computer system analysis as they provide a thorough understanding (Valacicy, George, & Hoffer, 2004) of a system under study, in this case MIS systems in schools. Each of these instruments had its own strengths and weaknesses in gathering relevant information on MIS.

Well-designed questionnaires, for instance, are less expensive and offer far less opportunity for bias or error. Questionnaires also provide respondents with adequate time to give well thought out answers. In addition, larger samples can be used as well to reach out to respondents who are not easily approachable (Kothari, 2003). However, they are prone to non-response (Yin, 2002). Questionnaires also have inbuilt inflexibility, slow in response and may suffer from ambiguous replies or omission of replies altogether to certain questions (Kothari, 2003).

Interviews on the other hand, can provide supplementary information and prevent misinterpretation of questions. Moreover, they are more flexible and collect information to detail. In spite of these strengths, interviews are time consuming and expensive (Kothari, 2003). Document analysis provides for an extensive coverage of records that exist prior to the study although it may face access and retrieval difficulties.

3.4 Validity of research instruments

Validity is a measure of the degree to which an instrument achieves what it is supposed to measure (Kothari, 2003). The tools in this study were constructed, improved and validated based on experts' and university supervisors' advice. Moreover, all

instruments were carefully pre-tested in a pilot study to ensure that they are in-line with the study's objectives. This ensured that the instruments elicited the relevant responses.

To validate data collection tools, a pilot study was conducted. This pretesting of instruments was conducted in two schools in Bungoma County. This improved the validity of the tools that were used for data collection. The feedback obtained from pre-testing exercise further polished the instruments.

3.5 Reliability of instruments

Reliability is a measure of consistency of an instrument to elicit same inferences when administered to the same respondent in the same environment at a different time (Kothari, 2003). To ensure that the instruments generated the same response from the same respondents, a test retest approach was conducted in two schools in Bungoma County. These two schools were used for pilot studies. Questionnaires and interview schedule instruments were administered to two principals and 15 teachers of these schools. Analysis of schools' academic records and reports generated by the MIS was also carried out. Data emanating from pilot study was used to test for internal consistence of test variable and the 5-point Likert Scale. This test yielded a cronbach's alpha (α) co-efficient of above 0.7 (i.e. 0.7 to 0.83). Which indicated that the instrument was reliable. It is worth noting that if alpha is 0.6 then the instruments are acceptable (Explorable.com, 2010). An alpha greater than 0.7 indicates that the instrument has more reliable (McDonald, 1999).

3.6 Pilot study

Two schools that had implemented the three vital components of SMIS in Bungoma County were selected to participate in the pilot phase of this study. The schools were selected randomly from the remaining target population that had not been selected to participate in the main study. This was done after the sample size had been identified and set aside. The principals and teachers responded to items in the tools of data collection.

The pilot sample consisted of 15 questionnaires and two interviews. The resulting data was used to improve the validity of the research instruments. Data obtained from this pilot study was used to test for efficient coding of the responses. This was done by coding the responses into SPSS software. Thereafter, the intended statistical tests were run to generate statistical indices.

3.7 Data collection procedures

Prior to commencing this study, the researcher had to obtain authority to conduct the study from the National Commission for Science, Technology and Innovation of Kenya (NACOSTI). The researcher obtained a letter from the Head of Department of Technology Education of University of Eldoret addressed to NACOSTI that requested for a research permit from NACOSTI (see Appendix II). This authority was granted in form of a research permit issued by NACOSTI (see Appendix I). A copy of this research permit was taken to the Bungoma County Commissioner and the Bungoma County Director of Education. The County Commissioner in turn wrote a letter

acknowledging the receipt of the research permit and requesting participants to cooperate in the study.

In order to supplement the contents of the two documents mentioned above, the researcher wrote personal letters to the heads of institutions under study (see Appendix III) detailing the purpose of the study. Further, a letter of transmittal to all respondents introduced the purpose and significance of the study. This letter encouraged the respondents to fully participate in the study and provide honest answers.

For purposes of collecting data, the researcher administered questionnaires and interviewed key-informants. Document analysis was used to capture primary data from curriculum management documents. This provided relevant information on SMIS. There was a standardized questionnaire, which was developed as an instrument of data collection. This standard questionnaire targeted deputy principal, director of studies, time-table master and the randomly selected teachers.

The questionnaire was guided by the methods that earlier scholars used in gathering similar information in their studies. For instance, a study by Demir (2006) explored the perception about MIS and how school MIS were used in primary schools, had questionnaire consisting of five parts (Demir, 2006). The first part collected demographic information about respondent and the other parts had statements about school MIS.

Similarly, in this study, the first part of the questionnaire, contained some items about the personal information of the respondent such as years of experience in teaching, level

of academic qualification and the period of stay in the selected school. The next sections of the questionnaire focused on specific objectives of the study. It employed close ended questions. Closed ended questions helped in guiding the respondent against diverging from the subject matter (Kothari, 2003). It thereby focused the response of the respondents.

The use of Likert Scale in studies related to ICT and management is a common practice. Therefore most questions in the questionnaires were measured using 5-point Likert Scale. Where Likert scale was used, the answers adopted such orders as: “Strongly Agree”, “Agree”, “Not Sure”, “Disagree” and “Strongly Disagree” which will then be graded from 5 to 1 respectively.

An interview schedule examining the objectives of the study was developed. Principals of selected schools were requested to respond since they are key informants. They played a pivotal role in monitoring the quality of pedagogical processes in a school (Government of Kenya, 2010a).

3.8 Data analysis methods

The research instruments used in this study generated both qualitative and quantitative data. A quantitative approach involves the generation of data in quantitative form, which can then be subjected to quantitative analysis (Kothari, 2003). Quantitative data resulting from closed-ended questions of the questionnaire were analyzed using statistical measurements of frequency, percentage, mode, mean and standard deviation (SPSS Inc, 2007). On the other hand, qualitative approach concerns subjective

assessment of attitudes, opinions and behaviour (Kothari, 2003). It results to non-quantitative form, which is not subjected to rigorous quantitative analysis.

Qualitative data resulting from open-ended parts, questions of categorical and ordinal nature in the questionnaire, interviews and analysis of school documents were cleaned and grouped into suitable attributes for analysis. Categorical data was measured by summarising the number and percentage of cases in each category (SPSS Inc, 2007). This was done after examining the distribution of responses. Interview responses from principals of schools were analysed to confirm or contradict the findings of other respondents who used questionnaires. This triangulation approach was done in order to gather correct data from the respondents.

To minimise errors in analysis and to facilitate application of statistical methods to the data, variables were coded appropriately. Then a Statistical Package for Social Sciences (SPSS) version 17 was used to analyse data generated in this study.

3.9 Ethical consideration

This study adhered to standard practices of ethics in research. These included according the respondents utmost respect, preserving the identities of both respondents and schools. Thus ensured both the protection of participants' identities and confidentiality of information they provided. In addition, while issuing them with questionnaires the researcher had a face-to-face reassurance to participants that information provided will only be used for the purpose of this study.

As an extra measure to this effect, questionnaires were designed to omit personal information that would have compromised individual's identity. No real names of schools were used instead schools' names were coded as A, B, C, D, E, F, G, H and J. This was adhered to throughout data collection, analysis and reporting exercise. To further re-assure the respondents of confidentiality of information provided, research instruments had a brief introductory cover letter/section that reaffirmed this commitment. Furthermore, selected teachers participated by will and not by coercion. The research permit granted by NACOSTI also verified that the research was ethical and was fit to be conducted on the population concerned.

3.10 Chapter Summary

This study adopted a descriptive survey design to describe the effects of MIS, as they existed in public secondary schools. It selected 33.3% (9) of the 27 secondary schools in Bungoma County that had fully installed SMIS and were using it in curriculum management. Simple random sampling technique was used to sample these schools. Principals of selected schools were interviewed while the deputy principals, director of studies, time-table masters, examination officers and thirty (30%) of teachers in the selected schools completed questionnaires. The questionnaire had both open and closed ended questions. Information documents (thus reports) by the MIS that were related to curriculum management were analysed. To ensure validity, instruments of data collection were piloted in two secondary schools in Bungoma County. Data collected was coded in a statistical package for analysis and the results discussed in chapter four.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter dwells on data presentation, analysis and interpretation. It is organised in accordance with the themes of the study. The themes were background information of the respondents, type of management information system, management information generated by MIS, effects of MIS on curriculum management decisions and extent MIS meets teachers' expectations. Data presentation and analysis was done with the help of a Statistical Package for Social Scientists (SPSS) version 17.

4.1 Response rate

4.1.1 Principals' response rate

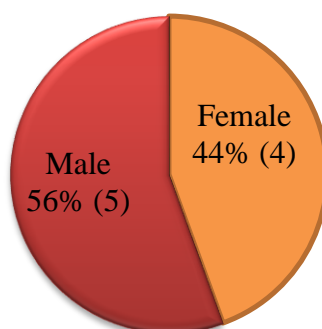


Figure 4.1: Gender of Selected Principals

Source: Researcher's Data Analysis

Nine principals of the nine selected secondary school were interviewed thus gave a 100% response. Figure 4.1 provides their response rate.

4.1.2 Teachers' response rate

One hundred and three (103) questionnaires representing thirty percent (30%) of teachers in the nine selected secondary schools responded to the questionnaires and returned the questionnaires for analysis. The response rate per school as well as gender per school was summarised in Table 4.1.

Table 4.1: Response Rate of Teachers Categorised by School

		Gender					
		Female		Male		Total	
		Count	% of Total	Count	% of Total	Count	% of Total
School	A	6	5.8%	10	9.7%	16	15.5%
	B	4	3.9%	9	8.7%	13	12.6%
	C	2	1.9%	7	6.8%	9	8.7%
	D	3	2.9%	5	4.9%	8	7.8%
	E	4	3.9%	10	9.7%	14	13.6%
	F	5	4.9%	8	7.8%	13	12.6%
	G	4	3.9%	7	6.8%	11	10.7%
	H	4	3.9%	6	5.8%	10	9.7%
	J	2	1.9%	7	6.8%	9	8.7%
	Total	34	33.0%	69	67.0%	103	100%

School A had the highest, 15.5% (16) teacher representation in this study. This comprised of 5.8% (6) female and 9.7% (10) male teachers. School E had 13.6% (14) that comprised of 3.9% (4) and 9.7% (10) females and males teachers respectively. Schools B had 12.6% (13) that consisted of 3.9% (4) and 8.7 (9) females and males respectively. School F had 7.8% (8) female teachers and 4.9% (5) male teachers that responded to the questionnaires hence formed a 12.6% (13) of the total response.

School G on the other hand, had a response rate of 10.7% (11) that consisted of 3.9% (4) female and 6.8% (7) male teachers. Another 3.9% (4) and 5.8% (6) of female and male teachers were drawn from school H thus formed 9.7% (10) of the respondents. Both schools C and J had 8.7% (9) response rate that was composed of 1.9% (2) female and 6.8% (7) male teachers. Lastly school D formed 7.8% (8) of which 2.9% (3) and 4.9% (5) were females and males respectively.

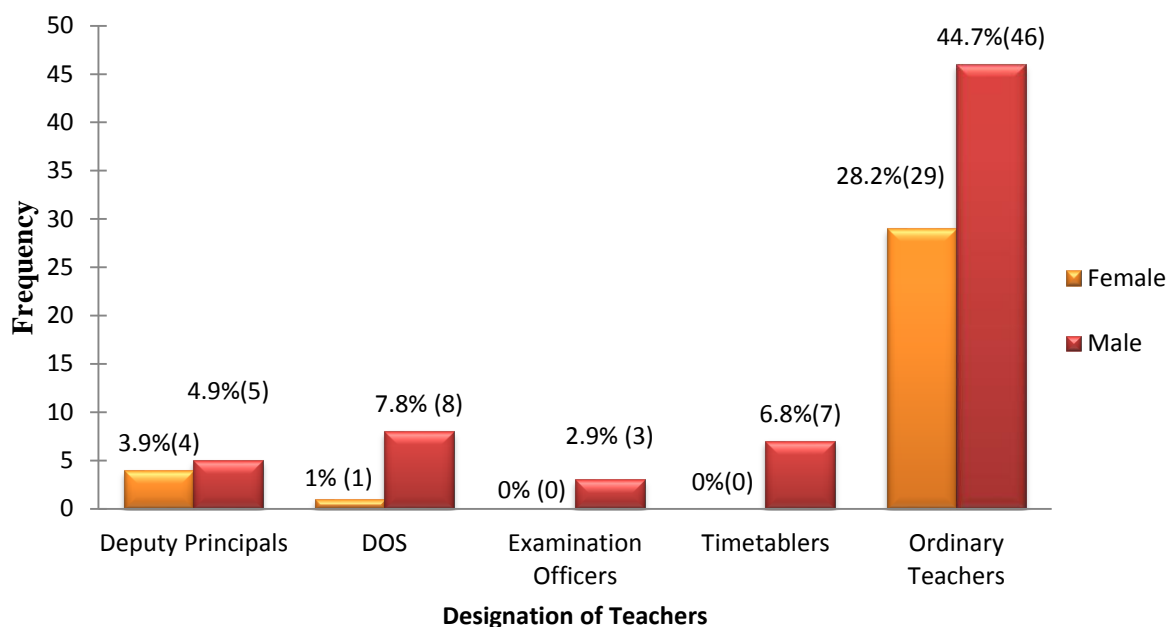


Figure 4.2: Response Rate of Teachers by Designation

Source: Researcher's Data Analysis

In terms of gender, illustrated in Table 4.1, the study had 33.0% (34) female respondents and 67.0% (69) male respondents thus had a more than 30% representation of each gender.

From Figure 4.2, it is shown that the 103 teachers who responded to the questionnaires were serving in different capacities. 8.7% (9) were deputy principals. Another 8.7% (9) were Directors of Studies. 2.9% (3) were examination officers. 6.8% (7) were teachers in-charge of timetable affairs otherwise known as timetablers while 72.8% (75) were teachers who may have had other designations other than those captured in the survey. It can be seen from Figure 4.2 that six schools did not have examination officers. In these schools, the examination docket was managed by the Director of Studies. Similarly, other schools did not have a teacher in-charge of timetable affairs. In these schools, timetable affairs were run by the Director of Studies.

4.2 Background information

Background information of respondents in this study was captured in section one of both the questionnaire and interview schedule. This information included gender, duration of stay in the selected school, duration in the teaching profession and the number of years the respondent had served in a school management capacity. This information was deemed significant in influencing the respondent's judgement of the MIS used in their respective schools.

4.2.1 Principals' background

In this study, principals were used as key informants. They were interviewed and their opinion on MIS was transcribed for analysis. Nine principals in all the nine selected secondary schools participated. Their background information was as in Table 4.2. The study established that the principals of the selected schools had stayed in their

respective schools for an average period of 10 years and 2 months not necessarily as principals but even in other capacities. Their duration of stay varied in the range of 2 years to 23 years with a standard deviation of 7 years and 9 months. These principals had taught for an average 29 years and 1 month. Their teaching experience ranged between 22 years and 37 years with a standard deviation of 5 years and 4 months.

Table 4.2: Background Information of Principals

	N	Minimum	Maximum	Mean	Std. Deviation
Duration in This School	9	2	23	10.22	7.710
Teaching Experience in Years	9	22	37	29.11	5.349
Experience in School Management	9	7	23	15.22	5.563

The study further revealed that the principals had a minimum of 7 years and a maximum of 23 years experience in school management. This experience in management averaged 15 years and 2 months with a standard deviation of 6 months.

4.2.2 Deputies' background

Deputy Principals stated the number of years they had stayed in their schools and years they had served as teachers and in a management capacity. This information was presented in Table 4.3. It was established that they had served for an average of 9 years and 6 months as deputy principals. The longest service period in this capacity was 19 years and the least was 2 years. This gave a range of 17 years with respect to the number of years spent in their respective schools.

The study found that the deputies in the selected schools had an average teaching experience of 20 years and 5 months. This had a range of 9 years and 6 months. The

deputy principal who had taught for long had 26 years in teaching while the least had 16 years and 6 months. On the other hand, the average of years served in management for the deputies was 3 years and 8 months. They had a range of 6 years with the longest service of 6 years in management of an institution and 0 years as minimum.

Table 4.3: Background Information of Deputy Principals

	N	Range	Minimum	Maximum	Mean	Std. Deviation
No. of Years in this School	9	17.00	2.00	19.00	9.5000	7.21976
No. of Years in Teaching	9	9.50	16.50	26.00	20.5000	3.20156
No. of Years in Management	9	6.00	.00	6.00	3.7111	2.12158

4.2.3 Directors of studies' background

From Table 4.4, the study revealed that the 9 directors of studies (DOS) in the selected schools had served an average of 6 years and 5 months in their respective schools. The minimum period being 1 year, while the maximum being 14 years in their respective schools. In the teaching profession, the DOSes had spent an average of 16 years and 5 months.

Table 4.4: Background Information of Directors of Studies

	N	Range	Minimum	Maximum	Mean	Std. Deviation
No. of Years in this School	9	13.00	1.00	14.00	6.4444	3.46811
No. of Years in Teaching	9	28.00	1.00	29.00	16.4444	9.90090
No. of Years in Management	9	19.00	.00	19.00	6.7778	6.66667

The maximum and minimum years served were 29 years and 1 year respectively. This gave a difference of 28 years between the longest serving and the least serving DOS. With respect to number of years in management, they had an average of 6 years and 9

months. The range of years between the highest serving and least serving in management was 19 years with the minimum of 0 years and the maximum being 19 years.

4.2.4 Examination officers' background

Table 4.5: Background Information of Teachers in-charge of Examination

	N	Range	Minimum	Maximum	Mean	Std. Deviation
No. of Years in this School	3	7.00	4.00	11.00	6.67	3.786
No. of Years in Teaching	3	19.00	12.00	31.00	20.00	9.849
No. of Years in Management	3	21.00	4.00	25.00	12.33	11.150

In the selected secondary schools, only three had teachers assigned specifically to be in-charge of examinations. Analysis on the information they provided, shown in Table 4.5, revealed that these examination officers had stayed in their respective schools for an average of 6 years and eight months. They had a teaching experience and experience in management averaging 20 years and 12 years and 4 months respectively.

It was noted that one of the examination officer had a vast experience in teaching that was stated as 31 years. In management, the most experienced examination officer had 25 years while the longest duration of stay in the selected school was 11 year.

4.2.5 Time-table masters' background

The study sought to establish the background of teachers' in-charge of timetabling. The findings were tabulated in Table 4.6. It was established that in the selected schools, seven (7) schools had a teacher specifically assigned for timetable duties. The study

found teachers in charge of timetable affairs had stayed in their current schools for at least 5 and at most 7 years, with an average stay of 5 years and 5 months.

Table 4.6: Background of Teachers in-charge of Timetabling

	N	Range	Minimum	Maximum	Mean	Std. Deviation
No. of Years in this School	7	2.00	5.00	7.00	5.4286	.78680
No. of Years in Teaching	7	10.00	7.00	17.00	12.5714	3.73529
No. of Years in Management	7	5.00	.00	5.00	3.1429	1.77281

The time-tablers were found to have taught for an average of 12 years and 7 months, with the longest teaching experience of 17 years and the least of 7 years. This gave a range of 10 years. In addition, they had served in management for utmost years and at least 0 years. The difference in their experience in management of schools was found to be 5 years.

4.2.6 Teachers' background

Table 4.7 presents background information of other teachers who responded to the questionnaire. They were 75 teachers. It was shown that these teachers had stayed for an average of 5 years and 4 months in their respective schools. This length of stay ranged between 0 years to 29 years thus giving a range of 29 years. It can be seen that the teachers had a teaching experience averaging 10 years and 2 months. This experience ranged from less than a year to as high as 35 years.

In addition, the study sought to establish the management experience possessed by these teachers. It was realised that their experience in management averaged 2 years and 10

months. Although a few some had no management experience, others had as high as 19 years.

Table 4.7: Teachers' Background

	N	Range	Minimum	Maximum	Mean	Std. Deviation
No. of Years in this School	75	29.00	.00	29.00	5.3333	6.16666
No. of Years in Teaching	75	35.00	.00	35.00	10.1867	7.21802
No. of Years in Management	75	19.00	.00	19.00	2.8400	3.50305

4.2.7 Overall background information on all teachers

The study established that the average teaching experience of the respondents was 12 years and one month. This is represented in Table 4.8. Teaching experience of teachers had a standard deviation of 7 years and 10 months. This experience was considerably sufficient for the respondents to make sound judgement of the MIS under study.

Table 4.8: Background on Professional Experience of Respondents (Teachers)

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
No. of Years in this School	103	29.00	.00	29.00	5.8398	5.86280	34.372
No. of Years in Teaching	103	35.00	.00	35.00	12.0825	7.83879	61.447
No. of Years in Management	103	25.00	.00	25.00	3.5573	4.35166	18.937

The study accessed the duration of stay of all selected teachers regardless of their position in the selected schools, their teaching experience and management experience in years. The study sought this information as it could influence their judgement of a MIS. As observed in Table 4.8, the mean of duration of stay in the selected schools was 5 years and 10 months with a standard deviation of 5 years and 10 months. This

duration had a range of 29 years. This range spread from as low as 0 years to as high as 29 years.

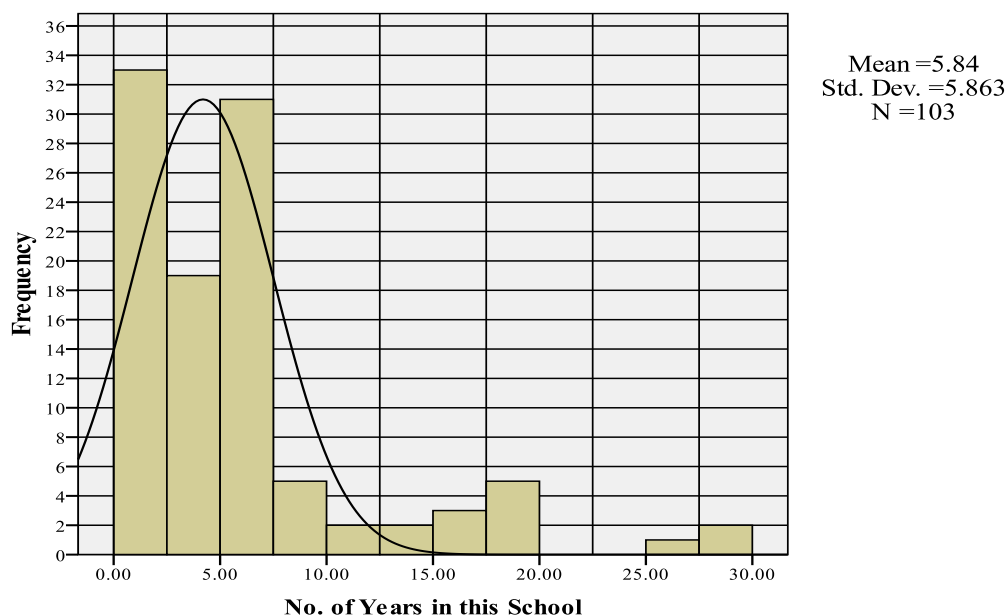


Figure 4.3: Duration of Stay in the selected school

Source: Researcher's Data Analysis

It was further established that on average these respondents had served for three and half years in school managerial positions. Although, some of teachers had not served in managerial position others had served for utmost 25 years. Figure 4.3 indicates the frequency distribution of the length of stay of respondents' in the selected school. It can be seen that this duration was approximately normal but with a slight positive skew. Most of the respondents had stayed for a period of 0-to-7.5 years in their respective schools.

4.3 Type of management information system

In order to cast light on the type of MIS used in secondary schools, the study sought to establish whether data entry in Management Information System was in a central computer or in several computers. In addition, it sought to establish whether these MIS systems were networked. Furthermore, the study established the ability of the MIS to share data electronically. Castells (2001) noted that a networked system results into flexibility. Networking emphasizes interdependence, interaction, and constant adaptation to an ever-changing work environment.

The study further established which management information teachers have access to and the sources of the MIS. This information was important in order to address objective one of the study. Objective one focused on the type of MIS used in curriculum management in secondary schools. In the conceptual framework, the type of MIS greatly determines both how and which data goes in the system. Collection and organisation of data is key to information processing especially for management purposes.

4.3.1 Central and Networked Entry of data in school's MIS

A central data entry system facilitates a holistic processing of information as well as minimising duplication of information. A networked system enhances the sharing of information among various departments. Table 4.9 shows the mode of data entry in MIS in the selected schools. In school A, majority 50.0% (8) of selected teachers noted that data was entered in a central computer that was not networked. 43.8% (7) noted that it

was entered in several computers that were not networked while 6.3% (1) said it was entered in several computers that were not network. In school B, majority 46.2% (6) indicated that data entry in their MIS was in several computers that were not networked. 30.8% (4) observed that it was in a central networked computer while 23.1 (3) said it was in several computers that were not networked.

Table 4.9: Entry of Data in the MIS System

	Central Networked	Central and Not Networked	Several Networked	Computers not Networked	Several Computers not Networked	Total				
	Count	% within School	Count	% within School	Count	% within School	Count	% within School	Count	% within School
School A	0	.0%	8	50.0%	1	6.3%	7	43.8%	16	100.0%
B	4	30.8%	0	.0%	6	46.2%	3	23.1%	13	100.0%
C	0	.0%	5	55.6%	1	11.1%	3	33.3%	9	100.0%
D	0	.0%	1	12.5%	0	.0%	7	87.5%	8	100.0%
E	1	7.1%	1	7.1%	3	21.4%	9	64.3%	14	100.0%
F	1	7.7%	6	46.2%	1	7.7%	5	38.5%	13	100.0%
G	3	27.3%	1	9.1%	3	27.3%	4	36.4%	11	100.0%
H	2	20.0%	7	70.0%	0	.0%	1	10.0%	10	100.0%
J	0	.0%	7	77.8%	0	.0%	2	22.2%	9	100.0%
Total	11	10.7%	36	35.0%	15	14.6%	41	39.8%	103	100.0%

In School C, majority 55.6% (5) of teachers observed that data entry was in a central but not networked computer while 33.3% (3) said that data entry was in several computers that were not networked. On the other hand, 11.1% (1) said it data entry in several computers that were networked. In school D, majority 87.5% (7) noted that data entry was in several computers that were not networked while 12.5% (1) said it was in a central computer that was not networked. In school E, 64.3% (9) said data entry in MIS was in several computers that were not networked, 21.4% (3) indicated it was in several computers that were networked while 7.1% (1) and 7.1% (1) indicated it was in a

central networked computer and a central computer that was not networked respectively.

In school F, it was noted that 46.2% (6), 38.5% (5) , 7.7% (1) and 7.7% (1) noted that data entry in the MIS was in a central computer that was not networked, in several computers that were not networked, in a central computer that was networked and in several computers that were not networked respectively. Similarly, in School G 36.4% (4), 27.3% (3) , 27.3% (4) and 9.1% (1) of teachers observed that data entry in the MIS was in several computers that were not networked, in several computers that were not networked, in a central computer that was networked and a central computer that was not networked respectively.

It can be seen from the same Table 4.9 that in school H 70.0% (7), 20% (2) and 10% (1) noted that data entry in their MIS was in a central computer that was not networked, in a central computers that was networked and in several computers that were not networked respectively. Similarly, in School J 77.8% (7) and 22.2% (2) of teachers observed that data entry in their MIS was in a central computer that was not networked and in several computers that were not networked respectively.

In general, the study realised that majority, 39.8% (41) of teachers stated that data in MIS was entered in several computers that were not networked. 35% (36) of the teachers observed that data entry was in a central computer that was not networked. On the other hand, 14.6% (15) and 10.7% (11) observed that data entry was in several computers that were network and in a central computer that was network respectively.

4.3.2 Sharing of data electronically among computer programs

As seen in Table 4.10, in school A, majority 75% (12) of teachers noted that the MIS shared data electronically among computer programs while 25% (4) said it was unable to. In schools B, C, D, E, F, G, H and J, the teachers who indicated that the MIS had the ability to share data electronically among computer programs were 53.8% (7), 77.8% (7), 87.5% (7), 28.6% (4), 69.2% (9), 45.5% (5), 30.0% (3) and 66.7% (6) respectively. While 46.2% (6), 22.2% (2), 12.5% (8), 71.4% (10), 30.8% (4), 54.5% (6), 70% (7) and 33.3% (3) respectively indicated it could not.

Table 4.10: Electronic Data sharing among computer programs

		False		True		Total	
		Count	% within School	Count	% within School	Count	% within School
School	A	12	75.0%	4	25.0%	16	100.0%
	B	7	53.8%	6	46.2%	13	100.0%
	C	7	77.8%	2	22.2%	9	100.0%
	D	7	87.5%	1	12.5%	8	100.0%
	E	4	28.6%	10	71.4%	14	100.0%
	F	9	69.2%	4	30.8%	13	100.0%
	G	5	45.5%	6	54.5%	11	100.0%
	H	3	30.0%	7	70.0%	10	100.0%
	J	6	66.7%	3	33.3%	9	100.0%
Total		60	58.3%	43	41.7%	103	100.0%

In general, a majority 58.3% (60) of selected teachers indicated that the MIS could not share data electronically among other computer programs while 41.7% (43) noted that it had the ability to share data electronically among other computer programs. It can be seen in Table 4.10 that in 6 out of 9 of the selected schools, majority of teachers observed that their MIS could not share data electronically among computer programs.

4.3.3 Sharing of data electronically among other departments

For effective management of the curriculum, the MIS should be able to share data that has been captured at both departmental and other managerial levels. The MIS should be able to share confidential information between staff. In a study by Granville, Russell and Bell (2005), staff in the selected schools believed that use of MIS had made administrative work easier with regard to sharing of confidential information. Sharing of management information enhances communication in curriculum management. This study established the case of whether data could be shared amongst schools academic departments.

Table 4.11: Electronic data sharing among departments

		False		True		Total	
		Count	% within School	Count	% within School	Count	% within School
School	A	9	56.3%	7	43.8%	16	100.0%
	B	11	84.6%	2	15.4%	13	100.0%
	C	6	66.7%	3	33.3%	9	100.0%
	D	7	87.5%	1	12.5%	8	100.0%
	E	4	28.6%	10	71.4%	14	100.0%
	F	7	53.8%	6	46.2%	13	100.0%
	G	7	63.6%	4	36.4%	11	100.0%
	H	6	60.0%	4	40.0%	10	100.0%
	J	8	88.9%	1	11.1%	9	100.0%
	Total		65	63.1%	38	36.9%	103

It is seen from Table 4.11, in school A 56.3% (9) said that their MIS could not share data among other departments while 43.8% (7) said that it could share. In school B, 84.6% (11) said it could while 15.4% (2) said it could not. In school C, a majority 66.7% (6) attested to the fact that the MIS could share data among other departments

while 33.3% (3) said it could not. In school D the scenario was the same, as a majority 87.5% (7) and a minority 12.5% (1) attested and disagreed of the ability of the MIS to share data among other departments.

It was only in school D that a majority 71.4% (10) of teachers said that the MIS shared data amongst other academic departments while 28.6% (4) of them said the contrary. However, in schools F, G, H and J majority 53.8% (7), 63.6% (7), 60% (6) and 88.9% (8) respectively of teachers said that their MIS could share data electronically among other departments while 46.2% (6), 36.4% (4), 40.0% (4) and 11.1% (1) denied this view.

It was observed that except in school E where teachers acknowledged that their MIS could share data among other academic departments, majority of teachers in the other schools indicated that this was not possible with their MIS. The study found that majority, thus 63.1% (65) of the respondents rated as FALSE the ability of MIS to share data electronically among other departments while 36.9% (38) rated this ability as TRUE. Table 4.11 illustrates this information.

4.3.4 Access to Analysed Curriculum Management Information

To enhance curriculum management the MIS should allow teachers access to key management information in order to facilitate proper decision making on curriculum issues. Five attributes were determined in this respect. These were whether the teachers could access information on student performance, student class attendance, teacher

performance, timetable and academic performance of class. The findings were as discussed below.

4.3.4.1. Access to analysed students' performance information on MIS

Table 4.12: Access to Analysed Students Performance Information on MIS

		School									Total
		A	B	C	D	E	F	G	H	J	
False	Count	1	0	2	2	1	2	1	1	0	10
	% within School	6.3%	.0%	22.2%	25.0%	7.1%	15.4%	9.1%	10.0%	.0%	9.7%
True	Count	15	13	7	6	13	11	10	9	9	93
	% within School	93.8%	100.0%	77.8%	75.0%	92.9%	84.6%	90.9%	90.0%	100.0%	90.3%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

From the findings in Table 4.12, it was observed that all the teachers in schools B and J 100% (13) and 100% (9) respectively, could access analysed students' performance information on MIS. A higher percentage of teachers who could access this information was observed in schools A 93.8% (15), E 92.9% (13), G 90.9% (10) and H 90.0% (9). In other schools the percentage of teachers who could access analysed students' performance information on their MIS was found to be lower than 90% but still well above 70%. These schools were F 84.6% (11), C 77.8% (7) and D 75.0% (6).

On the other hand, it was noted that in schools A, C, D, E, F, G and H, a few teachers represented by 6.3% (1), 22.2% (2), 25% (2), 7.1% (1), 15.4% (2), 9.1% (1) and 10% (1) respectively said that their MIS did not give them access to analysed students' performance information.

From the findings in Table 4.12, it was observed that all the teachers in schools B and J, 100% (13) and 100% (9) respectively, could access analysed students' performance information on the MIS. A higher percentage of teachers who could access this information was observed in schools A 93.8% (15), E 92.9% (13), G 90.9% (10) and H 90.0% (9). In other schools the percentage of teachers who could access analysed students' performance information on their MIS was found to be lower than 90% but still well above 70%. These schools were F 84.6% (11), C 77.8% (7) and D 75.0% (6).

Table 4.12 indicated that in each of the schools, 75% and above of teachers could access analysed students' performance information on their MIS. This implied that most MIS permitted teachers to view their students' performance. As a whole the number of teachers who had access to analysed students performance information on MIS in all the selected schools was 90.3% (93) while teachers who could not were 9.7% (10).

4.3.4.2. Access to Analysed Students' Class Attendance Information

In relation to access to analysed students' class attendance information by teachers, Table 4.13 shows the findings that over 50% of teachers could not access this information on the MIS. The results of teachers in each school who could not access analysed students' class attendance information were as follows: school A 87.5% (14), school B 53.8% (7), school C 77.8% (7), school D 75% (6), school E 78.6% (11), school F 84.6% (11), school G 63.6% (7), school H 80% (8) and school J 88.9% (8).

In relation to access to analysed students' class attendance information by teachers, Table 4.13 indicated that over 50% of teachers in the selected schools could not access

this information. The results of teachers in each school who could not access analysed students' class attendance information were as follows: schools A 87.5% (14), B 53.8% (7), C 77.8% (7), D 75% (6), E 78.6% (11), F 84.6% (11), G 63.6% (7), H 80% (8) and J 88.9% (8).

Table 4.13: Access to Analysed Students Class Attendance Information

		School Code									
		A	B	C	D	E	F	G	H	J	Total
False	Count	14	7	7	6	11	11	7	8	8	79
	% within School	87.5%	53.8%	77.8%	75.0%	78.6%	84.6%	63.6%	80.0%	88.9%	76.7%
True	Count	2	6	2	2	3	2	4	2	1	24
	% within School	12.5%	46.2%	22.2%	25.0%	21.4%	15.4%	36.4%	20.0%	11.1%	23.3%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

On the other hand, the few teachers who could access analysed students' class attendance information were as follows: in school A 12.5% (2), school B 46.2% (6), school C 22.2% (2), school D 25% (2), school E 21.4% (3), school F 15.4% (2), school G 36.4% (4), school H 20% (2) and school J 11.1% (1). In general, majority 76.7% (79) against 23.3% (24) of all teachers observed that they could not access analysed students' class attendance information. In the entire selected schools, majority (above 50%) of teachers acknowledged that the MIS could not permit access to analysed students' class attendance information.

4.3.4.3. Access to Analysed Teachers' Performance Information on MIS

From Table 4.14, it was established that all teachers in schools C and D could not access analysed teachers' performance by teachers. A few teachers in school E 42.9% (6) could not also access analysed teachers' performance information. In the rest of the selected schools more than 50% of teachers could not access this information. Thus in schools; A 68.8% (11), B 61.5% (8), F 84.6% (11), G 54.5% (6), H 60.0% (6) and J 77.8% (7) of teachers could not access analysed information on teacher performance.

Table 4.14: Access to Teachers Performance Information by Teachers

		School Code									
		A	B	C	D	E	F	G	H	J	Total
False	Count	11	8	9	8	6	11	6	6	7	72
	% within School	68.8%	61.5%	100.0%	100.0%	42.9%	84.6%	54.5%	60.0%	77.8%	69.9%
True	Count	5	5	0	0	8	2	5	4	2	31
	% within School	31.3%	38.5%	.0%	.0%	57.1%	15.4%	45.5%	40.0%	22.2%	30.1%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

On the other hand, it was noted that teachers who could access this information in these schools were as follows; A 31.3% (5), B 38.5% (5), F 15.4% (2), G 45.5% (5), H 40.0% (4) and J 22.2% (2). In general, it was observed that majority 69.9% (72) against 30.1% (31) of teachers in the selected schools could not access analysed teachers' performance information using MIS.

4.3.4.4. Access to analysed Timetable Information on MIS

In relation to Table 4.15, it was established that majority (above 55%) of teachers, could access analysed timetable information. For instance, all teachers in schools A, F and H could access analysed timetable information while in schools B 61.5% (8), C 55.6% (5), D 75.0% (6), E 92.9% (13), G 90.9% (10) and J 77.8% (7) indicated that they could. However in the same schools, a few teachers who could not access this information were: schools B 38.5% (5), C 44.4% (4), D 25.0% (2), E 7.1% (1), G 9.1% (1) and J 22.2% (2).

Table 4.15: Access to analysed Timetable Information

		School									
		A	B	C	D	E	F	G	H	J	Total
False	Count	0	5	4	2	1	0	1	0	2	15
	% within School	.0%	38.5%	44.4%	25.0%	7.1%	.0%	9.1%	.0%	22.2%	14.6%
True	Count	16	8	5	6	13	13	10	10	7	88
	% within School	100.0%	61.5%	55.6%	75.0%	92.9%	100.0%	90.9%	100.0%	77.8%	85.4%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Generally, it was observed that a larger percentage of teachers from the selected schools could access analysed timetable information using MIS as compared to teachers who could not. in total, a majority 85.4% (88) against 14.6% (15) of all teachers in the nine schools observed that they could access analysed timetable information on their MIS.

4.3.4.5. Access to Analysed Academic Performance of a Class on MIS

In relation to Table 4.16, it was established that all teachers in schools A, B, D, G, H and J could access analysed academic performance of a class. Very few teachers thus 22.2% (2), 14.3% (2), 7.7% (1) in schools C, E and F respectively could not access the analysed academic performance information in a class. Similarly, majority of teachers in other schools indicated that they could access this information. This was testified by higher percentages of over 75% as seen in Table 4.16. In schools C 77.8% (7), E 85.7% (12), F 92.3% (12) of teachers acknowledged they could access this information.

Table 4.16: Access to analysed Academic performance of a class

		School										
		A	B	C	D	E	F	G	H	J	Total	
False	Count	0	0	2	0	2	1	0	0	0	5	
	% within School	.0%	.0%	22.2%	.0%	14.3%	7.7%	.0%	.0%	.0%	4.9%	
True	Count	16	13	7	8	12	12	11	10	9	98	
	% within Code	100.0%	100.0%	77.8%	100.0%	85.7%	92.3%	100.0%	100.0%	100.0%	95.1%	
Total	Count	16	13	9	8	14	13	11	10	9	103	
	% within Code	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

In general, it was observed that majority 95.1% (98) against 4.9% (5) of teachers in the selected schools could access analysed academic performance of a class information using MIS. This meant that most MIS in schools allowed teachers to view class performance and therefore make informed judgment on the progress of their classes as a whole.

4.3.5 The Source of MIS

Principals who were key informants provided information on the sources of MIS and the duration the MIS had been operational in their respective schools. It was established that at least the selected schools had used their MIS for a minimum of 2 years and a maximum of 9 years. The MIS had been operational in these schools for an average of 4 years and 9 months with a standard deviation of 2 years and 2 months. From the same interview, majority 66.7 (6) of principals pointed that their schools had purchased MIS from the existing systems in the Kenyan market. Only 33.3% (3) of the principals said that they had developed the MIS to meet their own information needs.

Teachers were asked to state the source of the MIS used in their respective schools. The findings on this attribute were presented in Table 4.17. With regard to this table, in school J all teachers 100% (9) observed that their MIS was acquired from the Kenyan market. It was noted that in an interview with the principal of the same school said that the MIS in their school was purchased from the Kenyan market.

In school D none, 0% (0) of the teachers indicated that their MIS had been acquired from the Kenyan market. Instead, 87.5% (7) of them noted that their MIS was specifically developed for the school while 12.5% (1) noted it was donated. However, this contracted with the sentiment of the school's principal who said that the MIS was specifically developed for the school. In schools C and E, 33.3% (3) and E 42.9% (6) respectively observed that their MIS had been purchased from the Kenyan market. Majority of teachers from schools C and E, 44.4% (4) and 57.1% (8) respectively noted it had been specifically developed for the schools while 22.2% (2) and 0% (0)

respectively noted that it was donated to the school. The principal of school C noted that the MIS was purchased from the Kenyan market while the principal of school E noted that their MIS had specifically been developed for their school.

Table 4.17: The Source of MIS as observed by Teachers

School Code		Purchased on the Kenya Market	Specifically developed for the School	Donated to School	Total
A	Count	13	3	0	16
	% within School	81.3%	18.8%	.0%	100.0%
B	Count	9	4	0	13
	% within School	69.2%	30.8%	.0%	100.0%
C	Count	3	4	2	9
	% within School	33.3%	44.4%	22.2%	100.0%
D	Count	0	7	1	8
	% within School	.0%	87.5%	12.5%	100.0%
E	Count	6	8	0	14
	% within School	42.9%	57.1%	.0%	100.0%
F	Count	9	4	0	13
	% within School	69.2%	30.8%	.0%	100.0%
G	Count	6	5	0	11
	% within School	54.5%	45.5%	.0%	100.0%
H	Count	6	4	0	10
	% within School	60.0%	40.0%	.0%	100.0%
J	Count	9	0	0	9
	% within School	100.0%	.0%	.0%	100.0%
Total	Count	61	39	3	103
	% within School	59.2%	37.9%	2.9%	100.0%

In schools A, B, E, F, G, H and J none of the teachers noted that the MIS was donated to the school. However, a few teachers in schools C 22.2% (2) and D 12.5% (1) noted that their MIS system was donated to them. Majority 81.3% (13), 69.2% (9), 69.2% (9), 60% (6) and 54.5% (6) of teachers in school A, B, F, H and G respectively noted that their MIS had been purchased from the Kenyan market while 18.8% (3), 30.8% (4), 30.8% (4), 40.0% (4) and 45.5% (5) respectively noted that their MIS was specifically developed for their schools. These findings agreed with that of the principals of schools

A, F, H and G who indicated that their MIS were purchased. However, the principal of school B noted in contrary to majority of teachers in the school that the MIS had been specifically developed for the school.

The study generally established that the majority 59.2% (61) of the teachers noted that their MIS was acquired from the Kenyan market. Six out of nine principals indicated the same. On the other hand, 37.9% (39) of teachers and three out of nine principals observed that the MIS systems in their schools were specifically developed for their schools. This suggests that most schools purchased their MIS from what was already in the Kenyan market while only a few developed systems that were specific to their needs. A negligible percentage 2.9% (3) of the teachers and 0% of the principals indicated that their MIS had been donated to the school.

4.4 Management information generated by the MIS

The second objective of the study was to establish the type of management information that was generated by the MIS that were used in schools. The type of information generated by the MIS was important in this study since it distinguishes management information systems from simple transaction processing systems. Information by MIS should be in a refined form in a sense as to support decision making in curriculum management. The findings on type of information generated by MIS in selected schools were discussed below.

4.4.1 Generation of Management Information on Analysis on Students Progress

From the findings in Table 4.18, it was depicted that all the teachers in schools A, D and F with 100% (16), 100% (8) and 100% (13) respectively agreed that the MIS generated information on analysis of students' progress. Similarly, majority of the teachers in all other schools agreed with this observation. These majorities were in schools B: 84.6% (11), C: 88.9% (8), E: 85.7% (12), G: 90.9% (10) and J: 88.9% (8). In school H 50% (5) acknowledge that their MIS generated this information.

Table 4.18: Generation of Information on Analysis of Students Progress

		School									
		A	B	C	D	E	F	G	H	J	
True	Count	16	11	8	8	12	13	10	5	8	91
	% within School	100.0%	84.6%	88.9%	100.0%	85.7%	100.0%	90.9%	50.0%	88.9%	88.3%
False	Count	0	2	1	0	2	0	1	5	1	12
	% within School	.0%	15.4%	11.1%	.0%	14.3%	.0%	9.1%	50.0%	11.1%	11.7%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

On the other hand, minority of teachers noted that the MIS could be used registered lower than 20% with H only registering 50% (5). School A, D and F had 0.0% as none noted that the MIS could be used. It was thus concluded that majority 88.3% (91) against 11.7% (12) of the respondents noted that the MIS generated information on analysis of student progress. This was in line with the sentiments of majority of principals. Eight out of nine principals rated the information generated on students' performance as above average. Most principals also seemed to be very contented with

the type of information generated on students' performance. 5 out of eight rated this information as very satisfactory.

4.4.2 Generation of Management Information on Analysis on Students Attendance

Table 4.19 shows the responses of teachers when asked whether the MIS generated analysed students' attendance information. Teachers from only two schools registering above 50.0% when asked whether MIS generates information on analysed students attendance. These schools were B 53.8% (7) and E 78.6% (11). Teachers from the rest of the selected school registered below 50%, A 25.0% (4), C 33.3% (3), D 25.05 (20, F 7.7% (1), g 45.5% (5), H 10.05 (1) and J 22.2% (2).

Table 4.19: Generation of Information on Analysis of Students Attendance

		School Code									
		A	B	C	D	E	F	G	H	J	Total
True	Count	4	7	3	2	11	1	5	1	2	36
	% within School	25.0%	53.8%	33.3%	25.0%	78.6%	7.7%	45.5%	10.0%	22.2%	35.0%
False	Count	12	6	6	6	3	12	6	9	7	67
	% within School	75.0%	46.2%	66.7%	75.0%	21.4%	92.3%	54.5%	90.0%	77.8%	65.0%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

It was also noted that majority of teachers noted this as impossible registered higher percentages, these schools included A 75.0% (12), C 66.7% (6), D 75.0% (6), F 92.3% (12), H 90.0% (9) and J 77.8% (7). From the general view, it was established that those respondents who noted the MIS being adopted in generation of information on analysis

of students' attendance as FALSE formed the majority of 65.0% (67) against 35.0% (36). This meant that their MIS could not be used in the generation of the information.

4.4.3 Generation of Management Information on Challenges Faced by Students in Learning

From Table 4.20, it was deduced that none of the teachers from school D 0% (0) supported the use of MIS to generate information on challenges faced by students during learning. Only school B was above 50% with 53.8% (7) while the rest of the schools registered below 30%. These schools included A 112.5% (2), C 11.1% (1), E 7.1% (1), F 7.7% (1), G 27.3% (3), H 10.0% (1) and J 11.1% (1).

Table 4.20: Generation of Information on Challenges Faced by Students in Learning

		School Code									
		A	B	C	D	E	F	G	H	J	Total
True	Count	2	7	1	0	1	1	3	1	1	17
	% within School	12.5%	53.8%	11.1%	.0%	7.1%	7.7%	27.3%	10.0%	11.1%	16.5%
False	Count	14	6	8	8	13	12	8	9	8	86
	% within School	87.5%	46.2%	88.9%	100.0%	92.9%	92.3%	72.7%	90.0%	88.9%	83.5%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

On the other hand, a majority of teachers noted that MIS did not generate information on challenges faced by students in learning, most of these schools registered above 80% with school D at 100.0% (8). It was only school B 46.2% (6) that registered below 50%. Generally, the study established that majority 83.5% (86) against 16.5% (17) of teachers indicated that MIS did not generate information on challenges faced by students in

learning. This finding indicated that teachers and principals did not use this information from MIS to inform their decisions on challenges faced by students in learning.

4.4.4 Generation of Management Information on Students Repetition Rate

Table 4.21: Generation of Information on Students Repetition Rate

		School Code										
		A	B	C	D	E	F	G	H	J	Total	
True	Count	3	4	2	0	2	1	5	2	1	20	
	% within School	18.8%	30.8%	22.2%	.0%	14.3%	7.7%	45.5%	20.0%	11.1%	19.4%	
False	Count	13	9	7	8	12	12	6	8	8	83	
	% within School	81.3%	69.2%	77.8%	100.0%	85.7%	92.3%	54.5%	80.0%	88.9%	80.6%	
Total	Count	16	13	9	8	14	13	11	10	9	103	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Table 4.21 indicates responses on generation of information on students' repetition rate. None of the teachers in school D noted that generation of this information using MIS was possible while school G had the highest support of its possibility being at 45.5% (5). The rest of the selected schools A 18.8% (3), B 30.8% (4), C 22.2% (2), E 14.3% (2), F 7.7% (1), H 20.0% (2) and J 11.1% (1) registered relatively low support for the same, which was below 35%.

It was established that all teachers from school D noted that MIS could not be adopted to generate this information, with other schools having their percentage above 80%. These schools included A 81.3% (13), B 69.2% (9), C 77.8% (7), E 85.7% (12), F 92.3% (12), H 80.0% (8) and J 88.9% (8). It was only school G 54.5% (6) that had a percentage below 65%. In general, majority of the respondents noted that MIS did not

generate information on students' repetition rate. They registered 80.6% (83) against 19.4% (20). This indicated that MIS did not generate this information.

4.4.5 Generation of Management Information on Analysis on Students Retention Rate

Government of Kenya (2011) in its Human Resource Development Report pointed that students' retention rate was an important piece of management information in schools. This study asked the principals and teachers whether MIS in schools generated this information.

Table 4.22: Generation of Information on Students Retention Rate

		School									
		A	B	C	D	E	F	G	H	J	Total
True	Count	4	8	3	0	2	3	6	0	0	26
	% within School	25.0%	61.5%	33.3%	.0%	14.3%	23.1%	54.5%	.0%	.0%	25.2%
False	Count	12	5	6	8	12	10	5	10	9	77
	% within School	75.0%	38.5%	66.7%	100.0%	85.7%	76.9%	45.5%	100.0%	100.0%	74.8%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

From the principals' interview, 77.8% (7 out of 9) of the principals indicated that their MIS did generate this information. Further, 44.4% (4) they expressed satisfied with the quality of this information while 22.2% (2) were less satisfied. 11.1% (1) of them said the information was of average quality. 22.2% (2) others said their MIS did not generate this information. Teachers on their part gave their responses as shown in Table 4.22. From the table, none of the teachers from schools D, H and J noted that it was possible

for MIS to be used in generation of information on students retention rate since they all registered 0.0% (0). Only schools B and G were above 50% with 61.5% (8) and 54.5% (6) respectively.

It was also established that majority of teachers noted that MIS could not be adopted were way above 50%. This could be evidenced as schools D, H and J all registered 100% (8), 100% (10) and 100% (9) respectively. Only schools B and G were below 50% with 38.5% (5) and 45.5% (5). It can be seen that teachers noted FALSE with regard to generation of information on students' retention rate formed the majority by 74.8% (77) against 25.2% (26). This showed that it was not possible for their MIS to be used in regard to this information.

4.4.6 Generation of Management Information on Student Completion Rate

The study assessed the quality of information on student completion rate that is generated by MIS by asking the principals to rate this information. Two principals noted that their systems did not generate such information. Three principals rated it as satisfactory while two rated it as average. One rated it as less satisfactory and one rated it as not satisfactory.

Findings on responses by teachers was tabulated Table 4.23. It was established that that none of the teachers in schools D 0% (0) and H 0% (0) noted that that MIS generated information on students completion rate while in schools E 71.4% and G 63.6% had the highest percentages indicated it did generate. The other schools A 25.0% (4), B 46.2% (6), C 44.4% (4), F 23.1% (3) and J 22.2% (2) had relatively low percentages.

On the other hand, teachers noted that generation of information on students completion rate could not be attained using MIS had relatively high percentage. In schools D and H all the teachers noted that it was not possible to get such information with 100.0% (8) and 100.0% (10) respectively. The rest of schools A 75.0% (12), B 53.8% (7), C 55.6% (5), F 76.9% (10) and J 77.8% (7) were above 50% apart from schools E 28.6% (4) and G 36.4% (4). The majority of the respondents indicated that MIS did not generate information on students completion rate with 65.5% (67) compared to 35.0% (36) who were in support.

Table 4.23: Generation of Information on Students Completion Rate

		School Code										
		A	B	C	D	E	F	G	H	J	Total	
True	Count	4	6	4	0	10	3	7	0	2	36	
	% within School	25.0%	46.2%	44.4%	.0%	71.4%	23.1%	63.6%	.0%	22.2%	35.0%	
False	Count	12	7	5	8	4	10	4	10	7	67	
	% within School	75.0%	53.8%	55.6%	100.0%	28.6%	76.9%	36.4%	100.0%	77.8%	65.0%	
Total	Count	16	13	9	8	14	13	11	10	9	103	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

4.4.7 Generation of Management Information on Analysis of Lessons Allocation per Teacher

With respect to Table 4.24, it was established that all teachers in schools A 100.0% (16), E 100.0% (14), F 100.0% (13), and H 100.0% (10) observed that in their schools MIS was used to generate information on analysis of lessons allocation per teacher. Similarly, most teachers in schools B 69.2% (9), D 87.5% (7), G 90.9% (10) and J 77.8% (7) noted that the MIS was used to generate this information. However, fewer

teachers in school C 11.1 (1) observed that the MIS was used to generate information on analysis of lessons allocation per teacher.

Table 4.24: Generation of Information on Analysis of Lessons Allocation per Teacher

		School Code									
		A	B	C	D	E	F	G	H	J	Total
True	Count	16	9	1	7	14	13	10	10	7	87
	% within School	100.0%	69.2%	11.1%	87.5%	100.0%	100.0%	90.9%	100.0%	77.8%	84.5%
False	Count	0	4	8	1	0	0	1	0	2	16
	% within School	.0%	30.8%	88.9%	12.5%	.0%	.0%	9.1%	.0%	22.2%	15.5%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

It could also be noted that schools that noted MIS was not being used in generation of this information had low opinion of 0% (0). These schools include A, E, F and H. only school C 88.9% (8) which had the highest percentage and only one above 50%. The other schools A 30.8% (4), D 12.5% (1), G 9.1% (1) and J 22.2% (2) recorded below 35%. From the study it was acknowledged that it was possible for MIS to be used in generation of information on analysis of lessons allocation per teacher since majority of the respondents noted it as TRUE with a percentage of 84.5% (87) against 15.5% (16).

4.4.8 Generation of Management Information on Analysis of Lessons per Subject

From Table 4.25, it was deduced that most of the teachers agreed that it was possible for the generation of information on analysis of lessons per subject. This was evidenced

when all teachers in schools A 100.0% (16), E 100.0% (14) and F 100.0% (13) noted this as TRUE. School C had the lowest percentage of 33.3% (3).

Table 4.25: Generation of Information on Analysis of Lessons per Subject

		School Code									
		A	B	C	D	E	F	G	H	J	Total
True	Count	16	7	3	7	14	13	10	9	8	87
	% within School	100.0%	53.8%	33.3%	87.5%	100.0%	100.0%	90.9%	90.0%	88.9%	84.5%
False	Count	0	6	6	1	0	0	1	1	1	16
	% within School	.0%	46.2%	66.7%	12.5%	.0%	.0%	9.1%	10.0%	11.1%	15.5%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within school	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

On the other hand, schools B, D, G, H and J scored 46.2% (6), 12.5% (1), 9.1% (1), 10.0% (1) and 11.1% (1) respectively. Only school C had 66.7% (6) of teachers noting as FALSE with regard to generation of analysed information on lessons per subject. However, none of the teachers in schools A, E and F had observed that the MIS in their schools could generate this information. In relation to the study, it was noted that the MIS generated information on analysis of lessons per subject. Teachers who noted that it did were 84.5% (87) of the respondents against 15.5% (16).

4.4.9 Generation of Management Information on Analysis of Actual Lessons Taught per Subject

From Table 4.26, In relation to generation of information on analysis of actual lessons taught per subjects, teachers from schools A 68.8% (11), E 85.7% and F 61.5% (8) registered above 60% thus noted the possibility of MIS being used. Schools B 46.2%

(6), G 54.5% (6), H 40.0% (4), J 55.6% (5) were below 60% in support, while schools C and D had the lowest percentage of 11.1% (1) and 25.0% (2) respectively.

Table 4.26: Generation of Information on Analysis of Actual Lessons Taught per Subjects

		School Code									
		A	B	C	D	E	F	G	H	J	Total
True	Count	11	6	1	2	12	8	6	4	5	55
	% within School	68.8%	46.2%	11.1%	25.0%	85.7%	61.5%	54.5%	40.0%	55.6%	53.4%
False	Count	5	7	8	6	2	5	5	6	4	48
	% within School	31.3%	53.8%	88.9%	75.0%	14.3%	38.5%	45.5%	60.0%	44.4%	46.6%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Majority of schools that noted this as FALSE recorded below 50%, they included: A 31.3% (5), E 14.3% (2), F 38.5% (5), G 45.5% (5) and J 44.4% (4). Other schools recorded 53.8% (7), 75.0% (6), and 60.0% (6) for B, D and J respectively while school C had the highest with 88.9% (8). With regard to the study, teachers who noted possibility of MIS in generation of information on analysis of actual lessons taught per subjects formed the majority by 53.4% (55), though this was slightly above teachers who noted it as impossible with 46.6% (48).

4.4.10 Generation of Management Information on Analysis of Syllabus Coverage

It could be established from Table 4.27 that generation of information on analysis of syllabus coverage using MIS had low percentage of teachers who noted it to be possible. Only school G had 45.5% (5) which was above 40% while the rest recorded

lower than 40%. In addition, none of the teachers from schools A, D, F and H noted this as possible thus they all registered 0%. Majority of schools noted this as impossible registered higher percentages of above 85%, these schools include A 100.0% (16), C 88.9% (8), D 100.0% (8), E 85.7% (12), F 100.0% (10), G 100.0% (10) and J 88.9% (8). Schools B and G registered the lowest with 61.5% (8) and 54.5% (5) respectively.

Table 4.27: Generation of Information on Analysis of Syllabus Coverage

		School										Total
		A	B	C	D	E	F	G	H	J		
True	Count	0	5	1	0	2	0	5	0	1	14	
	% within School	.0%	38.5%	11.1%	.0%	14.3%	.0%	45.5%	.0%	11.1%	13.6%	
False	Count	16	8	8	8	12	13	6	10	8	89	
	% within School	100.0%	61.5%	88.9%	100.0%	85.7%	100.0%	54.5%	100.0%	88.9%	86.4%	
Total	Count	16	13	9	8	14	13	11	10	9	103	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

From the general view, it was established that respondents who noted the impossibility of MIS being adopted in generation of information on analysis of syllabus coverage formed the majority by 86.4% (89) against 13.6% (14) who thought it possible. This meant that their MIS could not be used in the generation of the information.

4.4.11 Generation of Management Information on Analysis on Subject Performance

In relation to generation of information on analysis of subject performance, Table 4.28 indicated that majority of the schools recorded above 80%. They included schools A 81.3% (13), B 92.3% (12), D 100.0% (8), E 92.9% (13), F 100.0% (13) and H 100.0%

(10). The rest were relatively above 60%, they were C 66.7% (6) G 72.7% (8) and J 66.7% (6).

Table 4.28: Generation of Information on Analysis on Subject Performance

		School									Total
		A	B	C	D	E	F	G	H	J	
True	Count	13	12	6	8	13	13	8	10	6	89
	% within School	81.3%	92.3%	66.7%	100.0%	92.9%	100.0%	72.7%	100.0%	66.7%	86.4%
False	Count	3	1	3	0	1	0	3	0	3	14
	% within School	18.8%	7.7%	33.3%	.0%	7.1%	.0%	27.3%	.0%	33.3%	13.6%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

On the other hand, none of the teachers from schools D, F and H noted that the MIS did not generate information on analysis of subject performance. The same was said by 33.3% (3) and 33.3% (3) of teachers in schools C and J respectively. Therefore, majority of the schools that supported the possibility of MIS being used in generation of information on analysis on subject performance scored 86.4% (89) against 13.6% (14).

4.4.12 Generation of Management Information on Analysis on Students in Need of Academic Counselling

It could be deduced from Table 4.29 that teacher in many selected schools registered more than 50% in support of MIS being used in generation of information on analysis of students in need of academic counseling. They included schools A 56.3% (9), B 76.9% (10), E 71.4% (10) F 69.2% (9), G 72.7% (8) and J 66.7% (6). Schools C, D and H had 22.2% (2), 0% (0) and 20.0% (2) respectively of teachers noting that the MIS did not

generate this information. It was also observed that all teachers in school D 100% (8) said that the MIS did not generate information on analysis of students in need of academic counseling.

Table 4.29: Generation of Information on Analysis of Students in Need of Academic Counselling

		School Code									Total
		A	B	C	D	E	F	G	H	J	
True	Count	9	10	2	0	10	9	8	2	6	56
	% within School	56.3%	76.9%	22.2%	.0%	71.4%	69.2%	72.7%	20.0%	66.7%	54.4%
False	Count	7	3	7	8	4	4	3	8	3	47
	% within School	43.8%	23.1%	77.8%	100.0%	28.6%	30.8%	27.3%	80.0%	33.3%	45.6%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Generally this indicated that it was not possible to use MIS in generation of information on analysis of students in need of academic counseling. The possibility of generation of information on analysis of students in need of academic counseling using MIS was noted to be higher with 54.4% (56) than teachers not in support at 45.6% (47).

4.4.13 Generation of Management Information on Guidance of Students on Improving Academic Performance

In relation to generation of information on guidance of students on improving academic performance, Table 4.30 indicated that only two schools noted above 50% the possibility of MIS being used. These were schools E 78.6% (11) and G 63.6% (7). The

rest that registered below 40% were A 37.5% (6), B 38.5% (5), C 2.2% (2), D 12.5% (1), F 38.5% (5), H 20.0% (2) and J 33.3% (3).

Table 4.30: Generation of Information on Guidance of Students on Improving Academic Performance

	School										Total
	A	B	C	D	E	F	G	H	J		
True Count	6	5	2	1	11	5	7	2	3	42	
% within School	37.5%	38.5%	22.2%	12.5%	78.6%	38.5%	63.6%	20.0%	33.3%	40.8%	
False Count	10	8	7	7	3	8	4	8	6	61	
% within School	62.5%	61.5%	77.8%	87.5%	21.4%	61.5%	36.4%	80.0%	66.7%	59.2%	
Total Count	16	13	9	8	14	13	11	10	9	103	
% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

On the other hand teachers who noted that it was not possible for MIS to be used in generation of information on guidance of students on improving academic performance had the majority of the schools that registered above 50%. Schools C and G registered below 40% with 21.4% (3) and 36.4% (4) respectively. In general teachers who noted this as FALSE had the higher percentage of 59.2% (61) while those in support had only 40.8% (42), thus implied that MIS did not generate information on guidance of students on improving academic performance.

4.4.14 Generation of Management Reports on Teacher Adequacy

A MIS should be able to provide information on teacher adequacy. This enables school managers make decisions on whether to request, recruit or restructure their teacher-resource. However, interviews with school principles revealed that majority of

principals expressed their dissatisfaction of the MIS in providing information on teacher adequacy. The principal of school A, said that he was not satisfied with the MIS in providing information on teacher adequacy while three principals thus of schools C, G and J noted that they were less satisfied. Only one principal was satisfied while one other said that the MIS was average in providing this information.

Teachers on the other hand, were asked whether the MIS in their schools generated teacher adequacy information. Their observations were tabulated in Table 4.31.

Table 4.31: Generation of Reports on Teacher Adequacy

		School									
		A	B	C	D	E	F	G	H	J	Total
True	Count	1	4	0	0	12	2	3	1	0	23
	% within School	6.3%	30.8%	.0%	.0%	85.7%	15.4%	27.3%	10.0%	.0%	22.3%
False	Count	15	9	9	8	2	11	8	9	9	80
	% within School	93.8%	69.2%	100.0%	100.0%	14.3%	84.6%	72.7%	90.0%	100.0%	77.7%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

From Table 4.31, it could be noted that school E 85.7% (12) had the highest percentage with regard to teachers who noted that MIS did generate reports on teacher adequacy. The rest of the schools that included A 6.3% (1), B 30.8% (4), F 15.4% (2), G 27.3% (3) and H 10.0% (1) had registered below 35% with C, D and J having 0% (0). This implied that none of the teachers noted its possibility. On the other hand all the teachers in schools C, D and J noted that it was not possible to use MIS in generation of this information. They registered 100.0% (9), 100.0% (8) and 100.0% (9) respectively.

Others had relatively higher percentages of above 80% apart from E that was the lowest with 14.2% (2). Generally it could be observed that 77.7% (80) of all teachers noted that it was not possible to use MIS in generation of reports on teacher adequacy.

4.4.15 Generation of Management Information on Students Text Book Ratio

Table 4.32: Generation of Information on Students Text Book Ratio

		School Code									
		A	B	C	D	E	F	G	H	J	Total
True	Count	0	6	2	5	0	1	6	0	1	21
	% within School	.0%	46.2%	22.2%	62.5%	.0%	7.7%	54.5%	.0%	11.1%	20.4%
False	Count	16	7	7	3	14	12	5	10	8	82
	% within School	100.0%	53.8%	77.8%	37.5%	100.0%	92.3%	45.5%	100.0%	88.9%	79.6%
Total	Count	16	13	9	8	14	13	11	10	9	103
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table Table 4.32 shows that none of the teachers from schools A, E and H noted that the MIS generated management information on students-text book ratio. Teachers in Schools B 46.2% (6), C 2.2% (2), D 62.5% (5), F 7.7% (1), G 54.5% (6) and J 11.1% (1) noted that the MIS generated information on students'-text book ratio.

It was observed that more than 50% of teachers apart from teachers in schools D and G which had 37.5% (3) and 45.5% (5) respectively, pointed that the MIS did not generate such information. In the rest of the schools, majority of teachers noted that their MIS did not generate such information on students text book ratio with schools A, E

and H having all the teachers noting this as FALSE. They had 100.0% (16), 100.0% (14) and 100.0% (10) respectively.

In an overall view, it could be deduced that majority of the teachers noted that it was not possible to use MIS in generation of information on students text book ratio since they registered 79.6% (82) against 20.4% (21) who noted its possibility.

4.4.16 Rating of MIS by Teachers in Providing Curriculum Management Information

The respondents were asked to give their opinion on the MIS by rating the overall performance of MIS on a five-point likert scale. In relation to Table 4.33, it was established that in schools A 12.5% (2), B 61.5% (8), C 12.5% (1), D 12.5% (1), E 64.3% (9), F 38.5% (5), G 30.0% (3) and H 10.0% (1) of teachers noted that the MIS is very useful in providing curriculum management information. None of the teachers from school J 0% (0) rated it as very useful.

43.8% (7), 30.8% (4), 37.5% (3), 35.7% (5), 30.8% (4), 60.0% (6), 10.0% (1) and 33.3% (3) of teachers in schools A, B, D, E, F, G, H and J respectively observed that the MIS was useful in providing curriculum management information while none of the teachers in school C rated it to be useful. It was also noted that teachers from schools A 43.8% (7), B 7.7% (1), C 62.5% (5), D 50.0% (4), F 30.8% (4), G 10.0% (1), H 20.0% (2) and J 44.4% (4) rated of MIS system in providing curriculum management information as average, none of the teachers from school E rated it average.

From the same table, a few of the teachers from schools C 12.5% (1) and H 60.0% (6) rated MIS system in providing curriculum management information as less useful. There was none of the teachers from schools A, B, D, E, F, G and J rating it less useful. None of the teachers from schools A, B, D, E, F, G, H and J rated the MIS system in providing curriculum management information as not useful, except some teachers from school C that recorded 12.5% in rating it not useful.

Table 4.33: Rating of MIS System by Teachers in Providing Curriculum Management Information

		School									Total
		A	B	C	D	E	F	G	H	J	
Very Useful	Count	2	8	1	1	9	5	3	1	0	30
	% within School	12.5%	61.5%	12.5%	12.5%	64.3%	38.5%	30.0%	10.0%	.0%	29.7%
Useful	Count	7	4	0	3	5	4	6	1	3	33
	% within School	43.8%	30.8%	.0%	37.5%	35.7%	30.8%	60.0%	10.0%	33.3%	32.7%
Average	Count	7	1	5	4	0	4	1	2	4	28
	% within School	43.8%	7.7%	62.5%	50.0%	.0%	30.8%	10.0%	20.0%	44.4%	27.7%
Less Useful	Count	0	0	1	0	0	0	0	6	0	7
	% within School	.0%	.0%	12.5%	.0%	.0%	.0%	.0%	60.0%	.0%	6.9%
Not Useful	Count	0	0	1	0	0	0	0	0	0	1
	% within School	.0%	.0%	12.5%	.0%	.0%	.0%	.0%	.0%	.0%	1.0%
Total	Count	16	13	8	8	14	13	10	10	9	101
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Generally, the rating of MIS system by teachers in providing curriculum management information was established to be useful as it attained the highest percentage of 32.7% (33). The rating that attained the least percentage was Not Useful at 1.0% (1)

4.5 Effects of MIS on curriculum management decisions

Principals of selected schools were asked which decisions were influenced by MIS in their schools. 77.7% (7) identified that student's performance and subject performance decisions were influenced by MIS. Timetable management decisions were influenced by MIS as noted by 55.5% (5) of the principals. 44.4% (4) pointed that management of students' enrolment was also influenced by MIS. Teacher workload, staff recruitment and communication with parents were noted as areas the MIS was used.

4.5.1 Effect of MIS on Analysis of Teaching and Learning

Table 4.34: The MIS has Improved Analysis of Teaching and Learning

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	3	8	1	0	3	3	3	4	1	26
	% within School	18.8%	61.5%	11.1%	.0%	21.4%	23.1%	30.0%	40.0%	11.1%	25.5%
Agree	Count	10	4	1	8	11	6	7	1	5	53
	% within School	62.5%	30.8%	11.1%	100.0%	78.6%	46.2%	70.0%	10.0%	55.6%	52.0%
Not Sure	Count	1	1	2	0	0	0	0	0	1	5
	% within School	6.3%	7.7%	22.2%	.0%	.0%	.0%	.0%	.0%	11.1%	4.9%
Disagree	Count	2	0	3	0	0	2	0	3	2	12
	% within School	12.5%	.0%	33.3%	.0%	.0%	15.4%	.0%	30.0%	22.2%	11.8%
Strongly Disagree	Count	0	0	2	0	0	2	0	2	0	6
	% within School	.0%	.0%	22.2%	.0%	.0%	15.4%	.0%	20.0%	.0%	5.9%
Total	Count	16	13	9	8	14	13	10	10	9	102
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

From the findings in Table 4.34 it can be seen that only teachers from schools B 61.5% (8) strongly agreed that MIS has improved analysis of teaching and learning fall above

50%. On the other hand, none of the teachers from school D strongly agreed. A few of teachers from schools; A 18.8% (3), C 11.1% (1), E 21.4% (3), F 23.1% (3), G 30.0% (3), H 40.0% (4), J 11.1% (1) recorded below 50% strongly agreeing that MIS has improved analysis of teaching and learning.

In schools A, D, E, G and J the teachers who agreed that MIS has improved teaching and learning were 62.5% (10), 100% (8), 78.6% (11), 70.0% (7) and 55.6(5) respectively thus their percentage being above 50%. However, a few teachers who also agreed were from schools B 30.8% (4), C 11.1% (1), F 46.2% (6), H 10.0% (1). Their percentage was below 50%.

A few teachers from schools A 6.3% (1), B 7.7% (1), C 22.2% (2) and J 11.1% (1) were not sure of MIS having improved analysis of teaching and learning in their schools. Nevertheless none of the teachers from schools D, E, F, G, H was not sure. None of the teachers from school B, D, E and G disagreed that the MIS has improved analysis of teaching and learning, but a few teachers from schools A 12.5% (2), C 33.3% (3), F 15.4% (2), H 30.0% (3), and J 22.2% (2) disagreed. A few teachers from schools C 22.2% (2), F 15.4% (2) and H 20.0% (2) strongly disagreed that the MIS has improved analysis of teaching and learning, but none from schools A, B, D, E, G and J.

In general, the findings on this attribute indicated that only 25.5% (26) of all teachers in all schools strongly agreed that the MIS has improved the analysis of teaching and learning in their institutions. The majority, 52% (53) only agreed to this while 4.9% (5) were not sure. Teachers who disagreed recorded 11.8% (12) and the ones who strongly

disagreed had registered 5.9% (6). The study indicated that MIS has improved analysis of teaching and learning since majority of the respondents agreed.

4.5.2 Effect of MIS on Supervision of the Curriculum

From Table 4.35, none of the teachers from schools D and J strongly agreed that MIS has improved supervision of the curriculum however a few teachers from schools A 12.5% (2), B 38.5% (5), C 12.5% (1), E 21.4% (3), F 8.3% (1), G 20.0% (2) and H 20.0% (2) strongly agreed.

Table 4.35: The MIS has improved supervision of the curriculum

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	2	5	1	0	3	1	2	2	0	16
	% within School	12.5%	38.5%	12.5%	.0%	21.4%	8.3%	20.0%	20.0%	.0%	16.0%
Agree	Count	7	4	0	4	9	6	6	1	4	41
	% within School	43.8%	30.8%	.0%	50.0%	64.3%	50.0%	60.0%	10.0%	44.4%	41.0%
Not Sure	Count	3	3	2	0	2	3	2	0	1	16
	% within School	18.8%	23.1%	25.0%	.0%	14.3%	25.0%	20.0%	.0%	11.1%	16.0%
Disagree	Count	4	1	4	4	0	1	0	2	3	19
	% within School	25.0%	7.7%	50.0%	50.0%	.0%	8.3%	.0%	20.0%	33.3%	19.0%
Strongly Disagree	Count	0	0	1	0	0	1	0	5	1	8
	% within School	.0%	.0%	12.5%	.0%	.0%	8.3%	.0%	50.0%	11.1%	8.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Majority of teachers from school E 64.3% (9) and G 60.0% (6) agreed that MIS has improved supervision of the curriculum, none of the teachers from school C agreed, however teachers from schools D and F recorded 50.0% (4) and 50.0% (6) respectively

in agreement. Only a few teachers from schools A 43.8% (7), B 30.8% (4), H 10.0% (1) and J 44.4% (4) also agreed that MIS has improved supervision of the curriculum.

A few teachers from schools A 18.8% (3), B 23.1% (3), C 25.0% (2), E 14.3% (2), F 25.0% (3), G 20.0% (2) and J 11.1% (1) were not sure if MIS has improved supervision of the curriculum. Meanwhile, none of the teachers from schools D and H was not sure. 50% of teachers in schools C 50.0% (4) and D 50.0% (4) disagreed that MIS has improved supervision of the curriculum in their schools, a few more teachers from schools A 25% (4), B 7.7% (1), F 8.3% (1), H 20.0% (2) and J 33.3% (3) also disagreed. None of the teachers from schools E and G disagreed. It was noted that a few teachers from school C 12.5% (1), F 8.3% (1), H 50.0% (5) and J 11.1% (1) strongly disagreed that MIS has improved supervision of the curriculum, however none of the teachers from school A, B, D, E and G strongly disagreed.

From the overall findings in Table 4.35, it was observed that only 16% (16) strongly agreed that the MIS has improved the supervision of the curriculum. A majority 41% (41) agreed to the observation. 16% (16) were not sure, 19% (19) disagreed while 8.0% (8) strongly disagree.

4.5.3 Effect of MIS on Teacher Absenteeism

According to Table 4.36, it can be seen that none of the teachers from school A, D, F, G, H and J strongly agreed that the MIS has led to a Drop in teacher absenteeism. It was also notable that a few of the teachers in schools C 12.5% (1), and E 7.1% (1) strongly agreed that the MIS has led to a Drop in teacher absenteeism while majority of

respondents who strongly agreed were from school B 53.8% (7). None of the teachers in school B, C and D agreed that MIS has led to a Drop in teacher absenteeism, but a few teachers from schools A 12.5% (2), E 50.0% (7), F 41.7% (5), G 30.0% (3), H 20.0% (2) and J 22.2% (2) agreed.

Table 4.36: The MIS has Led to a Drop in teacher absenteeism

		School										Total
		A	B	C	D	E	F	G	H	J		
Strongly Agree	Count	0	7	1	0	1	0	0	0	0	9	
	% within School	.0%	53.8%	12.5%	.0%	7.1%	.0%	.0%	.0%	.0%	9.0%	
Agree	Count	2	0	0	0	7	5	3	2	2	21	
	% within School	12.5%	.0%	.0%	.0%	50.0%	41.7%	30.0%	20.0%	22.2%	21.0%	
Not Sure	Count	6	4	2	2	3	2	4	1	2	26	
	% within School	37.5%	30.8%	25.0%	25.0%	21.4%	16.7%	40.0%	10.0%	22.2%	26.0%	
Disagree	Count	7	1	4	6	3	5	3	2	4	35	
	% within School	43.8%	7.7%	50.0%	75.0%	21.4%	41.7%	30.0%	20.0%	44.4%	35.0%	
Strongly Disagree	Count	1	1	1	0	0	0	0	5	1	9	
	% within School	6.3%	7.7%	12.5%	.0%	.0%	.0%	.0%	50.0%	11.1%	9.0%	
Total	Count	16	13	8	8	14	12	10	10	9	100	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

A few of teachers in school A, B, C, D, E, F, G, H and J were not sure if MIS has led to a Drop in teacher absenteeism. Their percentages were 37.5% (6), 30.8% (4), 25.0% (2), 25.0% (2), 21.4% (3), 16.7% (2), 40.0% (4), 10.0% (1) and 22.2% (2) respectively. Teachers from schools A 43.8% (7), B 7.7% (1), C 50.0% (4), D 75.0% (6), E 21.4% (3), F 41.7% (5), G 30.0% (3), H 20.0% (2) and J 44.4% (4) disagreed that MIS has led to a Drop in teacher absenteeism. A few teachers from school A, B, C, H and J strongly disagreed that MIS has led to a Drop in teacher absenteeism. They recorded 6.3% (1),

7.7% (1), 12.5% (1), 50.0% (5) and 11.1% (1) respectively. None of the teachers from schools D, E, F and G strongly disagreed.

The overall findings on whether the use of MIS had resulted in drop in teacher absenteeism showed that 9% (9) of all teachers who participated in the study strongly agreed, 21% (21) agreed, 26% (26) were not sure, a majority of 35% (35) disagreed while 9% (9) strongly disagreed. It was clear that on this attribute, the effect of MIS was not strongly felt in schools given that the teachers' responses are clustered around agree, not sure and disagree.

4.5.4 Effect of MIS on Student Absenteeism

According to Table 4.37, none of the teachers from schools D, F, G, H and J strongly agreed that the MIS has led to a drop in student absenteeism, however a few teachers from school A, B, C and E represented by percentage as 6.3% (1), 46.2% (6), 12.5% (1) and 64.3% (9) respectively strongly agreed. A few teachers from schools A 43.8% (7), B 15.4% (2), E 7.1% (1), F 25.0% (3), G 40.0% (4) and J 33.3% (3) agreed that MIS has led to a drop in student absenteeism while none of the teachers from school C, D and H agreed.

A few teachers from schools A 12.5% (2), B 23.1% (3), C 37.5% (3), F 16.7% (2), G 30.0% (3), H 10.0% (1) and J 11.1% (1) were not sure if MIS has led to a drop in student absenteeism. Teachers from school A, B, C, D, E, F, G, H and J represented in percentage as 31.3% (5), 15.4% (2), 37.5% (3), 62.5% (5), 28.6% (4), 50.0% (6), 30.0% (3), 40.0% (4) and 44.4% (4) respectively disagreed that the MIS has led to a drop in

student absenteeism. It was observed that teachers from schools A, C, D, F, H and J represented in percentage as 6.3% (1), 12.5% (1), 37.5% (3), 8.3% (1), 50.0% (5) and 11.1% (1) respectively strongly disagreed that MIS has led to a drop in student absenteeism however none of the teachers from school B, E and G strongly disagreed.

Table 4.37: The MIS has Led to a Drop in student absenteeism

		School									
		A	B	C	D	E	F	G	H	J	Total
Strongly Agree	Count	1	6	1	0	9	0	0	0	0	17
	% within School	6.3%	46.2%	12.5%	.0%	64.3%	.0%	.0%	.0%	.0%	17.0%
Agree	Count	7	2	0	0	1	3	4	0	3	20
	% within School	43.8%	15.4%	.0%	.0%	7.1%	25.0%	40.0%	.0%	33.3%	20.0%
Not Sure	Count	2	3	3	0	0	2	3	1	1	15
	% within School	12.5%	23.1%	37.5%	.0%	.0%	16.7%	30.0%	10.0%	11.1%	15.0%
Disagree	Count	5	2	3	5	4	6	3	4	4	36
	% within School	31.3%	15.4%	37.5%	62.5%	28.6%	50.0%	30.0%	40.0%	44.4%	36.0%
Strongly Disagree	Count	1	0	1	3	0	1	0	5	1	12
	% within School	6.3%	.0%	12.5%	37.5%	.0%	8.3%	.0%	50.0%	11.1%	12.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

In relation to the overall finding on this attribute, it was established that the majority 36.0% (36) of the respondents disagreed that MIS has led to a Drop in student absenteeism while 12% (12) strongly disagreed. On the other hand, 20% (20) agreed, 17% (17) strongly agreed while 15% (15) were not sure.

4.5.5 Effect of MIS on Monitoring of Learning Resources

It was observed from findings in Table 4.38 that none of the teachers from school D and J, thus 100% strongly agreed that MIS has improved the monitoring of learning resources. However a few teachers from school A 6.3% (1), B 30.8% (4), C 12.5% (1), E 14.3% (2), F 8.3% (1), G 10.0% (1) and H 20.0% (2) strongly agreed that MIS has improved the monitoring of learning resources.

A few teachers in school A 37.5% (6), B 38.5% (5), C 12.5% (1), D 12.5% (1), F 41.7% (5), H 10.0% (1) and J 33.3% (3) agreed that MIS has improved the monitoring of learning resources. Majority of the teachers who agreed were from school E 57.1% (8) and G 60.0% (6). A few of teachers in schools A, B, C, E, F, G, H and J represented by percentage as 6.3% (1), 15.4% (2), 25.0% (2), 7.1% (1), 16.7% (2), 10.0% (1), 10.0% (1) and 11.1% (1) respectively were not sure if MIS has improved the monitoring of learning resources or not.

A few of Teachers from school A 37.5% (6), B 15.4% (2), C 37.5% (3), D 37.5% (3), E 14.3% (2), F 16.7% (2), G 20.0% (2), H 40.0% (4) and J 33.3% (3) disagreed with the point that the MIS has led to improved the monitoring of learning resources. None of the teachers from school B and G strongly disagreed that MIS had improved the monitoring of learning resources, however a few teachers from school A 12.5% (2), C 12.5% (1), D 50.0% (4), E 7.1% (1), F 16.7% (2), H 20.0% (2) and J 22.2% (2) strongly disagreed that MIS has improved the monitoring of learning resources.

Table 4.38: The MIS has Improved the monitoring of learning resources

		School										Total
		A	B	C	D	E	F	G	H	J		
Strongly Agree	Count	1	4	1	0	2	1	1	2	0	12	
	% within School	6.3%	30.8%	12.5%	.0%	14.3%	8.3%	10.0%	20.0%	.0%	12.0%	
Agree	Count	6	5	1	1	8	5	6	1	3	36	
	% within School	37.5%	38.5%	12.5%	12.5%	57.1%	41.7%	60.0%	10.0%	33.3%	36.0%	
Not Sure	Count	1	2	2	0	1	2	1	1	1	11	
	% within School	6.3%	15.4%	25.0%	.0%	7.1%	16.7%	10.0%	10.0%	11.1%	11.0%	
Disagree	Count	6	2	3	3	2	2	2	4	3	27	
	% within School	37.5%	15.4%	37.5%	37.5%	14.3%	16.7%	20.0%	40.0%	33.3%	27.0%	
Strongly Disagree	Count	2	0	1	4	1	2	0	2	2	14	
	% within School	12.5%	.0%	12.5%	50.0%	7.1%	16.7%	.0%	20.0%	22.2%	14.0%	
Total	Count	16	13	8	8	14	12	10	10	9	100	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

From the summary of the findings, it was established that teachers who were not sure with 11.0% (11). Majority of the teachers agreed with 36.0% (36) that MIS has improved the monitoring of learning resources. The rest had 12% (12), 27% (27) and 14% (14) which represented teachers who strongly agreed, disagreed and strongly disagreed respectively. This indicated that MIS did not have a great effect on monitoring of learning resources since the percentages were low with majority of 3 out of 5 ranging between 11% and 14%.

4.5.6 Effect of MIS on Staff Efficiency

From the findings in **Table** Table 4.39, none of the teachers from schools A, D and J strongly agreed that the MIS has improved staff efficiency in their schools. However,

very few teachers from schools B 23.1% (3), C 12.5% (1), E 64.3% (9), F 8.3% (1), G 20.0% (2) and H 10.0% (1) strongly agreed.

Table 4.39: The MIS has improved staff efficiency

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	0	3	1	0	9	1	2	1	0	17
	% within School	.0%	23.1%	12.5%	.0%	64.3%	8.3%	20.0%	10.0%	.0%	17.0%
Agree	Count	8	10	0	4	3	8	5	2	6	46
	% within School	50.0%	76.9%	.0%	50.0%	21.4%	66.7%	50.0%	20.0%	66.7%	46.0%
Not Sure	Count	2	0	2	0	2	0	2	0	0	8
	% within School	12.5%	.0%	25.0%	.0%	14.3%	.0%	20.0%	.0%	.0%	8.0%
Disagree	Count	5	0	4	2	0	2	1	5	3	22
	% within School	31.3%	.0%	50.0%	25.0%	.0%	16.7%	10.0%	50.0%	33.3%	22.0%
Strongly Disagree	Count	1	0	1	2	0	1	0	2	0	7
	% within School	6.3%	.0%	12.5%	25.0%	.0%	8.3%	.0%	20.0%	.0%	7.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

50% of teachers from school A, D and G agreed that MIS had improved staff efficiency. Teachers from schools B 76.9% (10), E 21.4% (3), F 66.7% (8), H 20.0% (2) and J 66.7% (6) also agreed. However, none of the teachers from school C agreed. A few teachers from schools A 12.5% (2), C 25.0% (2), E 14.3% (2) and G 20.0% (2) were not sure if MIS has improved staff efficiency.

None of the teachers from school B and E disagreed, the teachers from schools A 31.3% (5), C 50.0% (4), D 25.0% (2), F 16.7% (2), G 10.0% (1), H 50.0% (5) and J 33.3% (3) disagreed that MIS has improved staff efficiency. It was noted that none of the teachers

from school B, E, G and J strongly disagreed that MIS has improved staff efficiency, however a few teachers from schools A 6.3% (1), C 12.5% (2), D 25.0% (2), F 8.3% (1) and H 20.0% (2) strongly disagreed.

Generally, it was established that majority of the teachers who responded who agreed had 46% (46). This was way above the rest of the respondents; teachers who strongly agreed had 17% (17), who were not sure had 8% (8), who disagreed 22% (22) and teachers who strongly disagreed were 7% (7). It can be seen that MIS has improved staff efficiency as most of the teachers Agreed.

4.5.7 Effect of MIS on Enhanced Teacher Preparation

From the findings in It was noted that teachers from school A 25.0% (4), B 15.4% (2), C 12.5% (1), D 12.5% (1), E 21.4% (3), F 53.8% (7), G 70.0% (7), H 20.0% (2) and J 55.6% (5) agreed that MIS has enhanced teacher preparation. A few teachers from schools A 18.8% (3), B 38.5% (5), C 25.0% (2), F 7.7% (1), G 10.0% (1) and J 11.1% (1) were not sure of MIS having enhanced teacher preparation. It was noted that teachers from school A 43.8% (7), C 37.5% (3), D 37.5% (3), E 14.3% (2), F 23.1% (3), G 20.0% (2), H 30.0% (3) and J 22.2% (2) disagreed that MIS has enhanced teacher preparation in their school. None of the teachers from school B disagreed.

Table Table 4.40, majority of teachers from schools A 12.5% (2), B 46.2% (6), C 12.5% (1), E 64.3% (9), F 7.7% (1), H 20.0% (2) and J 11.1% (1) strongly agreed that MIS has enhanced teacher preparation, but none of the teachers from school G strongly agreed.

It was noted that teachers from school A 25.0% (4), B 15.4% (2), C 12.5% (1), D 12.5% (1), E 21.4% (3), F 53.8% (7), G 70.0% (7), H 20.0% (2) and J 55.6% (5) agreed that MIS has enhanced teacher preparation. A few teachers from schools A 18.8% (3), B 38.5% (5), C 25.0% (2), F 7.7% (1), G 10.0% (1) and J 11.1% (1) were not sure of MIS having enhanced teacher preparation. It was noted that teachers from school A 43.8% (7), C 37.5% (3), D 37.5% (3), E 14.3% (2), F 23.1% (3), G 20.0% (2), H 30.0% (3) and J 22.2% (2) disagreed that MIS has enhanced teacher preparation in their school. None of the teachers from school B disagreed.

Table 4.40: The MIS has Enhanced teacher preparation

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	2	6	1	0	9	1	0	2	1	22
	% within School	12.5%	46.2%	12.5%	.0%	64.3%	7.7%	.0%	20.0%	11.1%	21.8%
Agree	Count	4	2	1	1	3	7	7	2	5	32
	% within School	25.0%	15.4%	12.5%	12.5%	21.4%	53.8%	70.0%	20.0%	55.6%	31.7%
Not Sure	Count	3	5	2	0	0	1	1	0	1	13
	% within School	18.8%	38.5%	25.0%	.0%	.0%	7.7%	10.0%	.0%	11.1%	12.9%
Disagree	Count	7	0	3	3	2	3	2	3	2	25
	% within School	43.8%	.0%	37.5%	37.5%	14.3%	23.1%	20.0%	30.0%	22.2%	24.8%
Strongly Disagree	Count	0	0	1	4	0	1	0	3	0	9
	% within School	.0%	.0%	12.5%	50.0%	.0%	7.7%	.0%	30.0%	.0%	8.9%
Total	Count	16	13	8	8	14	13	10	10	9	101
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

None of the teachers from schools A, B, E, G and J strongly disagreed that MIS has enhanced teacher preparation. A few teachers from school C 12.5%, D 50.0% (4), F

7.7% (1) and H 30.0% (3) strongly disagreed. In general, the findings established that majority of the teachers agreed 31.7% (32) that MIS has enhanced teacher preparation while teachers who strongly disagree were the minority with 8.9% (9). Teachers who strongly agreed were 21.8% (22), while teachers who were not sure were 12.9% (13) and the ones who disagreed were 24.8% (25)

4.5.8 Effect of MIS on Learning Accountability

Table 4.41: The MIS has improved learning accountability

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	4	6	1	0	4	1	1	1	0	18
	% within School	25.0%	46.2%	12.5%	.0%	28.6%	8.3%	10.0%	10.0%	.0%	18.0%
Agree	Count	6	4	1	1	10	11	8	3	7	51
	% within School	37.5%	30.8%	12.5%	12.5%	71.4%	91.7%	80.0%	30.0%	77.8%	51.0%
Not Sure	Count	1	3	3	1	0	0	1	0	2	11
	% within School	6.3%	23.1%	37.5%	12.5%	.0%	.0%	10.0%	.0%	22.2%	11.0%
Disagree	Count	5	0	2	5	0	0	0	4	0	16
	% within School	31.3%	.0%	25.0%	62.5%	.0%	.0%	.0%	40.0%	.0%	16.0%
Strongly Disagree	Count	0	0	1	1	0	0	0	2	0	4
	% within School	.0%	.0%	12.5%	12.5%	.0%	.0%	.0%	20.0%	.0%	4.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

From Table 4.41, it can be seen that none of the teachers from schools D and J strongly agreed that the MIS has improved learning accountability but a few teachers from schools A 25.0% (4), B 46.2% (6), C 12.5% (1), E 28.6% (4), F 8.3%, G 10.0% (1) and H 10.0% (1) strongly agreed. It was noted that teachers from schools A 37.5% (6), B

30.8% (4), C 12.5% (1), D 12.5% (1), E 71.4% (10), F 91.7% (11), G 80.0% (8), H 30.0% (3) and J 77.8% (7) agreed that MIS has improved learning accountability. A few teachers from school A 6.3% (1), B 23.1% (3), C 37.5% (3), D 12.5% (1), G 10.0% (1) and J 22.2% (2) were not sure of MIS having improved learning accountability.

It was established that none of the teachers from schools B, E, F, G and J disagreed of MIS having improved learning accountability. Meanwhile school A 31.3% (5), C 25.0% (2), D 62.5% (5) and H 40.0% (4) disagreed. On the other hand, none of the teachers from schools A, B, E, F, G and J strongly disagreed, though teachers from schools C 12.5% (1), D 12.5% (1) and H 20.0% (2) strongly disagreed that MIS has improved learning accountability.

In summary, the study established that teachers strongly agreed and agreed with 18% (18) and 51% (51) respectively with respect to MIS having improved learning accountability. The respondents who were not sure recorded 11% (11), who disagreed had 16% (16) and who strongly disagreed recorded 4% (4). From the study, it was depicted that only teachers who Agreed were above 50%. This was a clear indication that MIS had a positive impact on learning accountability.

4.5.9 Effect of MIS on Resource Allocation

As seen from Table 4.42, none of the teachers from schools D and H strongly agreed and a few teachers from schools A 6.3% (1), B 30.8% (4), C 12.5% (1), E 21.4% (3), F 16.7% (2), G 10.0% (1) and J 11.1% (1) strongly agreed that MIS has improved resource allocation. A few teachers from schools A 18.8% (3), B 53.8% (7), C 25.0%

(2), D 50.0% (6), E 14.3% (2), F 50.0% (6), G 50.0% (5), H 30.0% (3) and J 66.7% (6) agreed that MIS has improved resource allocation. Teachers from schools A 43.8% (7), C 25.0% (2), E 14.3% (2), F 25.0% (3), G 20.0% (2) and H 10.0% (1) were not sure of MIS having improved resource allocation.

Table 4.42: The MIS has Improved resource allocation

		School										Total
		A	B	C	D	E	F	G	H	J		
Strongly Agree	Count	1	4	1	0	3	2	1	0	1	13	
	% within School	6.3%	30.8%	12.5%	.0%	21.4%	16.7%	10.0%	.0%	11.1%	13.0%	
Agree	Count	3	7	2	4	2	6	5	3	6	38	
	% within School	18.8%	53.8%	25.0%	50.0%	14.3%	50.0%	50.0%	30.0%	66.7%	38.0%	
Not Sure	Count	7	0	2	0	2	3	2	1	0	17	
	% within School	43.8%	.0%	25.0%	.0%	14.3%	25.0%	20.0%	10.0%	.0%	17.0%	
Disagree	Count	3	2	2	4	7	1	2	6	1	28	
	% within School	18.8%	15.4%	25.0%	50.0%	50.0%	8.3%	20.0%	60.0%	11.1%	28.0%	
Strongly Disagree	Count	2	0	1	0	0	0	0	0	1	4	
	% within School	12.5%	.0%	12.5%	.0%	.0%	.0%	.0%	.0%	11.1%	4.0%	
Total	Count	16	13	8	8	14	12	10	10	9	100	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

It was also observed that teachers from schools A 18.8% (3), B 15.4% (2), C 25.0% (2), D 50.0% (4), E 50.0% (7), F 8.3% (1), G 20.0% (2), H 60.0% (6) and J 11.1% disagreed that MIS has improved resource allocation. A few teachers from schools A 12.5% (2), C 12.5% (1) and J 11.1% (1) strongly disagreed that MIS has improved resource allocation.

In general, it can be seen that the study deduced that few of the teachers strongly agreed 13% (13) that MIS has improved resource allocation. Teachers who agreed formed the majority at 38% (38) while the ones who strongly disagreed were the minority at 4% (4). Teachers who were not sure and teachers who disagreed had 17% (17) and 28% (28) respectively. The study indicated that MIS has improved resource allocation

4.5.10 Effect of MIS in Assisting Innovation

It was observed from findings in Table 4.43 that teachers from schools A 6.3% (1), B 53.8% (7), C 12.5% (1), E 57.1% (8), F 8.3% (1), G 20.0% (2), H 10.0% (1) and J 11.1% (1) strongly agreed that MIS had assisted in innovation. However, none of the teachers from school D strongly agreed. It was also observed that teachers from schools A 50.0% (8), B 23.1% (3), C 12.5% (1), D 12.5% (1), E 28.6% (4), F 66.7% (8), G 50.0% (5), H 20.0% (2) and J 55.6% (5) agreed that MIS had assisted in innovation.

A few teachers from schools B 15.4% (2), C 25.0% (2), D 12.5% (1), F 16.7% (2), G 30.0% (3) and J 11.1% (1) who were not sure if MIS had assisted in innovation. None of the teachers from schools F and G disagreed with the idea that MIS had assisted in innovation. However a few teachers from schools A 43.8% (7), B 7.7% (1), C 37.5% (3), D 50.0% (4), E 14.3% (2), H 40.0% (4) and J 22.2% (2) also disagreed that MIS had assisted in innovation.

It was also noted that few teachers from schools C 12.5% (1), D 25.0% (2), F 8.3% (1) and H 30.0% (1) strongly disagreed, while none of the teachers from schools A, B, E, G and J strongly disagreed that MIS had assisted in innovation. In relation to MIS

assisting in innovation, the respondents who strongly agreed and agreed that MIS had assisted in innovation recorded 22% (22) and 37% (37) respectively. Only 7% (7) strongly disagreed, while teachers who disagreed and those not sure registered 23% (23) and 11% (11) respectively. The high number of teachers who agreed and strongly agreed depicted that indeed MIS has assisted in innovation as their support meant that in their respective schools. MIS had been of much assistance as far as innovation was concerned.

Table 4.43: The MIS has assisted in innovation

		School										Total
		A	B	C	D	E	F	G	H	J		
Strongly Agree	Count	1	7	1	0	8	1	2	1	1	22	
	% within School	6.3%	53.8%	12.5%	.0%	57.1%	8.3%	20.0%	10.0%	11.1%	22.0%	
Agree	Count	8	3	1	1	4	8	5	2	5	37	
	% within School	50.0%	23.1%	12.5%	12.5%	28.6%	66.7%	50.0%	20.0%	55.6%	37.0%	
Not Sure	Count	0	2	2	1	0	2	3	0	1	11	
	% within School	.0%	15.4%	25.0%	12.5%	.0%	16.7%	30.0%	.0%	11.1%	11.0%	
Disagree	Count	7	1	3	4	2	0	0	4	2	23	
	% within School	43.8%	7.7%	37.5%	50.0%	14.3%	.0%	.0%	40.0%	22.2%	23.0%	
Strongly Disagree	Count	0	0	1	2	0	1	0	3	0	7	
	% within School	.0%	.0%	12.5%	25.0%	.0%	8.3%	.0%	30.0%	.0%	7.0%	
Total	Count	16	13	8	8	14	12	10	10	9	100	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

4.5.11 Effect of MIS on Generation of Management Reports

From **Table** Table 4.44, it was observed that teachers from schools A, B, C, D, E, F, G, H and H strongly agreed that The MIS had led to faster generation of management

reports. Their percentages were 50.0% (8), 69.2% (9), 25.0% (2), 12.5% (1), 50.0% (7), 33.3% (4), 50.0% (5), 20.0% (2) and 1.1% (1) respectively. It was noted that teachers from schools A 43.8% (7), B 15.4% (2), C 25.0% (2), D 75.0% (6), E 42.9% (6), F 58.3% (7), G 30.0% (3), H 70.0% (7) and J 77.8% (7) agreed that MIS had led to faster generation of management reports.

Table 4.44: The MIS has led to faster generation of management reports

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	8	9	2	1	7	4	5	2	1	39
	% within School	50.0%	69.2%	25.0%	12.5%	50.0%	33.3%	50.0%	20.0%	11.1%	39.0%
Agree	Count	7	2	2	6	6	7	3	7	7	47
	% within School	43.8%	15.4%	25.0%	75.0%	42.9%	58.3%	30.0%	70.0%	77.8%	47.0%
Not Sure	Count	0	1	1	0	0	0	2	0	0	4
	% within School	.0%	7.7%	12.5%	.0%	.0%	.0%	20.0%	.0%	.0%	4.0%
Disagree	Count	1	1	2	0	1	0	0	0	1	6
	% within School	6.3%	7.7%	25.0%	.0%	7.1%	.0%	.0%	.0%	11.1%	6.0%
Strongly Disagree	Count	0	0	1	1	0	1	0	1	0	4
	% within School	.0%	.0%	12.5%	12.5%	.0%	8.3%	.0%	10.0%	.0%	4.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

A few teachers from schools B 7.7% (1), C 12.5% (1) and G 20.0% (2) were not sure that the MIS had led to faster generation of management reports. None of the teachers from schools D, F, G and H disagreed that MIS had led to faster generation of management reports, however, a few teachers from schools A 6.3% (1), B 7.7% (1), C 25.0% (2), E 7.1% (1) and J 11.1% (1) disagreed. Though teachers from schools C

12.5% (1), D 12.5% (1), F 8.3% (1) and H 10.0% (1) strongly disagreed that MIS has led to faster generation of management reports, none of the teachers from the rest of the selected schools; A, B, E, G and J strongly disagreed.

In relation to the overall finding on this attribute, it was noted that none of the respondents who strongly disagreed, disagreed or who was not sure recorded above 10%. They all had 4% (4), 6% (6) and 4% (4) respectively. Teachers who agreed were 47% (47) while teachers who strongly agreed were 39% (39). This higher percentage indicated that MIS enabled management information to be generated faster.

4.5.12 Effect of MIS on Cost of Management

According to findings in **Table** Table 4.45, none of the teachers from school D strongly agreed that MIS had reduced the cost of management. A few teachers from schools A 12.5% (2), B 69.2% (9), C 12.5% (1), E 7.1% (1), F 25.0% (3), G 10.0% (1), H 30.0% (3) and J 11.1% (1) strongly agreed.

It was also observed that all teachers from school D 100% (8) agreed that MIS has reduced the cost of management. Similarly, from schools A 25.0% (4), B 7.7% (1), C 50.0% (4), E 78.6% (11), F 33.3% (4), G 50.0% (5), H 20.0% (2) and J 55.6% (5) of teachers agreed with the observation that MIS had reduced the cost of management. Teachers from schools A, B, C, E, F and G were not sure of MIS having reduced cost of management. They recorded 50.0% (8), 15.4% (2), 12.5% (1), 7.1% (1), 16.7% (2) and 10.0% (1) respectively.

Few teachers from schools A 12.5% (2), B 7.7% (1), C 12.5% (1), E 7.1% (1), F 16.7% (2), G 30.0% (3), H 20.0% (2) and 22.2% (2) disagreed with the observation that MIS had reduced the cost of management. However, none of the teachers from school D disagreed. Teachers from schools C 12.5% (1), F 8.3% (1), H 30.0% (3) and J 11.1% (1) strongly disagreed that MIS had reduced cost of management.

Table 4.45: The MIS has Reduced cost of management

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	2	9	1	0	1	3	1	3	1	21
	% within School	12.5%	69.2%	12.5%	.0%	7.1%	25.0%	10.0%	30.0%	11.1%	21.0%
Agree	Count	4	1	4	8	11	4	5	2	5	44
	% within School	25.0%	7.7%	50.0%	100.0%	78.6%	33.3%	50.0%	20.0%	55.6%	44.0%
Not Sure	Count	8	2	1	0	1	2	1	0	0	15
	% within School	50.0%	15.4%	12.5%	.0%	7.1%	16.7%	10.0%	.0%	.0%	15.0%
Disagree	Count	2	1	1	0	1	2	3	2	2	14
	% within School	12.5%	7.7%	12.5%	.0%	7.1%	16.7%	30.0%	20.0%	22.2%	14.0%
Strongly Disagree	Count	0	0	1	0	0	1	0	3	1	6
	% within School	.0%	.0%	12.5%	.0%	.0%	8.3%	.0%	30.0%	11.1%	6.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

In general, the study established that majority of the teachers 44% (44) agreed that MIS had reduced cost of management while teachers who strongly agreed were 21% (21). The two formed the majority of the respondent's view, which meant that MIS was able to cut down on the cost of management. Teachers who were not sure were 15% (15), disagree 14% (14) and strongly disagree 6% (6). They all had percentages below 20%,

which indicated that very few of the teachers were not of the view that the MIS had reduced the cost of management.

4.5.13 Rating of MIS in Providing Information for Decision Making

Principals and teachers responded to the question on the overall effect of MIS on curriculum decision making. The principal of school J noted that the MIS had influenced curriculum management decisions to a very great extent while the principal of school H noted that the MIS had a great influence on the same. Three other principals noted the influence as fair while one principal noted it as very minimal. Three principals were undecided on the influence of MIS on their decisions on curriculum management.

Table 4.46 indicates that teachers from schools A, B, C, D, E, F, G, H and J found MIS rating very important in providing information for decision making. They recorded 12.5% (2), 61.5% (8), 25.0% (2), 12.5% (1), 50.0% (7), 41.7% (5), 30.0% (3), 20.0% (2) and 11.1% (1) percentages respectively.

Majority of teachers from school A 62.5% (10) and G 60.0% (6) said MIS rating was important in providing information for decision making. A few teachers from schools B 38.5% (5), D 37.5% (3), E 7.1% (1), F 41.7% (5), H 20.0% (2) and J 44.4% (4) also rated it to be important. However, none of the teachers from school C pointed MIS rating to be important in providing information for decision-making.

While none of the teachers from school B acknowledged MIS rating to be average in providing information for decision making, teachers from schools A 25.0% (4), C

50.0% (4), D 50.0% (4), E 42.9% (6), F 16.7% (2), G 10.0% (2), H 20.0% (2) and J 44.4% (4) observed MIS rating to be average. A few teachers from schools C 25.0% (2) and H 40.0% (4) found MIS rating to be less important in providing information for decision making. In the rest of schools A, B, D, E, F, G and J none of the teachers found MIS rating to be less important.

Table 4.46: MIS rating in providing information for Decision Making

		School									Total
		A	B	C	D	E	F	G	H	J	
Very Important	Count	2	8	2	1	7	5	3	2	1	31
	% within School	12.5%	61.5%	25.0%	12.5%	50.0%	41.7%	30.0%	20.0%	11.1%	31.0%
Important	Count	10	5	0	3	1	5	6	2	4	36
	% within School	62.5%	38.5%	.0%	37.5%	7.1%	41.7%	60.0%	20.0%	44.4%	36.0%
Average	Count	4	0	4	4	6	2	1	2	4	27
	% within School	25.0%	.0%	50.0%	50.0%	42.9%	16.7%	10.0%	20.0%	44.4%	27.0%
Less Important	Count	0	0	2	0	0	0	0	4	0	6
	% within School	.0%	.0%	25.0%	.0%	.0%	.0%	.0%	40.0%	.0%	6.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

In general, majority of the respondents noted that MIS was important in providing information for decision-making. This was at 36% (36) which was followed closely by the teachers who noted MIS rating to be very important recorded 31% (31). The two formed majority of the responses thus it indicated that MIS was very key in providing information indecision making. The rest of the ratings were Average and less important with 27% (27) and 6% (6) respectively.

4.6 Extent MIS meets teachers' expectations

This study sought to determine the extent to which MIS used in secondary schools met teachers' expectations in terms of providing teachers with management information. The findings on this objective have been presented in this subsection.

4.6.1 Ease of Entering Data in the MIS

Table 4.47: Ease of entering data in the MIS

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	6	8	1	0	12	4	4	2	4	41
	% within School	37.5%	61.5%	12.5%	.0%	85.7%	33.3%	40.0%	20.0%	44.4%	41.0%
Agree	Count	7	5	3	8	2	7	4	8	4	48
	% within School	43.8%	38.5%	37.5%	100.0%	14.3%	58.3%	40.0%	80.0%	44.4%	48.0%
Not Sure	Count	2	0	3	0	0	0	1	0	1	7
	% within School	12.5%	.0%	37.5%	.0%	.0%	.0%	10.0%	.0%	11.1%	7.0%
Disagree	Count	0	0	1	0	0	0	1	0	0	2
	% within School	.0%	.0%	12.5%	.0%	.0%	.0%	10.0%	.0%	.0%	2.0%
Strongly Disagree	Count	1	0	0	0	0	1	0	0	0	2
	% within School	6.3%	.0%	.0%	.0%	.0%	8.3%	.0%	.0%	.0%	2.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4.47 indicates the findings on how easy data can be entered in the MIS. None of the teachers from school D strongly agreed that it was easier to enter data in the MIS however teachers from school A 37.5%(6), B 61.5%(8), C 12.5%(1), E 85.7% (12), F 33.3 % (4), G 40.0 % (4), H 20.0% and J 44.4% (4) strongly agreed. All teachers thus 100% (8) from school D agreed that it was easier to enter data in the MIS, other teachers

who agreed were from schools A 43.8% (7), B 38.5% (5), C 37.5% (3), E 14.3% (2), F 58.3% (7), G 40.0% (4), H 80.0% (8) and J 44.4% (4).

It was also observed that 12.5% (1), 37.5% (3), 10.0% (1) and 11.1% (1) of teachers from schools A, C, G and J respectively were not sure of the easiness of entering data in the MIS. None of the teachers from school A disagreed. However, a few teachers from schools C 12.5% (1) and G 10.0% (1) disagreed it being easier to enter data in the MIS. None of the teachers from schools A, B, D, E, F, H and J disagreed. None of the teachers from schools B, C, D, E, G, H and J strongly disagreed although in schools A 6.3% (1) and F 8.3% (1) strongly disagreed.

In general, it was deduced that the percentage of teachers' in their respective schools was equal for teachers who disagreed and strongly disagreed that it was easier to enter data in the MIS. They both had 2% (2). The teachers who were not sure had 7% (7) while who agreed strongly agreed had the majority of 48% (48) and 41% (41) respectively. This statistics depicted that most of the teachers agreed that entering data in MIS was easy.

4.6.2 Capturing All Relevant Data in the MIS

From Table 4.48, it was established that teachers from schools A, B, E, F, G, H and J strongly agreed that the MIS allows all relevant data to be entered. The recorded percentages were; 18.8% (3), 76.9% (10), 71.4% (10), 8.3% (1), 50.0% (5), 20.0% (2) and 33.3% (3), However, none of the teachers from schools C and D strongly agreed.

Majority of teachers from school F 83.3% (10) agreed that the MIS allows all relevant data to be entered with a few teachers from schools A 43.8% (7), B 7.7% (1), C 37.5% (3), D 12.5% (1), E 21.4% (3), G 30.0% (3), H 30.0% (3) and J 44.4% (4) agreed. Teachers who were not sure of the MIS allowing all relevant data to be entered recorded the following percentages in their various schools; A 31.3% (5), B 7.7% (1), C 50.0% (4), D 12.5% (1), G 10.0% (1) and J 11.1% (1)

Table 4.48: The MIS allows all relevant data to be entered

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	3	10	0	0	10	1	5	2	3	34
	% within School	18.8%	76.9%	.0%	.0%	71.4%	8.3%	50.0%	20.0%	33.3%	34.0%
Agree	Count	7	1	3	1	3	10	3	3	4	35
	% within School	43.8%	7.7%	37.5%	12.5%	21.4%	83.3%	30.0%	30.0%	44.4%	35.0%
Not Sure	Count	5	1	4	1	0	0	1	0	1	13
	% within School	31.3%	7.7%	50.0%	12.5%	.0%	.0%	10.0%	.0%	11.1%	13.0%
Disagree	Count	1	1	1	6	1	1	1	5	0	17
	% within School	6.3%	7.7%	12.5%	75.0%	7.1%	8.3%	10.0%	50.0%	.0%	17.0%
Strongly Disagree	Count	0	0	0	0	0	0	0	0	1	1
	% within School	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	11.1%	1.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Majority of teachers from school D 75.0% (6) disagreed the MIS allowing all relevant data to be entered. 50.0% (5) of teachers from school H also disagreed. Still in disagreement schools A, B, C, E, F and G recorded the following percentages respectively; 6.3% (1), 7.7% (1), 12.5% (1), 7.1% (1), 8.3% (1) and 10.0% (1) though none of the teachers from school J disagreed that the MIS allows all relevant data to be

entered. 11.1% (1) of teachers from school J strongly disagreed that the MIS allows all relevant data to be entered, while none of the teachers from schools A, B, C, D, E, F, G and H strongly disagreed.

Summarily, the respondents who strongly agreed and agreed that MIS allows all relevant data to be entered recorded percentages of 34% (34) and 35% (35) respectively. Teachers who were not sure, who disagreed and teachers who strongly disagreed had low percentages of 13% (13), 17% (17) and 1% (1) respectively. Thus, the study established that MIS allows all relevant data to be entered as teachers who indicated to agree were more than teachers who disagreed.

4.6.3 Time Taken by MIS to Process Data

From the findings in **Table** Table 4.49, it was established that 62.5% (10), 69.2% (9), 78.6% (11), 50.0% (6), 70.0% (7), 30.0% (3) and 66.7% (6) of teachers from schools A, B, E, F, G, H and J respectively strongly agreed that it took a shorter time to process data using MIS. None of the teachers from schools C and D strongly agreed. It was also noted that teachers from schools A 37.5% (6), B 30.8% (4), C 62.5% (5), E 14.3% (2), F 50.0% (6), G 20.0% (2), H 70.0% (7) and J 33.3% (3) agreed that the MIS takes a shorter time to process data. Nevertheless, all teachers thus 100% (8) from school D agreed.

A few teachers from school C 25.0% (2), E 7.1% (1) and G 10.0% (1) were not sure of the MIS taking a shorter time to process data. While none of the teachers from schools A, B, D, E, F, G, H and J disagreed on MIS taking a shorter time to process data, 12.5%

(1) of teachers from school C disagreed. Generally, it was deduced that majority 52% (52) of teachers strongly agreed that it takes a shorter time to process data using MIS while 43% (43) agreed. 4% (4) were not sure while 1% (1) disagreed.

Table 4.49: MIS takes a shorter time to process data

		School										Total
		A	B	C	D	E	F	G	H	J		
Strongly Agree	Count	10	9	0	0	11	6	7	3	6	52	
	% within School	62.5%	69.2%	.0%	.0%	78.6%	50.0%	70.0%	30.0%	66.7%	52.0%	
Agree	Count	6	4	5	8	2	6	2	7	3	43	
	% within School	37.5%	30.8%	62.5%	100.0%	14.3%	50.0%	20.0%	70.0%	33.3%	43.0%	
Not Sure	Count	0	0	2	0	1	0	1	0	0	4	
	% within School	.0%	.0%	25.0%	.0%	7.1%	.0%	10.0%	.0%	.0%	4.0%	
Disagree	Count	0	0	1	0	0	0	0	0	0	1	
	% within School	.0%	.0%	12.5%	.0%	.0%	.0%	.0%	.0%	.0%	1.0%	
Total	Count	16	13	8	8	14	12	10	10	9	100	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

4.6.4 Ease of Locating System Features

From the findings in Table 4.50, it was noted that majority of teachers from school B 61.5% (8) and E 78.6% (11) strongly agreed that it was easy to locate system features e.g. forms in the MIS. A few teachers from schools A 37.5% (6), F 33.3% (4), G 40.0% (4) and J 44.4% (4) also strongly agreed. On the other hand, none of the teachers from school C and D strongly agreed.

It was observed that teachers from schools A, B, C, D, E, F, G, H, and J agreed that it was easier to locate system features (such as forms) in the MIS with the following

percentages respectively; 50.0% (8), 30.8% (4), 25.0% (2), 87.5% (7), 21.4% (3), 66.7% (8), 50.0% (5), 70.0% (7) and 55.6% (5). A few teachers from school A 12.5% (2), B 7.7% (1), C 50.0% (4) and G 10.0% (1) were not sure if it was easy to locate system features in the MIS. A few teachers from school C 25.0% (2) and D 12.5% (1) disagreed it being Easy to locate system features in the MIS but none of the teachers from schools A, B, E, F, G, H and J disagreed.

Table 4.50: Ease of locating system features e.g. forms in the MIS

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	6	8	0	0	11	4	4	3	4	40
	% within School	37.5%	61.5%	.0%	.0%	78.6%	33.3%	40.0%	30.0%	44.4%	40.0%
Agree	Count	8	4	2	7	3	8	5	7	5	49
	% within School	50.0%	30.8%	25.0%	87.5%	21.4%	66.7%	50.0%	70.0%	55.6%	49.0%
Not Sure	Count	2	1	4	0	0	0	1	0	0	8
	% within School	12.5%	7.7%	50.0%	.0%	.0%	.0%	10.0%	.0%	.0%	8.0%
Disagree	Count	0	0	2	1	0	0	0	0	0	3
	% within School	.0%	.0%	25.0%	12.5%	.0%	.0%	.0%	.0%	.0%	3.0%
Total	Count	16	13	8	8	14	12	10	10	9	100
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Generally, it was established that those followed teachers who disagreed it being easy to locate system features in the MIS formed minority of the respondents views with 3% (3). They closely not sure at 8% (8). On the other hand, teachers who strongly agreed and

agreed had higher percentages of 40% (40) and 49% (49) respectively. This showed that with MIS, it was easy to locate system features.

4.6.5 Fully Computerised Data Processing by MIS

From Table 4.51, majority of teachers from school E 85.7% (12) agreed that data processing in the MIS was fully computerised. A few teachers from schools A 31.3% (5), B 15.4% (2), C 22.2% (2), F 16.7% (2), G 40.0% (4), H 40.0% (4), 22.2% (2) and none from school D agreed. In schools A 18.8% (3), B 15.4% (2), C 22.2% (2), D 12.5% (1), G 20.0% (2) and J 22.2% (2) of teachers were not sure whether data processing in the MIS was fully computerized.

From Table 4.51, majority of teachers from school B 61.5% (8) strongly agreed that data processing in the MIS was fully computerized. Only few teachers from schools A 6.3% (1), C 11.1% (1), E 14.3% (2), F 16.7% (2), G 20.0% (2), H 20.0% (2) and J 33.3% (3) strongly agreed that data processing in the MIS was fully computerized while none of the teachers from school D strongly agreed.

Majority of teachers from school E 85.7% (12) agreed that data processing in the MIS was fully computerized alongside a few teachers from schools A 31.3% (5), B 15.4% (2), C 22.2% (2), F 16.7% (2), G 40.0% (4), H 40.0% (4) and J 22.2% (2). None of the teachers from school D agreed. A few teachers from school A 18.8% (3), B 15.4% (2), C 22.2% (2), D 12.5% (1), G 20.0% (2) and J 22.2% (2) were not sure if data processing in the MIS was fully computerized.

Teachers from schools A, B, C, D, F, G, H, and J disagreed to the opinion that data processing in the MIS as not fully computerized with percentages of 31.3% (5), 7.7% (1), 22.2% (2), 87.5% (7), 58.3% (7), 20.0% (2), 40.0% (4) and 11.1% (1) respectively. None of the teachers from school E disagreed.

Table 4.51: Data processing in the MIS is fully computerised

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	1	8	1	0	2	2	2	2	3	21
	% within School	6.3%	61.5%	11.1%	.0%	14.3%	16.7%	20.0%	20.0%	33.3%	20.8%
Agree	Count	5	2	2	0	12	2	4	4	2	33
	% within School	31.3%	15.4%	22.2%	.0%	85.7%	16.7%	40.0%	40.0%	22.2%	32.7%
Not Sure	Count	3	2	2	1	0	0	2	0	2	12
	% within School	18.8%	15.4%	22.2%	12.5%	.0%	.0%	20.0%	.0%	22.2%	11.9%
Disagree	Count	5	1	2	7	0	7	2	4	1	29
	% within School	31.3%	7.7%	22.2%	87.5%	.0%	58.3%	20.0%	40.0%	11.1%	28.7%
Strongly Disagree	Count	2	0	2	0	0	1	0	0	1	6
	% within School	12.5%	.0%	22.2%	.0%	.0%	8.3%	.0%	.0%	11.1%	5.9%
Total	Count	16	13	9	8	14	12	10	10	9	101
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

None of the teachers from schools B, D, E, G and H strongly disagreed that data processing in the MIS was fully computerized, only a few teachers from schools A 12.5% (2), C 22.2% (2), F 8.3% (1) and J 11.1% (1) strongly disagreed.

Generally, it was established that the percentage clusters of the respondents were relatively close. This was with respect to their views on data processing in the MIS being fully computerised. The teachers who strongly agreed had 20.8% (21), who

agreed 32.7% (33), who were not sure 11.9% (12), who disagreed 28.7% (29) and teachers who strongly disagreed had 5.9% (6). Teachers who strongly agreed and agreed formed the majority, which meant that most teachers agreed that data processing in the MIS was fully computerised.

4.6.6 Rating of the Overall Data Processing Capability of MIS

Table 4.52: Rating Data Processing capability of this MIS

		School									Total
		A	B	C	D	E	F	G	H	J	
Very Satisfactory	Count	0	7	0	0	3	1	2	0	2	15
	% within School	.0%	53.8%	.0%	.0%	21.4%	7.7%	20.0%	.0%	22.2%	14.7%
Satisfactory	Count	9	5	0	5	10	7	5	5	2	48
	% within School	56.3%	38.5%	.0%	62.5%	71.4%	53.8%	50.0%	50.0%	22.2%	47.1%
Average	Count	5	1	7	3	1	5	2	5	5	34
	% within School	31.3%	7.7%	77.8%	37.5%	7.1%	38.5%	20.0%	50.0%	55.6%	33.3%
Less Satisfactory	Count	0	0	2	0	0	0	1	0	0	3
	% within School	.0%	.0%	22.2%	.0%	.0%	.0%	10.0%	.0%	.0%	2.9%
Not Satisfactory	Count	2	0	0	0	0	0	0	0	0	2
	% within School	12.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	2.0%
Total	Count	16	13	9	8	14	13	10	10	9	102
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

From Table 4.52, it could be depicted that a percentage of teachers from schools B 53.8% (7), E 21.4% (3), F 7.7% (1), G 20.0% (2) and J 22.2% (2) observed that their MIS were very satisfactory in data processing capability. None of the teachers from schools A, C, D and H observed MIS to be very satisfactory in data processing capability.

Majority of teachers from schools A 56.3% (9), D 62.5% (5), E 71.4% (10) and F 53.8% (7) said data processing capability of this MIS was satisfactory with 50% of teachers from schools G 50.0% (5) and H 50.0% (5). However fewer teachers from school B 38.5% (5) and J 22.2% (2) rated it as being satisfactory.

Majority of teachers from schools A, B, C, D, E, F, G, H and J noted that the MIS was average in rating data processing capability. They recorded the following percentages respectively; 31.3% (5), 7.7% (1), 77.8% (7), 37.5% (3), 7.1% (1), 38.5% (5), 20.0% (2), 50.0% (5) and 55.6% (5). While none of the teachers from schools A, B, D, E, F, H and J observed data processing capability of the MIS to be less satisfactory, a few teachers from school C 22.2% (2) and G 10.0% (1) found it to be less satisfactory.

A few teachers from school A 12.5% (2) said data processing capability of the MIS was not satisfactory however none of the teachers from schools B, C, D, E, F, G, H and J noted it not satisfactory. The study established that a small percentage of the respondents found the MIS to be not satisfactory and less satisfactory. They recorded 2% (2) and 2.9% (3) respectively. The other ratings were very satisfactory, satisfactory and average with 14.7% (15), 47.1% (48) and 33.3% (34) respectively. The majority of the teachers who responded noted the data processing capability of this MIS to be satisfactory meaning that they appreciated and were impressed by MIS' ability in processing.

4.6.7 Ease of Printing Information

From the findings in Table 4.53, majority of teachers from schools A 56.3% (9), D 62.5% (5), E 64.3% (9), F 53.08% (7) and H 60.0% (6) and a few teachers from schools B 15.4% (2), C 44.4% (4), G 30.0% (3) and J 33.3% (3) agreed that the MIS made it easier to print information. A few teachers from schools B 7.7% (1) and C 33.3% (3) were not sure whether the MIS made it easier to print information. It was noted that teachers from schools D 37.5% (3) and 10.0% (1) disagreed that the MIS made it easier to information. In the rest of the selected schools, none of the teachers disagreed.

Table 4.53: Ease of Printing Information

		School									
		A	B	C	D	E	F	G	H	J	Total
Strongly Agree	Count	7	10	2	0	5	6	7	3	6	46
	% within School	43.8%	76.9%	22.2%	.0%	35.7%	46.2%	70.0%	30.0%	66.7%	45.1%
Agree	Count	9	2	4	5	9	7	3	6	3	48
	% within School	56.3%	15.4%	44.4%	62.5%	64.3%	53.8%	30.0%	60.0%	33.3%	47.1%
Not Sure	Count	0	1	3	0	0	0	0	0	0	4
	% within School	.0%	7.7%	33.3%	.0%	.0%	.0%	.0%	.0%	.0%	3.9%
Disagree	Count	0	0	0	3	0	0	0	1	0	4
	% within School	.0%	.0%	.0%	37.5%	.0%	.0%	.0%	10.0%	.0%	3.9%
Total	Count	16	13	9	8	14	13	10	10	9	102
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

It can be noted that majority of teachers from schools B 76.9% (10), G 70.0% (7) and J 66.7% (6) strongly agreed that MIS provided made it easy to print information. Also a few teachers from school A 43.8% (7), C 22.2% (2), E 35.7% (5), F 46.2% (6) and H

30.0% (3) strongly agreed. It was established that none of the teachers from school D strongly agreed.

Majority of teachers from schools A 56.3% (9), D 62.5% (5), E 64.3% (9), F 53.08% (7) and H 60.0% (6) and a few teachers from schools B 15.4% (2), C 44.4% (4), G 30.0% (3) and J 33.3% (3) agreed that the MIS made it easier to print information. A few teachers from schools B 7.7% (1) and C 33.3% (3) were not sure whether the MIS made it easier to print information. It was noted that teachers from schools D 37.5% (3) and 10.0% (1) disagreed that the MIS made it easier to information. In the rest of the selected schools, none of the teachers disagreed.

In general, the findings indicated that majority of the teachers agreed that MIS provided easy printing of information with 47.1% (48), followed closely by those who strongly agreed at 45.1% (46). The two had most of the respondents noting them thus indicating that MIS eases printing of information. On the other hand, only a few of the respondents were not sure, they had 3.9% (4). Also teachers who disagreed had 3.9% (4)

4.6.8 Reports Generated by MIS Contained Key Information

From Table 4.54, none of the teachers from schools C and D strongly agreed that reports generated by the MIS contain all key information, though teachers from schools A, B, E, F, G, H and J strongly agreed with the following percentages respectively; 37.5% (6), 61.5% (8), 21.4% (3), 7.7% (1), 60.0% (6), 20.0% (2) and 44.4% (4).

Teachers from schools A, B, C, D, E, F, G, H and J agreed that reports generated by the MIS contain all key information with percentages; 37.5% (6), 15.4% (2), 55.6% (5),

25.0% (2), 71.4% (10), 53.8% (7), 40.0% (4), 40.0% (4) and 44.4% (4) respectively. Teachers from schools A 6.3% (1), B 23.1% (3) and C 22.2% (2) were not sure if reports generated by the MIS contain all key information.

Table 4.54: Reports generated by the MIS Contain all key information

		School									
		A	B	C	D	E	F	G	H	J	Total
Strongly Agree	Count	6	8	0	0	3	1	6	2	4	30
	% within School	37.5%	61.5%	.0%	.0%	21.4%	7.7%	60.0%	20.0%	44.4%	29.4%
Agree	Count	6	2	5	2	10	7	4	4	4	44
	% within School	37.5%	15.4%	55.6%	25.0%	71.4%	53.8%	40.0%	40.0%	44.4%	43.1%
Not Sure	Count	1	3	2	0	0	0	0	0	0	6
	% within School	6.3%	23.1%	22.2%	.0%	.0%	.0%	.0%	.0%	.0%	5.9%
Disagree	Count	3	0	2	6	0	5	0	4	1	21
	% within School	18.8%	.0%	22.2%	75.0%	.0%	38.5%	.0%	40.0%	11.1%	20.6%
Strongly Disagree	Count	0	0	0	0	1	0	0	0	0	1
	% within School	.0%	.0%	.0%	.0%	7.1%	.0%	.0%	.0%	.0%	1.0%
Total	Count	16	13	9	8	14	13	10	10	9	102
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

A higher percentage of teachers from school D 75.0% (6) and a few teachers from school A 18.8% (3), C 22.2% (2), F 38.5% (5), H 40.0% (4) and J 11.1% (1) disagreed with the opinion that reports generated by the MIS contained all key information while none of the teachers from schools B, E and G disagreed. A few teachers from school E 7.1% (1) strongly disagreed that reports generated by the MIS contain all key information however, no teacher from school A, B, C, D, F, G, H and J disagreed.

4.6.9 Reports Generated by MIS Contained Errors

It can be seen from Table 4.55 that a small percentage of teachers from school A 18.8% (3), B 23.1% (3), C 33.3% (3), E 50.0% (7), F 7.7% (1) and G 10.0% (1) were not sure of MIS generating reports that may contain errors. Teachers from schools B 30.8% (4), C 11.1% (1), F 15.4% (2) and J 55.6% (5) disagreed that reports generated by the MIS may contain errors. None of the teachers from schools A, D, E, G and H disagreed. Few teachers from schools B 7.7% (1) and F 7.7% (1) strongly disagreed that reports generated by the MIS may contain errors while none of the teachers from schools A, C, D, E, G, H and J strongly disagreed.

Table 4.55, it was established that a small percentage of teachers from school A 6.3% (1), B 23.1% (3), E 14.3% (2), G 30.0% (3), H 20.0% (2) and J 22.2% (2) strongly agreed that reports generated by the MIS may contain errors however no teacher from school C, D and F strongly agreed. Majority of teachers from schools A 75.0% (12), C 55.6% (5), F 69.2% (9), G 60.0% (6) and H 80.0% (8) with a few of the teachers from schools B 15.4% (2), E 35.7% (5) and J 22.2% (2) agreed that reports generated by the MIS may contain errors. All teachers 100% (8) from school D also agreed.

A small percentage of teachers from school A 18.8% (3), B 23.1% (3), C 33.3% (3), E 50.0% (7), F 7.7% (1) and G 10.0% (1) were not sure of MIS generating reports that may contain errors. Teachers from schools B 30.8% (4), C 11.1% (1), F 15.4% (2) and J 55.6% (5) disagreed that reports generated by the MIS may contain errors. None of the teachers from schools A, D, E, G and H disagreed. Few teachers from schools B 7.7% (1) and F 7.7% (1) strongly disagreed that reports generated by the MIS may contain

errors while none of the teachers from schools A, C, D, E, G, H and J strongly disagreed.

Table 4.55: Reports Generated by the MIS may contain errors

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	1	3	0	0	2	0	3	2	2	13
	% within School	6.3%	23.1%	.0%	.0%	14.3%	.0%	30.0%	20.0%	22.2%	12.7%
Agree	Count	12	2	5	8	5	9	6	8	2	57
	% within School	75.0%	15.4%	55.6%	100.0%	35.7%	69.2%	60.0%	80.0%	22.2%	55.9%
Not Sure	Count	3	3	3	0	7	1	1	0	0	18
	% within School	18.8%	23.1%	33.3%	.0%	50.0%	7.7%	10.0%	.0%	.0%	17.6%
Disagree	Count	0	4	1	0	0	2	0	0	5	12
	% within School	.0%	30.8%	11.1%	.0%	.0%	15.4%	.0%	.0%	55.6%	11.8%
Strongly Disagree	Count	0	1	0	0	0	1	0	0	0	2
	% within School	.0%	7.7%	.0%	.0%	.0%	7.7%	.0%	.0%	.0%	2.0%
Total	Count	16	13	9	8	14	13	10	10	9	102
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The study deduced that only respondents who agreed that reports generated by MIS may contain errors recorded above 50%. This was 55.9% (57) which indicated that reports generated by MIS might contain errors. The respondents who strongly agreed had 12.7% (13), while teachers who were not sure had 17.6% (18), disagreed 11.8% (12) and strongly disagreed 2% (2).

4.6.10 Ease of Interpreting Generated Information

According to Table 4.56, majority of teachers from school B 61.5% (8) with a few teachers from schools A 18.8% (3), C 11.1% (1), E 28.6% (4), F 16.7% (2), G 10.0%

(1), H 20.0% (2) and J 33.3% (3) strongly agreed that the MIS provided easy time in interpreting generated information. None of the teachers from school D strongly agreed. Majority of teachers from school A 75.0% (12), C 55.6% (5), E 64.3% (9), F 75.0% (9) and G 80.0% (8) with 100% from school D together with a few teachers from schools B 30.8% (4), H 40.0% (4) and J 44.4% (4) agreed that MIS provided ease time in interpreting generated information.

Table 4.56: Ease of interpreting generated information

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	3	8	1	0	4	2	1	2	3	24
	% within School	18.8%	61.5%	11.1%	.0%	28.6%	16.7%	10.0%	20.0%	33.3%	23.8%
Agree	Count	12	4	5	8	9	9	8	4	4	63
	% within School	75.0%	30.8%	55.6%	100.0%	64.3%	75.0%	80.0%	40.0%	44.4%	62.4%
Not Sure	Count	0	1	3	0	1	0	1	0	1	7
	% within School	.0%	7.7%	33.3%	.0%	7.1%	.0%	10.0%	.0%	11.1%	6.9%
Disagree	Count	1	0	0	0	0	1	0	2	1	5
	% within School	6.3%	.0%	.0%	.0%	.0%	8.3%	.0%	20.0%	11.1%	5.0%
Strongly Disagree	Count	0	0	0	0	0	0	0	2	0	2
	% within School	.0%	.0%	.0%	.0%	.0%	.0%	.0%	20.0%	.0%	2.0%
Total	Count	16	13	9	8	14	12	10	10	9	101
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

A few teachers from schools B 7.7% (1), C 33.3% (3), E 7.1% (1), G 10.0% (1) and J 11.1% (1) were not sure whether MIS provided ease time in interpreting generated information. None of the teachers from school B, C, D, E and G disagreed that MIS provided ease time in interpreting generated information. However, a few teachers from schools A 6.3% (1), F 8.3% (1), H 20.0% (2) and J 11.1% (1) disagreed. No teacher

from school A, B, C, D, E, F, G and J strongly disagreed that MIS provided ease time in interpreting generated information apart from a few teachers from school H 20.0% who strongly disagreed.

In general, it can be established from the study, majority of the teachers strongly agreed 223.8% (24) and agreed 62.4% (24) that the MIS provided ease time in interpreting generated information. This was clear as the two formed more than 80% of the respondents thus it meant that MIS was able to ease the work. On the other hand, teachers who were not sure had 6.9% (7), disagree 5% (5), strongly disagree 2% (2).

4.6.11 Ability to Generate Impromptu Reports

From Table 4.57, it was attested that, majority of teachers from school B 61.5% and a few from schools A 12.5% (2), C 11.1% (1), E 21.4% (3), F 16.7% (2), G 30.0% (3), H 10.0% (1) and J 22.2% (2) strongly agreed that MIS had the ability to generate impromptu reports. Majority of teachers from schools E 64.3% (9), F 66.7% (8), G 60.0% (6), H 60.0% (6) and J 66.7% (6) agreed that the MIS has ability to generate impromptu reports with a few teachers from school A 43.8% (7), B 23.1% (3), C 33.3% (1) and D 37.5% (3).

Generally, the study indicated that a few of the teachers who strongly disagreed and disagreed that MIS has the ability to generate impromptu reports registered 2% (2) and 6.9% (7) respectively, the teachers who were not sure registered 18.8% (19), while the ones who strongly agreed and agreed registered 21.8% (22) and 50.5% (51)

respectively. This implied that a higher percentage of teachers were in agreement with MIS having the ability to generate impromptu reports.

Table 5.57: The MIS has the ability to generate impromptu reports

		School										Total
		A	B	C	D	E	F	G	H	J		
Strongly Agree	Count	2	8	1	0	3	2	3	1	2	22	
	% within School	12.5%	61.5%	11.1%	.0%	21.4%	16.7%	30.0%	10.0%	22.2%	21.8%	
Agree	Count	7	3	3	3	9	8	6	6	6	51	
	% within School	43.8%	23.1%	33.3%	37.5%	64.3%	66.7%	60.0%	60.0%	66.7%	50.5%	
Not Sure	Count	7	1	4	2	1	1	1	1	1	19	
	% within School	43.8%	7.7%	44.4%	25.0%	7.1%	8.3%	10.0%	10.0%	11.1%	18.8%	
Disagree	Count	0	0	1	3	1	1	0	1	0	7	
	% within School	.0%	.0%	11.1%	37.5%	7.1%	8.3%	.0%	10.0%	.0%	6.9%	
Strongly Disagree	Count	0	1	0	0	0	0	0	1	0	2	
	% within School	.0%	7.7%	.0%	.0%	.0%	.0%	.0%	10.0%	.0%	2.0%	
Total	Count	16	13	9	8	14	12	10	10	9	101	
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

A small percentage of teachers from school A 43.8% (7), B 7.7% (1), C 44.4% (4), D 25.0% (2), E 7.1% (1), F 8.3% (1), G 10.0% (1), H 10.0% (1) and J 11.1% (1) were not sure of MIS's ability to generate impromptu reports. None of teachers from school A, B, G and J disagreed that MIS had ability to generate impromptu reports however a few teachers from school C 11.1% (1), D 37.5% (3), E 7.1% (1), F 8.3% (1) and H 10.0% (1) disagreed. None of teacher strongly disagreed that MIS has the ability to generate impromptu reports from schools A, C, D, E, F, G and J, however a few teachers from schools B 7.7% (1) and H 10.0% (1) strongly disagreed.

4.6.12 Ease of Accessing Technical Support

From Table 4.58, it can be seen that a small percentage of teachers from school A 12.5% (2), B 46.2% (6), C 11.1% (1), E 14.3% (2), F 16.7% (2), G 20.0% (2), H 40.0% (4) and J 22.2% (2) strongly agreed that there was ease in accessing technical support for the MIS. However, none of the teacher from school D strongly agreed.

Table 4.58: Ease of accessing to technical support

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	2	6	1	0	2	2	2	4	2	21
	% within School	12.5%	46.2%	11.1%	.0%	14.3%	16.7%	20.0%	40.0%	22.2%	20.8%
Agree	Count	2	3	2	3	10	6	7	1	5	39
	% within School	12.5%	23.1%	22.2%	37.5%	71.4%	50.0%	70.0%	10.0%	55.6%	38.6%
Not Sure	Count	10	3	5	2	1	1	1	0	0	23
	% within School	62.5%	23.1%	55.6%	25.0%	7.1%	8.3%	10.0%	.0%	.0%	22.8%
Disagree	Count	2	0	1	3	1	3	0	3	2	15
	% within School	12.5%	.0%	11.1%	37.5%	7.1%	25.0%	.0%	30.0%	22.2%	14.9%
Strongly Disagree	Count	0	1	0	0	0	0	0	2	0	3
	% within School	.0%	7.7%	.0%	.0%	.0%	.0%	.0%	20.0%	.0%	3.0%
Total	Count	16	13	9	8	14	12	10	10	9	101
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Majority of teachers from schools E 71.4% (10), G 70.0% (7) and J 55.6% (5) agreed that there was ease access to technical support. 50.0% (6) teachers from school F with a few teachers from schools: A 12.5% (2), B 23.1% (3), C 22.2% (2), D 37.5% (3) and H 10.0% (1) also agreed.

Majority of teachers from school A 62.5% (10) and C 55.6% (5) were not sure of ease access to technical support. A few teachers from school B 23.1% (3), D 25.0% (2), E 7.1% (1), F 8.3% (1) and G 10.0% (1) were also not sure. A few teachers from schools A 12.5% (2), C 11.1% (1), D 37.5% (3), E 7.1% (1), F 25.0% (3), H 30.0% (3) and J 22.2% (2) disagreed that there was ease access to technical support with MIS, however no teacher disagreed from school B and G. A few teachers from schools B 7.7% (1) and H 20.0% (2) strongly disagreed that there was ease access to technical support with MIS. However, no teacher strongly disagreed from school A, C, D, E, F, G and J.

From the study, only 3% (3) of the teachers strongly disagreed that teachers as users of the MIS had ease access to technical support. Teachers who disagreed with this view were 14.9% (15). It was revealed that 22.8% (23) of teachers were not sure about this. On the other hand, teachers who strongly agreed were 20.8% (21). The majority of teachers agreed that the MIS had ease access to technical support. This formed 38.9% (39) of teachers. This finding implied that most teachers had ease access to technical support when using the MIS.

4.6.13 Strong Data Security Protection

From the findings in Table 4.59, it could be seen that, a few teachers from schools A 6.3% (1), B 30.8% (4), C 11.1% (1), F 16.7% (2), G 30.0% (3) and H 10.0% strongly agreed that MIS had strong data security protection while none of the teachers from schools D, E and J strongly agreed. Majority of teachers from school D 75.0% (6), E 64.3% (9) and J 55.6% (5), G 50.0% (5) and a few from school A 25.0% (4), B 38.5%

(5), C 22.2% (2), F 25.0% (3) and H 30.0% (3) agreed that MIS has strong data security protection.

Table 5.59: The MIS has strong data security protection

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	1	4	1	0	0	2	3	1	0	12
	% within School	6.3%	30.8%	11.1%	.0%	.0%	16.7%	30.0%	10.0%	.0%	11.9%
Agree	Count	4	5	2	6	9	3	5	3	5	42
	% within School	25.0%	38.5%	22.2%	75.0%	64.3%	25.0%	50.0%	30.0%	55.6%	41.6%
Not Sure	Count	8	2	5	0	2	1	2	0	3	23
	% within School	50.0%	15.4%	55.6%	.0%	14.3%	8.3%	20.0%	.0%	33.3%	22.8%
Disagree	Count	3	1	1	2	3	6	0	4	1	21
	% within School	18.8%	7.7%	11.1%	25.0%	21.4%	50.0%	.0%	40.0%	11.1%	20.8%
Strongly Disagree	Count	0	1	0	0	0	0	0	2	0	3
	% within School	.0%	7.7%	.0%	.0%	.0%	.0%	.0%	20.0%	.0%	3.0%
Total	Count	16	13	9	8	14	12	10	10	9	101
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

It was observed that a few teachers from schools B 15.4% (2), E 14.3% (2), F 8.3% (1), G 20.0% (2) and J 33.3% (3) were not sure of MIS having strong data security protection, with teachers from schools A 50.0% (8) and C 55.6% (5) registering 50% and above not being sure. Teachers from school F 50.0% (6) and a few from schools A 18.8% (3), B 7.7% (1), C 11.1% (1), D 25.0% (2), E 21.4% (3), H 40.0% (4) and J 11.1% (1) disagreed with MIS having strong data security protection, however, none of the teachers from school G disagreed.

A few teachers from schools B 7.7% (1) and H 20.0% (2) strongly disagreed that MIS has strong data security protection however, none of the teachers from schools A, C, D, E, F, G and J strongly disagreed. In relation to the MIS having strong data security protection, it was approved that the teachers agreed were the majority with 41.6% (42), 11.9% (12) of the teachers strongly agreed. The rest of the teachers who disagreed and strongly disagreed had 20.8% (21) and 3% (3) respectively while teachers who were not sure had 22.8% (23).

4.6.14 Computer Skills Required to Operate the MIS

According to findings in Table 4.60, majority of teachers from school B 53.8% (7) with a few teachers from schools E 7.1% (1), F 8.3% (1), G 10.0% (1), H 30.0% (3) and J 22.2% (2) strongly agreed that MIS requires less sophisticated computer skills, but none of the teachers from school A, C and D strongly agreed. Majority of teachers from school E 78.6% (11) and H 70.0% (7), with 50% of teachers from schools D 50.0% (4) and F 50.0% (6), agreed that MIS requires less sophisticated computer skills. A few teachers from schools A 37.5% (6), B 23.1% (3), C 44.4% (4), G 40.0% (4) and J 44.4% (4) also agreed that MIS requires less sophisticated computer skills.

No teachers from schools B, D, F and H were sure that MIS requires less sophisticated computer skills. However, a few teachers from school A 18.8% (3), C 44.4% (4), E 7.1% (1), G 30.0% (3) and J 22.2% (2) were also not sure. 50% of teachers from school D 50.0% (4) with a few from schools A 43.8% (7), B 15.4% (2), C 11.1% (1), E 7.1% (1), F 33.3% (4), G 20.0% (2) and J 11.1% (1) disagreed that MIS requires less sophisticated computer skills, none of the teachers from school H disagreed. A few

teachers from schools B 7.7% (1), F 8.3% (1) and none from schools A, C, D, E, G, H and J strongly disagreed that MIS requires less sophisticated computer skills.

Table 4.60: The MIS requires less sophisticated computer skills

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Agree	Count	0	7	0	0	1	1	1	3	2	15
	% within School	.0%	53.8%	.0%	.0%	7.1%	8.3%	10.0%	30.0%	22.2%	14.9%
Agree	Count	6	3	4	4	11	6	4	7	4	49
	% within School	37.5%	23.1%	44.4%	50.0%	78.6%	50.0%	40.0%	70.0%	44.4%	48.5%
Not Sure	Count	3	0	4	0	1	0	3	0	2	13
	% within School	18.8%	.0%	44.4%	.0%	7.1%	.0%	30.0%	.0%	22.2%	12.9%
Disagree	Count	7	2	1	4	1	4	2	0	1	22
	% within School	43.8%	15.4%	11.1%	50.0%	7.1%	33.3%	20.0%	.0%	11.1%	21.8%
Strongly Disagree	Count	0	1	0	0	0	1	0	0	0	2
	% within School	.0%	7.7%	.0%	.0%	.0%	8.3%	.0%	.0%	.0%	2.0%
Total	Count	16	13	9	8	14	12	10	10	9	101
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

In summary, the study deduced that respondents who agreed registered above 40% while the rest below 25%. At 48.5% (49) were teachers who agreed thus forming the majority. Teachers who strongly agreed added up to 14.9% (15). The others who were not sure, disagreed and strongly disagree had 12.9% (13), 21.8% (22) and 2% (2) respectively.

4.6.15 Software Stability

From the findings shown in Table 4.61, it can be seen that: a few teachers from school B 7.7% (1) and F 8.3% (1) strongly disagreed that MIS offers good software stability

while none of the teacher from school A, C, D, E, G, H and J strongly agreed. 50.0% (5) of teachers from school H with a few from school B 7.7% (1), D 12.5% (1), F 16.7% (2) and J 11.1% (1) disagreed that MIS offered good software stability while none of the teachers from schools A, C, E and G agreed. Most teachers from school C 55.6% (5), 50.0% (8) from school A and a few teachers from school B 15.4% (2), D 12.5% (1), E 7.1% (1), F 25.0% (3), G 40.0% (4) and J 22.2% (2) were not sure if MIS could offer good software stability.

Table 4.61: The software stability of the MIS

		School									Total
		A	B	C	D	E	F	G	H	J	
Strongly Disagree	Count	0	1	0	0	0	1	0	0	0	2
	% within School	.0%	7.7%	.0%	.0%	.0%	8.3%	.0%	.0%	.0%	2.0%
Disagree	Count	0	1	0	1	0	2	0	5	1	10
	% within School	.0%	7.7%	.0%	12.5%	.0%	16.7%	.0%	50.0%	11.1%	9.9%
Not Sure	Count	8	2	5	1	1	3	4	0	2	26
	% within School	50.0%	15.4%	55.6%	12.5%	7.1%	25.0%	40.0%	.0%	22.2%	25.7%
Agree	Count	7	5	4	6	13	4	6	5	5	55
	% within School	43.8%	38.5%	44.4%	75.0%	92.9%	33.3%	60.0%	50.0%	55.6%	54.5%
Strongly Agree	Count	1	4	0	0	0	2	0	0	1	8
	% within School	6.3%	30.8%	.0%	.0%	.0%	16.7%	.0%	.0%	11.1%	7.9%
Total	Count	16	13	9	8	14	12	10	10	9	101
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Majority of teachers from school D 75.0% (6), E 92.9% (13), G 60.0% (6), H 50.0% (5) and J 55.6% (5), agreed that MIS offers good software stability. A few teachers from school A 43.8% (7), B 38.5% (5), C 44.4% (4) and F 33.3% (4) also agreed that MIS

offers good software stability. A few teachers from schools A 6.3% (1), B 30.8% (4), F 16.7% (2) and J 11.1% (1) strongly agreed that MIS offers good software stability but none of teachers from school C, D, E, G and H strongly agreed.

It was generally noted that 54.5% (55) of teachers agreed that MIS offered good software. This implied that teachers could work on the MIS reliably and for long hours without the MIS disappointing them. It was also noted that 25.7% (26) of teachers were not sure, 9.9% (10) disagreed and 2.0% (2) strongly disagreed.

4.6.16 Rating of MIS in Meeting Overall Teachers' Expectation

Table 4.62: Rating the Overall level of Teachers' satisfaction of this MIS

		School								Total	
		A	B	C	D	E	F	G	H	J	
Very Satisfactory	Count	3	4	0	0	2	2	2	0	1	14
	% within School	18.8%	30.8%	.0%	.0%	14.3%	15.4%	20.0%	.0%	11.1%	13.7%
Satisfactory	Count	7	7	0	2	8	3	6	3	3	39
	% within School	43.8%	53.8%	.0%	25.0%	57.1%	23.1%	60.0%	30.0%	33.3%	38.2%
Average	Count	6	2	3	6	4	8	2	7	5	43
	% within School	37.5%	15.4%	33.3%	75.0%	28.6%	61.5%	20.0%	70.0%	55.6%	42.2%
Less Satisfactory	Count	0	0	6	0	0	0	0	0	0	6
	% within School	.0%	.0%	66.7%	.0%	.0%	.0%	.0%	.0%	.0%	5.9%
Total	Count	16	13	9	8	14	13	10	10	9	102
	% within School	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

It was noted by 44.4% (4) of principals that the overall performance of their MIS was average. 22.2% (2) of principals noted MIS performance as satisfactory while another

22.2% (2) said that MIS performance was very satisfactory. However, 11.1% (1) noted this performance as less satisfactory.

From Table 4.62, it can be depicted that teachers from school A 18.8% (3), B 30.8% (4), E 14.3% (2), F 15.4% (2), G 20.0% (2) and J 11.1% (1) rated the overall level of teachers' satisfaction by MIS to be very satisfactory. None of the teachers from schools C, D and H found it to be very satisfactory.

Majority of teachers from schools B 53.8% (7), E 57.1% (8) and G 60.0% (6) with a few from school A 43.8% (7), D 25.0% (2), F 23.1% (3), H 30.0% (3) and J 33.3% (3) rated MIS to satisfactory. None of the teachers from school C rated it as satisfactory. 37.5% (6), 15.4% (2), 33.3% (3), 75.0% (6), 28.6% (4), 61.5% (8), 20.0% (2), 70.0% (7) and 55.6% (5) of teachers from schools A, B, C, D, E, F, G, H and J respectively rated the overall level of teachers' satisfaction of MIS to be average. Higher percentage of teachers from school C 66.7% (6) rated MIS usage to be less satisfactory. However, none of the teachers from schools A, B, D, E, F, G, H and J rated MIS usage to be less satisfactory.

In general, the study established that majority teachers who rated MIS in relation to the overall level of teachers' satisfaction rated it as average with 42.2% (43). This indicated that most of the respondents were at indifference. However, 38.2% (39) rated it as satisfactory with 13.7% (14) noting it very satisfactory 13. The rest of the teachers from the selected schools rated it as less satisfactory with 5.9% (6).

4.7 Chapter Summary

In this chapter, the background of principals and teachers was discussed. It was found that principals and teachers had stayed in their current schools for a period of 10 years 2 months and 5 years 10 months respectively. It was established that most schools purchased MIS as off-the-shelf products. These MIS were installed in several computers. Most of these computers were not networked hence impeded electronic data sharing within departments. Teachers observed that they were able to access most of the management information that was generated by the MIS although not all-important information could be generated by the MIS.

It was observed that these MIS had improved analysis of curriculum monitoring processes such as curriculum supervision, staff efficiency, resource allocation, teacher preparation, innovations and many others. MIS had also reduced the cost of management.

However, the positive effects of MIS have not been realised in minimising teacher absenteeism and student absenteeism. Lastly, it was established that teachers were satisfied with the services and information rendered by the MIS. It was however, noted that the MIS had its own weaknesses such as generation of reports that contained errors. The findings revealed that the MIS had improved schools' processes in curriculum management hence led to informed decision-making by both teachers and principals. The findings further established that teachers were satisfied with the extent the MIS met their expectations in providing information on core-curriculum management.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter discusses the findings of the study, the ensuing conclusion and recommendations of this study. All of which have been arranged in accordance to the themes of this study. Recommendations of this study will benefit policy makers, school managers and other stakeholders in the field of education management. Furthermore, recommendations will be of benefit to MIS developers in the education sector worldwide, particularly in Kenya. In addition, further research areas that would enrich knowledge in the field of MIS for core-curriculum management in schools have been proposed.

5.1 Discussion

The respondents in this study had sufficient experience to respond to questions that led to the analysis of the objectives of the study. The study selected teachers based on their school responsibilities, which were of interest to this study.

5.1.1 Types of MIS in secondary schools

It was established from the findings that majority of the MIS used in the selected secondary schools were not networked. In addition, these systems could neither share data electronically among other computer programs nor among other departments. Despite this, teachers accessed students' performance information in these standalone

computers. This finding implied that teachers were able to make decision based on students' performance information.

The study established that teachers could access analysed timetable information and analysed academic performance of a class. This finding concurs with the findings of Madiha (2013) that MIS led to better accessibility to information and therefore has a positive impact. However, teachers reported that they could not access analysed students' class attendance information and analysed teachers' performance information on the MIS.

Furthermore, teachers observed that the MIS in their schools were purchased from already existing software in the Kenyan market, thus off-the-shelf software. Very few of these MIS had been specifically developed for their respective schools.

5.1.2 Management information generated by MIS

This study sought to establish the kind of management information that was generated by the MIS used in selected secondary schools. The study revealed that not all important management information regarding curriculum management was generated by the MIS. The summary of the findings was as discussed here under:

In relation to generation of management information, the study established that in all the schools the MIS generated analysed information on students' progress, lesson allocation per teacher and analysed lessons per subject. It was further observed that majority of teachers said that the MIS generated analysed information on subject performance, actual lessons taught per subject and information on students in need of academic

counselling. This finding is in tandem with observations made by Diwan and Thakur (2009) that SMIS are flexible systems designed to meet information needs of the entire school.

However, the MIS had no ability to generate analysed information on student attendance and information on students' textbook ratio. In almost all schools, majority of teachers observed that the MIS neither generated information on challenges faced by students in learning, teacher adequacy, students' repetition rate, students' retention rate, students' completion rate nor guidance of students on improvement academic performance. The study realised that the MIS used in secondary schools did not generate analysed information on syllabus coverage.

Finally, teachers rated the overall usefulness of the MIS in providing curriculum management information. Majority of teachers found the overall performance of the MIS to be useful in providing management information.

5.1.3 Effects of MIS on curriculum management decisions

The use of MIS in curriculum management in secondary schools had some observed effects. For instance, teachers using MIS reported an improvement in supervision of the curriculum and in the analysis of teaching and learning processes. These findings were in line with observations made by Visscher (1996) that Information Technology in Education Management (ITEM) supported school managers in monitoring carefully how their schools operate.

Teachers observed that these improvements were in areas of monitoring of learning resources, enhanced teacher preparation, learning accountability and resource allocation. These findings agreed with Madiha (2013) claim that one positive effect of MIS on school administration was higher utilization of school resources. This study established that the MIS had improved processes in curriculum management hence led to informed decision-making at school level. Furthermore, it was established that teachers had noted improvement in the following areas: staff efficiency, assisted in innovation, faster generation of management reports and reduction in the cost of management.

Similarly, the findings of this study on these attributes confirmed Madiha (2013) views that MIS reduces the cost of management, improves the quality of reporting, more efficient administration, reduction in workload, better time management, and improvement in the quality of reports. Visscher (1996) noted that computers can help school managers in finding creative solutions (innovativeness) for complex allocation problems (e.g. teacher allocation, timetable construction). However, it was noted that the MIS had led to neither a drop in teacher absenteeism nor a drop in student absenteeism. Generally, majority of teachers generally observed that MIS was important in providing information for decision-making.

5.1.4 Extent MIS meets teachers' expectations

The study established that teachers had the opinion that entering data in the MIS was easy. Majority of them agreed that the MIS allowed all relevant data to be entered. They stated that it took a shorter time for the MIS to process data. They further observed that

the MIS had system features that were easier to locate. In addition, teachers confirmed that the MIS had fully computerised data processing ability. In summary, majority of teachers expressed satisfaction with the data processing capability of the MIS found in their schools.

In relation to easiness in printing information, almost all teachers observed that the MIS made it easier to print information. Furthermore, majority of teachers acknowledged that the MIS contained all key information and it was easy to interpret the generated information. However, they noted that the reports generated by the MIS contained errors.

The MIS had the ability to generate impromptu report. This study further established that teachers had easy access to technical support for the MIS and the MIS had strong data security protection respectively. Majority of teachers acknowledged that the MIS required less sophisticated skills to operate. They further observed that the MIS offered good software stability. Finally, majority of teachers expressed satisfaction with the overall ability of MIS to meeting their expectations as users of MIS.

5.2 Conclusion

The findings of this study revealed that schools had fairly well designed off-the-shelf MIS. The MIS were capable of processing a number of curriculum management information, though much of the necessary information was not generated. Both the teachers and principals had access to the curriculum management information that was available on the MIS.

These MIS were operated on either several computers or on one single computer. Regardless of the number of computers running MIS, these computers were not networked. Since a networked system enhances sharing of information and interdependence, it can be concluded that schools lacked the ability to electronically share management information effectively via computer programs and amongst academic departments. The findings further revealed that majority of these MIS had been purchased from existing MIS in the Kenyan market rather than specifically developed to meet the unique requirements of an individual school.

It is noteworthy that data and information sharing among departments is a key measure of the success of any MIS (Hua & Herstein, 2003). Having data scattered in various standalone computers results in duplication of data. Updating all these scattered data becomes a big challenge and compromises the integrity of both data and information generated from it.

Teachers used the MIS to access curriculum management information. These included information on students' academic performance, analysed performance of the classes and the timetable. Therefore, with this access, teachers could utilize this information in making informed decisions on matters related to curriculum. However, other critical information such as students' class attendance and teacher performance was not accessible from the SMIS.

The study established that not much of analysed curriculum management information was available on the MIS. The MIS was used by teachers to generate basic traditional curriculum management information such as student progress and lessons allocation per

teacher and per subject. The usage of MIS had been limited by its inability to generate finer management information. The MIS did not produce analysed information on students' attendance, repetition rate, retention rate, completion rate, challenges faced by students in learning, syllabus coverage, guidance of students on improving their academic performance, teacher adequacy and students text book ratio. This quality information would have assisted teachers in making necessary adjustments and decisions in the aspects of curriculum management. The failure of MIS to output such information could be attributed to lack of data on the same. If the MIS was not fed with relevant data, there was no way it can produce related information. However, the teachers had a high opinion of MIS in terms of its usefulness in generating management information. Therefore, the study concluded that MIS used in secondary schools lacked the capability to generate some crucial information that would have enriched decision-making.

The usage and importance of MIS in curriculum management has had great results as noted by teachers. Positive effects of MIS usage had been observed in various aspects of curriculum management especially in areas dealing with learning and students academic information. Teachers observed that the use of MIS has improved the supervision of the curriculum. Curriculum supervision, staff efficiency, resource allocation & monitoring, teacher preparation, learning accountability and innovation had improved. Another positive impact was in the reduction to the cost of management. This improvement could be attributed to faster processing of data, faster printing of reports and readily available information on timetable allocations. However, in areas touching teachers such as drop in teacher absenteeism the MIS had very minimal influence.

With regard to the extent the MIS met teachers' expectations, the study revealed that majority of teachers were satisfied with the extent to which the MIS met their expectations. It was found that the MIS met teachers expectations in aspects such as ease of entering data, printing information, locating MIS features, interpreting generated information, allowing all relevant data to be entered, generation of impromptu reports and having a user friendly interface.

Teachers noted that the MIS provided satisfactory performance in data protection. Its report contained key information. It required less sophisticated computer skills and it had good software stability. This implied that the teachers were confident the MIS could protect data. It further implied that many teachers including teachers with less computer competence could operate the MIS hence more productivity would be realised. However, teachers noted that the MIS could generate reports that contained errors. This could be as a result of poor software programming which can be hard to correct at user level.

5.3 Recommendations

This study recommends that:

- i) Schools strive to develop their own MIS that are tailored to meet their individual management information needs. This can be realised if schools contracted competent software developers in the field of education to develop tailor-made solutions for their schools. This would tailor the MIS to meet specific needs of particular schools. This recommendation is in line with what

Valaciy, George and Hoffer (2004) encouraged that organisations should develop MIS that suits their information needs. In cases where a school has to purchase a MIS from the market, then the school should undertake a thorough assessment of the MIS. The purpose of such an assessment would be to ascertain which management information the MIS is able to generate and the benefits the MIS is likely to add to the school.

- ii) Intra-school networking of MIS be encouraged in schools. Intra-school networking facilitates data and information sharing, encourages interdependence and eliminates both duplication and redundancy of records. Therefore, teachers and MIS developers should work hand in hand to realise MIS that will enable schools analyse data and produce more useful information to meet their unique information requirement.
- iii) Schools need to enhance data captured in their MIS. This would enable schools realise more positive effects that will improve the quality of curriculum management and delivery to the learners. These include data on class attendance of teachers and students, students' completion, syllabus coverage among others. This will assist in curbing absenteeism, loss of teaching and learning hours, and improve on teachers' decisions and school policy formulation.
- iv) Teachers should continue to embrace the use of MIS as a tool for curriculum management. This will save on the cost of management as well as facilitate speedy generation of reports. As noted in the findings, the use of MIS had improved analysis of curriculum monitoring processes such as curriculum

supervision, staff efficiency, resource allocation, teacher preparation and innovation. However, teachers should be aware that reports generated by MIS may contain errors. Such errors should be brought to the attention of the software designer. The software piece should be corrected, replaced or patched. Otherwise, such errors are likely to erode the trust teachers have in MIS and could mislead other teachers who may not be aware of their existence.

- v) The Ministry of Education, Science and Technology establishes a criterion for computer end user programs for use in secondary schools. This criterion is missing as revealed in the literature review.

5.4 Suggestions for further research

The study proposes that research be carried out on technical aspects of various school MIS software to determine their capability in generating management information. It also proposes studies organisation of data that is captured in the MIS with a view of providing guidance on what data need to be captured in order to realise a fully capable MIS that would support curriculum management. More studies could be done on comparisons on the benefits realised by user-developed MIS to off-shelf MIS that already exist in the market.

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Appendices

Appendix I: Research permit

1. **You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.**

2. **Government Officers will not be interviewed without prior appointment.**


3. **No questionnaire will be used unless it has been approved.**

4. **Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.**

5. **You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.**

6. **The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.**

Phlocha

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION
NACOSTI

RESEARCH CLEARANCE PERMIT

Serial No: **A1327**
CONDITIONS: see back page

THIS IS TO CERTIFY THAT:

MR. CORNELIUS JOHN KIBERENGE
of UNIVERSITY OF ELDORET, 308-50200
Bungoma, has been permitted to
conduct research in Bungoma County
on the topic: MANAGEMENT
INFORMATION SYSTEM AS A TOOL FOR
CURRICULUM MANAGEMENT: THE CASE
OF SECONDARY SCHOOLS IN BUNGOMA
COUNTY
for the period ending:
24th June, 2014

Permit No : **NACOSTI/P/14/1112/1077**
Date Of Issue : **2nd April, 2014**
Fee Received : ksh 1,000.00

Phlocha
Secretary
National Commission for Science, Technology & Innovation

Phlocha
Applicant's Signature

Appendix II: A request for research permit

P.O. Box 1125-30100,
ELDORET, Kenya
Tel: 053-2063111 Ext. 242
Fax No. 20-2141257

Our Ref: UoE/SoE/Tech/14

26th February, 2014

The Executive Secretary,
National Council for Science and Technology,
P.O. Box 30623-00100,
NAIROBI.

Dear Sir/Madam,

RE: RESEARCH PERMIT FOR- KIBERENGE CORNELIUS JOHN- EDU/PGT/18/07

This is to confirm that the above named Post Graduate Student has completed Course work of his master of Philosophy in Technology Education (Electrical option).

He is currently preparing for a field research work on his thesis entitled: ***"Management Information System as a Tool for Curriculum Management"***. The proposal has been approved by this Institution.

Any assistance accorded him to facilitate successful conduct of the research and the publication will be highly appreciated.

Yours faithfully,

DR. K.M. KITAINGE
HEAD, TECHNOLOGY EDUC. DEPT.

Copy to: Permanent Secretary,
Ministry of Higher Education, Science & Technology,
P.O. Box 9583-00200,
NAIROBI

Appendix III: A letter of introduction

University of Eldoret
School of Education
Department of Technology Education
P.O. Box 1125 - 30100
Eldoret, Kenya.

Date: 26TH MAY 2014

To: _____

Dear Sir/Madam,

RE: FACILITATION FOR M.PHIL THESIS RESEARCH PROJECT

I am a student at The University of Eldoret in the Department of Technology Education. I am pursuing a Master of Philosophy degree. I am conducting a study on Management Information System as a Tool for Curriculum Management: The Case of Bungoma County.

I wish to request permission to carry out research in your school(s). Your co-operation in providing necessary assistance, information and documents will contribute to existing knowledge on the subject under study.

Thank you in advance.

Yours sincerely,

Kiberenge J. Cornelius

Appendix IV: A letter of transmittal

University of Eldoret
School of Education
Department of Technology Education
P.O. Box 1125 - 30100,
Eldoret, Kenya.

Date: 26TH MAY 2014

To: TO ALL RESPONDENTS

Dear Sir/Madam,

RE: FACILITATION FOR M.ED. THESIS RESEARCH PROJECT

This study seeks on Management Information Systems (MIS) as a Tool for Curriculum Management: The Case of Secondary Schools in Bungoma County. It seeks to examine the effects of computer-assisted management in decision-making process with regard to curriculum management.

It examines how your school uses computer programs in areas such as: timetabling, students' academic reporting, classroom management and in managing teaching & learning activities.

Information provided by respondents will be used purely for the purpose of this study and will be treated as confidential. **None** of it will be used to the detriment of the respondent.

Thank you.

Yours sincerely,

Kiberenge J. Cornelius

Appendix V: Questionnaire

INSTRUCTIONS

Please provide answers by ticking (✓) appropriate checkbox(es). You may also provide additional information in the narrative section of questions.

SECTION ONE: BACKGROUND INFORMATION

Designation: _____ (e.g. DOS) Gender: __ Number of years in this school: ____

Number of years in teaching: _____ Number of years in Management: ____

SECTION TWO: TYPE OF MANAGEMENT INFORMATION SYSTEM (MIS)

1) Data entered in computer programs for this school's MIS system is entered: (please tick one)

- i) In a central computer that is networked
- ii) In a central computer that is not networked
- iii) In several computers that are networked
- iv) In several computers that are not networked

2) Data entered in computer programs for this school's MIS system: (please tick either true or false)

	True	False
i) Can be shared electronically among other computer programs		
ii) Can be shared electronically among other departments		

3) The computer systems and programs allow you in your capacity to access the following analysed information: (please tick either true or false)

	True	False
i) Students' performance (e.g. marks)		
ii) Students' class attendance (e.g. % attendance)		
iii) Teachers' performance (e.g. lessons taught)		
iv) Timetable information (e.g. lessons allocation)		
v) Academic performance of a class (e.g. mean score)		

4) The computer program(s) used as Management Information System(s) was:

- i) Purchased from existing systems in the Kenyan market

- ii) Specifically developed to meet our school's requirements
- iii) Donated to the school by well wisher(s)
- iv) State the source, if not identified above:
-

SECTION THREE: MANAGEMENT INFORMATION GENERATED BY THE MIS

- 5) The computer programs used in this school can generate the following student related management information: (please tick either true or false)

	True	False
i) Analysis of student progress		
ii) Analysis of student attendance		
iii) Challenges faced by students in learning		
iv) Repetition rate		
v) Student retention rate		
vi) Student completion rate		

- vii) Any other related management information:
-
-

- 6) The computer-based timetabling program used in this school generates the following timetable related management information:

	True	False
i) Analysis of lessons allocation per teacher		
ii) Analysis of lessons allocation per class		
iii) Analysis of actual lessons taught per subject		

- iv) Any other related management information:
-
-

- 7) The computer programs generate the following curriculum management information: (please tick either true or false)

	True	False
i) Analysis of syllabus coverage		
ii) Analysis on subject performance		
iii) Analysis of students in need of academic counselling		
iv) Guidance to students on improving academic performance		
v) Reports on teacher adequacy		
vi) Reports on student - text book ratio		

vii) Any other related management information:

8) How would you rate this school's MIS in providing management information?

Very useful Useful Average Less useful Not
useful

SECTION FOUR: EFFECTS OF MIS ON CURRICULUM MANAGEMENT DECISIONS

9) What effects has the MIS program had in the Management of this school. Kindly rated the effect: (please tick the appropriate space)

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
i) Improved analysis of teaching and learning					
ii) Improved supervision of the curriculum					
iii) Drop in teacher absenteeism					
iv) Drop in students' absenteeism					
v) Improved monitoring of learning resources					
vi) Improved staff efficiency					
vii) Enhanced teacher preparation					
viii) Improved learning accountability					
ix) Improved resource allocation					
x) Assisted in innovation					
xi) Faster generation of management reports					
xii) Reduced cost of management					

10) The role of this school's MIS programs in providing information required in making decisions related to curriculum management can be rated as:

Very important Important Average Less important Not important

SECTION FIVE: EXTENT MIS MEETS TEACHERS' EXPECTATIONS

11) Teachers as users of these computer programs can rate the programs in meeting their expectation as follows: (please tick the appropriate space)

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
i) It is easier to enter data					
ii) All relevant data is entered					
iii) It takes a shorter time to process data.					
iv) It is easier to locate system features e.g. forms					
v) Data processing is fully computerised (no manual assistance is required)					

- 12) The overall data processing capabilities of these computer programs can be rated as:

Very satisfactory Satisfactory Average Less satisfactory
 Not satisfactory

- 13) Teachers as users of these computer programs can rate the programs in meeting their expectation at the reporting stage as follows:(please tick the appropriate space)

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
i) Easiness in printing reports					
ii) Reports contain all key information					
iii) Reports may contain errors					
iv) Easiness in interpreting generated information					
v) Have ability to generate impromptu reports					
vi) Ease access to technical support					
vii) Have strong data security protection					
viii) Requires less sophisticated computer skills					
ix) Offers good software stability					

- 14) The overall level of satisfaction that this school's MIS meets teachers' expectation can be rated as:

Very satisfactory Satisfactory Average Less satisfactory
 Not satisfactory

Appendix VI: Principal's interview schedule

SECTION ONE: BACKGROUND INFORMATION

Designation: _____ (e.g. DOS) Gender: _____ Number of years in this school: _____

Number of years in teaching: _____ Number of years in Management: _____

SECTION TWO: MANAGEMENT INFORMATION SYSTEM (MIS) DETAILS

1. For how many years has this school used computer MIS(e.g. the timetabling computer program, students' report system, class management system)? _____
2. State the source of these computer programs (e.g. purchased from the Kenyan market, developed on special request, or donated to the school.)

3. Please enumerate some management decisions in this school, which are influenced by these computer systems?

4. Rate the performance of these computer programs in providing management information on: (please tick the appropriate space)

	Very satisfactory	Satisfactory	Average	Less satisfactory	Not Satisfactory
i) Teachers performance					
ii) Teachers academic load					
iii) Students academic performance					
iv) Teacher/student ratio					
v) Student/text book ratio					
vi) Teaching methods					

vii) Student completion rate					
viii) Student retention rate					

5. To what extent does the MIS influence decisions made in teaching and learning?

6. If you were to rate these computer MIS programs used by this school, would you rate them as: excellent, very good, good, average, fair, poor?

Appendix VII: Document analysis

Evidence of MIS generated:

1. Analysed report on teacher lesson attendance register: Quality of reporting,
2. Analysed reports on syllabus coverage: frequency of approval
3. Analysed reports on students' progress: Quality of reporting
4. Timetable print outs e.g. on teacher workload

Appendix IX: Research plan

Timeline	Activity
December 2013 - March 2014	Piloting and fine tuning data collection instruments
April 2014 - May 2014	Data Collection
June 2014	Data Presentation and Analysis
July 2014	Submission
October 2014	Defence of Thesis

Appendix X: Availability of MIS in public schools in Bungoma County

A list of Secondary Schools that were accessible during the preliminary study in **Bungoma County**. It indicates whether the school uses Management Information Systems in Core-Curriculum Management.

Sno.	School Names	Timetable Management System	Results Analysis System	Class Management
1	BUNGOMA HIGH SCHOOL – Boys Boarding	YES	YES	YES
2	KIBABII HIGH SCHOOL – Boys Boarding	YES	YES	YES
3	CARDINAL OTUNGA GIRLS HIGH SCHOOL – Girls Boarding	YES	YES	YES
4	NAMACHANJA HIGH SCHOOL – Mixed Day	YES	YES	YES
5	BUNGOMA BAPTIST GIRLS, HIGH SCHOOL – Girls Day & Boarding	YES	YES	YES
6	NZOIA SUGAR GIRLS SECONDARY SCHOOL – Girls Day & Boarding	YES	YES	YES
7	KAPSOKWONY H SCH – Boys Boarding	YES	YES	YES
8	MOI HIGH SCHOOL-KAPTAMA – Mixed Day & Boarding	YES	YES	YES
9	ST. PATRICK’S NAITIRI HIGH SCHOOL – Boys Boarding	YES	YES	YES
10	MUKUYUNI SECONDARY SCHOOL – Mixed Boarding	YES	YES	YES
11	SIRAKARU SECONDARY SCHOOL – Mixed Boarding	YES	YES	YES
12	ST. PAUL’S SECONDARY SCHOOL;NARATI – Mixed Boarding	YES	YES	YES
13	LUUYA GIRLS SECONDARY SCHOOL – Girls Boarding	YES	YES	YES
14	ST. CHARLES LWANGA SEC SCH BWAKE – Mixed Day & Boarding	YES	YES	YES
15	TEREMI BOYS HIGH SCHOOL – Boys Boarding	YES	YES	YES
16	BUSAKALA SECONDARY SCHOOL – Mixed Day & Boarding	YES	YES	YES
17	CHEBUKAKA GIRLS SECONDARY SCHOOL – Girls Boarding	YES	YES	YES
18	NAMAWANGA GIRLS – Girls Boarding	YES	YES	YES

Sno.	School Names	Timetable Management System	Results Analysis System	Class Management
19	ST.CECILIA GIRLS MISIKHU – Girls Boarding	YES	YES	YES
20	CHESAMISI BOYS HIGH SCHOOL – Boys Boarding	YES	YES	YES
21	MOI GIRLS HIGH SCHOOL, KAMUSINGA – Girls Boarding	YES	YES	YES
22	KIMILILI BOYS HIGH SCHOOL – Boys Boarding	YES	YES	YES
23	CHWELE GIRLS HIGH SCHOOL – Girls Boarding	YES	YES	YES
24	NAMWELA SECONDARY SCHOOL – Mixed Boarding	YES	YES	YES
25	A C BUTONGE HIGH SCHOOL – Boys Boarding	YES	YES	YES
26	KHASOKO HIGH SCHOOL – Boys Boarding	YES	YES	YES
27	ST. TERESA’S KABULA SECONDARY SCHOOL – Boys Boarding	YES	YES	YES
28	FRIENDS SECONDARY SCHOOL BUKEMBE – Boys Day & Boarding	YES	YES	NO
29	ST. LONGINUS SECONDARY SCHOOL – KONGOLI – Mixed Day	YES	YES	NO
30	SAMOYA SECONDARY SCHOOL – Mixed Day	YES	YES	NO
31	TENSTAR HIGH SCHOOL – Mixed Day	YES	YES	NO
32	BEULAH EDUCATIONAL INSTITUTE – Girls Day	YES	YES	NO
33	KIBUK GIRLS HIGH SCHOOL – Girls Boarding	YES	YES	NO
34	KABOYWO MIXED SECONDARY SCHOOL – Mixed Day	YES	YES	NO
35	MALIKI – Boys Boarding	YES	YES	NO
36	MBAKALO FRIENDS SECONDARY SCHOOL – Mixed Boarding	YES	YES	NO
37	BISHOP PHILIP ANYOLO SECONDARY SCHOOL KAKAMWE – Boys Boarding	YES	YES	NO
38	ST AUGUSTINE GIRLS’ HIGH SCHOOL- LUKHUNA – Girls Boarding	YES	YES	NO
39	ELUUYA FRIENDS GIRLS SECONDARY SCHOOL – Girls Boarding	YES	YES	NO
40	MILIMA FRIENDS SECONDARY SCHOOL –	YES	YES	NO

Sno.	School Names	Timetable Management System	Results Analysis System	Class Management
	Mixed Boarding			
41	BISHOP ATUNDO SECONDARY SCHOOL – MABUSI – Mixed Boarding	YES	YES	NO
42	ST. PETER’S SECONDARY SCHOOL- NDALU – Mixed Boarding	YES	YES	NO
43	FRIENDS SCHOOL NAITIRI – Mixed Boarding	YES	YES	NO
44	SIKUSI SECONDARY SCHOOL – Mixed Day & Boarding	YES	YES	NO
45	CHEBUKWA SECONDARY SCHOOL – Mixed Day	YES	YES	NO
46	KHACHONGE GIRLS – Girls Day & Boarding	YES	YES	NO
47	MAROBO SECONDARY SCHOOL – Mixed Day & Boarding	YES	YES	NO
48	NALONDO SECONDARY – Mixed Day & Boarding	YES	YES	NO
49	CHEKULO FRIENDS SECONDARY SCHOOL – Mixed Day	YES	YES	NO
50	MUSOKHO FRIENDS SEC – Mixed Day	YES	YES	NO
51	NANGWE GIRLS – Girls Day	YES	YES	NO
52	MADISI SECONDARY SCHOOL – Mixed Day	YES	YES	NO
53	FRIENDS SCHOOL BOKOLI – Boys Boarding	YES	YES	NO
54	FRIENDS SECONDARY SCHOOL MILANI – Mixed Day	YES	YES	NO
55	MISIKHU FRIENDS SECONDARY SCHOOL – Mixed Boarding	YES	YES	NO
56	MILO FRIENDS BOYS’ HIGH SCHOOL – Boys Boarding	YES	YES	NO
57	MATULO FRIENDS GIRLS SECONDARY SCHOOL – Girls Boarding	YES	YES	NO
58	ST MATHEW’S ACK SECONDARY SCHOOL – Mixed Day	YES	YES	NO
59	ST MARYS BOKOLI SEC. SCHOOL – Mixed Day	YES	YES	NO
60	MAGEMO FRIENDS SECONDARY SCHOOL – Mixed Day & Boarding	YES	YES	NO
61	NDIVISI BOYS HIGH SCHOOL – Boys Boarding	YES	YES	NO

Sno.	School Names	Timetable Management System	Results Analysis System	Class Management
62	NDIVISI GIRLS HIGH SCHOOL – Girls Boarding	YES	YES	NO
63	MAENI GIRLS' SEC SCH – Girls Boarding	YES	YES	NO
64	ST. THERESA'S GIRLS SECONDARY SCHOOL KIMILILI – Girls Boarding	YES	YES	NO
65	CHESAMISI GIRLS SECONDARY SCHOOL – Mixed Day	YES	YES	NO
66	ST. ANTHONY BOYS HIGH SCHOOL-SIRISIA – Boys Boarding	YES	YES	NO
67	TOLOSO SECONDARY SCHOOL – Mixed Boarding	YES	YES	NO
68	NAMANG'OFULO SECONDARY SCHOOL – Mixed Boarding	YES	YES	NO
69	KARIBUNI GIRLS SECONDARY SCHOOL – Girls Boarding	YES	YES	NO
70	BUKOKHOLO GIRLS – Girls Boarding	YES	YES	NO
71	BUMULA FRIENDS SECONDARY SCHOOL – Mixed Day & Boarding	YES	YES	NO
72	ST PAUL'S MILUKI SECONDARY SCHOOL – Girls Day & Boarding	YES	YES	NO
73	NANG'ENI GIRLS SECONDARY SCHOOL – Girls Day & Boarding	YES	YES	NO
74	NAPARA SECONDARY SCHOOL – Mixed Day & Boarding	YES	YES	NO
75	KIMABOLE SEC SCH – Mixed Day & Boarding	YES	YES	NO
76	CHESIKAKI R.C. SECONDARY SCHOOL – Mixed Day & Boarding	YES	YES	NO
77	CHEPTAIS SECONDARY SCHOOL – Mixed Boarding	YES	YES	NO
78	KIM GIRLS HIGH SCHOOL-KAPKOTA – Girls Day & Boarding	YES	YES	NO
79	MULATIWA SECONDARY SCHOOL – Mixed Day	YES	YES	NO
80	KUYWA GIRLS SEC SCH – Girls Boarding	YES	NO	NO
81	KAPTANAI SECONDARY SCHOOL – Mixed Boarding	YES	NO	NO
82	BUNGOMA MUSLIM SECONDARY SCHOOL	NO	YES	NO

Sno.	School Names	Timetable Management System	Results Analysis System	Class Management
	– Mixed Day			
83	ST.VERONICA HIGH SCHOOL RANJE – Mixed Day	NO	YES	NO
84	BUNGOMA ADULT SECONDARY EDUCATION CENTRE – Mixed Day	NO	YES	NO
85	KAPTOLA SECONDARY SCHOOL – Mixed Day & Boarding	NO	YES	NO
86	MITUA GIRLS SECONDARY SCHOOL – Girls Boarding	NO	YES	NO
87	BUNAMBO SECONDARY SCHOOL – Mixed Boarding	NO	YES	NO
88	MABANGA GIRLS – Girls Day & Boarding	NO	YES	NO
89	CHEBOSI S.A. sec sch – Mixed Day & Boarding	NO	YES	NO
90	ST FRANCIS HIGH SCHOOL MAKEMO – Mixed Day & Boarding	NO	YES	NO
91	KABKARA SECONDARY SCHOOL – Mixed Boarding	NO	YES	NO
92	LWANDANYI SECONDARY SCHOOL – Mixed Boarding	NO	YES	NO
93	ST. PATRICK’S NETIMA SECONDARY SCHOOL – Boys Day & Boarding	NO	YES	NO
94	ST. KIZITO MAYANJA MIXED SECONDARY SCHOOL – Mixed Day	NO	YES	NO
95	CHEPKUBE S.A SECONDARY SCHOOL – Mixed Day	NO	YES	NO
96	CHEPKUBE A.C.K SECONDARY SCHOOL – Mixed Day	NO	YES	NO
97	FRIENDS SECONDARY SCHOOL LWANDA – Mixed Day	NO	NO	NO
98	ST MARTINS’ MWIBALE SECONDARY SCHOOL – Mixed Day	NO	NO	NO
99	FRIENDS SECONDARY SCHOOL MISANGA – Girls Day	NO	NO	NO
100	MUTUMBUFU GIRLS SEC SCHOOL – Girls Day	NO	NO	NO
101	ST JULIANA SECONDARY SCHOOL NARATI – Mixed Boarding	NO	NO	NO

Sno.	School Names	Timetable Management System	Results Analysis System	Class Management
102	NABING'ENG'E FRIENDS SECONDARY SCHOOL – Mixed Boarding	NO	NO	NO
103	NAMILAMA SECONDARY SCHOOL – Mixed Day & Boarding	NO	NO	NO
104	KABUCHAI GIRLS SEC – Girls Day & Boarding	NO	NO	NO
105	SIRENDE SECONDARY SCHOOL – Mixed Day & Boarding	NO	NO	NO
106	FRIENDS SECONDARY SCHOOL KUYWA – Mixed Day	NO	NO	NO
107	MICHAEL WAMALWA FRIENDS SECONDARY SCHOOL – Mixed Day	NO	NO	NO
108	WEBUYE D.E.B. SECONDARY SCHOOL – Mixed Day	NO	NO	NO
109	FRIENDS LUGULU MIXED SEC – Mixed Day	NO	NO	NO
110	SINOKO SECONDARY SCHOOL – Mixed Day	NO	NO	NO
111	FRIENDS SECONDARY SCHOOL KAMUKUYWA – Mixed Day	NO	NO	NO
112	NDAKARU S.A SECONDARY SCHOOL – Mixed Boarding	NO	NO	NO
113	MACHAKHA MIXED SECONDARY SCHOOL – Mixed Boarding	NO	NO	NO
114	KIMAETI HIGH SCHOOL – Boys Day & Boarding	NO	NO	NO
115	MWIRUTI GIRLS SECONDARY SCHOOL – Girls Boarding	NO	NO	NO
116	ST TADEOS NDENGELWA SECONDARY SCHOOL – Mixed Day	NO	NO	NO
117	WAMALWA KIJANA HIGH SCHOOL – Mixed Day	NO	NO	NO

Source: Researcher (2013) and SoftKenya (2013) Schools in Bungoma County:

<http://softkenya.com/school/secondary-schools-in-bungoma-county/>