

**INFLUENCE OF HEADTEACHERS' INSTRUCTIONAL  
SUPERVISION PRACTICES ON STUDENTS' PERFORMANCE  
IN MATHEMATICS IN PUBLIC SECONDARY SCHOOLS IN  
NYANDARUA SOUTH DISTRICT, KENYA**

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**A Research Project Submitted in Partial Fulfilment of the  
Requirements for the Award of the Degree of Master of Education in  
Educational Administration**

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## **DECLARATION**

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

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This research project is submitted for examination with our approval as university supervisors.

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## **DEDICATION**

I wish to dedicate this project to my wife Lucy and our children James, Evelyn and Jane.

## **ACKNOWLEDGEMENTS**

I wish to thank the Almighty God for giving me health to enable me to study. I also thank the University of Nairobi for granting me the opportunity to further my studies. I would like to appreciate the efforts of Dr. Jeremiah Kalai and Dr. Mari Nelson who guided me throughout the entire project.

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## **ABBREVIATIONS AND ACRONYMS**

CEMASTE A Center For Mathematics Science and Technology Education in Africa

DEO District Education Officer

KCPE Kenya Certificate of Primary Education

KCSE Kenya Certificate of Secondary Education

NAEP National Assessment of Education Progress

USA United States of America

TSC Teachers Service Commission

## ABSTRACT

The performance of students in the Kenya Certificate of Secondary Examination (KCSE) has not been satisfactory in general. Research reveals poor performance in secondary school mathematics to be a function of poor administration and management practices. The purpose of this study was to investigate the influence of head teachers' instructional supervision practices on students' performance in mathematics in public secondary schools in Nyandarua South District, Kenya. The study sought to achieve this by assessing the influence of head teachers' supervision of teachers' target setting, lesson notes and schemes of work on students' performance in mathematics. The study also sought to establish the challenges faced by principals in undertaking instructional supervision of mathematics. A descriptive survey design was used. The study targeted all the 17 principals and 34 mathematics teachers serving in the 17 public secondary schools in Nyandarua South District. Using the census technique, the study selected 17 principals and 34 teachers from whom data was collected using questionnaires. Descriptive analysis techniques were used in data analysis with the help of SPSS version 20. The data was presented using frequencies tables and percentages. When asked whether their respective head teachers supervised their target setting in mathematics, all the teachers in the study (n=30) replied on the affirmative. When asked whether their respective principals inspected their schemes of work, all the teachers in the study (n=30) replied on the affirmative. According to majority (80%) of the teachers in the study their lesson notes were supervised weekly. The majority (63%) of the teachers opined that the head teachers' instructional supervision affected the syllabus coverage very much. The majority (56%) of the schools in the study covered the syllabus to an extent of between 81% - 90%. According to the majority (87%) of the head teachers, time was the greatest challenge to implementing efficient instructional supervision. Inspection of school timetable adherence and assessment of syllabus coverage (94%) were the practices given most emphasis by the head teachers based on the frequency of supervision. The study concluded that the performance of mathematics in public secondary schools was affected by other factors and not head teachers' instructional supervisory practices. The study concluded the poor performance could be due to poor syllabus coverage. The study concluded that the Ministry of Education should increase deputy principals' supervisory powers so that he or she can assist the head teacher in instructional supervision. In addition the TSC should employ more teachers to relieve the head teacher of teaching duties so that he or she can have more time to supervise assistant teachers.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background information**

One of the most fundamental developments in educational administration has been the evolution of the role of the school head teacher from his status as that of head teacher, record keeper and major disciplinarian to its present status as a professional leader in the school. Over time, the head teacher's teaching and clerical duties have been reduced and emphasis has been placed on the head's supervisory roles in the school. It is felt that only the head teacher has the authority to make administrative changes necessary to improve teaching and learning situations (Global Literacy Project, 2008).

An important characteristic that differentiates instructional supervision from other forms of supervision is that it is school-based and therefore an internal process. The role of head teacher is therefore better referred to as that of an instructional supervisor rather than simply a supervisor (Evetts, 2008). This not only depicts the headteacher as a leading professional responsible for raising standards of teaching and learning but also as a leader in the institution who has the ability to influence the action of others to ensure that his/her followers subscribe to the requirements of instructions.

Educational management in public secondary schools involves the application of management principles in designing, developing and effecting resources towards achievement of educational goals (Too, Kimutai & Kosgei, 2012). Today, the demand for

effective management of schools is rapidly taking centre stage more than ever the world over (Okumbe, 1999). This effectiveness is judged by the extent, to which schools acquire the necessary instructional materials and teachers, and how they provide a congenial organizational climate and generally meet the expectations of the society within which they are established (Okumbe, 1999). It is in our schools that education takes place and it is there that the success or failure of the national educational objectives will be determined (Orora, 1997). To achieve these objectives, school executives are expected to apply appropriate management skills. The head teacher of any secondary school has a crucial obligation in discharging management duties in the school. Therefore, the overall management of schools rests with the head teacher working with and through the teachers to maximize their capabilities in the profession and achieve the desired educational goals.

Intensified interest in mathematics achievement by practitioners and scholars in developing markets reflects recognition of and enthusiasm for its economic and social benefits (Lamb & Fullarton, 2002). Despite ample documentation that mathematics mastery can affect national development and formal government initiatives to improve it, some developing countries, however, have failed to boost student achievement. Despite the Kenyan government prioritizing mathematics achievement and declaring it in her National Development Plan (Kanja *et al*, 2001), students' mathematics performance at the secondary school level has continued to deteriorate (Kenya Institute of Education, 2010). This presents one of the most worrisome challenges for the Kenyan education

community (Global Literacy Project, 2008).

In colonial England, supervision of instructions began as a process of external inspection where one or more local citizens was appointed to inspect both what the teachers were teaching and what the students were learning. The inspection there was to remain firmly embedded in the practice of supervision. The history of supervision as a formal activity system of schools did not begin until the format of the common schools in the late 1830's (Sergiovanni, 2000).

Supervision evolved in USA in 1642 (Bett 1973). A statute was adopted in 1654 that empowered selected men of town to be responsible for appointing teachers of sound faith and morals ( Eye and Neizer, 1965). During this period of administrative inspection, that is 1646 to 1975, supervision was handled by laymen who included the clergy, school warden, trustees, selected men and citizens committees.

In Kuwait the view is that curriculum is not directly related to the job of the principal (Al-jaber 1996) and survey studies in Thailand and Papua New Guinea show that principals in these countries are ranked lower in items consisting of instructional leadership inventories than their western counterparts ( Hollinger et al. 1994).

In Singapore, principals are expected to provide instructional leadership to staff ( Bolmer & Deal, 1992). Chinese principals perceived excellent instruction as a key to student success and school prestige ( ligget et al., 1997).

In some Africa countries (e.g Nigeria, Ghana, Botswana) principals are not even

appointed on criteria of quality regarding their own performance in teaching. Many of them have never been in classroom since political connection may be a dominant factor in their appointments (Uwazurike 1991; Chapman & Burchfield, 1994). In this situation it seems less plausible that principals would help teacher improve their teaching or be able to judge their abilities.

In Kenya specifically, research reveals poor performance in secondary school mathematics to be a function of poor teaching, harsh and unfriendly classroom environment, loss of interest as students' progress through the school system, negative attitudes, and poor administration and management practices (Ackers & Hardman, 2001; Eshiwani, 1985; Githua & Nyabwa, 2008; Kanja *et al*, 2005). A number of researchers in other countries have addressed the relationship between school leadership and student achievement (Hallinger & Heck, 1998).

Kimani and Mwita (2010) noted that a large part of bad performance in national examinations in Kenya was contributed by poor performance in mathematics. Their study revealed that the pupils mean percentage score in mathematics for four consecutive years (2005-2008) was 46.89%, which is below the pass mark of 50%. The results further showed that performances in mathematics in the Kenya Certificate of Secondary Examination (KCSE) has dropped since 2008 when the government introduced free secondary education, which attracted higher enrolment. The cause of the drop in performances may be attributed to poor supervision by the head teachers among other factors. A study done by Mzungu and Nazango (2008) found out that in Kenya the head

teachers' instructional role includes checking lessons books schemes of work, records or work and clock in clock out books. Waweru (2003) noted that the role played by head teachers included supervision of curriculum.

In Kenya, poor performance in mathematics at Kenya Certificate of secondary Examination has been and still is a subject of much debate among politicians, teachers, parents, educational experts, and other stake holders. In the year 2009, while releasing Kenya Certificate of Secondary Education (KCSE) results, the Minister of education then, Prof Ongeru expressed shock at the dwindling performance in mathematics and sciences. "The decline was worrying, given the fact that Kenya's Vision 2030 is anchored on the sound performance in mathematics and science subjects," he said (Oduor, 2011). In the year 2005, 671,417 pupils sat for KCSE exam in Kenya, and the mathematics raw mean was 46.9%. In the year 2006, 660,531 pupils sat for the exam and the mathematics raw mean was 53.94%, while in the year 2007, 698,364 pupils did the exam and obtained a percentage raw mean of 49.24% (Ministry of Education, 2010).

Nyandarua South District in central region of Kenya registered 1,429 candidates for the year 2012 KCSE and mathematics mean score was 3.03. In 2011, 1,234 candidates were registered and they attained a mathematics mean score of 3.02 (D), while in the year 2010 1,005 candidates sat for the exam, and attained mathematics mean score of 2.89 (D). In 2009, there were 984 candidates and they got 2.87 (D), and in 2008, 978 students sat for the exam and obtained a mean score of 2.43. The table below summarizes the performance of the KCSE mathematics between 2008-2012.



**Table 1.1 District performances in KCSE Mathematics year 2008-2013**

<b>Year</b>	<b>Mean score</b>	<b>Mean Grade</b>
2008	2.43	D-
2009	2.87	D
2010	2.89	D
2011	3.02	D
2012	3.03	D

This is an indication that mathematics is poorly performed in the district (DEO, Nyandarua South 2013).

### **1.2 Statement of the problem**

The performance of students in mathematics in the Kenya Certificate of Secondary Examination (KCSE) has not been satisfactory in general. Analysis of KCSE results showed that more than half of the students who sat for KCSE examinations in 2012 attained a mean grade of below average in mathematics. This indicates that a number of schools including those with adequate facilities and instructional materials have low mean grades in mathematics in KCSE examinations. Sometimes schools which are less endowed with educational resources usually attain higher mean grades in mathematics during the KCSE examinations. A number of factors have been highlighted to explain

differential achievements and causes of poor performance in mathematics between schools and amongst students in KCSE examinations. But one factor which needs investigation is the head teachers' instructional supervisory practices mathematics and its influence on students' performance.

A study by Muchiri (2008) in Muthambi attributes poor performance in KCSE mathematics mainly to poor levels of supervision. This concurs with the findings of a study by Kariuki (2010) on factors affecting performance in KSCE mathematics paper in Kajiado District. Muchiri (2008) gives other causes of poor performance as poorly trained teachers, negative attitude and high workload. In Nyandarua South District, performance in KCSE mathematics is very poor as the majority of the students score D- (Minus). This is a poor grade as it bars learners from entry into mathematics-based degree and diploma courses. This problem has persisted for a long time leading to very low district mean grades in the subject. All these issues necessitated a study to examine the possible influence of head teachers' instructional supervision practices on students' performance in KCSE mathematics in Nyandarua South District.

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

The purpose of this study was to investigate the influence of headteachers' instructional supervision practices on students' performance in Mathematics in public secondary schools in Nyandarua South District, Kenya

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

The objectives of the study were as follows;

- (i) To establish the effect of head teachers supervision of teachers' target setting on students performance in mathematics.
- (ii) To determine how head teachers inspection of lesson notes influences students performance in mathematics.
- (iii) To examine how principals inspection of schemes of work influence students performance in mathematics.
- (iv) Establish the challenges faced by principals in undertaking instructional supervision of mathematics

#### **1.5 Research questions**

The researcher questions of the study were as follows;

- (i) To what extent does head teachers inspection of teachers target setting influence student's performance in mathematics?
- (ii) In what ways do principals' inspections of lesson notes influence student's performance in mathematic?
- (iii) To what extent does the principals inspection of schemes of work influence student's performance in mathematics?
- (iv) What challenges do secondary school principals face in undertaking instructional supervision of mathematics?

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

The researcher hoped that findings from the study would give guidance to the mathematics teachers and head teachers on how to handle challenges on improving the performance of mathematics. The findings would also be useful to other policy makers such as the Ministry of Education (MoE), Teachers Service Commission (TSC), Kenya Education Staff Institute (KESI), Center For Mathematics Science and Technology Education in Africa (CEMASTEa) and Board of Governor (BOG) to identify factors affecting performance in mathematics in Nyandarua South district, Nyandarua County. Henceforth, the practitioners of educational management, policy makers, education officers, head teachers, teachers, parents, PTA, BOG and school sponsors would be able to base their management functions, decisions and actions on concrete knowledge of issues as supported by research findings and recommendations. This would help educational stakeholders have a conceptual illumination of the art of head teachers' supervisory role in secondary schools and discourage them from relying on haphazard personal experiences or subjective expert judgments in the management of educational institutions. It's assumed that the study would form a basis for further research on the management of teachers in secondary schools and management of educational institutions in general.

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

There could have been instructional supervisory factors that influenced performance in

mathematics which the researcher was not able to control and were not part of the study. Factors like personal efforts by students, syllabus coverage and students IQ could influence performance but were not part of the study.

### **1.8 Delimitation of study**

The study was conducted in Nyandarua South district only. The district was purely rural and the conditions in it were unique and different from those of other districts in the various parts of Kenya. The research findings of this study therefore may be generalized to the rest of the country with caution. The study only focused on performance in mathematics alone hence the findings can not be generalised to other subjects. The respondents were strictly the mathematics teachers and the head teachers.

### **1.9 Basic assumptions of the study**

- i. It was assumed that the respondents would be honest and willing to cooperate and would give accurate and uninfluenced responses.
- ii. The information was reliable.

### **1.10 Definition of significant terms**

**Head teacher** referred to teacher with overall administrative responsibilities over a school, meant to supervise all that goes on in.

**In-service Training** referred to courses offered to teachers who are already in the field in different aspect of the curriculum like content, teaching strategy, preparation and use of

teaching resources.

**Instructional Supervision** referred to headteachers / supervisors evaluation of instructions used by teachers in the classroom. The process of assisting teachers in improving their instructional skills through classroom visits and resources and through staff development.

**Inspection of records** referred to the perusal of records that are used in class by the teachers.

**Lesson plan** referred to notes or planning done by a teacher before attending class.

**Performance** referred to pupils' mathematics achievement scores as measured by KCSE examination.

**Performance index** referred to students' academic achievements in KCSE graded on a 12 point scale from highest grade A with 12 points to lowest grade E with 1 point.

**Principal-** referred to the head teacher in a secondary school

**Professional qualification** referred to the training the teacher has received in relation to mathematics.

**Public schools** referred to schools that are maintained by the government.

**Secondary School** referred the level of school that include only form 1 to form 4.

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

The research project is organized into five chapters. Chapter one is the background of the study, statement of the problem, purpose of the study, limitations and delimitations of the study and definition of terms. Chapter two covers the literature review, theoretical framework and conceptual framework. Chapter three covers research methodology which contains research design, target population, site selection, sample and sampling techniques, data collection methods and data analysis technique. Chapter four covers the data presentation, analysis and interpretation. Chapter five consists of the summary, conclusions, and recommendations of the study.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presented literature related to the influence of head teachers instructional supervision of teachers on students performance in mathematics; how inspection of lesson notes affects students' performance in mathematics; how inspection of schemes of work covered affects students' performance mathematics and problems encountered by head teachers in supervision of teachers.

#### **2.2 The concept of instructional supervision**

There is no single unifying definition in the literature (Alfonso & Firth, 1990). Supervision can be defined according to different aspects of the notion, but from an educational administration perspective, of great interest are the definitions which reveal supervision as a collaborative action aimed at developing effective instruction.

According to Okumbe (1998), supervision is considered as that dimension or phase of educational administration which is concerned with improving instructional effectiveness. Fostering this point of view, Glatthorn (1990) added that supervision is the comprehensive set of services and processes provided to help teachers facilitate their own professional development so that goals of a school are better attained. Supervision can be divided into general supervision and instructional supervision. General supervision subsumes supervisory activities that take place principally outside the classrooms. These



activities are concerned with a healthy climate supportive relationships and broad educational leadership and statesmanship responsibilities.

Instructional supervision on the other hand is concerned with the pupil or the student learning in the classroom. It is also called clinical supervision and its designed to improve the teachers classroom performance (Sergiovanni & Starratt, 1993). Goldhammer , Anderson, and Krajewski,(1993) have defined clinical supervision as the phase of instructional supervision which draws its data from first hand observation of actual teacher in the analysis of teaching behaviours and instructional activities for instructional improvement.

According to Okumbe (1998) instructional supervision includes; Helping in formulation and implementation of schemes of work. Evaluating instructional programmes and overseeing modification. Delivering instructional recourses. Helping in conducting and co-ordinating staff in-servicing. Advising and assisting teachers involved in instructional programmes. Procuring funds required for instructional process. Receiving community feedback about school programmes.

Mbiti (1974) added that supervision embraces training, counseling, guidance and disciplining when necessary. Supervision is necessary in any organization. It includes giving direction about what to do as well as sporting problem areas and rectifying them before things get worse. In this case therefore a supervisor should explain what to be done and the consequences of a good job done. A good supervisor sets the targets and standards. Success or failure is measured against these standards. In educational

administration, curriculum matters especially, need supervision for their eventual success.

Olembo, and Maneno, (1991) conceptualizes supervision in two functional ways :- “overseeing and helping”. The overseeing function of supervision involves directing, controlling, reporting, commanding and other such activities that emphasize the task at hand and assesses the extent to which particular objectives have been accomplished within the bonds set by those in authority for the subordinates.

The helping aspect of supervision involves facilitating supporting, guiding and assisting teachers and pupils to grow professionally. The purpose of this supervision is to maintain and improve instruction. The headteacher plays the overseeing function by offering advisory and consultancy services in the areas of subject specialization and giving policy directions and guidelines. In addition he/she ensures that classes are held, pupils’ work is marked and checked, teachers have schemes of work and lesson plans, punctuality of both staff and pupils and conducting fair appraisal of all staff.

On the other hand, the head teacher plays the ‘helping’ function by assisting teachers to grow professionally through staff development training programmes and offering guidance on the classroom teaching so as to raise the standards of teaching and learning. The helping aspect reflects cooperation in day-to-day problem solving. Olembo (1977) expressed team teaching as an effort to improve instruction by recognizing the personnel in teaching. To him the heart of teaching lies not in details of structure and organization but more in the essential spirit of cooperative learning, close unit unstained

communication and sincere sharing.

### **2.3 Teachers' target setting and performance in mathematics**

The process of instructional supervision in schools is conducted by administrators and generally involves face-to-face visits to the teacher's classroom in an observation and evaluation model (Glickman et al., 2001). Certain criteria are observed and recorded and a report is generated as a part of the supervision process in a physical school environment. The primary objective of the supervision process in public schools is to offer teachers direct assistance to improve their performance toward the goal of increasing student learning (Glickman et al., 2001).

Administrators currently supervise teachers in schools using observation data gathered from lessons observed in physical classrooms. This generally requires the supervisor's attendance in a classroom with the teacher during instruction. Typically, in this form of direct assistance, the administrator observes a lesson and records a variety of indicators to provide feedback designed to enhance a teacher's instruction.

Supervision is a multifaceted process that focuses on instruction to provide teachers with information to improve their teaching performance (Beach & Reinhartz, 1989). A common characteristic of instruction and supervision is that these processes occur in a face-to-face environment. The process of teaching occurs in a building, in a classroom, where students and teachers are physically together during the instructional process. Supervision of instruction takes place in a building, in a classroom, mainly through

observation and evaluation of the teaching process Glickman, Gorgon, Ross- Gordon, (1998) and is described as direct assistance.

Instructional supervision assists teachers in providing high quality instruction to public school students. Mobegi, Ondigiri and Oburu (2010) in their study of secondary school headteachers' quality assurance strategies and challenges in Gucha district, indicated that over 80% of public secondary schools headteachers preferred the use of written records (records of work covered, schemes of work, progress records and class attendance register) in the supervision of the curriculum. However, the study revealed that less emphasis was given to departmental supervision self-appraisal and less than 50% of the head teachers undertook class visits and observation. Mathematics instructional practices are broadly categorized into learner-centered and teacher-centered approaches, the later being referred to as the traditional approach. Learner-centered instructional practices emphasize high order skills of discovery, reasoning and collaborative learning, and draw on students' past experiences and knowledge while the traditional practices confer the onus of knowledge transmission on the teacher with students playing the passive role of memorizing and reciting concepts (Mwangi, 2009). Hence, this study will wish to find out the influence of headteachers instructional supervision practices on students' performance in Mathematics. Education is no different, requiring supervision of classroom instruction to evaluate a teacher's effectiveness. This generally involves an administrator observing and evaluating lessons in a classroom, documenting the teacher's performance, and sharing suggestions for improvement.

## **2.4 Supervision of learning lesson notes and students' performance in mathematics**

A lesson plan is a teacher's detailed description of the course of instruction for one class. A daily lesson plan is developed by a teacher to guide class instruction. Details will vary depending on the preference of the teacher, subject being covered, and the need and/or curiosity of children. There may be requirements mandated by the school system regarding the plan (O'Bannon, 2008). A teacher's lesson plan is a professional document prepared by teachers for the purpose of presentation of a lesson. The teacher indicates whether the lesson has been taught and objectives achieved; if the lesson is not taught, then the teacher indicates the reason why and when he intends to cover it; if the lesson objectives are not achieved, the teacher plans for remedial lesson in order to make the concept understood by the students. Head teachers should monitor lesson plan preparation frequently; otherwise it may lead to poor performance by in national examinations (Reche, Bundi, Riungu & Mbugua, 2012). According to Waititu and Orado (2009) lesson notes helps the teachers to be successful in lesson presentation since they stimulate the introduction, which helps the learns to focus on the content of the lesson, the students are also exposed to a lot of activities which help in developing the processing skills in the learners and encourages their active participation in the main teaching steps. The teachers are also able to use locally available materials with their environment hence this encourages students to use improvised materials when learning and the teacher are able to keep on asking and inviting questions in the main teaching steps. This helps the teachers to receive feedback from the pupils hence they are able to give more guidance to

students on lesson activities and make appropriate adjustments in the conduct of the lesson.

## **2.5 Supervision of syllabus coverage and students' performance**

Scheme of work is a guideline that defines the structure and content of a course. It maps out clearly how resources (e.g. books, equipment, time) and class activities (e.g. teacher-talk, group-work, practicals, discussions) and assessment strategies (such as tests, quizzes & homework) will be used to ensure that the learning aims and objectives of the course are met successfully. It will normally include times and dates. The scheme of work is usually an interpretation of a specification or syllabus and can be used as a guide throughout the course to monitor progress against the original plan. Schemes of work can be shared with students so that they have an overview of their course. Silsil, P (2008) recognizes the head teacher as the overall supervisor of all academic and administrative activities in the school, and the one responsible for improving and maintaining high teaching and learning standards in the school. Teachers therefore perform their duties under the directions and guidance of the head teacher. The significance of instructional supervision in lesson planning, preparation of lesson notes, inspection of records of work covered, schemes of work, students progress reports, lesson attendance, utility of the lesson prescribed times, giving class assignments and corrections and giving reports at the end of every week as teacher on duty, have all been argued to contribute to better performance of students in examinations. Hence this study wished to find out how the inspection of schemes of work covered affected students' performance in mathematics.

## **2.6 Challenges encountered by head teachers in supervision of teachers in relation to students' performance**

Some of the problems associated with the supervision of secondary schools have negative impact on teachers. To overcome these problems the supervisors needs to be aware of basic skills needed for effective and efficient supervision as explained by Okumbe (2001). Okumbe says that supervisors should have conceptual skills so as to have ability to acquire, analyse and interpret information in a logical manner.

There is also the problem of understaffing due to expansion of secondary schools in Kenya since the introduction of free primary education and secondary education. This poses problems to headteachers as they demand teachers to take heavy workloads. The other problem is lack of commitment and negative attitude by teachers. This breeds a negative attitude towards supervision (Muchiri, 2009). There are several problems, which tend to militate against effective supervision of instruction in our schools.

### **2.6.1 Staff inadequacy**

The number of professionally trained supervisors in our schools is grossly inadequate to meet the needs of an effective and efficient programme of supervision. The population of students in the school has so exceeded the stipulated teacher/pupils ratio that all that most principals do in terms of instruction is to ensure that there are enough teachers to man the classes.

### **2.6.2 Shortage of external supervisor or inspectors**

External supervisors and inspectors are usually Ministry of Education or Education

Board officers specially assigned to assess the level of compliance of school instructional activities with approved government standards. Unfortunately, this category of staff is usually in short supply due to the large number of government schools and teachers. According to Ogunu (2005) the consequence of this shortage of supervisory personnel is that most of the time, a lot of unprofessional practices are carried out in our schools to the detriment of the children

### **2.6.3 Lack of time**

According to Ogunu (2005) secondary school principals are so weighed down by routine administrative burden that they hardly find time to visit the classrooms and observe how the teachers are teaching. When principals give more time to correspondence with the Ministry of Education and its parastatals, community affairs, parents and a host of other visitors and in the process neglect their primary duty of overseeing instruction in the schools, we cannot expect good performance from students. Some unscrupulous teachers easily exploit the school head's neglect of supervision to achieve their selfish ambitions.

### **2.6.4 Inadequate basic instructional materials**

There can be no effective supervision of instruction without instructional materials. Experience has shown that most schools lack even the basic materials and equipment for teaching such as textbooks, chalkboard, decent classroom for students. Apart from such cases of nothing to supervise, there are others where the problems are lack of facilities and materials for the supervisor to use. External supervisors (inspectors) for example, often do not have transport facilities and writing materials to carry out their inspectorial



duties.

#### **2.6.5 Lack of adequate training and orientation in instructional supervision**

Many newly appointed principals are not given the necessary training and orientation to equip them with the skills they need to carry out their instructional supervisory functions. They manage through for years without understanding what instructional supervision entails and how to do it.

#### **2.6.6 Fiscal inadequacy**

Lack of funds often results in head teachers' inability to organize in-house orientation and in-service programmes for their staff or travel out to other schools and resources centres to gain access to new developments in curriculum and instruction that could benefit their schools. There is an urgent need for the government to provide adequate funds and the right caliber of personnel for the supervision of instruction in our schools if the goals for national development are to be realized.

#### **2.7 Summary of literature review**

The literature review has established that supervision is a critical factor for satisfactory academic achievement of students in exams (Goldhammer , Anderson & Krajewski, 1993). The literature has revealed that performance of mathematics has been poor across the board. As compared to other subjects, performance of mathematics is crucial since it serves as an indicator of a students' overall achievement in learning (Lamb & Fullarton, 2002). Reviewed studies suggest that supervision of target setting, lesson notes and syllabus coverage is crucial as it ensures that teachers conform to the expected

standards and students work towards a common goal (Glickman et al., 2001). Reviewed studies are alive to the fact that a myriad of challenges face head teachers in the execution of their supervisory roles which hinder their effectiveness in that respect (Muchiri, 2009).

A host of studies have been carried out on both supervision as well as performance of mathematics, however, empirical evidence of the relationship between the two is scarce. Kimani & Mwita (2010) investigated ways of improving Mathematics Performance in Kenya; however, their study was focused on better Teacher subject knowledge and ignored the role of supervision. Musungu and Nasongo (2008) assessed the head teachers' instructional role in academic achievement in secondary schools in Vihiga District; the student achievement in that study was the overall performance in all the subjects in KCSE; the study did not single out mathematics. Similarly, Onyango (2012) studied pupils' achievement in mathematics but related it to teachers' attitude towards mathematics and not supervision. It is clear that researchers have ignored the important relationship between supervision and performance in mathematics. Therein lays a knowledge gap which this study seeks to fill by investigating the influence of headteachers' instructional supervision practices on students' performance in Mathematics in public secondary schools in Nyandarua South District, Kenya

## **2.8 Theoretical framework**

This study will adopt the psychological theory of supervision explored in education by Planturroot (2006). According to the theory, within an organization there is a body of people where at least one person stands out as the leader or the person who is

appointed to supervise the rest of the body. In this study, the person is the head teacher heading a school and appointed by the TSC. In order to have a purposeful organization, someone within should oversee the transitional processes of that organization. The supervisor is the overseer in most organizations and many times entrusts duties to others within the organization.

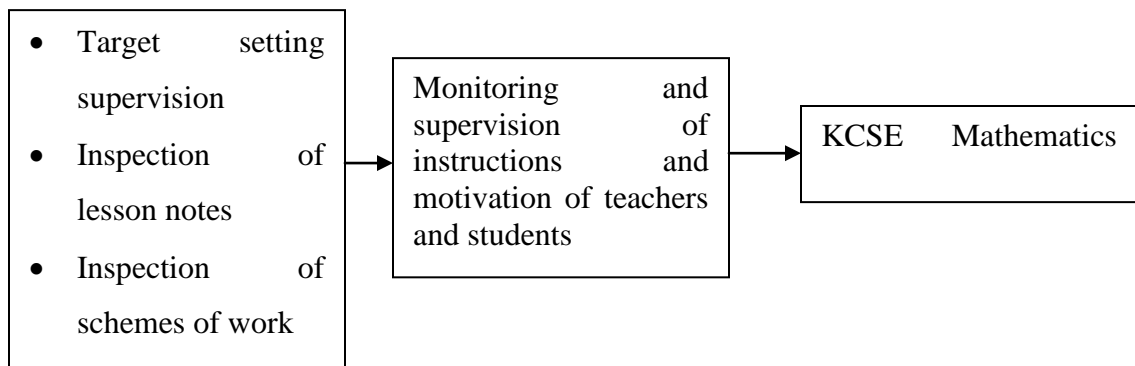
According to this psychological theory, organization growth and management is done using one of the three advocated for philosophies namely essentialism, experimentalism and existentialism. These three philosophies determine the manner in which the supervisor will direct the body of the organization. Essentialist philosophy is one that is authoritative in nature. The supervisor, who employs this approach is his or her supervision, holds his or her goals of improving the school, classroom instruction and growth of the institution with little room for collaboration with others. This limits the teachers and student growth and for this reason the study will adopt the experimentalism and existentialism philosophies. Supervision can use an experimental approach. When this type of approach is used, a supervisor continues to hold onto his or her goals of school improvement, classroom instruction and organizational growth by allowing the involvement of the organizational body (teachers). Supervision becomes developmental because it encourages the involvement and collective action of others. This kind of supervision believes that teachers need to learn the truths of their time but not be contented with that parcel of knowledge.

In the use of existentialistic approach in supervision, the supervisor continues to hold onto his/her goals but the accomplishment of the goals is clearly achieved by the supervisor's

facilitation of the teacher. The supervisor listens to his/her staff and assist them as needed. For a supervisor to use this approach, he/she should be well experienced and comfortable enough to delegate duties to dependable people. The body (teachers) must be strong to adequately carry the objectives of the goals and the mission. The theory is relevant in this study which seeks to investigate the influence of head teachers instructional supervision on students performance in KCSE mathematics. Head teachers by virtue of their position as school managers are expected to assume a leading role instruction supervision. Hence behind every successful school is an effective supervisor, therefore the head teachers cannot do it alone, they must do it with others and through others that is, extentially and experimentally as advocated for in this Planturroot Theory.

## 2.9 Conceptual framework

**Figure 1: Conceptual framework**



Instructional supervision centres on classroom instructions and its rationale is to strengthen instructional skills and improve performance. Thus one of the major components of instructional supervision is improvement of instruction. For instruction to

improve the supervisor (head teacher) must carry out the following activities, classroom instruction observation and providing feedback, staff development, staff and students motivation, provision of instructional materials and resources and create an environment ideal for effective learning.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter contains the research design and details of the target population, sample size and sampling procedures, research instruments, instrument reliability and validity, data collection and data analysis procedure.

#### **3.2 Research design**

A research design is a plan showing how the problem of investigation will be solved (Orodho, 2004). Descriptive survey design was used. It is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals. Welman and Kruger (2001) define survey as an attempt to collect data from an identified population in order to establish the current status of the population in respect to one or more variables. It can be used when collecting information about people's attitudes, opinions, habits or any of the variety of education or social issues (Orodho, 2004). Descriptive survey design was used in this study where questionnaires were administered to school principals, mathematics teachers and students to their perceptions on the influence of head teachers instructional supervision practices on students' performance in mathematics.

### **3.3 Target population**

A population is defined as a complete set of individuals, cases or objects with some common observable characteristics (Mugenda & Mugenda, 2003). The target population consisted of 17 public secondary schools (DEO Nyandarua South District). The total population included 17 principals and 34 teachers.

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

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals selected represents the larger group from which they are selected hence representing the characteristics found in the entire group (Orodho, 2003). The more the sample size approaches the population size, the more representative it is.. Mulusa (1990) states that in small population of 30 cases or less it is possible to leave out one or two cases which would not make much difference to the resources and time required. Hence in this study 17 schools were used since the population is minimal. The researcher employed the census technique to select 17 principals and 34 mathematics teachers from the 17 secondary schools in Nyadarua south district. The total sample population included 17 principals and 34 mathematics teachers.

### **3.5 Research instruments**

The researcher used one instrument in this study that is a questionnaire which is considered the most suitable research instrument for descriptive research design. Orodho and Kombo (2003) state that in questionnaires respondents fill in answers

in written form and the researchers collect the forms with the complete information. The questionnaires were used in the study as they require less time, are less expensive and permits collection of data from a wide population (Orodho, 2004).

The head teachers' questionnaire was divided into three parts. Part one dealt with background information where questions were asked on age, gender, academic qualifications, professional expertise, school enrollment, school category, number of teachers and support staff in the school. Part two dealt with supervision of teaches, inspection of lesson notes, inspection of schemes of work, and problems encountered during supervision.

The teachers' questionnaire was also divided into 3 parts. Part one had questions on the background information such as age, gender, academic qualifications, professional experience and the total number of lessons taught per week. Part two dealt with questionnaire on the supervision of teaches, inspection of lesson notes, inspection of schemes of work, and problems encountered during supervision.

### **3.6 Validity of the instruments**

Validity is defined as the degree to which a test measures what it purports to measure (Borg and Gall, 1983). Content validity was used in this study; content validity is the degree to which the instrument measures what the test is designed to measure. This is



important in the establishment of accuracy and truthfulness of the research. In order to ascertain face validity, the instruments were designed and handed to the supervisors in the School of Education, University Of Nairobi for analysis and the provision of feedback

### **3.7 Reliability of the instrument**

Kombo and Tromp (2006) define reliability as a measure of how consistent the results from a test are. An instrument is reliable when it can measure a variable accurately and consistently and obtain the same results under the same conditions over a period of time. To test reliability of the instrument, test-retest technique was used in the pilot study.

The test-retest method involved administering the same instrument twice to the same group of subjects. The second administration was done after a time lapse of one week after the first test. After the two tests are scored, the Pearson's product-moment correlation was computed to determine correlation co-efficient, which shows whether the scores on the two tests correlate.

The formula for determining r is given below:

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{n\sum x^2 - (\sum x)^2} \sqrt{n\sum y^2 - (\sum y)^2}}$$

Where, x is the score on test 1 while y is the score on test 2.

The responses obtained were analyzed and compared. Analysis of the pilot data gave a Pearson product moment correlation coefficient 0.63 which is above the required 0.5 hence the instruments were reliable.

### **3.8 Data collection procedures**

A research permit was obtained from the National Council of Sciences, Technology and Innovation. The permit was shown to the District Education Officer (DEO) in Nyandarua South district and principals of participating schools. There was a reconnaissance visit to the schools that took part in the study for introduction and establishing time for administration of instrument. The mathematic teachers' questionnaire was administered by the researcher personally.

### **3.9 Data analysis techniques**

After editing and sorting out the questionnaires for completeness, returns, and coding, computer software that uses a Statistical Package for Social Sciences (SPSS) was used. For the quantitative data, descriptive statistics was used to analyze data to give the percentages (%) and frequencies (f). Data presented helped to explain the relationship between the variables of study. Qualitative data analysis was carried on qualitative data from the open ended questions. The data was presented using frequencies tables and percentages.

## **CHAPTER FOUR**

### **DATA ANALYSIS AND INTERPRETATION**

#### **4.1 Introduction**

This chapter presents the findings of the study and the interpretation of the results of data analysis in relation to influence of head teachers' instructional supervision practices on students' performance in Mathematics in public secondary schools in Nyandarua South District.. The findings are presented in the order of the study objectives and aimed at answering the following questions: the extent to which head teachers' inspection of teachers target setting influences student's performance in mathematics; ways in which principal's inspections of lesson notes influences student's performance in mathematics; the extent to which principals' inspection of schemes of work influences student's performance in mathematics and challenges secondary school principals face in undertaking instructional supervision of mathematics.

#### **4.2 Response rate**

The study sampled 17 head teachers and 34 mathematics teachers drawn from 17 public secondary schools in Nyandarua South District from whom data collection was carried out through questionnaires. 1 head teacher 4 mathematics teachers did not return their questionnaires leaving 16 and 30 questionnaires respectively for analysis. This represents a 90% response rate which is higher than the 70% threshold recommended by Kothari (2004).

### 4.3 Demographic information of participants

The study collected demographic information of the participants in the study. This was necessary in order for the study to establish gender, age as well as academic qualification of the heads of schools and mathematics teachers'. This section presents the findings from the analysis of demographic data.

#### 4.3.1 Distribution of respondents by gender

The study sought to establish the gender of the head teachers and teachers who participated in the study. This was necessary for the study to establish the age of the head teachers and teachers who taught mathematics in public secondary schools in Nyandarua South District. The findings are presented in table 4.1.

**Table 4.1 Respondents' gender**

	Gender	Frequency	Percentage
Head Teachers	Male	9	56%
	Female	7	43%
	Total	16	100%
Teachers	Male	26	87%
	Female	4	13%
	Total	30	100%

Findings in Table 4.1 reveal that majority (76%) of the teachers and head teachers were

male. This shows a great gender disparity in the staffing of public secondary schools in Nyandarua South District, Kenya. The gender disparity is severe among the teachers as seen in Table 4.1. This can be attributed to the nature of the public secondary schools in Nyandarua South District where majority of the schools are boys schools as compared to the number of girls' schools. These findings are similar to those of Kimani & Mwita (2010) and Kanja et. al (2001) who found that most mathematics' teachers were male.

#### **4.3.2 Distribution of respondents' by age**

The study sought to establish the age of the participants'. This was necessary for the study to establish the age of head teachers and mathematics' teachers who taught mathematics in public secondary schools in Nyandarua South District. The findings are presented in table 4.2.

**Table 4.2 Distribution of respondents' by age**

Age (Years)	Head Teachers		Teachers	
	F	%	F	%
25 -30	0	0%	13	43%
31 -40	2	13%	11	37%
41 -50	10	63%	5	17%
Above 50	4	25%	1	3%
Total	16	100%	30	100%

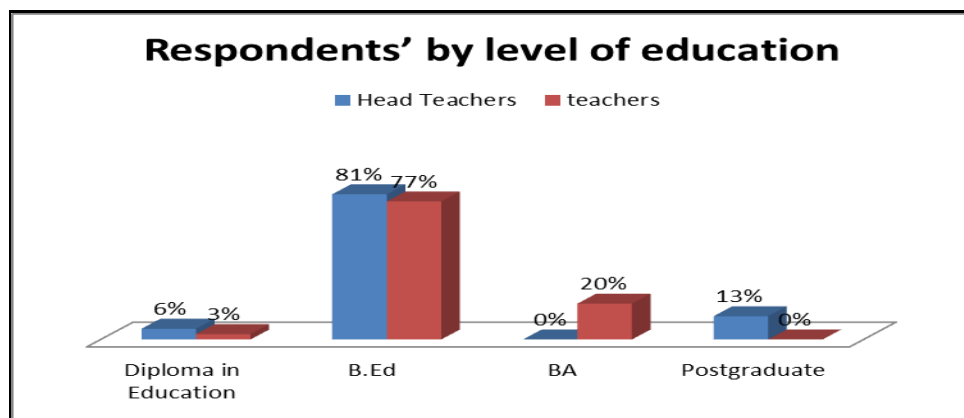
Findings in Table 4.2 indicate that most (42%) of the head teachers and mathematics'

teachers were aged between 41 and 50 years. The significantly old age of head teachers can be attributed to the number of years of experience required for one to be appointed to the position of a head teacher. Teachers employed in public secondary schools do not necessary require a lot of years of experience and this can explain the relatively young age of majority of the teachers. These findings are similar to those of Kimani and Mwita (2010) and Kanja et. al (2001) who found that most of the head teachers were aged above 38 years and 40 years respectively.

#### 4.3.3 Distribution of respondents' by level of education

The study sought to establish the level of education of the participants' in the study. This was important as it would assist the researcher establish the highest level of academic qualification levels achieved by the head teachers and teachers who taught mathematics in public secondary schools in Nyandarua South District. The findings are presented in Figure 2.

**Figure 2: Respondents' level of education**



Findings in Figure 2 reveal that the majority (79%) of head teachers and mathematics

teachers had a Bachelor's degree in education as their highest level of academic qualification. High academic qualifications are a prerequisite for promotion in job group as well as position and this can explain the relatively high academic qualifications of the secondary school head teachers in the teachers. The minimum academic qualification required for employment as a teacher in a public school is a Diploma in education however more and more people are seeking higher education to better their chances of acquiring employment. This can explain the high number of graduate teachers in the study.

#### **4.4 Supervision of teachers' target setting**

This section presents findings related to the first objective of the study which sought to establish the effect of supervision of teachers' target setting on students' performance in mathematics.

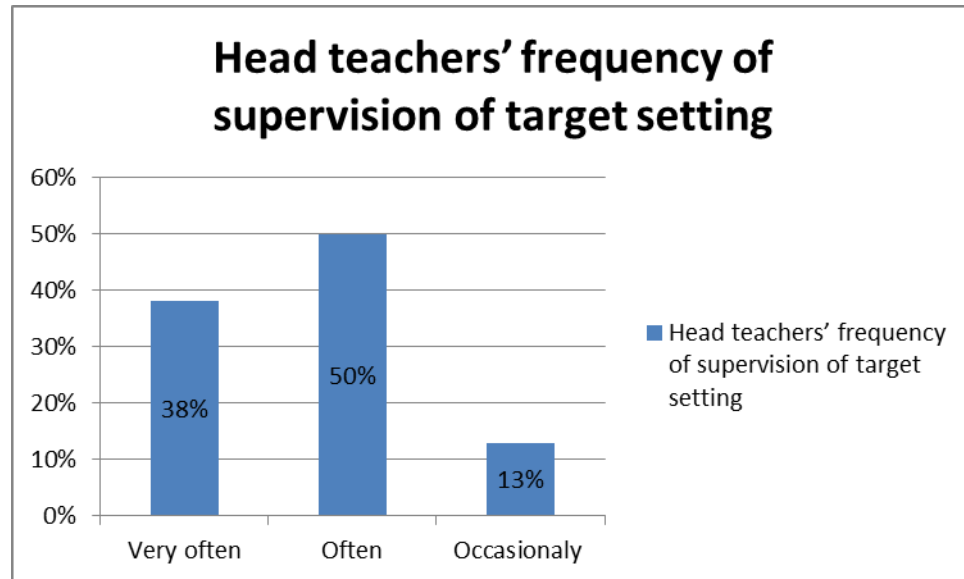
##### **4.4.1 Head teachers' responses on supervision of teachers' target setting**

To establish the effect of supervision of teachers' target setting on students' performance in mathematics, the study sought information from the head teachers on supervision of teachers' target setting in mathematics.

When asked whether they supervised teachers' target setting on students' performance in mathematics all the head teachers (n=16) in the study replied on the affirmative. The study probed further to find out how often the head teachers carried out the supervision. This would assist the researcher to establish the effect of supervision of

teachers' target setting on students' performance in mathematics. The findings are presented in Figure 3.

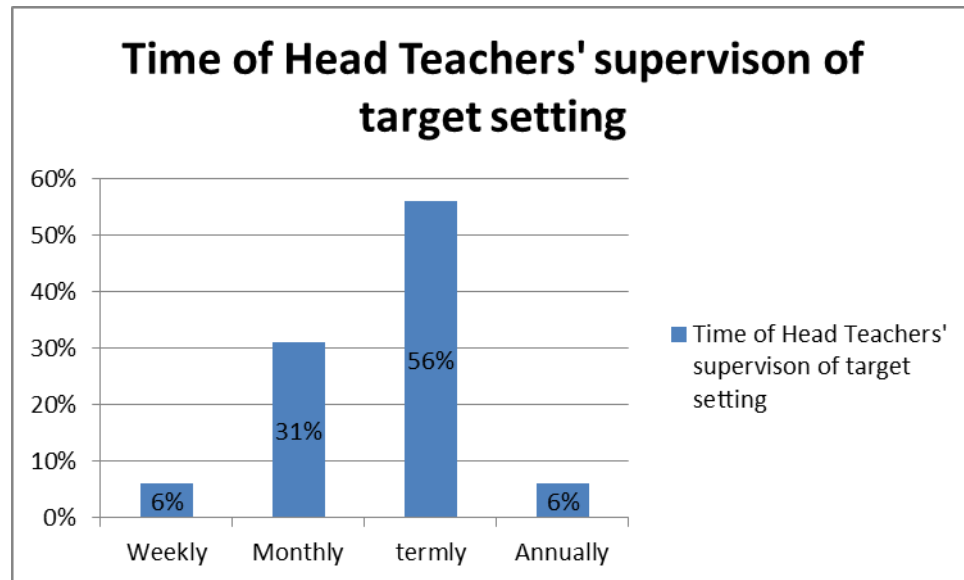
**Figure 3: Head teachers' responses on frequency of supervision of target setting**



Findings in Figure 3 show that majority (50%) of the head teachers carried out supervision teachers' target setting of students' performance in mathematics often. These findings are contrary to findings of Mobegi, Ondigiri and Oburu (2010) who in a similar study found that less than 50% of the head teachers undertook class visits and observation of target setting. The study sought to determine the length of period within which the head teachers carried out the supervision. The findings would enable the researcher determine the effect of supervision of teachers' target setting on students' performance in mathematics. The findings are presented in Figure 4.



**Figure 4: Head teachers' responses on time of head teachers' supervision of target setting**



Findings in Figure 4 indicate that majority (56%) of the head teachers' carried out supervision of target setting every once a term. This shows that they frequency of supervision is low bearing in mind that a school term has 3 months which means that majority of head teachers only supervised the target setting a mere 3 times in a year. These findings are in agreement with those of Mobegi, Ondigiri and Oburu (2010) who found that not much emphasis was placed on the instructional supervision by the head teachers.

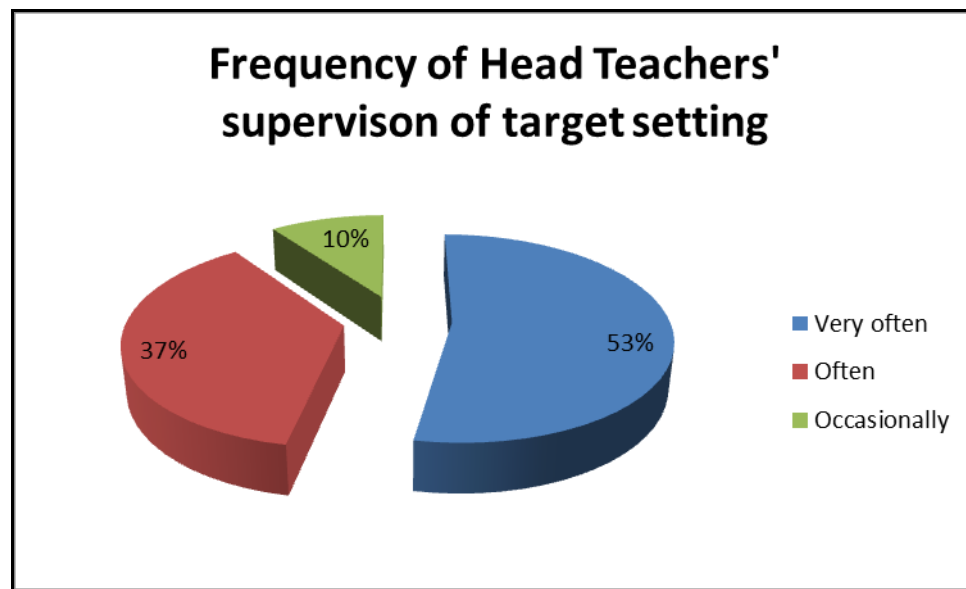
#### **4.4.2 Teachers' responses on supervision of teachers' target setting**

To establish the effect of supervision of teachers' target setting on students' performance in mathematics, the study sought information from the teachers in the study on the

supervision of teachers' target setting of students' performance in mathematics.

When asked whether their respective head teachers' supervised their target setting in mathematics, all the teachers in the study (n=30) replied on the affirmative. The findings of the teachers are collaborated by earlier findings from head teachers who all revealed that they carried out supervision. The study probed further to find out the frequency with which the teachers were supervised on target setting. This was necessary for the researcher to establish the effect of supervision of teachers' target setting on students' performance in mathematics. The findings are presented in Figure 5.

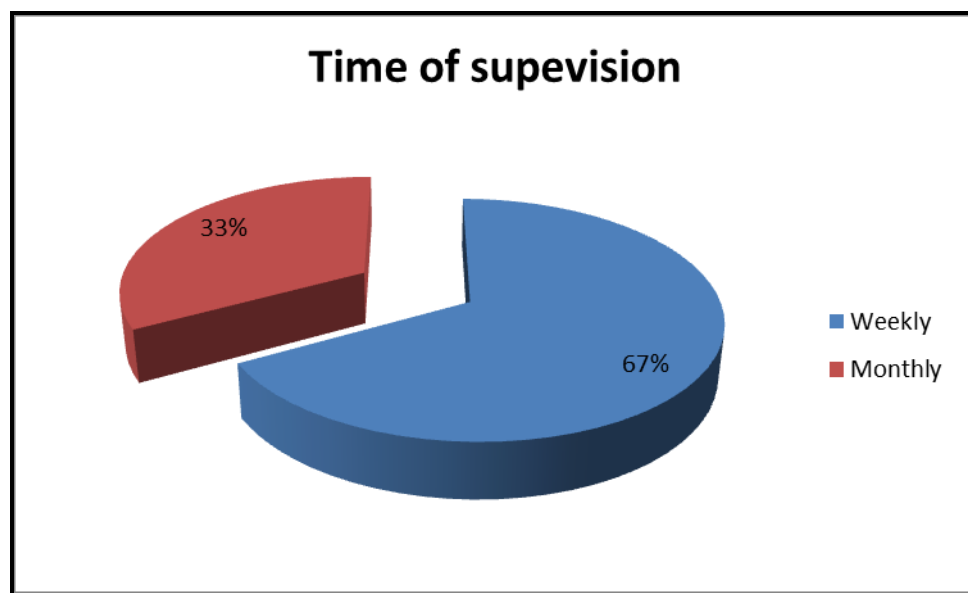
**Figure 5: Teachers' responses on frequency of supervision**



Findings in Figure 5 indicate that majority (53%) of the teachers said that their respective head teachers supervised them often on target setting of student performance in mathematics. The findings show a slight conflict between the teachers and head teachers

responses. The study sought to find out the time in which the teachers were supervised on target setting. This was necessary for the researcher to establish the effect of supervision of teachers' target setting on students' performance in mathematics. The findings are presented in Figure 6.

**Figure 6: Teachers' responses on time of supervision**



Findings in Figure 6 indicate that majority (67%) of teachers, their respective head teachers supervised their target setting weekly. This shows that the supervision of teachers target setting was high. These findings are in conflict with the head teachers' responses on the same (Figure 4) as well as findings by Mobegi, Ondigiri and Oburu (2010) who in a similar study found that the head teachers undertook rarely took class visits and observation of target setting.

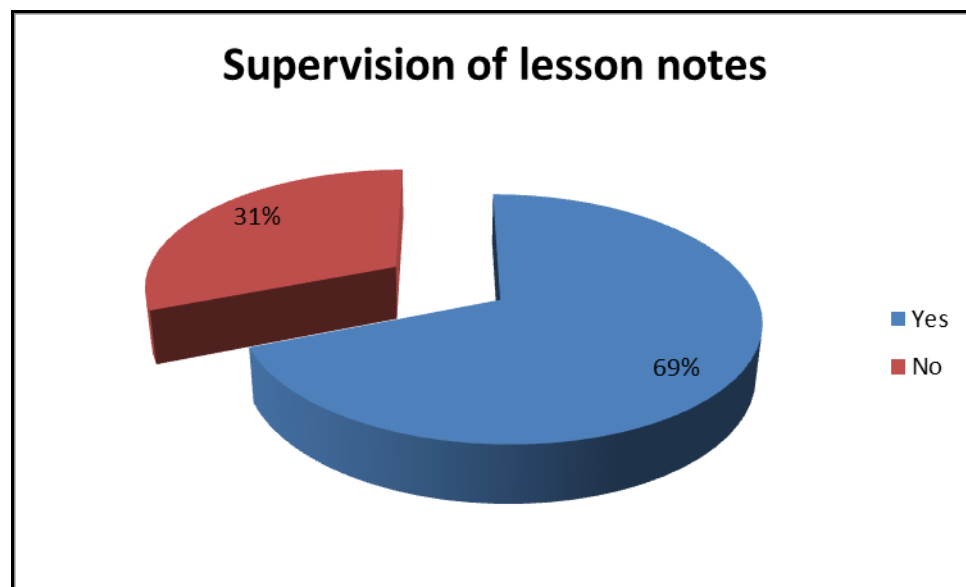
#### **4.5 Inspection of lesson notes**

This section presents findings related to the second objective of the study which sought to establish in what ways principals' inspections of lesson notes influenced student's performance in mathematics.

##### **4.5.1 Head teachers' responses on inspection of lesson notes**

The study sought information on the head teachers regarding inspection of mathematics teachers' lesson notes. This was necessary for the researcher to establish in what ways principals' inspections of lesson notes influenced student's performance in mathematics. The findings are presented in Figure 7.

**Figure 7: Head teachers' responses on supervision of lesson notes**



The majority (69%) of the head teachers revealed that they inspected mathematics teachers' lesson notes. These findings in tandem with findings of Onyango (2013) who

found that 70% of the head teachers in his study carried out supervision of mathematics lesson notes. The researcher probed further to find out the frequency with which they carried out the supervision; this was important for the researcher to establish in what ways principals' inspections of lesson notes influenced student's performance in mathematics. The findings are presented in Table 4.3

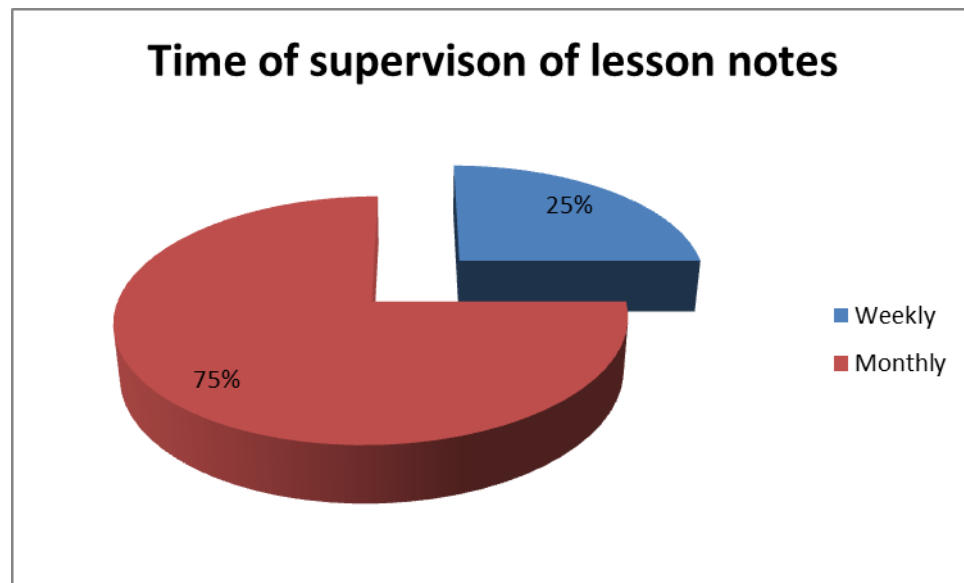
**Table 4.3: Head teachers' frequency of supervision of lesson notes**

Frequency of supervision	Frequency	Percentage
Very often	1	6%
Often	7	44%
Occasionally	5	31%
Rarely	3	19%
Total	16	100%

Findings in Table 4.3 indicate that majority (44%) of the teachers supervised mathematics teachers' lesson notes often. The findings are similar to Onyango (2013) who found that head teachers inspected mathematics lesson notes often. The study sought to establish the time in which the head teachers' supervised the lesson notes; this was necessary for the researcher to establish ways in which principals' inspections of lesson notes influenced student's performance in mathematics. The findings are presented in

Figure 8.

**Figure 8: Time of supervision of lesson notes**

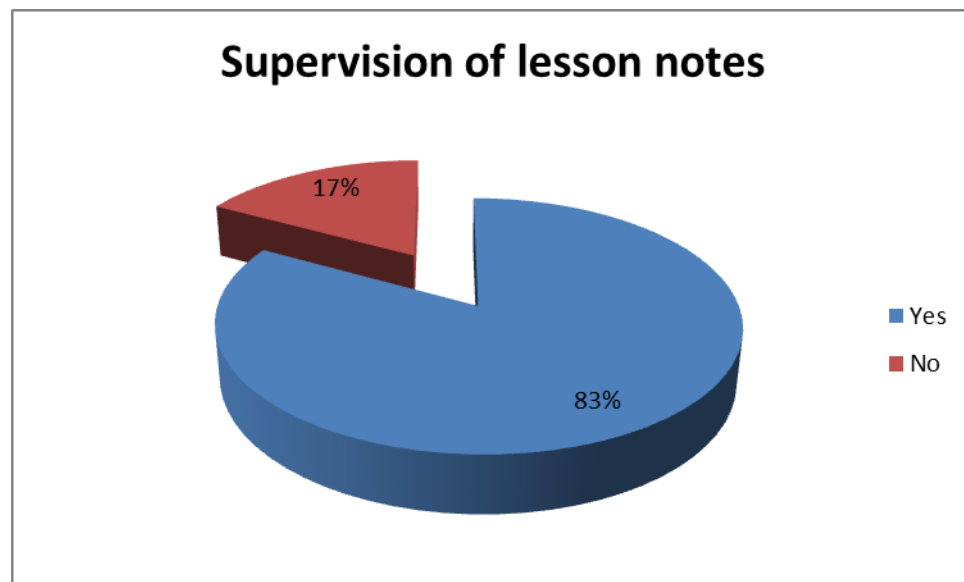


Findings in Figure 8 show that majority (75%) of the head teachers supervised the lesson notes on a monthly basis. This shows that the inspection of lesson notes was fairly frequent. The findings are in disagreement with Njoroge (2012) who found that supervision of lesson notes by head teachers was rare in some cases non-existent. Head teachers may be unable to carry out supervision on a frequent basis since they have a lot of other responsibilities expected to be carried out within the same time. Head teachers should monitor lesson plan preparation frequently; otherwise it may lead to poor performance by students in national examinations. Lesson notes helps the teacher be successful in lesson presentation since they stimulate the introduction, which helps the learners' to focus on the content of the lesson.

#### 4.5.2 Teachers' responses on inspection of lesson notes

The study sought information from the teachers regarding inspection of mathematics lesson notes by head teachers. This was necessary for the researcher to establish in what ways principals' inspections of lesson notes influenced student's performance in mathematics. The findings are presented in Figure 9.

**Figure 9: Teachers' responses on supervision of lesson notes**



Findings in Figure 9 indicate that the majority (83%) of the teachers in the study revealed that their mathematics teaching notes were inspected by their respective head teachers. The findings are similar to Onyango (2013) who found that head teachers inspected mathematics lesson notes often. The researcher probed further to find out the frequency of supervision of lesson notes. This would enable the researcher to establish ways in which principals' inspections of lesson notes influenced student's performance in

mathematics. The findings are presented in Table 4.4.

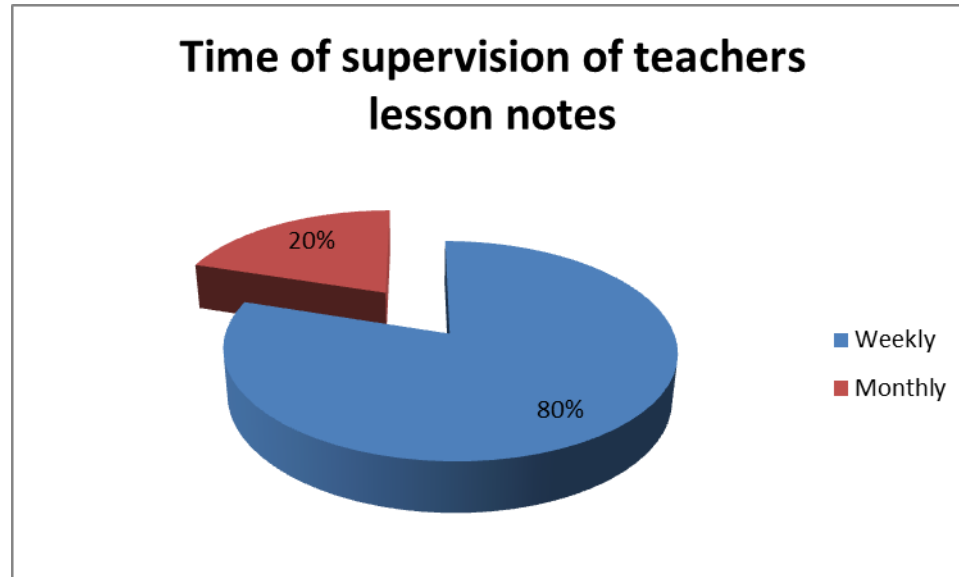
**Table 4.4: Teachers' responses on the frequency of supervision of lesson notes**

Frequency of supervision	Frequency	Percentage
Very often	7	23%
Often	10	33%
Occasionally	8	26%
Rarely	5	16%
Total	30	100%

Findings in Table 4.4 indicate that most (33%) of the teachers revealed that their respective head teachers inspected their teaching lesson notes often. The findings are in disagreement with Njoroge (2012) who found that supervision of lesson notes by head teachers was low. The study sought to find out the time in which the teachers were supervised. This would enable the researcher establish ways in which principals' inspections of lesson notes influenced student's performance in mathematics. The findings are presented in Figure 10.



**Figure 10: Teachers' responses on time of supervision of lesson notes**



According to majority (80%) of the teachers in the study their lesson notes were supervised weekly. This shows that the frequency of supervision was high. However the teachers' responses are in conflict with those of the head teachers (Figure 8). Waititu & Orado (2009) found that inspection of lesson notes is important because they assist teachers to receive feedback from the pupils hence they are able to give more guidance to students on lesson activities and make appropriate adjustments in the conduct of the lesson.

#### **4.6 Inspection of schemes of work**

This section presents findings related to the third objective of the study which sought to establish extent to which the principals' inspection of schemes of work influenced student's performance in mathematics.

#### **4.6.1 Head teachers' responses on inspection of schemes of work**

The study sought information from the head teachers in the study regarding inspection of schemes of work. This was necessary for the researcher to establish extent to which the principals' inspection of schemes of work influenced student's performance in mathematics.

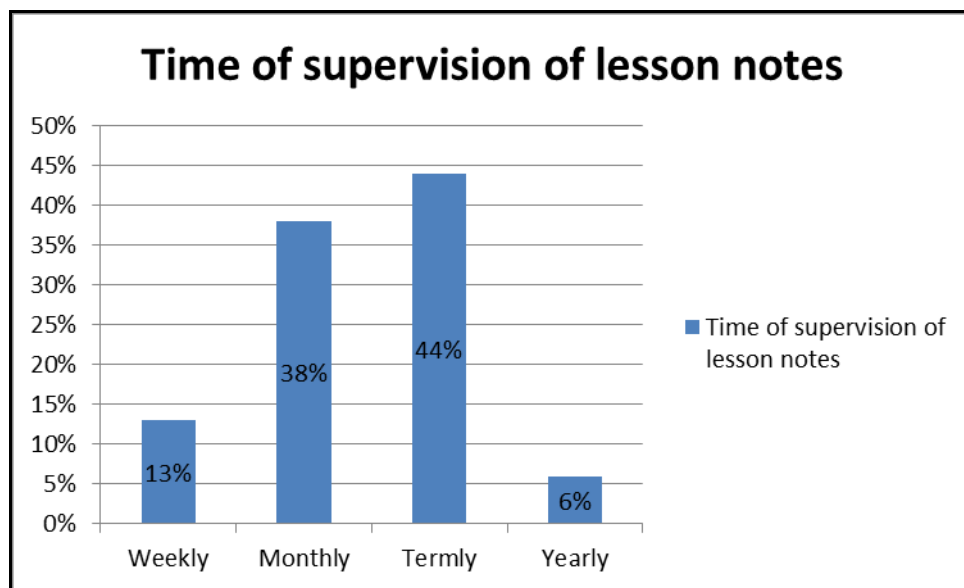
When asked whether they inspect mathematics teachers' schemes of work, all the head teachers (n=16) replied on the affirmative. This shows that the schemes of work were given great emphasis by the head teachers. The findings are in tandem with Osená (2007) who found that schemes of work in mathematics were inspected by the heads of schools. The researcher probed further to find out the frequency with which the principals inspected the schemes of work. The findings would enable the researcher establish extent to which the principals' inspection of schemes of work influenced student's performance in mathematics. The findings are presented in table 4.5.

**Table 4.5: Head teachers' responses on the frequency of supervision of schemes of work**

Frequency of supervision of	Frequency	Percentage
Very often	5	31%
Often	7	44%
Occasionally	3	19%
Rarely	1	6%
Total	16	100%

Findings in Table 4.5 indicate that most (44%) of the head teachers that they often supervised the mathematics teachers schemes of work. This collaborates the earlier findings that showed inspection of schemes of work to be high. The findings are also in agreement with Osen (2007) who found that head teachers inspected schemes of work regularly. To establish extent to which the principals' inspection of schemes of work influenced student's performance in mathematics, the study sought to find out the time in which the supervision of schemes of work took place.

**Figure 11: Head teachers' responses on time of supervision of lesson notes**



Findings in Figure 11 indicate that most (44%) of the head teachers supervised the mathematics teachers' schemes of work once a term. This shows that the inspection of schemes of work was relatively low. The findings are in conflict with those of Njaggah (2003) who found that majority of principals in public secondary schools in Nairobi

inspected schemes of work at least three times a term.

#### **4.5.2 Teachers' responses on inspection of schemes of work**

The study sought information from the mathematics teachers regarding inspection of schemes of work. This was necessary for the researcher to establish the extent to which the principals' inspection of schemes of work influenced student's performance in mathematics.

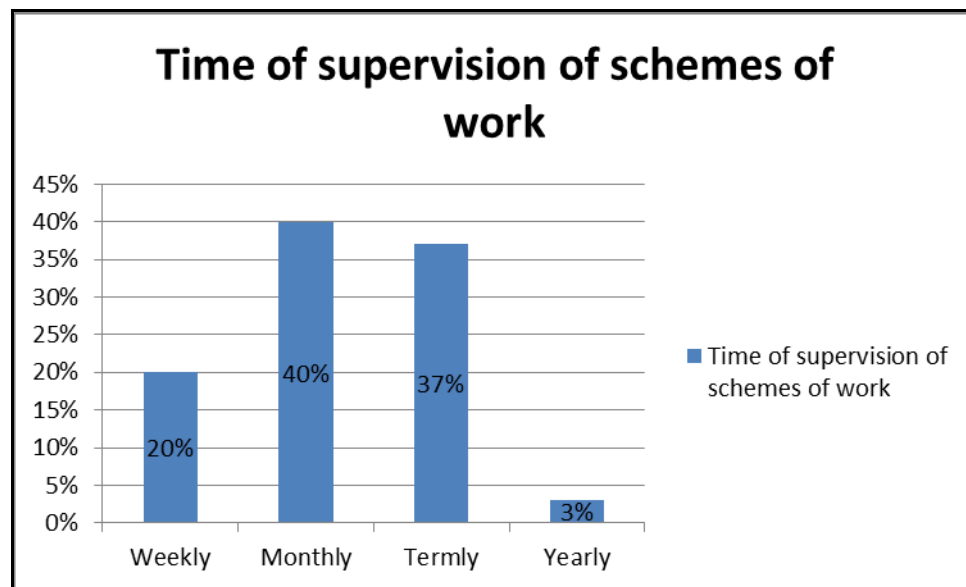
When asked whether their respective principals inspected their schemes of work, all the teachers in the study (n=30) replied on the affirmative. This shows that the schemes of work were given much emphasis by the head teachers of public secondary schools in Nyandarua south district. The findings are in tandem with Osen (2007) who found that schemes of work in mathematics were inspected by the heads of schools. The study sought to establish the frequency with which the teachers' schemes of work were inspected; the findings would enable the researcher to establish the extent to which the principals' inspection of schemes of work influenced student's performance in mathematics. The findings are presented in Table 4.6

**Table 4.6: Teachers' responses on the frequency of supervision of schemes of work**

Frequency of supervision of schemes of work	Frequency	Percentage
Very often	14	47%
Often	10	33%
Occasionally	6	20%
Total	30	100%

Findings in Table 4.6 indicate that majority (47%) of the teachers revealed that their schemes of work very often. These findings add to the evidence that much emphasis was placed on the schemes of work. The findings are also in agreement with Osen (2007) who found that schemes of work in mathematics were inspected regularly by the heads of schools. The study sought to find out the time in which the supervision was carried out. The findings would enable the researcher to establish the extent to which the principals' inspection of schemes of work influenced student's performance in mathematics. The findings are presented in Figure 12.

**Figure 12: Teachers' responses of time of supervision of schemes of work**



Findings in Figure 12 show that most (40%) of the teachers revealed that they were inspected monthly. These findings show that inspection of schemes of work was done regularly. The findings are similar to those of Njoroge (2012) who found that head

teachers inspected schemes of work at least once a month. This was a positive practice since have been argued to contribute to better performance of students in examinations (Silsil, 2008).

#### **4.7 Challenges faced by principals in instructional supervision**

The head teachers in the study were asked to cite challenges that faced them in instructional supervision. These findings would assist the researcher answer question four of the study which sought establish the challenges faced by principals in undertaking instructional supervision of mathematics. The findings are presented in Table 4.7.

**Table 4.7: Challenges faced by principals in instructional supervision**

Challenge	Frequency	Percentage
Lack of time	14	87%
Lack of enough staff	11	69%
Negative attitudes towards mathematics by teachers	12	75%
Lateness by teachers	4	25%

Findings in Table 4.7 indicate that to the majority (87%) of the head teachers, time was the greatest challenge to implementing efficient instructional supervision. This can be attributed to high staff turnover. In addition, the head teacher has a lot of responsibilities which include but not limited to attending PTA and BOG meetings as well as

representing the school in district and national committees. These findings are in agreement with Ogunu (2005) who found that secondary school principals are so weighed down by routine administrative burden that they hardly find time to visit the classrooms and observe how the teachers are teaching.

#### **4.8 Other supervisory practices**

The study sought to find out the frequency with which the head teachers carried out other supervisory practices that are related to mathematics. These findings would assist the researcher answer question four of the study which sought establish the challenges faced by principals in undertaking instructional supervision of mathematics. The findings are presented in Table 4.8

**Table 4.8: Other supervisory practices**

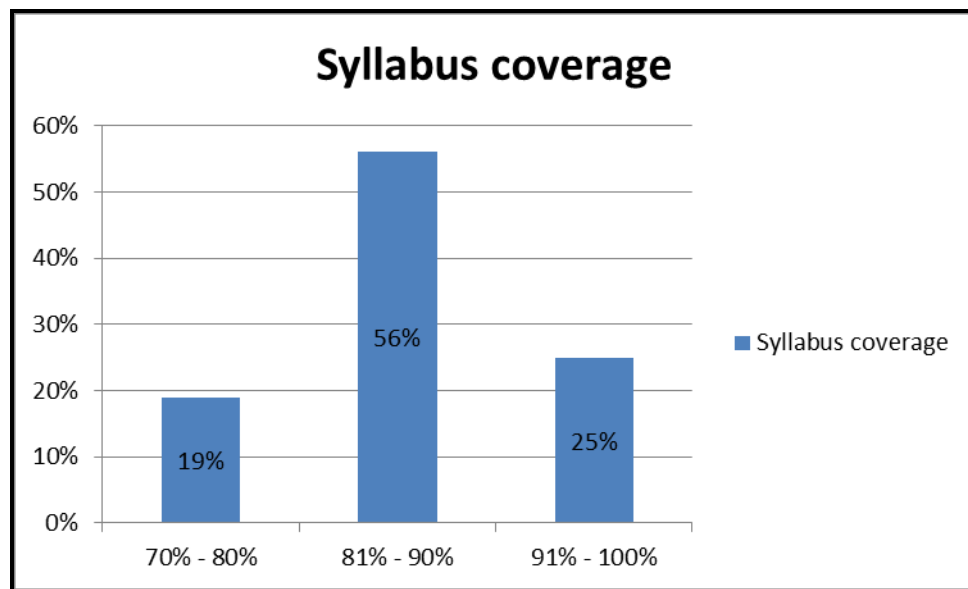
<b>Supervisory practices</b>	<b>Often</b>	<b>Occasionally</b>	<b>Rarely</b>	<b>Never</b>
Classroom observation	32%	25%	25%	18%
Records of work covered	75%	19%	6%	
School timetable adherence	100%			
Mark books	69%	25%	6%	
Report forms	75%	25%		
Examination samples	82%	13%	5%	
Mentoring new teachers	82%	18%		
Assessment of syllabus coverage	94%	6%		

Findings in Table 4.8 show that inspection of school timetable adherence and assessment of syllabus coverage (94%) were the practices given most emphasis by the head teachers based on the frequency of supervision. These findings show that the principals had a lot of instructional supervision roles which explains why majority of the head teachers could not perform the tasks as often as desired. The findings are in agreement with Wanjiku (2011) who found that head teachers were over burdened with roles hence hindering their ability to execute instructional supervision as required.

#### 4.9 Syllabus coverage

The study sought to establish the extent to which the mathematics syllabus was covered in the participating schools.

**Figure 13: Syllabus coverage**

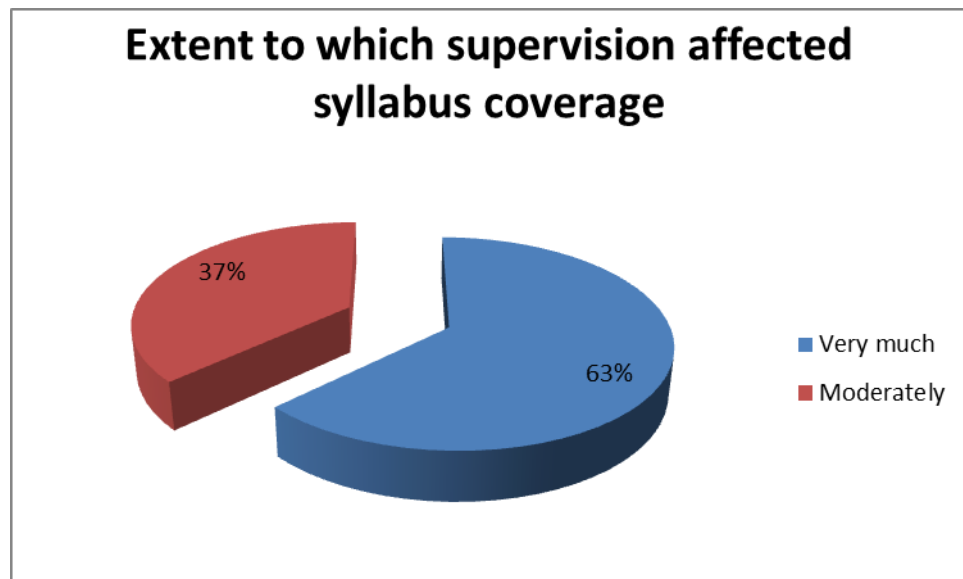


Findings in figure 13 reveal that the majority (56%) of the schools in the study covered



the syllabus to an extent of between 81% - 90%. This shows that the mathematics syllabus was not adequately covered. The findings also show that the schemes of work were not fully adhered to because the scheme of work defines how the syllabus. The findings are in agreement with Mudulia (2006) who found that syllabus coverage in public secondary schools was poor for science subjects as well as mathematics. The study sought to establish the extent to which head teachers' supervision affected supervision. The findings would enable the researcher determine influence of head teachers' instructional supervision practices on students' performance in Mathematics in public secondary schools in Nyandarua South District, Kenya. The findings are presented in Figure 14.

**Figure 14: Extent to which supervision affects syllabus coverage**



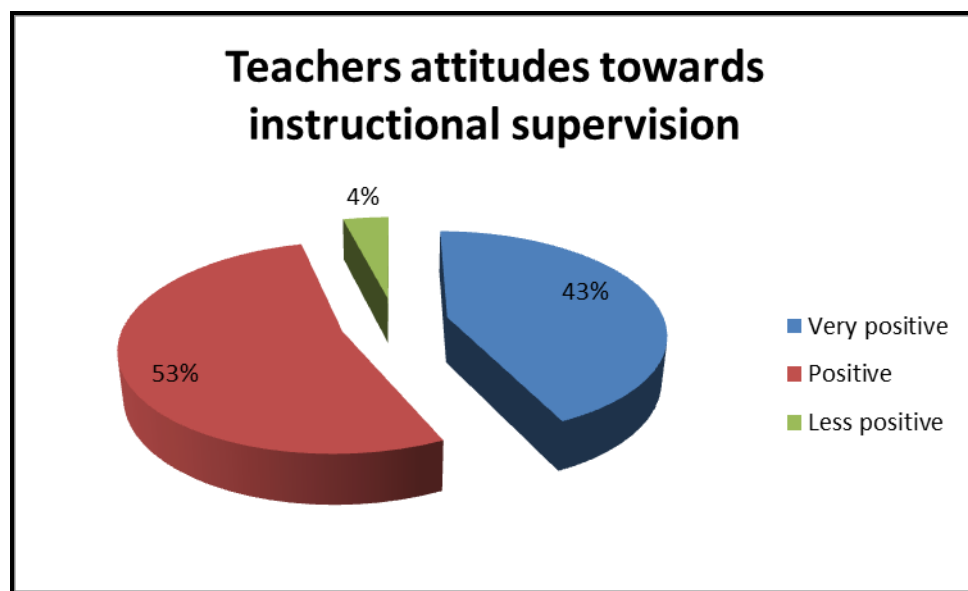
Findings in figure 14 show that the majority (63%) of the teachers opined that the head teachers' instructional supervision affected the syllabus coverage very much. This

shows that the role of the principals' in inspecting teachers' work was important in ensuring syllabus coverage. These findings are in tandem with findings by a study by Muchiri (2008) in Muthambi that attributes poor performance in KCSE mathematics mainly to poor levels of supervision. This concurs with the findings of a study by Kariuki (2010) on factors affecting performance in KSCE mathematics paper in Kajiado District.

#### **4.10 Teachers' attitudes towards head teachers' instructional supervision role**

The study sought to establish teachers' attitudes towards head teachers' instructional supervision. These findings would assist the researcher answer question four of the study which sought establish the challenges faced by principals in undertaking instructional supervision of mathematics. The findings are presented in Figure 15.

**Figure 15: Teachers' attitudes towards head teachers' instructional supervision**



Findings in figure 15 show that the majority (53%) of the teachers had very positive

attitudes towards the instructional supervision role of head teachers. Teachers' perception of instructional supervision can positively or negatively affect the quality of education. The way teachers perceive supervision in schools and classrooms is an important factor that determines the outcomes of supervision process Minnear-Peplinski ( 2009).

## **CHAPTER FIVE**

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

#### **5.1 Introduction**

This chapter presents a summary of the major findings of the study as well as the conclusions made from them. The section also presents recommendations made by the researcher as well as suggestions for future studies related to the influence of head teachers' instructional supervision practices on students' performance in Mathematics in public secondary schools in Nyandarua South District.

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

The purpose of this study was to establish the influence of head teachers' instructional supervision practices on students' performance in mathematics in public secondary schools in Nyandarua South District. Data was collected from 16 head teachers and 30 teachers via questionnaires. Descriptive analysis techniques were used in data analysis with the help of SPSS version 20. The data was presented using frequencies tables and percentages. The following are the major findings of the study presented in the order of objectives.

#### **5.3 Summary of major findings**

On the effect of supervision of teachers' target setting on students' performance in mathematics, the study found that all the head teachers (n=16) in the study said that they

performed supervision of teachers' target setting of students' performance in mathematics. The majority (50%) of the head teachers carried out supervision teachers' target setting of students' performance in mathematics often. The majority (56%) of the head teachers' carried out supervision of target setting every once a term. When asked whether their respective head teachers' supervised their target setting in mathematics, all the teachers in the study (n=30) replied on the affirmative. The majority (53%) of the teachers said that their respective head teachers supervised them often on target setting of student performance in mathematics. According to the majority (67%) of teachers, their respective head teachers supervised their target setting weekly.

On ways in which principals' inspections of lesson notes influenced student's performance in mathematics; the majority (69%) of the head teachers revealed that they inspected mathematics teachers' lesson notes. The majority (44%) of the teachers supervised mathematics teachers' lesson notes often and the majority (75%) of the head teachers supervised the lesson notes on a monthly basis. The majority (83%) of the teachers in the study revealed that their mathematics teaching notes were inspected by their respective head teachers. Most (33%) of the teachers revealed that their respective head teachers inspected their teaching lesson notes often. According to the majority (80%) of the teachers in the study their lesson notes were supervised weekly.

On how the principals' inspection of schemes of work influenced student's performance in mathematics; all the head teachers (n=16) in the study said they inspected students' performance. Most (44%) of the head teachers that they often supervised the mathematics

teachers schemes of work. The majority (44%) of the head teachers supervised the mathematics teachers' schemes of work once a term. When asked whether their respective principals inspected their schemes of work, all the teachers in the study (n=30) replied on the affirmative. The majority (47%) of the teachers revealed that their schemes of work very often. Most (40%) of the teachers revealed that they were inspected monthly.

On the challenges facing the head teachers in instructional supervision time was the greatest challenge to implementing efficient instructional supervision.

#### **5.4 Conclusions**

The study has established that inspection of target setting by head teachers was carried out all the principals in the study. However, the frequency of supervising was low which reduced the effectiveness of the target setting which is supposed to motivate students to achieve better in mathematics.

The study found that the inspection of lesson notes was low with only a handful of teachers inspecting them. The study concludes that this could be a predictor of poor performance in mathematics since the lesson notes are an indicator of the quality of a teachers output.

The study found that the schemes of work were adequately supervised by the head teachers. In fact among the variables under investigation, schemes of work was the best supervised. However the syllabus was not adequately covered. The study concludes that

the inspection of the schemes of work was not adhered to since it is supposed to ensure complete syllabus coverage.

The study found that the head teachers were faced with a number of challenges chief among them being lack of time. This is because the head teacher had a myriad of other roles to attend to. Students' negative attitude towards mathematics was another challenge.

### **5.5 Recommendations**

- i. The Teachers' Service Commission (TSC) should include target setting as a mandatory practice for all teachers and emphasize this among mathematics teachers. This will ensure that the practice of target setting is taken up by all schools.
- ii. The Board of Management in public secondary schools should emphasize that the teachers prepare their lesson notes and lesson plans adequately and ensure that the head teacher frequently supervises the same.
- iii. Emphasis on preparing schemes of work should be placed on teachers right from Teacher training institutions so that practice of the same is taken up with little or no supervision from the head teachers.
- iv. The Ministry of Education should increase deputy principals' supervisory powers so that he or she can assist the head teacher in instructional supervision. In addition the TSC should employ more teachers to relieve the head teacher of

teaching duties so that he or she can have more time to supervise assistant teachers.

### **5.6 Suggestions for further study**

- i. Replication of the study using a larger sample and more instruments such as standardized tests should be used in order to generalize the results in the country.
- ii. Future studies should assess possible measure to change students' negative attitudes towards mathematics.
- iii. Future studies can also study the influence of job satisfaction of mathematics teachers on the performance of mathematics in public secondary schools.



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## **APPENDICES**

### **APPENDIX 1: Introductory Letter to Respondents**

University of Nairobi  
Department of Educational  
Administration & Planning  
P. O. Box 92  
Kikuyu

The Principal

.....School

Dear Respondent,

**REF: INFLUENCE OF HEADTEACHERS INSTRUCTIONAL SUPERVISION  
PRACTICES ON STUDENTS PERFORMANCE IN MATHEMATICS IN PUBLIC  
SECONDARY SCHOOLS IN NYANDARUA SOUTH DISTRICT, KENYA**

I am a post graduate student in the University of Nairobi, pursuing masters of Education degree course. I am undertaking a research on the influence of headteachers instructional supervision practices on students performance in mathematics in public secondary schools in Nyandarua South District, Kenya. Your school is selected to participate in this research. I will be grateful if you may fill in the questionnaire attached. Responses will be used for the purpose of the study only. Your particulars and that of the school need not appear anywhere in the questionnaire. Confidentiality will be strictly adhered to.

Yours faithfully,

**Ngonjo Joseph Gakuya**

## **APPENDIX II: Head Teachers Questionnaire**

This questionnaire aims at getting your opinion on your instructional supervision practices. You do not have to write your names as your identify will remain confidential. Please be free to give your opinion in the response. Answer all the questions by indicating your choice by a tick (✓) where appropriate or fill in the black spaces. You may tick as many reasons as possible.

### **SECTION A: DEMOGRAPHIC INFORMATION**

1. State your gender

Male ☐

Female ☐

2. Which is your age bracket?

25-30years ☐

31-40years ☐

41-50 years ☐

Above 50 years ☐

3. What is your highest academic qualification?

Masters ☐ Bachelor of Education ☐

Bachelor of Arts ☐ Diploma ☐

## SECTION B: HEAD TEACHER SUPERVISORY PRACTICES

The following are supervisory practices that enhance instructional supervision among teachers.

- a) Indicate whether or not you practice each of the stated practice. Use a tick (✓) to indicate your choice.

Supervisory practices	Yes	No
Classroom observation		
Target setting		
Checking: A(Schemes of work)		
Records of work covered		
Lesson notes		
School timetable adherence		
Mark books		
Report forms		
Examination samples		
Mentoring new teachers		
Assessment of syllabus coverage		



b)How often do you use each of the stated practice (VO) very often (O) often (OC) occasionally (R) rarely (N) never

<b>Supervisory practices</b>	<b>VO</b>	<b>O</b>	<b>OC</b>	<b>R</b>	<b>N</b>
Classroom observation					
Target setting					
Checking: A(Schemes of work)					
Records of work covered					
Lesson notes					
School timetable adherence					
Mark books					
Report forms					
Examination samples					
Mentoring new teachers					
Assessment of syllabus coverage					

**Any other .....**

**c) Information on instructional supervision**

- How frequent do you supervise mathematics teachers target setting?  
Once a week [ ] Once a Month [ ] Once a Term [ ] Once a Year [ ]
- How often do you inspect mathematics teachers lesson plan?

Daily [ ] Once a week [ ] Twice a week [ ] Once a month [ ]

3. How often do you inspect mathematics teachers schemes of work?

Once a week [ ] Once a month [ ] Once a term [ ] Once a year [ ]

4. To what extent do your instructional supervision practices influence the rate of Syllabus coverage?

Very much [ ] Moderately [ ] Very little [ ] Not at all [ ]

5. How do you rate syllabus coverage in your school between 2008-2012?

90%-100% [ ] 80-90% [ ]

70- 80% [ ] 60%-70% [ ]

6. Please indicate mathematics mean score of your school for the years indicated.

Year	Mathematics Mean Score	Mean Grade
2008		
2009		
2010		
2011		
2012		

7. To what extent do your instructional supervision practices influence performance in Mathematics ?

To a very large extent [ ] Large extent [ ] Little extent [ ] Not at all [ ]

8. To what extent are you challenged as a Head teacher in your supervisory role?

Not at all [ ] Little extent [ ] Fairly large extent [ ] Large extent [ ]

Very large extent [ ]

b) Kindly mention some of the challenges that you experience.

.....

Thank you for your co-operation

### **APPENDIX III: Mathematics Teachers' Questionnaire**

This questionnaire aims at getting your opinion on institutional supervision practices. You do not have to write your names as your identify will remain confidential. Please be free to give your opinion in the response. Answer all the questions by indicating your choice by a tick (✓) where appropriate or fill in the black spaces. You may tick as many reasons as possible.

#### **SECTION A: DEMOGRAPHIC INFORMATION**

1. State your gender                      Male   ( )                      Female                      ( )
2. Which is your age bracket?  
25-30years                      ( )                      31-40years                      ( ) 41-50 years                      ( )  
Above 50 years                      ( )
3. What is your highest academic qualification?  
Masters                      ( )                      Bachelor of Education                      ( )  
Bachelor of Arts                      ( )                      Diploma                      ( )

#### **SECTION B: HEAD TEACHER SUPERVISORY PRACTICES**

The following are supervisory practices that enhance instructional supervision among

teachers.

- a) Indicate whether or not your head teacher uses each of the stated practice. Use a tick (✓) to indicate your choice.

<b>Supervisory practices</b>	<b>Yes</b>	<b>No</b>
Classroom observation		
Target setting		
Checking: A(Schemes of work)		
Records of work covered		
Lesson notes		
School timetable adherence		
Mark books		
Report forms		
Examination samples		
Mentoring new teachers		
Assessment of syllabus coverage		

Any other .....

.....

.....

.....

## **SECTION C. INFORMATION ON INSTRUCTIONAL SUPERVISION**

Show by indicating against each practice that your head teachers use very oftenly.

- b) How often do you use each of the stated practice (VO) very often (O) often (OC) occasionally (R) rarely (N) never

<b>Supervisory practices</b>	<b>VO</b>	<b>O</b>	<b>OC</b>	<b>R</b>	<b>N</b>
Classroom observation					
Target setting					
Checking: A(Schemes of work)					
Records of work covered					
Lesson notes					
School timetable adherence					
Mark books					
Report forms					
Examination samples					
Mentoring new teachers					
Assessment of syllabus coverage					

### **C. Information on instructional supervision**

1. How frequent are you supervised by the head teacher ?

- Daily [ ] Twice a week [ ] Once a week [ ] Once a month
2. To what extent does the headteacher supervise your target setting?
- Daily [ ] Twice a week [ ] Once a week [ ] Once a month
3. How often does the head teacher inspect your lesson plan ?
- Daily [ ] Twice a week [ ] Once a week [ ] Once a week [ ]
4. How often does the head teacher inspect your scheme of work?
- Once a week [ ] Once a month [ ] Once a term [ ] Once a year [ ]
5. To what extent do instructional supervision practices influence the rate of syllabus Coverage?
- Very much [ ] Moderately [ ] Very little [ ] Not at all [ ]
6. To what extent does the headteacher instructional supervision practices influence Performance in mathematics?
- To a very large extent [ ] Large extent [ ] Little extent [ ]
- Not at all [ ]
7. How do you rate syllabus coverage in your school between 2008 – 2012?
- 90%-100% [ ] 80-90% [ ]
- 70- 80% [ ] 60%-70% [ ]
8. What is your attitude towards instructional supervision practices by the head teacher?
- Very positive [ ] Positive [ ] Less positive [ ] Negative [ ]

Please indicate mathematics mean score of your school for the years indicated.

Year	Mathematics Mean Score	Mean Grade
2008		
2009		
2010		
2011		
2012		

**Thank you for your cooperation**


#### **APPENDIX IV: List Of Public Secondary Schools In Nyandarua South District**

1. Karima Girls' secondary school
2. Magomano Girls' secondary school
3. Muruaki secondary school
4. Mkungi secondary school
5. Nandarasi secondary school
6. Mwendaandu secondary school
7. Kimuri secondary school
8. Ndunyu Njeru secondary school
9. Kitogo secondary school
10. Kihumbu secondary school
11. Gathara secondary school
12. Mutamaiyu secondary school
13. Murungaru secondary school
14. Rugongo secondary school
15. Mwiteithia secondary school
16. Kinja secondary school
17. Mekaro secondary school



## APPENDIX V: Research Authorization Letter

REPUBLIC OF KENYA



**NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY**

Telephone: 254-020-2213471, 2241349, 254-020-2673550  
Mobile: 0713 788 787, 0735 404 245  
Fax: 254-020-2213215  
When replying please quote  
secretary@ncst.go.ke

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

Our Ref: **NCST/RCD/14/013/875** Date: **4<sup>th</sup> June 2013**

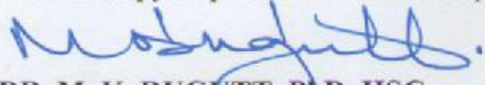
Joseph Gakuya Ngonjo  
University of Nairobi  
P.O Box 92-0902  
Kikuyu.

**RE: RESEARCH AUTHORIZATION**


Following your application dated **24<sup>th</sup> May, 2013** for authority to carry out research on *"Influence of headteachers instructional supervision practices on students' performance in mathematics in public secondary schools in Nyandarua South District, Kenya."* I am pleased to inform you that you have been authorized to undertake research in **Nyandarua South District** for a period ending **31<sup>st</sup> July, 2013**.

You are advised to report to **the District Commissioner and District Education Officer, Nyandarua South District** before embarking on the research project.

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

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

Copy to:  
The District Commissioner  
The District Education Officer  
Nyandarua South District.



## APPENDIX VI: Research Permit

**PAGE 2** **PAGE 3**

**Research Permit No. NCST/RCD/14/013/875**

**Date of issue 4<sup>th</sup> June, 2013**

**Fee received KSH. 1000**

**THIS IS TO CERTIFY THAT:**

**Prof./Dr./Mr./Mrs./Miss/Institution**

**Joseph Gakuya Ngonjo**

**of (Address) University of Nairobi**

**P.O Box 92-0902, Kikuyu**

**has been permitted to conduct research in**

**Location**

**Nyandarua South District**

**Central Province**

**on the topic: Influence of headteachers' instructional supervision practices on students' performance in mathematics in public secondary schools in Nyandarua South District, Kenya.**

**for a period ending: 31<sup>st</sup> July, 2013.**

**Applicant's Signature**

**For Secretary**

**National Council for Science & Technology**

