

**FACTORS INFLUENCING PUPILS' PERFORMANCE IN MATHEMATICS
AT KENYA CERTIFICATE OF PRIMARY EDUCATION IN TURKANA
CENTRAL SUB-COUNTY, KENYA**

MOSES JAMIN SIMOTWO

**A Research Project Report Submitted In Partial Fulfillment of the Requirement of
the Award of Degree of Master of Education in Sociology of Education of The
University Of Nairobi.**

2018

DECLARATION

This Research Project Report is my original work and has not been submitted for a degree in any other University or any other award.

Date.....

Sign.....

Moses Jamin Simotwo

E56/66903/2010

Declaration by the Supervisor

This Research Project Report has been submitted for the examination with my approval as Supervisor.

Date.....

Sign.....

Prof. Lewis Ngesu

Assistant Professor

Department of Educational Foundation

University of Nairobi

DEDICATION

This research project is dedicated to the Almighty God who gave me knowledge, patience courage and good health throughout the period I have worked on this research project. I also dedicate this work to my beloved wife Beatrice and my five children; Tecla, Bethuel, Grace, Caleb and Gloria for their moral support and encouragement throughout my study.

ACKNOWLEDGMENTS

First and foremost, I acknowledge my research supervisor, Prof. Lewis Ngesu for his guidance, availability and patience throughout the entire project. Secondly, I thank all key informants that I interviewed and other respondents who gave me permission and spared their time to participate in the study. Finally, to my wife Beatrice and children Tecla, Bethuel, Grace, Caleb and Gloria, thank you for your prayers and encouragements to make my project a success.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGMENTS	iv
LIST OF TABLES	viii
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS AND ACRONYMS	xii
ABSTRACT	xiii

CHAPTER ONE INTRODUCTION

1.1 Background of the Study.....	1
1.2 Statement of the Problem	6
1.3 Purpose of the Study	6
1.4 Objectives of the Study	6
1.5 Research Questions	6
1.6 Significance of the Study	7
1.7 Limitations of the Study	7
1.8 Delimitations of the Study.....	8
1.9 Assumption of the Study	8
1.10 Definition of Operational Terms	8
1.11 Organization of the Study	9

CHAPTER TWO REVIEW OF RELATED LITERATURE

2.1 Introduction	10
2.2 An Overview of Pupils' Performance in Mathematics	10
2.3 Influence of Teaching Resources on Pupils' Performance in Mathematics.....	11
2.4 Teachers' Qualification Versus Pupils' Performance in Mathematics.....	12

2.5 Influence of Parents on Pupils’ Performance in Mathematics	14
2.6 Pupils’ Attitude Towards Learning Mathematics	16
2.7 Conceptual Framework	18

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction	19
3.2 Research Design	19
3.3 Target Population	19
3.4. Sample Size and Sampling Technique	20
3.5 Research Instruments	21
3.6 Pilot Study	21
3.6.1 Validity of the Research Instruments	21
3.6.2 Reliability of the Research Instruments.....	22
3.7 Data Collection Techniques	22
3.8 Data Analysis Techniques	23
3.9 Ethical Consideration	23

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction	24
4.2 Response Rate	24
4.3 Demographic Information	24
4.4 Pupils’ Attitudes Influencing Performance in Mathematics	25
4.5 Teachers’ Qualifications and Experience.....	33
4.6 Teaching Resources Influencing Pupils’ Mathematical Performance	44
4.7 Parental Influence on Pupils’ Mathematics Performance	49
4.8 Discussions of the Findings	54
4.8.1 Influence of Teaching Resources on Pupils' Performance In Mathematics	54
4.8.2 Relationship between Teachers' Qualifications and Pupils’ Performance in Mathematics	55

4.8.3 Influence of Parents on Pupils' Performance in Mathematics	56
4.8.4 Pupils' Attitudes in Mathematics Performance	57

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction	59
5.2 Summary of the Study	59
5.3 Major Findings of the Study	59
5.4 Conclusion	61
5.5 Recommendations	62
5.6 Recommendations for Further Studies	62

REFERENCES.....	63
------------------------	-----------

APPENDICES

Appendix I: Letter of Introduction	68
Appendix II: Pupils' Questionnaire in Mathematics (PQM)	69
Appendix III: Head Teachers' Questionnaire in Mathematics (HTQM).....	72
Appendix IV: Teachers' Questionnaire in Mathematics (TQM)	75
Appendix V: Research Permit from NACOSTI.....	78

LIST OF TABLES

Table 1.1:	KCPE Mean Grade FROM 2006 - 2014.....	5
Table 4.1:	School Type	25
Table 4.2:	Pupils' Attitude Influencing Performance in Mathematics	25
Table 4.3:	Best Pupils' in Mathematics	26
Table 4.4:	Mathematics is Difficult to Understand.....	26
Table 4.5:	Doing Mathematics for the Sake of Doing It.....	27
Table 4.6:	Mathematics should be an Optional Subject	27
Table 4.7:	Mathematics as a Favourite Subject	28
Table 4.8:	Pupils' Self Motivating Themselves in the Subject	29
Table 4.9:	Positive Attitude and Confidence	29
Table 4.10:	Pupils Complaining that Mathematics is Difficult	29
Table 4.11:	Pupils' Desire to Work Hard to Excel in the subject.....	30
Table 4.12:	Best pupil in Mathematics	30
Table 4.13:	Gender Interferes with Learning of Mathematics.....	31
Table 4.14:	Enjoy Learning Mathematics.....	31
Table 4.15:	Interest in Mathematics.....	31
Table 4.16:	Boys Performance against the Girls	32
Table 4.17:	Males' Dominance affecting Girls' Performance in Mathematics	32
Table 4.18:	Enough Mathematical Teachers	33
Table 4.19:	Use of Right Strategies in Planning and Teaching	35
Table 4.20:	Teachers' Contribution to Performance.....	35
Table 4.21:	Use of Structural Model and Real Life Samples	35
Table 4.22:	Beginning Teachers were not Well Prepared to Meet the Mathematics Requirements in Classroom	36
Table 4.23:	Many Years in Teaching Translates into Good Pupils' Performance	36
Table 4.24:	Freshly Employed Teachers Lack Examination Tips.....	37
Table 4.25:	Fresh Teachers from College have More Vigor and Strength.....	37
Table 4.26:	Teachers are Comfortable with the Current Performance	38
Table 4.27:	Experienced Teachers Make Pupils to Understand Better	38

Table 4.28: Improvement in KCPE Mathematics’ Performance	38
Table 4.29: Beginning Teachers are Well Prepared to Meet the Mathematics Requirements in Classroom	39
Table 4.30: Freshly Employed Teachers Lack Examination Tips	39
Table 4.31: Teachers Comfortable and Contented with the Current Performance Standards.....	40
Table 4.32: Pupils Consulting Teachers about their Challenges in Mathematics.....	40
Table 4.33: Teachers’ Contribution to Performance in Mathematics.....	41
Table 4.34: Language Used by Mathematics Teachers	41
Table 4.35: Language Used by Mathematics Teachers is Difficult to Understand	41
Table 4.36: Proper Teacher Qualification Programme	42
Table 4.37: Duration in Teaching	42
Table 4.38: School Buildings in Favorable Conditions	42
Table 4.39: Pupils Regularly Attend School and Punctual Enough	43
Table 4.40: Handling Pupils with diverse backgrounds	43
Table 4.41: The extent at which Teachers’ Experience affect the Pupils.....	44
Table 4.42: Teaching Resources in the School.....	44
Table 4.43: Parents Buying Extra Text Books.....	44
Table 4.44: Well Equipped Library in Schools	45
Table 4.45: Enough Mathematics Textbooks	46
Table 4.46: Instructional Materials’ Supply	46
Table 4.47: Need Assistance to Raise Teaching Resources	47
Table 4.48: Children Overcrowding in the Classrooms.....	47
Table 4.49: Government Provision of Teaching Resources	47
Table 4.50: School Motivation of Pupils	48
Table 4.51: Main Hindrance in Mathematics’ Performance by Pupils.....	48
Table 4.52: Adequate Space and Resources to Interact with Pupils.....	49
Table 4.53: Parents Having Highest Level of Education.....	49
Table 4.54: Parents Assisting in Mathematical Achievement at Home.....	50
Table 4.55: Parents Motivating Pupils’ Mathematical Achievement	50
Table 4.56: Parental Discouragement of Pupils in Mathematics Achievement.....	51

Table 4.57: Parental view of Boys as being Better in Mathematics than Girls	51
Table 4.58: Home Background Influencing Pupils' Mathematics' Performance	51
Table 4.59: Collaboration between Teachers and Parents to Better Mathematics	52
Table 4.60: Parents Motivating their Children to Study Mathematics	52
Table 4.61: Parental Support to the Children to Excel in Mathematics.....	53
Table 4.62: Parents Informed about their Children's Performance	53
Table 4.63: Parental Social Economic Status affect Pupils' Performance in Mathematics.....	54
Table 4.64: Pupils' Suffering from Lack of Basic Nutrition.....	54

LIST OF FIGURES

Figure 2.1: Conceptual Framework showing relationship between selected factors and Pupils' Performance in Mathematics.....	18
Figure 4.1: Gender of Respondents	24
Figure 4.2: Gender as a Hindrance in Learning Mathematics	28
Figure 4.3: Teacher-Pupil-Interaction.....	33
Figure 4.4: Pupils Stealing School Text Books	45

LIST OF ABBREVIATIONS AND ACRONYMS

ADEA	Age Discrimination in Employment Act
COS	Classroom Observation
ECED	Early Childhood Education Development
HMI	Human Machine Interface
HTQM	Head Teachers Questionnaire in Mathematics
IQ	Intelligent Quotient
KCPE	Kenya Certificate of Primary Education
KNEC	Kenya National Examination Council
PQM	Pupils' Questionnaire in Mathematics
SI	Student Inclusiveness
SNU	Somalia National University
TCSC	Turkana Central Sub-County
TQM	Teachers Questionnaire in Mathematics

ABSTRACT

The purpose of the study was to investigate factors influencing pupils' performance in Mathematics at Kenya Certificate of primary education (KCPE) in Turkana Central Sub-County, Kenya. The study was informed by the following objectives: to determine the influence of teaching resources in pupils' performance in Mathematics at KCPE, to examine the relationship between teachers' qualification and pupils' performance in Mathematics at KCPE, determine the influence of parents on pupils' performance in Mathematics at KCPE and to establish pupils' attitudes in Mathematics at KCPE Turkana Central Sub-County. The study adopted descriptive survey design. To achieve this, the target population was 2469 respondents which incorporated all thirty nine (39) public primary schools and six (6) private primary schools in Turkana Central Sub-County in the study. There were three hundred (300) Mathematics teachers, forty five (45) Head teachers since the total number of schools is 45 and one thousand eight hundred and twenty four (1824) class eight pupils from public primary schools and three hundred (300) pupils from private primary schools. The study adopted a sample size of 266 respondents. Stratified, random and purposive sampling techniques were used by the researcher to sample out the population basing on capacities, group characteristics and progressive records for all the respondents. Questionnaire was administered to the head teachers, teachers and pupils. The questionnaire was issued to the head teachers, teachers and learners. Quantitative and qualitative data was analyzed descriptively using inferential statistics and presented in Tables, graphs, frequency distribution and charts. The findings of the study were as follows: that the teaching resources influenced performance in Mathematics; that there was a relationship between teachers' qualification and pupils' performance in Mathematics; that parents influenced pupils' Mathematics performance and that pupils' attitudes influenced performance in Mathematics at KCPE in Turkana Central Sub-County. The study came up with the following recommendations: The study recommended the following; that the schools should have a well-established library so that pupils have enough teaching and learning resources; the government should increase Mathematics teachers in schools; the government and well-wishers to assist the schools by providing them with more learning and teaching resources, parents should be encouraged to assist their children in Mathematics achievements by buying them text books and pupils should have a positive attitude so that they may do well in Mathematics.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The people's general view of Mathematics is that it is all about computation of numbers. This however, is not an enough picture of this important subject as computation is just but among the necessary tools needed to pursue and merit in Mathematical structures, relations and concepts. Mathematics knowledge is fully essential in the modern world coupled with information age and multiple technological innovations. Proper and comprehensive grasping of Mathematical knowledge therefore is a non-substitutable item to academicians at all levels of their academic and societal life. Effective acquaintance and application of the Mathematics skills and principles guarantees a region/country of reliable citizens while assuring the learners of a future bright enough for career advancement. Despite the subject being one of the longest taught from primary through secondary into some lucrative higher learning courses like engineering and medicine in the Kenyan 8.4.4 system, it has frequently registered unsatisfying results mostly in the final exam (KCPE). Performance in Mathematics in many countries has been low. Colwell (2000) studied the performance of American students in the international Mathematics tests and noted that they were performing poorly. In Kenya, the performance has been below average (K.N.E.C, 2008).

Teachers play a central role in the coverage of the syllabus, preparation of students for evaluation and motivation of learners. The quality of teaching Mathematics is affected by the methods of lesson presentation by the teacher trainees in the subject (Mwenda et al., 2013). The responses from Turkana Central Sub-County varied because some of the schools had adequate Mathematics teachers while others had inadequate Mathematics teachers. In some schools, there are no professionally trained Mathematics teachers as the schools have employed form 4 graduates and university students to facilitate learning of Mathematics. Early this year, Turkana County hired new teachers to cover the shortages in Early Childhood Education Development (ECED), Primary and Secondary Schools in the County.

According to Okofor and Anaduaka (2013) majority of Nigerian school children generally dread Mathematics. Most of them consider it difficult, complex and abstract. Worse still, many students do not immediately see the use or applicability of the subject to their lives and to the world of work and so wonder why they should be troubled with the study of the subject. Except as a requirement for admission into institutions of higher learning, most students do not see any other need for Mathematics learning. Unfortunately too, some teachers of Mathematics are either not convinced themselves, or do not consider it needful to let students know the benefits that could be derived from the study of Mathematics beyond being a necessity for entry into colleges, polytechnics and universities (Okofor and Anaduaka, 2013). Unless pupils are exposed to the many uses of Mathematics and of Mathematical knowledge, they may never come close to realizing it. Considering that most people (students inclusive) find it difficult to give time and attention to anything they have not seen the value that would be derived from it, some students may only be paying lip service to the study of Mathematics if teachers do not make known to them the importance of mathematical knowledge. Their focus would then be on acquiring a good grade in the subject at the end of their secondary school career whether by fair or foul means. The implication of this is that pupils' poor performance in Mathematics would be on the increase and a greater majority of the pupils would always fail the subject each year and so end up forfeiting the pursuit of many careers that would have benefitted them and the country better. More importantly, they would also be losing out in acquiring the basic knowledge, skills and habits that effective Mathematics learning is expected to equip students with so that they can live a more meaningful and productive life in the society. According to Anaduaka et al. (2013), it is particularly disappointing to find that Mathematics has remained one of the least successful subjects in Nigerian schools despite its importance, and also despite the time it receives in an average school system. Many students have the obnoxious notion that Mathematics learning is an unattainable task. Not many school children have interest in the subject even right from the primary school level. A great majority of students believe that Mathematics competence is reserved for a selected few.

In Somalia for instance, Lafole College of Education, a faculty under the Somali National University (SNU), was the only source of trained Mathematics teachers for the Somali secondary schools since its establishment in 1972. Although the main objective of its foundation was to cover the national needs for secondary school teachers, there was a significant shortage of Mathematics and science teachers as early as 1979. This shortage could be explained mainly by the fact that teaching career has not been generally appreciated in Somalia (Nur, 2010). As well, In Somalia, the problem of Primary school pupils' poor performance in Mathematics has persisted for a long time. Available records show that performance in Mathematics among primary school pupils in Somalia is as poor as in other countries. In his findings, Nur (2010) one primary school Mathematics teacher recalls that in the school year 1982-1983, out of 270 students (in one school) 19 of them passed in Mathematics. This gives a failure rate of almost ninety three percent. Similarly, the mean score was very low.

The use of appropriate educational materials is equally important as the use of effective teaching methods when presenting Mathematics lessons. To gain optimal results the use of these materials should not be limited to the teacher's demonstration, but rather students must use them in meaningful ways. Effective instruction depends on both the quality of the resource and the skill of the teacher (Lawson, 2004).

Teacher recruitment and retention are high on the agenda of education priorities in most countries. South Africa needs to train 20,000 teachers a year if they are to avoid an education crisis. However, research indicates that only 9,000 teachers a year are currently graduating (Adler et al., 2005). They have also pointed out that retention of Mathematics teachers has been a problem in Zambia. This has been particularly so with regard to rural schools where many teachers refuse to be posted to avoid enduring the unfavorable working conditions.

In Kenya, Mathematics is a compulsory subject in both primary and secondary schools. Being a compulsory subject at high school and among key entry requirements to university, there is a need for academic society to understand the causes of the dismal performance and the possible solutions to the problem. This is the main motivation behind

this research with the view that the findings afterwards shall be used to positively transform the society as far as Mathematics is concerned. The art of reading and writing in the African context is a totally imported item that fully revolutionized both thinking and educational systems in the continent. Long before the coming of the white man, Africans had their simple systems of passing education from the elderly to the young-generations. While the teaching strategies set ups appear different, the goals were strictly related (Sifuna, 1994). The earlier education to an African child was viewed as a means of civilization, a tool to eradicate poverty and bring with it social-economic development to the nation.

The lack of understanding of basic Mathematical principles can result in an inability to solve numerous subjects such as chemistry, engineering, and other important scientific problems (Bursal and Paznokas, 2009). Bursal and Paznokas (2006) providing a specific recommendation to schools that take the responsibility for training teachers. This is to develop positive attitudes toward Mathematics and teaching Mathematics. Difficulties in Mathematics are often caused by lacking of Mathematics skills. The understanding of the issue, knowledge, skills and commitment of teachers are keys of success in Mathematics (Suthar et al., 2009).

Mathematics is among the first subjects that were taught in the Kenyan schools at independence as it was seen as a wheel to technological innovations and a core to scientific knowledge that is useful in national development. Because of this, Mathematics was made and is still a compulsory subject taught and examined in Kenya in both primary and secondary schools. Despite this explicit link between the subject and the national development, pupils still don't perform very well and thus end up missing opportunities in National Universities of studying prestigious courses such as architecture, engineering, medicine and statistical related courses. Mathematics as subject has recorded very low performance standards in the country and Turkana County is one of the most affected areas of this unsatisfactory performance dilemma.

Table 1.1 below shows the average scores of the KCPE pupils in Mathematics for the last nine years.

Table 1.1: KCPE Mean Grade FROM 2006 - 2014

Year	Kawalase		Kanamkemer		Central Division		Turkana Central Sub-County	
	Entry	Mean	Entry	Mean	Entry	Mean	Entry	Mean
2006	848	53.31	207	50.40	1055	51.86	1274	51.98
2007	789	54.8	195	51.17	984	52.99	1208	53.64
2008	811	51.1	221	53.74	1032	52.42	1338	51.57
2009	778	50.1	272	49.20	1050	49.76	1534	49.86
2010	768	50.32	319	50.5	1087	50.93	1468	50.80
2011	801	52.17	292	51.72	1093	49.43	1532	51.84
2012	793	50.03	261	48.83	1054	49.43	1546	50.87
2013	807	51.83	309	50.9	1116	51.37	1711	50.87
2014	829	52.31	351	67	1180	51.99	1793	51.68

Source: Turkana County Ministry of Education Office

The results presented herein in Table 1.1 are enough evidence that there is something amiss concerning the performance. It possess a great need to study and identify the factors that influence the performance of pupils in Mathematics in the country's national examinations and the possible remedy.

The study will be guided by the Newell & Simon's theory of human problem solving (Newell and Simon, 1972). This theory was adapted by a Canadian scholar John Mighton, who applied the theory to achieve significant success in improving Mathematics performance among elementary and high school students (Anderson et al., 2000).

1.2 Statement of the Problem

The importance of Mathematics in daily life is recognized worldwide and as a result of this, the subject has been given a special place in the school curriculum. However, students' poor performance in Mathematics is globally known, Kenya not being different. The problem of students' poor performance in this subject is not confined to any one country but universal. In response to this global problem, various studies in different countries investigated its root causes. Performance of schools in national examination across the regions has however varied significantly with certain regions posting better results than others. This study therefore sought to address this gap by investigating on factors influencing the pupils' performance in Mathematics at KCPE in Turkana Central Sub-County.

1.3 Purpose of the Study

The purpose of this research study was to determine the factors influencing pupils' performance in Mathematics at KCPE in Turkana Central Sub-County.

1.4 Objectives of the Study

The research was guided by the following objectives;

- i. To determine the influence of teaching resources on pupils' performance in Mathematics at KCPE in Turkana Central Sub-County.
- ii. To examine the relationship between teachers' qualification and pupils' performance in Mathematics at KCPE in Turkana Central Sub-County.
- iii. To determine the influence of parents on pupils' performance in Mathematics at KCPE in Turkana Central Sub-County.
- iv. To establish pupils' attitudes in Mathematics at KCPE in Turkana Central Sub-County.

1.5 Research Questions

The study was guided by the following research questions;

- i. How does the teaching resources influence pupils' performance in Mathematics at KCPE in Turkana Central Sub-County?

- ii. What is the relationship between teachers' qualification and pupils' performance in Mathematics at KCPE in Turkana Central Sub-County?
- iii. How does parents influence the pupils' performance in Mathematics in primary schools in Turkana Central Sub-County?
- iv. How does pupils' attitudes influence pupils' performance in Mathematics at KCPE in primary schools in Turkana Central Sub-County?

1.6 Significance of the Study

The aim of this study focused on the factors that influence pupils' performance in Mathematics at KCPE. The study may contribute towards the enhancement of teaching and learning of Primary school Mathematics. The findings of the study may therefore be significant to the following groups of people: Policy makers; the findings of the study may assist the educational policy makers to reconsider the existing teacher training programmes. Educational administrators; the findings may sensitize them to harmonize curriculum for teaching institutions and teaching policies. Mathematics teachers; the findings may provide them guidance on the selection of suitable methods and resources for teaching and learning Mathematics. Mathematics researchers; they might use this study as the basis for further study in Mathematics education and finally, pupils; the findings of the study may assist the pupils to change their perception towards Mathematics as the hardest subject.

1.7 Limitations of the Study

It was anticipated that the collection of reliable data would be difficult since the respondents may fear to be victimized. This was countered by assuring the respondents that the data is only meant for the purposes of academics and no names of individuals was needed.

It was also anticipated that availability of the respondents would have been difficult due to their busy learning and teaching schedule. This was overcome by booking appointments in advance for data collection.

1.8 Delimitations of the Study

The study focused only on primary schools within the Turkana Central Sub-County, therefore the study was not generalized. The study was delimited to head teachers, standard eight Mathematics teachers and standard eight pupils' since they are aware of the factors that may influence Mathematics performance in Turkana Central Sub-County.

1.9 Assumption of the Study

The study was guided by the following assumptions;

- i. That all the respondents would be cooperative, honest and give reliable information.
- ii. That the teachers in sampled schools were well trained and dedicated to their tasks.
- iii. That the sampled schools were highly motivated to learn.
- iv. That all the respondents would cooperate in all ways by giving the reliable information.

1.10 Definition of Operational Terms

Academic performance: refers to grade representing the sample of students' achievement with respect to attained academic skills or knowledge for example KCPE.

Educational Materials: refers to the period (in hours) over which the teachers and pupils' interact, usually during formal learning sessions in the class.

Educational System: refers to public schooling, not private schooling, and more commonly to kindergarten through high school programs.

Head teacher: refers to any person appointed by the TSC as an administrative head in the day to day management of a primary school.

Mean score: refers to an average point showing individual or group achievement in KCPE examination performance.

Performance Standards: refers to the management of approved expression of the performance threshold(s), requirement(s), or expectation(s) that must be met to be appraised at a particular level of performance.

Public school: refers to an institution of learning where pupils learn and is owned and run by the government in conjunction with parents.

Private School: refers to a school that is established, conducted, and primarily supported by a non-governmental agency.

Pupil teacher ratio: refers to average number of pupils per teacher at a specific level of education in a given school year.

Teaching learning materials: refers to the resources which aid in teaching and learning such as exercise books and text books.

Teacher Recruitment: refers to the process of providing an adequate number of quality applicants. Teacher selection is the process of choosing only high-quality employees from among the assembled applicants.

1.11 Organization of the Study

The study was organized into five chapters.

Chapter one contains background to the study, statement of the problem, purpose of the study, objective of the study, research questions, significance of the study, limitations of the study, delimitations of the study, assumptions of the study, definitions of significant terms and organization of the study. Chapter two focuses on factors influencing pupils' performance in Mathematics in Turkana Central, Sub-County which includes; to determine the influence of teaching resources in pupils' performance in Mathematics, to examine the relationship between teachers' qualification and pupils' performance in Mathematics, to determine the influence of parents on pupils' performance in Mathematics at KCPE in Turkana Central Sub-County and to establish pupils' attitudes in Mathematics at KCPE in Turkana Central Sub-County. It also focuses on a summary of literature review and conceptual framework. Chapter three covers research design, target population, sample size and sampling procedure research instruments, instrument validity, instrument reliability, data collection procedures and data analysis techniques. Chapter four covers presentation, analysis and interpretation of data and discussion of results. Chapter five consists of summary of findings, conclusions, recommendations of the findings and suggestions for further research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter presents the empirical literature on factors influencing pupils' performance in Mathematics as an examinable subject at KCPE. The factors explored in this study include, the teachers qualification and experience, the teaching resources available in schools, the influence of parents and the pupils' attitude towards learning Mathematics respectively.

2.2 An Overview of Pupils' Performance in Mathematics

The Gale Encyclopedia of Science (Lerner and Lerner, 2004) states that Mathematics, in the very broadest sense, is the systematic study of relationships in the physical world and relationships between symbols which need not pertain to the real world. In relation to the world, Mathematics is the language of science. It operates within the laws and constraints of science as it examines physical phenomena. Mathematics remains to be a subject that forms a backbone for nearly all careers. As such, Mathematics as a subject is linked to many other subjects such as sciences, medicine, social sciences etc. The main goal of Mathematics education is to promote pupils' learning of Mathematics. It focuses on the content and the tools, methods and the approaches that facilitate the teaching/ learning activities. This makes Mathematics education essentially practical and dynamic, necessitating new changes in teaching the subject. According to Busbridge and Womack (1991) there have been many changes in both the content and the style of Mathematics teaching for the last thirty years. They note that modern methods made greater demands for visual and physical aids to help children understand concepts and processes. The old didactic methods of teaching Mathematics, which involved rote learning, are gradually being replaced by interactive teaching methods. On the other hand, the introduction of the use of graphic calculators and computers in Mathematics classrooms is another worth mentioning recent change in Mathematics. The power of using computers in the teaching of Mathematics has been emphasized by the Agenda for Action in the United States as a strategy for developing problem solving skills which was seen as a touchstone for reform

(Morris & Arora, 1992). However, in Kenya, still many schools continue to do poorly in Mathematics at KCPE across the Country, Turkana Central Sub-County not being left out.

2.3 Influence of Teaching Resources on Pupils' Performance in Mathematics

Teaching resources according to Cremer and Holla (2013), in their studies teaching resources are those resources (human and material) that are used to stimulate and maintain pupils' interest in Mathematics learning as well as facilitate their understanding of mathematical topics. If the pupils are just taught without being exposed to the concrete materials it does not enhance learning. As a result, a good teacher should know which teaching resources are available or can be provided to enrich the teaching and learning of Mathematics (Okafor, 2013). Teaching resources assist the teacher to plan how to cover the syllabus, how to strategize in teaching methodology, how to prepare and teach the low performing learners according to their needs.

Teaching resources is very important to pupils' performance in Mathematics as indicated by the earlier studies. The studies supplying more of existing inputs, such as additional textbooks, often has a limited impact on student on pupil achievement because of distortion in developing-country education systems, such as elite-oriented curricula. (Holla, 2013). Teaching resources are of great factors to be considered for meaningful teaching and learning. Inadequate teaching and learning resources such as text books and revision materials especially in upcoming schools deny the students the opportunity in upcoming (Mwenda et al., 2013). Most of the pupils fail not because they are not clever, but because they have not been exposed to proper teaching resources, at the same time too, you will find schools with well-equipped teaching resources and at the same time some pupils do not perform well. This is clear that there could be some other factors that causes the pupils either to perform well or poorly in the subject. The findings of other studies also revealed that teachers in high performing schools used resources more often than the low performing schools (Kiplagat et al., 2012). Another study carried out in South Africa revealed that poorly resourced schools also have teachers with poor qualifications, while better-resourced schools are able to attract good quality teachers with higher qualifications (Juan, 2015). At the same time, another study in South Africa too revealed that education system is challenged by equity issues, diverse needs, as well as the challenges of meeting

rights for fair education involvement and quality provision of education services (Ahmed, 2011). Another study also support the latter findings, highlighting school factors as being highly influential in Mathematics performance of Kenyan learners (Mbugua et al., 2012). Both of them, their finding indicated that overcrowding and insufficient materials were both found to impact on academic performance.

2.4 Teachers' Qualification Versus Pupils' Performance in Mathematics

Education like any other professionals expect a lot from an employee who is well trained and has been on job for a period long enough. A teacher who consistently concentrates on teaching a particular subject is equally expected to be more productive as compared to the less experienced one assuming a case of pupils with equal ability. The underlying idea is that experience gained over time enhances the knowledge, skill level and the productivity of a teacher. The striking question to researchers and policy makers in the education department is whether teachers experience promotes effectiveness? It's argued that the impact of experience is strongest after the first few years of training and employment after which a teacher gets exhausted and starts yielding marginal returns. However, CALDER studies affirm that brand new teachers are less effective than their experienced counterparts (Feleter et al., 2007).

It is also argued that the teachers' burn out impact is stronger than other qualification items including the teachers' advanced degrees, the teachers' refresher training and their scores, the national board certification after training and the class size. Beginning teachers are rarely totally prepared to meet core classroom requirements, including classroom management. Yet, in the context of education reform, experience may not necessarily translate into better teacher preparedness for certain classroom activities, unless experienced teachers have had continued training to upgrade their skills and knowledge in those areas. Teaching experience might be expected to make a difference in being prepared to manage classrooms because this area of expertise may be particularly problematic for beginning teachers (Jepsen, 2005). Teachers with fewer years of teaching experience are less likely than more experienced teachers to report being very well prepared to maintain order and discipline in the classroom. The extent to which teachers feel prepared to implement state curriculum also vary by teaching experience, with newer

teachers less likely than more experienced teachers to report being very well prepared for this classroom requirement. Newer teachers did not differ from more experienced teachers in feeling very well prepared to address the needs of students with limited English proficiency or from diverse cultural backgrounds.

Teachers' experience which is determined by the training teachers go through and the duration of their teaching significantly determines their efficiency in teaching. Teaching experience affects classrooms management (Jepsen, 2005). Teachers with fewer years of teaching experience are less likely to teach effectively. Teachers show their greatest productivity during their first few years on the job after which their performance level tends to level off (Boyd et al., 2008). Documented evidence show that teacher effectiveness declines after some point in the career life. In fact research by Harris (2007) indicate that most experienced Mathematics teachers may be less effective than their less experienced counterparts and even their inexperienced colleagues (Ladd, 2008). Despite the effect of earlier career experience, the performance distribution of teachers tend to reveal a considerable overlap in value added scores in both Mathematics and reading. This then raises a concern as to whether the existing effects of experience reflect improvement with experience or causes higher attrition on the less effective counter parts.

The magnitude of the effect of teachers experience on performance seem well pronounced at the elementary and middle school levels (Primary schools). The education system in Kenya has ever been tagged "The Western Thing". With this in mind, though the only way out, it has been a reserve for just a few communities in the country. Some counties and regions in the country experience profound levels of Marginalization that just a small section of their kins and county men have accessed education though not to expert level. While the more experienced and newly trained teachers bear an overlap relation when it comes to performance, there seem other factors that intervenes. The Kenyan schools have been clustered on the basis of performance and poverty scales. The less experience and newly trained teachers mostly get employed in High poverty schools. Turkana County, for instance suffers so much when it comes to teacher inadequacy. This has compelled the education stake holders in the county to resolve to hiring anyone without due consideration on experience and training. This has caused an uneven distribution and poor

mix of experience in primary schools. Research by (Boyd, 2007) indicate that teachers with little experience and less effective are more likely to be teaching high poverty schools. This is practically no different for the Kenyan case. Based on the teachers' classroom management ability, research shows that teachers with a number of years of experience manage their classes better than their less experienced colleagues.

2.5 Influence of Parents on Pupils' Performance in Mathematics

Nyabuto and Njoroge (2014) in their findings on Parental Involvement on Pupils' Performance in Mathematics in Public Primary Schools in Kenya, have shown that parents exert a great influence to their children especially at their early stages of development. Most parents wish their children the best in regard to education. However, some parents are still living in ancient days where they are blinded in that they still believe that education is not a good investment. This is because of their ignorance or strange believes that has been overtaken by time. Parents believe that their sons' mathematical ability is higher than their daughters' (Sara et al., 2011). In one, fathers estimated their sons' mathematical "Intelligent Quotient (IQ)" at 110 on average, and their daughters' at 98; mothers estimated 110 for sons and 104 for daughters (Lee et al., 2002). From the above findings, you find that both parents, fathers and mothers have shown that their sons' had higher "IQ" compared to their daughters. Other studies still revealed that teachers too, tend to stereotype Mathematics as a male domain. In particular, they overrate boys' ability relative to girls' (Forgasz, 2001). It has been said that even in high schools and primary schools, male teachers teaching Mathematics dominate. As such, one tend to ask himself whether girls doing Mathematics by the virtue that they view male teachers in their schools as the most dominance.

Nyabuto (2014) asserts that children's perceptions of their abilities in Mathematics are directly influenced by parents' beliefs about their children's academic competencies (Jacobs, 2004). This research seeks to find what else influences children's perception in their Mathematics apart from the parental influence. Parents' perception had a stronger influence on children's' perception than children's' own grades (Frome, 1998). Lerner and Lerner (2004) established that the gender stratification hypothesis proposes that, where there is more societal stratification based on gender, and thus more inequality of

opportunity, girls will report less positive attitudes and more negative effect and will perform less well on Mathematics achievement tests than will their male peers. Yet, where there is greater gender equity, gender similarities in math will be evident (Nicole et al., 2010). The influence of family background and socioeconomic status in particular pupils' achievement has been of great interest for a long time. The results from various studies have shown that the home background of students in schools is correlated to their Mathematics achievement in school (Nissinen, Background factors behind mathematics achievement in Finnish education context:, 1999 and 2011). Based on the TIMSS 2007 and PISA 2006 studies and covered five aspects of home, parents' education and parents' employment situation. Their results revealed that there were quite a few variables which showed strong or moderate association with Mathematics achievement, and they were parents' education, number of books at home, number of pupils own books and computer (Nissinen et al., 2011).

Aspects of home is very important in the context of Turkana County. Some pupils have no permanent homes, whereby they move from one location to another in search for pasture for their livestock. As a result, these movement affects their performance at school in nearly all subjects inclusive of Mathematics. The Turkana people are the second largest of the pastoral people of Kenya with a population of 1,034,000. They occupy the far northwest corner of the nation, an area of about 67,000 square kilometers. This nomadic community moved to Kenya from Karamojong in eastern Uganda. The Turkana tribe occupies the semi Desert Turkana District in the Rift valley province of Kenya (Kodiaga, 2015). At the same time, the researcher seeks to find out how parents education affects pupils' performance in Mathematics. Parental involvement is that most of the parents lack the training or education to offer continuous involvement with their child's homework. (Nyambuto, 2014). In Turkana county, many parents did not either go to school or they dropped out of school very early. This has a lot of influence on children. Some parents may not find reasons to support their children education since they don't understand the value of education or just that they are ignorance.

2.6 Pupils' Attitude Towards Learning Mathematics

Among the factors influencing primary pupils' performance in Mathematics, attitudes are regarded by several researchers, as an important/key factor to be taken into account when attempting to understand and explain variability in student performance in Mathematics (Mata et al., 2012). At the same time attitude can influence a pupil in two ways, positively or negatively. A positive attitude towards Mathematics reflects a positive emotional disposition in relation to the subject and, in a similar way, a negative attitude towards Mathematics relates to a negative emotional disposition (Mata, 2012). These emotional dispositions have an impact on an individual's behavior as one is likely to achieve better in a subject that one enjoys, has confidence in or finds useful (Maria, 2012). As a result, positive attitudes towards Mathematics are desirable since they influence one's willingness to learn and also benefits, one can derive from Mathematics instruction (Mata et al., 2012). Mathematics is like the cornerstone of higher learning, whereby all engineering, applied sciences and even business courses at high learning all have some roots in Mathematics

Twoli (1986) asserts in his work that there is a relationship between achieved grades in earlier examinations at same level and attitudes formed by students towards learning sciences and Mathematics. Repeated low academic achievement might lead to negative attitudes towards the subject which in turn may influence how a student will learn the subject in the subsequent years of education. The challenge though to this assertion is whether the repeated low grades achieved earlier influence attitudes formation or do attitudes formed earlier influence how a student learns Mathematics and consequently how the student will perform in KCSE. But "learned helplessness" Twoli (1986) due to repeated low achievement in Mathematics examination may lead to unfavorable attitudes towards Mathematics learning. This study intended to identify existence of such cases among students in Bureti district. Documented reports in Britain indicate that fewer girls than boys participate in Mathematics courses in tertiary levels. HMI Survey (1977) indicates that girls on average score lower marks than boys at the end of course examinations. As boys and girls interact at school in general and particularly in class, they get to know of this scenario and form varied attitudes towards learning of Mathematics. In

support of this, a study by (Costello, 1991) on 11-16 year olds shows that students formed different attitudes towards Mathematics. Some described Mathematics as hard or difficult. Some girls in particular believed that Mathematics is a boys' subject. However there was little identifiable difference in attitudes towards learning of Mathematics amongst girls and boys below 11 years old (Costello, 1991 and Beagle, 1973).

Several other studies were carried out to establish the gender disparities or variance in males and females. The study found that there was a significant differences in the way Mathematics is perceived between males and females. The findings was consistent with the findings by (Tomas et al., 2010) who showed that male consistently reported slightly more positive perceptions and attitudes than females. At the same time, the research carried (Waheed, 2011) showed that students' positive attitude towards Mathematics is medium and there is no gender difference in their attitudes (Murimo, 2011) also found gender differences in favor of male students' perceptions. Research also showed that girls have lower self-esteem than boys (Kleinfeld, 2006). Another study by Tin found that correlation between attitude, interest, peer influence and perception towards teacher' instruction with upper secondary achievement (Tin, 2003).

2.7 Conceptual Framework

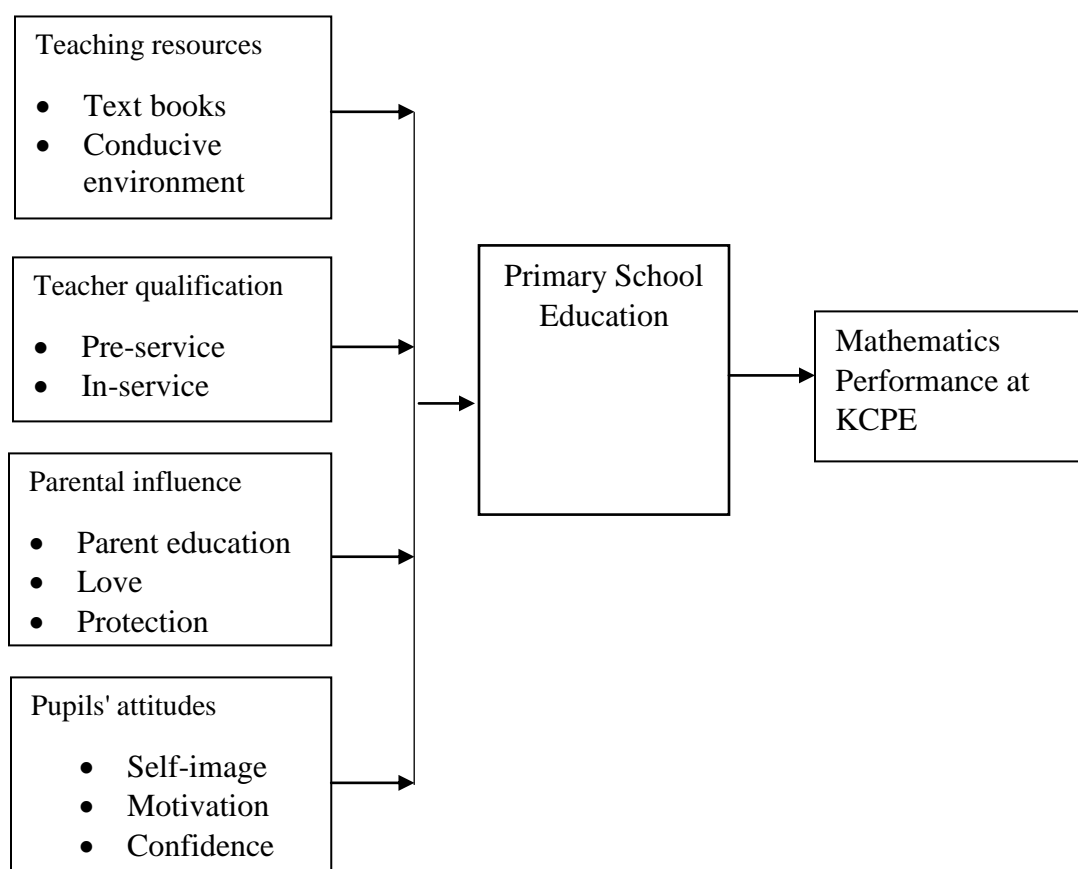


Figure 2.1: Conceptual Framework showing relationship between selected factors and Pupils' Performance in Mathematics

Source (author, 2015) Independent variables (Pupils' attitudes, teaching resources, teacher qualification and parental influence), Moderating variables (Government policies and Local Community) and dependent Variables (Pupils' performance in Mathematics).

The relationship among these factors and pupils' performance in Mathematics are summarized and presented in the Figure 2.1 above.

This study is to find out factors influencing primary pupils' performance in Mathematics. The study seeks to establish how various factors influence performance in Mathematics. The factors to be investigated include; pupils' attitude, teaching resources, teachers qualification and experience and parental influence. The researcher sought to find out how

these factors influences pupils' performance in Mathematics and how they could be controlled to improve performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This Chapter covers the procedures and strategies used in collecting and analyzing data. The main sections discussed in this section include; research design, and location of the study, target population, sampling techniques, research instruments, data collection techniques, validity and reliability, data analysis techniques and finally ethical consideration.

3.2 Research Design

Research design is a plan for collecting and utilizing data so that desired information can be obtained with sufficient precision so that a hypothesis can be tested properly. Purpose of research design is to Define, elaborate and explain the research topic; Make clear the area of research to other; Provide limits and boundaries to a research; Give the whole scenario of the research; Tell the modes and consequences; and ensuring time and resources are properly utilized (Mugenda and Mugenda, 2003).

To achieve the objectives of the study, a descriptive survey was employed in order to enable the researcher carry out investigations on the factors influencing performance in Mathematics in Turkana Central Sub-County. Descriptive designs are used when the objective is systematic description of facts and characteristics of a given population or sample of the population or area of interest factually and accurately (Kothari, 2004).

3.3 Target Population

Mugenda and Mugenda (2003) defines target population as that population the researcher studies, and whose findings are used to generalize to the entire population. The study targeted 2,469 respondents which include; Head teachers, Subject teachers only and Pupils.

3.4. Sample Size and Sampling Technique

In Turkana Central Sub-County, Public primary schools were selected purposively as area of the study. The researcher decided using large sampling size because as sample size increases sample error decrease (Coban, 2007). The study aimed to incorporate all thirty nine (39) public primary schools, in Turkana Central Sub-County. According to the ministry of education record there are about six (6) registered private schools within the Turkana Central Sub-County. Twenty (20) public schools and three (3) private schools were sampled. There are three hundred (300) subject teachers, forty five (45) Head teachers and one thousand eight hundred and twenty four (1824) pupils from public primary schools and three hundred (300) pupils from private primary schools. Head teachers, subject teachers, pupils from both public and private primary schools are 45,300 and 2124 respectively, since the population is homogeneous and large. The sample size was as follows; 24 (fifty three percent) headteachers 30 (ten percent) of Mathematics teachers and 212.4 (ten percent) was selected for the study. Both Headteachers and teachers were purposively selected while the pupils were randomly selected. The schools were taken by stratified random sampling techniques from the forty five schools. Therefore, the study adopted a sample size of 266

Both public and private primary schools in Turkana Central Sub-County were purposively selected. They were considered since they all follow the same KIE syllabus and pursue the same curriculum offered under 8-4-4 system of education. Regardless of the category of school, all pupils sit for the same KCPE at the end of Class Eight. Stratified sampling technique was used to select the school type; that i.e. boys, girls and mixed schools. The schools sampled were selected randomly from each type and category of schools.

Boys and girls were randomly selected from both categories of schools and the types of schools. This ensured that each pupil regardless of gender had equal chance of being selected for the study. Only class eight pupils were selected. Since at this level the pupils understands well about Mathematics performance. The pupils too would have been have been exposed to Mathematics content as stipulated in the syllabus. Teachers were purposively selected from the sampled schools depending on whether they teach the

selected class or not. Mathematics teachers were involved in the study because they could be a factor in influencing performance in Mathematics amongst pupils. As well, they are the ones charged with the responsibility of implementing Mathematics curriculum.

3.5 Research Instruments

In order for a researcher to evaluate a far-reaching research, it is extremely important that reliable and valid instruments are constructed. As will be extensively detailed in the data collection methods and procedures, the main research tool for the study will be questionnaires.

The development of the questionnaires was constructed based on the operational framework that was outlined in chapter two. Essentially, this means that the construction of the instruments was an embodiment of various background and proximate factors that can help the researcher find the relevant outcomes. For example, both the questionnaire contained questions regarding how various demographic, teaching resources, teachers' qualification versus pupils', parental influence and pupils' attitudes influence pupils' performance in Mathematics at KCPE. Then, based on the findings, the researcher concluded on factors influencing pupils' performance in Mathematics at KCPE.

3.6 Pilot Study

The researcher tested the research tools that was used for collecting data through a number of methods. This was essential to test whether the data being collected is consistent and also to ensure that it is relevant to the study. To do this, the researcher tested the validity and reliability of the research instruments.

3.6.1 Validity of the Research Instruments

According to Mouton and Babbie (2008) validity refers to whether an instrument actually measures what it is supposed to measure, given the context in which it is applied. The questionnaire used in this study was given to three independent experts in consultation with a statistician to evaluate it for face and content validity as well as for conceptual clarity and investigative bias. In terms of using the information that was gathered through the questionnaire, it must be emphasized that no summative scores was used for

interpretation purposes but rather the answers to individual items in the questionnaire. According to Polit and Hungler (2007) a pre-test is a trial run to determine whether an instrument solicits the type of information envisioned by the researcher. The three academics who initially evaluated the instrument also performed a pre-test on respondents who were not part of this study. No major problems were experienced and the information received was reconciled with what was intended to collect.

3.6.2 Reliability of the Research Instruments

Bless, Smith and Kagee, 2007 highlight that reliability is “concerned with the consistency of measures”, thus, the level of an instrument’s reliability is dependent on its ability to produce the same score when used repeatedly. The researcher has designed the questionnaire following expert advice. For the reliability of the questionnaire three academics were used to review the questions and categories listed in the original questionnaire and to administer the questionnaire to determine the length of time that was required to complete the interview. The academics were also requested to recommend any alterations to the questionnaire for its use in organizations within Turkana Central Sub-County.

3.7 Data Collection Techniques

The researcher sought permission from the National Commission for Science, Technology & Innovation to sample respondents in schools within Turkana Central Sub-County. There are normally two basic methods of data collection-primary data collection method and the secondary data collection. Both of these methods are further divided into many other smaller methods. The primary method deals with an individual or a group of people collecting information by themselves. The secondary method, on the other hand, profits from the information collected by other people or researches that have been done by other scholars. Questionnaires were sent to participants in the already mentioned study area by physically dropping them. Where help was required the research assistant took the respondents through the questionnaire.

3.8 Data Analysis Techniques

Data presentation, data analysis, and research findings all tend to run at the same time. This is mainly because the end of one process paves way for the beginning of another. Therefore, in most times, these processes are viewed as one entity. However, in this research, all these facets were viewed individually to aptly illustrate the importance of each facet in the proposed study. Descriptive statistics was adopted to analyze data. Frequency Tables, graphs and pie charts was used to present analyzed data. The researcher also used the computer Statistical Package for Social Sciences (SPSS) to assist in analysis procedures (Vos et al., 2002).

3.9 Ethical Consideration

According to Kombo and Triumph (2002), the researcher must maintain privacy and confidentiality of the respondents at all times. During the data collection the researcher had to respect respondent's privacy. The nature and purpose of the research was explained to the respondents by the researcher and respect for individual's rights to safeguard their personal integrity, no names or personal identification numbers reflected on the questionnaires except numbering which is purposefully for identification of data during editing.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents analysis and findings as stipulated out in the research method. It focuses on the demographic information of respondents, the questionnaire return rates and presentation of findings according to research questions. This chapter is made up of sub-sections guided by the research objectives.

Various research instruments meant to address the same research questions were grouped together drawing conclusions on particular research questions. Presentation of analyzed data was by use of frequency Tables, pie charts and bar graphs.

4.2 Response Rate

Questionnaire return rate is the proportion of the sample that participated as intended in all the research procedures. The study targeted five (24) head teachers, eight (30) Mathematics teachers and ninety seven (212) pupils. The researcher distributed the questionnaires to the three categories of respondents. The percentage return rate of questionnaires which was 90.9% was deemed sufficient for data analysis.

4.3 Demographic Information

This section represents the demographic information of the respondents.

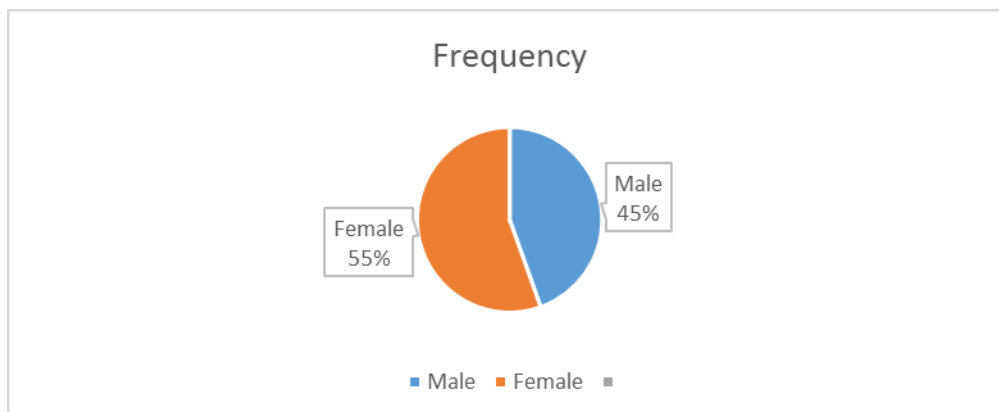


Figure 4.1: Gender of Respondents

In the Figure 4.1, the study established that 45% of the respondents were males and 55% were females of the sampled population. The population for the males was less than 50%. The studies found out that majority of respondents were females as compared to males. These findings are the normal scenario of the population of Kenya where majority of the population are females.

Table 4.1: School Type

Type of school	School Frequency	Percent	Pupils Frequency	Percent	Head Teachers Frequency	Percent	Teachers Frequency	Percent
Private	6	13.3	56	26.4	7	30.0	6	20.0
Public	39	86.7	156	73.6	17	70.0	24	80.0
							30	100.0
Total	45	100.0	212	100.0	24	100.0	30	100.0

Table 4.1 indicates that there were six (6) private and thirty nine (39) public schools selected. There were fifty six (56) pupils from private schools and one hundred and fifty six (156) from public schools. There were seven (7) head teachers from private schools and seventeen (17) from public schools and finally six (6) teachers were sampled from private schools and twenty four (24) from public schools. The data indicates that there were more public primary schools represented than private schools.

4.4 Pupils' Attitudes Influencing Performance in Mathematics

This section presents pupils' attitudes influencing performance in Mathematics in Turkana Central Sub-County.

Table 4.2: Pupils' Attitude Influencing Performance in Mathematics

Interest	Head teachers Frequency	Percentage	Teachers Frequency	Percentage
Yes	6	25.5	18	60
No	9	36.4	6	20
Uncertain	2	9.1	3	10
Sometime	7	29.1	3	10
Total	24	100.0	30	100

Table 4.2 indicates that 25.5% of the head teachers agreed with the idea that pupils' attitudes influences performance in Mathematics at KCPE level, 36.4% indicated that pupils' attitude did not influence Mathematics, 9.1% were uncertain while 29.1% showed that the pupils' attitude sometimes influenced Mathematics performance. On the other hand, 60% of teachers were of the view of pupils' attitude influences performance in Mathematics, 20.0% were not of the view that pupils' attitude influence Mathematical performance, 10% were uncertain while 10.0% thought that sometime pupils' attitude influence Mathematics performance. The data indicated that head teachers and teachers did not concur that pupils' attitude influences Mathematical performance in Schools.

Table 4.3: Best Pupils' in Mathematics

Best Pupils	Frequency	Percent
Yes	187	88.2
No	15	7.3
Sometime	10	4.5
	212	100.0

According to Table 4.3, the results established that 88.2% of the respondents indicated that best pupils did Mathematics to their fullest, 7.3% did not agree with the idea that best pupil did well in Mathematics whereas 4.5% indicated that best pupils sometime were best in Mathematics. This results mean that best pupils are also good in Mathematics.

Table 4.4: Mathematics is Difficult to Understand

Difficult to Understand	Frequency	Percent
Yes	44	20.9
No	91	42.7
Sometime	72	35.5
Uncertain	2	0.9
Total	212	100.0

Table 4.4 indicates that 20.9% agreed that Mathematics was difficult to understand, 42.7% were strongly of the opinion that Mathematics was not difficult to understand, 35.5% on the other hand showed that sometimes Mathematics is difficult and finally, 0.9% were not

sure of the idea. This findings can be interpreted to mean that Mathematics was not a difficult subject to understand.

Table 4.5: Doing Mathematics for the Sake of Doing It

Doing Mathematics	Pupils' Frequency	Percent	Head teachers Frequency	Percent
Yes	39	18.2	19	80
No	154	72.7	5	20
Sometime	15	7.3		
Uncertain	1	1.8		
Total	212	100.0	24	100

According to Table 4.5, the findings indicated that 18.2% of the pupils were of the view that they do Mathematics for the sake of doing it, 72.7% disagreed, 7.3% were of the opinion that sometime pupils do Mathematics for the sake of doing it and only 1.8% were uncertain that pupils do Mathematics for the sake of doing it. On the hand, 80% of the head teachers agreed that pupils do Mathematics for the sake of doing it while 20% were not of the view that pupils do Mathematics for the sake of doing it. Pupils' findings and head teachers' findings do not correspond.

Table 4.6: Mathematics should be an Optional Subject

	Pupils' Frequency	Percent
Yes	60	28.2
No	146	69.1
Sometime	4	1.8
Uncertain	2	0.9
Total	212	100.0

Table 4.6 showed that 28.2% of the respondents were of the opinion that Mathematics should be an optional subject in schools, 69.1% were not of the opinion that Mathematics should be an optional subject, 1.8% indicated that Mathematics should be sometime optional and finally, 0.9% were uncertain. This can be interpreted to mean that Mathematics should be left to remain a compulsory subject. This findings agrees with

other studies which indicates that Mathematics is applicable across all the fields in education.

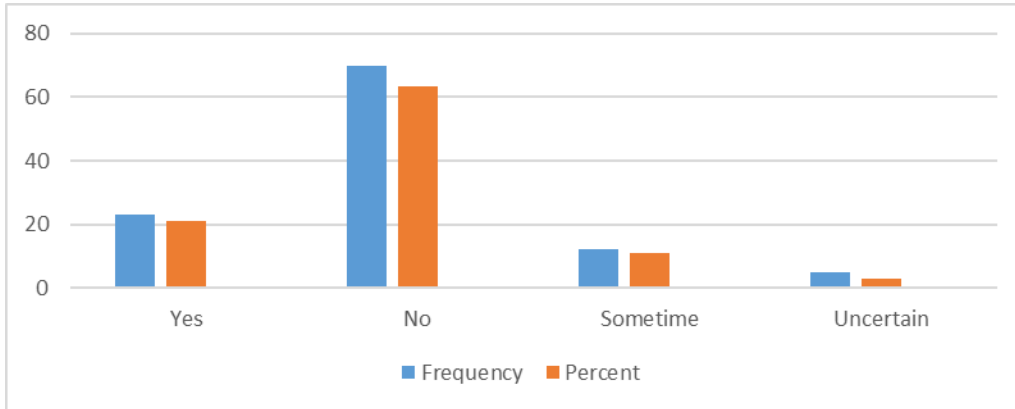


Figure 4.2: Gender as a Hindrance in Learning Mathematics

Figure 4.2 indicates that 20.9% of the respondents noted that gender interfered with learning Mathematics, 63.6% of the respondents were not of the idea that gender was a hindrance in learning Mathematics, 10.9% indicated that sometime gender can be a hindrance in learning Mathematics, while 4.5% were not sure. This results mean that gender is not a hindrance in learning Mathematics. This does not agree with other studies stating that boys are better in Mathematics compared to their peers (girls).

Table 4.7: Mathematics as a Favourite Subject

Favourite Subject	Pupils' Frequency	Percent	Teachers Frequency	Percent
Yes	77	36.4	12	40.0
No	73	34.5	15	50.0
Sometime	54	25.5		
Uncertain	8	3.6	3	10.0
Total	212	100.0	30	100.0

Table 4.7 indicates that 36.4% of the pupils agreed that Mathematics was a favourite subject, 34.5% disagreed with the notion that Mathematics was a favourite subject, 25.5% indicated that sometime Mathematics was favourite while 3.6% were uncertain. The data also indicated that 40.0% of the teachers were of the view that Mathematics was a favourite subject, 50.0% disagreed while 10.0% were uncertain. The results indicated that pupils and teachers did not concur that Mathematics was a favourite subject.

Table 4.8: Pupils' Self Motivating Themselves in the Subject

Self Motivation	Frequency	Percent
Agree	12	40.0
Uncertain	6	20.0
Strongly disagree	9	30.0
Disagree	3	10.0
Total	30	100.0

Table 4.8 indicates that majority of the respondents at both 40.0% were either of the view that pupils were self-motivating while 40.0% either strongly disagreed or disagreed that pupils were self-motivating themselves in the subject. Finally, 20.0% of the respondents were uncertain of the idea that pupils were self-motivating themselves in the subject. These results mean that pupils were both self-motivating or were not self-motivating.

Table 4.9: Positive Attitude and Confidence

Attitude and Confidence	Frequency	Percent
Strongly agree	21	70.0
Agree	6	20.0
Strongly disagree	3	10.0
Total	30	100.0

The findings in Table 4.9 shows that 70.0% of the respondents strongly agreed that pupils had a positive attitude and confidence, 20.0% of the respondents agreed while 10.0% strongly disagreed that pupils had positive attitude and confidence. These results mean that pupils had positive attitude and confidence.

Table 4.10: Pupils Complaining that Mathematics is Difficult

Pupils Complaining	Teachers Frequency	Percent	Pupils' Frequency	Percent
Strongly agree	6	20.0	45	21.0
Agree	9	30.0	75	35.5
Strongly disagree	15	50.0	91	42.7
Total	30	100.0	212	100.0

According to Table 4.10, 20.0% of teachers strongly agreed that pupils complain that Mathematics is difficult, 30.0% agreed that pupils complain that Mathematics is difficult while 50.0% of the strongly disagree that pupils complain that Mathematics is difficult. The data also revealed that 21.0% of the pupils strongly agreed that pupils complained that Mathematics is difficult, 35.5% agreed while 42.7% strongly disagreed. This findings shows that teachers and pupils concur that Mathematics is difficult.

Table 4.11: Pupils’ Desire to Work Hard to Excel in the subject

Working Hard	Frequency	Percent
Strongly agree	3	10.0
Agree	15	50.0
Uncertain	9	30.0
Strongly disagree	3	10.0
Total	30	100.0

The data in Table 4.11 shows that 60.0% of the teachers were of the opinion that pupils had a desire and worked hard to excel in the subject, 30.0% were uncertain and only 10.0% strongly disagreed with the idea. This data can be interpreted to mean that pupils worked hard to excel in Mathematics subject.

Table 4.12: Best pupil in Mathematics

Yes	97	88.2
No	8	7.3
Sometime	5	4.5
Total	212	100.0

The data from the Table 4.12 shows that 88.2% of the pupils believed that they were best pupils in Mathematics, 7.3% of the pupils thought that they were not best in Mathematics and 4.5% of the pupils believed that sometime they were best in Mathematics. This findings can be interpreted to mean that the pupils were best in Mathematics.

Table 4.13: Gender Interferes with Learning of Mathematics

Gender	Frequency	Valid Percent
Yes	23	20.9
No	70	63.6
Sometime	12	10.9
Uncertain	5	4.5
Total	212	100.0

Table 4.13 indicates that 20.9% of the pupils were of the view that gender interfered with learning Mathematics, 63.9% disagreed with the idea, 10.9% believed that gender sometime interfered with learning Mathematics and 4.5% were uncertain of the idea. This results can be interpreted to mean that gender did not interfere with learning Mathematics.

Table 4.14: Enjoy Learning Mathematics

Learning	Frequency	Percent
Yes	63	57.3
No	9	8.2
Sometimes	33	30.0
Uncertain	5	4.5
Total	212	100.0

Table 4.14 shows that 57.7% of the pupils enjoy learning Mathematics, 8.2% did not enjoy learning Mathematics, 30.0% sometime enjoyed Mathematics and 4.5% were uncertain. This results can be interpreted to mean that pupils enjoyed Mathematics. This findings shows that pupils' attitude was good towards learning Mathematics.

Table 4.15: Interest in Mathematics

Interest	Frequency	Percent
Yes	28	25.5
No	40	36.4
Uncertain	10	9.1

Sometime	32	29.1
Total	212	100.0

According to Table 4.15 only 25.5% pupils were of the opinion that they had an interest in Mathematics, 36.4% did not have the interest, 9.1% were uncertain and 29.1% sometime had interest. This result can be interpreted to mean that pupils had interest in Mathematics.

Table 4.16: Boys Performance against the Girls

	Frequency	Valid Percent
Yes	14	60.0
Sometimes	10	40.0
Total	24	100.0

Table 4.16 shows that 60.0% of the head teachers were of the opinion that boys performed better in Mathematics than girls while 40.0% were of the opinion that sometimes boys performed better in Mathematics than the girls. The data shows that boys performed better than girls.

Table 4.17: Males' Dominance affecting Girls' Performance in Mathematics

Male Dominance	Frequency	Percent
Strongly Agree	5	20.0
Agree	9	40.0
Uncertain	5	20.0
Strongly disagree	5	20.0
Total	24	100.0

The data in Table 4.17 shows that 20.0% of the head teachers were of the opinion that male dominance affected girls' performance in Mathematics, 40.0% agreed, 20.0% were uncertain and finally only 20.0% were uncertain. This findings can be interpreted to mean that male dominance affected girls' performance in Mathematics.

4.5 Teachers' Qualifications and Experience

This section sought to establish how teacher qualification and experience influences pupils' performance in Mathematics.

Table 4.18: Enough Mathematical Teachers

Enough Teachers	Frequency	Percent
Agree	97	45.5
Disagree	71	33.6
Maybe	14	6.4
Not sure	31	14.5
Total	212	100.0

Table 4.18 shows that 45.5% of the respondents were of the opinion that mathematical teachers were enough in their schools, 33.6% were of the opinion that mathematical teachers were not enough, 6.4% were of the opinion that may be Mathematics teachers were enough, while 14.5% were not sure of the same. This finding can be interpreted to mean that Mathematics teachers were enough in the schools.

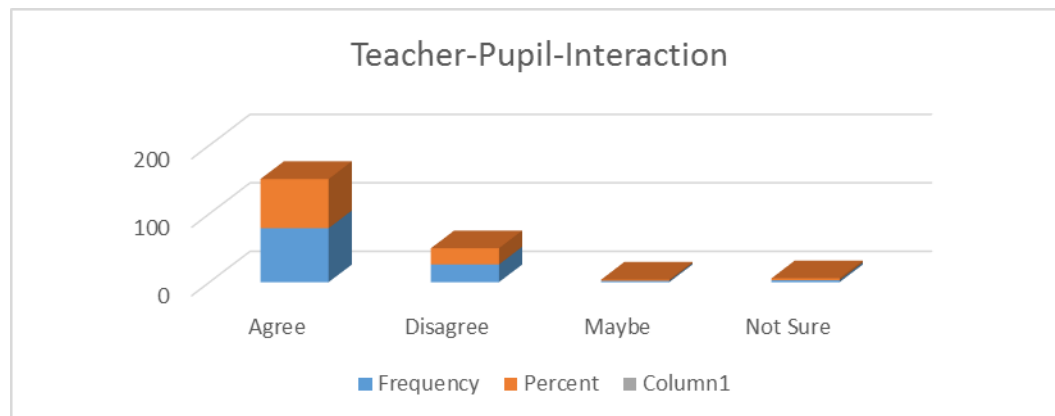


Figure 4.3: Teacher-Pupil-Interaction

Figure 4.3 indicates that 71.8% of the respondent were convinced that they had good pupil interactions, 23.6% disagreed with the view that they had good pupil-teacher-interaction, 1.8% noted that they had good teacher-pupil-interaction and 2.7% were not sure whether

teacher pupil interaction. This findings means that teachers had good interaction with the pupils.

Table 4.19: Use of Right Strategies in Planning and Teaching

Strategies	Pupils' Frequency	Percent
Agree	173	81.8
Disagree	29	13.6
Maybe	2	0.9
Not sure	8	3.6
Total	212	100.0

Table 4.19 indicate that 81.8% of the respondents agreed that teachers used right strategies in planning and teaching, 13.6% disagreed that teachers used right strategies in planning and teaching, 0.9% indicated that teachers either used or did not use the right strategies in planning and teaching whereas 3.6% were not sure whether teachers used right strategies in planning and teaching or not. This findings can be interpreted to mean that teachers used the right strategies in teaching Mathematics.

Table 4.20: Teachers' Contribution to Performance

Contribution	Frequency	Percent
Agree	143	67.3
Disagree	69	32.7
Total	212	100.0

Table 4.20 shows that 67.3% of the respondents agreed that teachers contributed to performance in Mathematics while 32.7% disagreed that teachers contributed to the performance of Mathematics. This result can be interpreted to mean that teachers contribute to performance.

Table 4.21: Use of Structural Model and Real Life Samples

Model and Real Life Samples	Pupils' Frequency	Percent	Teachers Frequency	Percent
Yes	191	90.0		100.0
No	21	10.0		

Total	212	100.0	100.0
-------	-----	-------	-------

Table 4.21 indicates that 90.0% of the pupils were of the view that their teachers used right model and real life samples in classroom teaching while 10.0% disagreed with the idea. The data also indicated that 100.0% of the teachers were of the view that they used structural model and real life samples. This can be interpreted to mean that teachers used structural model and real samples in classrooms teaching.

Table 4.22: Beginning Teachers were not Well Prepared to Meet the Mathematics Requirements in Classroom

Beginning Teachers	Frequency	Percent
Strongly agree	15	50.0
Agree	6	20.0
Uncertain	6	20.0
Strongly disagree	3	10.0
Total	30	100.0

Table 4.22 shows that 70.0% of the respondents were of the idea that beginning teachers were not well prepared to meet the Mathematics requirements in classroom, 20.0% of the respondents were uncertain of the idea that beginning teachers were not well prepared to meet Mathematics requirement in classroom while 10.0% were not of the view that beginning teachers were not well prepared to meet Mathematics requirement in classroom. This can be interpreted to mean that beginning teachers were not well prepared to meet Mathematics requirements in classrooms.

Table 4.23: Many Years in Teaching Translates into Good Pupils' Performance

Many Years in Teaching	Teachers'	Percent	Head Teachers	Percent
	Frequency		Frequency	
Strongly agree	64	30.0	19	80.0
Agree	64	30.0	5	20.0
Uncertain	42	20.0		
Strongly disagree	21	10.0		

Disagree	21	10.0		
Total	212	100.0	24	100.0

Table 4.23 shows that 60.0% of the teachers were of the opinion that many years in teaching translated into good pupils' performance, 20.0% of the teachers were of the opinion that they were not sure that many years in teaching translated into good pupils' performance while 20.0% were not of the opinion that many years in teaching translated into good pupils' performance. At the same time, 80.0% of the head teachers strongly agreed that many years in teaching translates into good pupils' performance in Mathematics while 20.0% agreed with the idea. The data from this results indicated that teachers and head teachers concurred that many years in teaching translates into good pupils' performance in Mathematics.

Table 4.24: Freshly Employed Teachers Lack Examination Tips

Freshly Employed Teachers	Frequency	Percent
Strongly agree	3	10.0
Agree	6	20.0
Strongly disagree	18	60.0
Disagree	3	10.0
Total	30	100.0

The results from Table 4.24 indicates that 30.0% of the teachers were of the opinion that freshly employed teachers lacked examination tips while 70.0% of the teachers were of the opinion that freshly employed teachers do not lack examination tips. This can be interpreted to mean that freshly employed teachers did not lack examination tips.

Table 4.25: Fresh Teachers from College have More Vigor and Strength

Fresh Teachers	Frequency	Percent
Strongly agree	18	60.0
Agree	6	20.0
Strongly disagree	3	10.0
Disagree	3	10.0
Total	30	100.0

The findings in Table 4.25 shows that the majority at 80.0% were of the view that fresh teachers from college were more vigorous and had strength, while 20.0% of the teachers were not of the view that fresh teachers from college had more vigour and strength. This can be interpreted to mean that fresh teachers from college had more vigour and strength.

Table 4.26: Teachers are Comfortable with the Current Performance

Current Performance	Frequency	Percent
Agree	6	20.0
Uncertain	2	10.0
Strongly disagree	15	50.0
Disagree	6	20.0
Total	30	100.0

Table 4.26 indicates that 30.0% of the teachers were of the opinion that teachers were comfortable with current performance, while 70.0% of the teachers were of view that they were not comfortable with the current performance. This results indicates that teachers were not comfortable with the current performance.

Table 4.27: Experienced Teachers Make Pupils to Understand Better

Understand better	Head Teachers Frequency	Percent
Yes	24	100.0

Table 4.27 indicates that 100.0% of the respondents were of the view that experienced teachers made the pupils to understand better. This findings can be interpreted to mean that experienced teachers make pupils to understand better.

Table 4.28: Improvement in KCPE Mathematics' Performance

Improvement	Head Teachers Frequency	Percent	Teachers Frequency	Percent
Yes	24	100.0	30	100.0

Table 4.28 indicates that 100.0% of the respondents (head teachers and teachers) were of the view that there was improvement in Mathematics at KCPE exams. This findings can be interpreted to mean that schools are making improvements in Mathematical performance.

Table 4.29: Beginning Teachers are Well Prepared to Meet the Mathematics Requirements in Classroom

Preparedness	Frequency	Percent
Strongly agree	15	50.0
Agree	6	20.0
Uncertain	6	20.0
Strongly disagree	3	10.0
Total	30	100.0

According to Table 4.29, majority of the respondents at 50.0% strongly agreed that beginning teachers were not well prepared to meet the Mathematics requirements in classroom, 20.0% of the respondents agreed that beginning teachers were not well prepared to meet the Mathematics requirements in classroom, 20.0% of the respondents were uncertain that beginning teachers were not well prepared to meet the Mathematics requirements in classroom while 10.0% of the respondents strongly disagreed that beginning teachers were not well prepared to meet the Mathematics requirements in classroom. This results can be interpreted to mean that beginning teachers were not well prepared to meet the Mathematics requirements in classroom.

Table 4.30: Freshly Employed Teachers Lack Examination Tips

Examination Tips	Frequency	Percent
Strongly agree	3	10.0
Agree	6	20.0
Strongly disagree	12	60.0
Disagree	10	10.0

Total	30	100.0
-------	----	-------

Table 4.30 shows that 10.0% of the respondents strongly agreed that freshly employed teachers lack examination tips, 20.0% of the respondents agreed that freshly employed teachers lack examination tips, 60.0% of the respondents freshly employed teachers lack examination tips while 70.0% of the respondents were not of the view that freshly employed teachers lacked examination tips. This results can be interpreted to mean that freshly employed teachers lack examination tips

Table 4.31: Teachers Comfortable and Contented with the Current Performance Standards

Current Performance	Frequency	Percent
Agree	6	20.0
Uncertain	3	10.0
Strongly disagree	15	50.0
Disagree	6	20.0
Total	30	100.0

Table 4.31 indicates that 20.0% of the respondents agreed that teachers were comfortable and contented with the current performance in Mathematics in the schools, 10.0% of the respondents were uncertain teachers were comfortable and contented with the current performance in Mathematics, while 70.0% were not of the view that teachers were comfortable and contented with the current performance in Mathematics. These findings can be interpreted to mean that teachers were neither comfortable nor contented with the current performance standards in their schools.

Table 4.32: Pupils Consulting Teachers about their Challenges in Mathematics

Consulting Teachers	Frequency	Percent
Strongly agree	6	20.0
Agree	21	70.0
Uncertain	3	10.0

Total	30	100.0
-------	----	-------

According to Table 4.32, 20.0% of teachers strongly agreed that pupils consulted them about their challenges in Mathematics, 70.0% agreed and 10.0% were uncertain. This findings can be interpreted to mean that pupils consulted their teachers about their challenges in Mathematics.

Table 4.33: Teachers' Contribution to Performance in Mathematics

	Frequency	Percent
Agree	143	67.3
Disagree	69	32.7
Total	212	100.0

Table 4.33 indicates that 67.3% of the pupils were of the view that teachers contributed to performance in Mathematics while 32.7% of the pupils disagreed with the idea. This findings can be interpreted to mean that teachers contributed to performance of pupils in Mathematics.

Table 4.34: Language Used by Mathematics Teachers

Language Used	Head Teachers Frequency	Percent
English	19	80.0
Swahili	5	20.0
Total	24	100.0

Table 4.34 shows that 80.0% of the head teachers were of the opinion that the language used by Mathematics teachers in class was English while only 20.0% were of the view that Swahili was used in class. The data shows that language used by Mathematics teachers was English.

Table 4.35: Language Used by Mathematics Teachers is Difficult to Understand

Language Used difficult	Frequency	Percent
Strongly agree	50	23.6

Strongly disagree	97	45.5
Agree	46	21.8
Uncertain	19	9.1
Total	212	100.0

Table 4.35 shows that 23.6% of the pupils strongly agreed that the language used by teachers was difficult to understand, 21.8% agreed, 45.5% strongly agreed and 9.1% were uncertain. This result can be interpreted to mean that the language used was moderate.

Table 4.36: Proper Teacher Qualification Programme

	Frequency	Percent
Yes	14	60.0
No	10	40.0
Total	24	100.0

Table 4.36 shows that 60.0% of the head teachers were of the view that teachers had proper teacher qualification programme while 40.0% were not of that view. This means teachers had a proper teacher qualification programme.

Table 4.37: Duration in Teaching

Duration	Frequency	Percent
Between 3-6 years	12	40.0
Above 6 years	18	60.0
Total	30	100.0

Table 4.37 shows that 40.0% of teachers had between 3-6 years of teaching and 60.0% of the teachers were above 6 years in teaching. This result can be interpreted to mean that teachers had many years in teaching.

Table 4.38: School Buildings in Favorable Conditions

School Building	Frequency	Percent
Strongly agree	15	50.0
Agree	9	30.0
Uncertain	3	10.0
Strongly disagree	3	10.0

Total	30	100.0
-------	----	-------

Table 4.38 shows that 50.0% of the teachers strongly agreed that school buildings were in favorable conditions, 30.0% agreed, 10.0% were uncertain and 10.0% strongly disagreed. This findings can be interpreted to mean that school buildings were in favorable conditions.

Table 4.39: Pupils Regularly Attend School and Punctual Enough

Regular Attendance and Punctual	Frequency	Percent
Agree	15	50.0
Uncertain	6	20.0
Strongly disagree	6	20.0
Disagree	3	10.0
Total	30	100.0

Table 4.39 indicates that 50.0% of the teachers agreed that pupils regularly attended school and were punctual, 20.0% were uncertain, 20.0% strongly disagreed and 10.0% disagreed. This findings can be interpreted to mean that pupils attended school regularly and were punctual.

Table 4.40: Handling Pupils with diverse backgrounds

Diverse Background	Frequency	Percent
Strongly agree	9	30.0
Agree	15	50.0
Strongly disagree	3	10.0
Disagree	3	10.0
Total	30	100.0

Table 4.40 shows that 30.0% of teachers strongly agreed that they handled pupils' with diverse backgrounds, 50.0% agreed, 10.0% strongly agreed and 10.0% agreed. This data can be interpreted to mean that teachers handled pupils from diverse backgrounds.

Table 4.41: The extent at which Teachers' Experience affect the Pupils

Teaching Experience	Frequency	Percent
Great extent	9	30.0
Average	21	70.0
Total	30	100.0

According to Table 4.41, 30.0% of the teachers believed that teachers experience affected the pupils to a great extent while 70.0% of the teachers were of the opinion that teachers experience affected pupils' averagely. This can be interpreted to mean that teaching experience affected the pupils' performance in Mathematics.

4.6 Teaching Resources Influencing Pupils' Mathematical Performance

This section presents, the investigation on whether teaching resources influences Mathematics performance.

Table 4.42: Teaching Resources in the School

Teaching Resources	Frequency	Percent
Yes	87	40.9
No	125	59.1
Total	212	100.0

Table 4.42 shows that 40.9% of the respondents agreed that there was enough teaching resources in the school while 59.1% disagreed that teaching resources were available in schools. This result can be interpreted to mean that teaching resources are not enough in schools.

Table 4.43: Parents Buying Extra Text Books

Extra Text Books	Frequency	Percent
No	113	53.6
Yes	98	46.4
Total	212	100.0

Table 4.43 shows that 53.6% of the respondents were of the view that parents did not buy extra text books for their children, while 46.4% were of the view that parents bought extra text books for their children. This findings means that parents did not buy text books for their children.

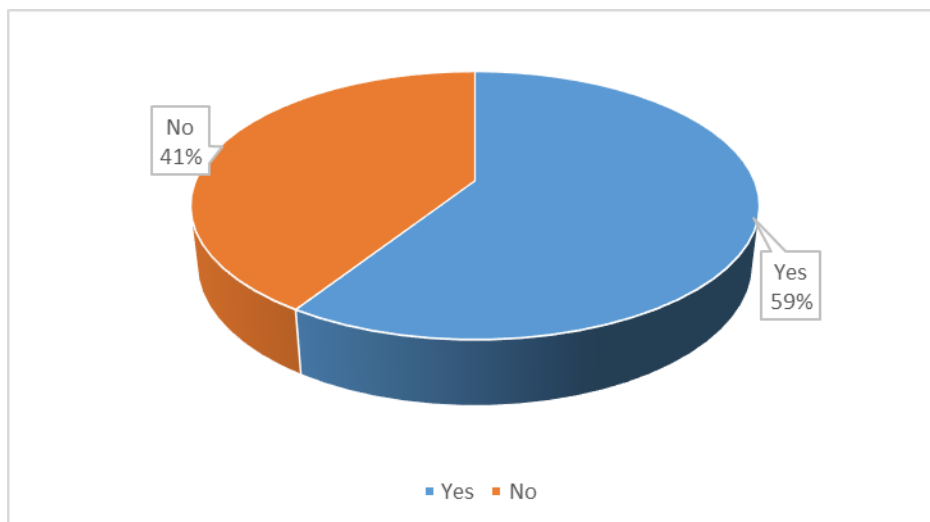


Figure 4.4: Pupils Stealing School Text Books

Figure 4.4 shows that 59% of the respondents were of the idea that pupils stole text books from schools while 41% of the respondents disagreed. This can be interpreted to mean that pupils stole text books form schools.

Table 4.44: Well Equipped Library in Schools

Library	Pupils' Frequency	Percent	Head Teachers Frequency	Percent
Yes	56	26.4	10	40.0
No	156	73.6	14	60.0
Total	212	100.0	24	100.0

Table 4.44 indicates that 26.4% of the pupils were of the view that their library was well equipped, while 73.6% of the respondents were not of the idea that school libraries were well equipped. On the other hand, 40.0% of the head teachers were of the view that schools did have a library while 60.0% of head teachers were of the view that schools did not have a well-equipped library. This can be interpreted to mean that schools do not have well equipped libraries since pupils and head teachers concurred on this view.

Table 4.45: Enough Mathematics Textbooks

Mathematics Text books	Pupils' Frequency	Percent	Head Teachers	Percent	Teachers Frequency	Percent
Strongly agree	24	10.0	22	90.0	3	10.0
Agree	47	20.0	2	10.0	6	20.0
Strongly disagree	94	40.0			8	40.0
Disagree	71	30.0			9	30.0
Total	212	100.0	24	100.0	30	100.0

Table 4.45 shows that 30.0% of the pupils indicated that there was enough Mathematics textbooks in the schools while 70.0% of the pupils were not of the view that Mathematics text books were enough in schools, 90.0% of the head teachers strongly agreed that there was enough Mathematics textbooks while 10.0% of the head teachers agreed that there was enough text books in their schools. At the same time, the data indicated that 30.0% of teachers were of the opinion that schools had enough text books, while 70.0% disagreed with the idea. The findings shows that pupils and teachers concurred on the matter while the head teachers held a different view. The difference could be that teachers and pupils are the ones that frequently use the textbooks.

Table 4.46: Instructional Materials' Supply

Supply	Frequency	Percent
Agree	15	50.0
Uncertain	9	30.0
Strongly disagree	3	10.0
Disagree	3	10.0
Total	30	100.0

The results in Table 4.46 depicts that 50.0% of the respondents were of the view that the schools had instructional material supply, 30.0% were uncertain of the idea, while 20.0% were not of the idea that the schools had instructional material supply. This findings means that schools have instructional material supply.

Table 4.47: Need Assistance to Raise Teaching Resources

Assistance	Frequency	Percent
Strongly Agree	5	20.0
Agree	14	60.0
Uncertain	5	20.0
Total	24	100.0

According to Table 4.47, 20.0% of head teachers strongly agreed with the idea that schools needed assistance to raise teaching resources. 60.0% agreed with same idea that schools needed assistance to raise teaching resources while 20.0% were uncertain of the idea. This findings can be interpreted to mean that schools needed some assistance.

Table 4.48: Children Overcrowding in the Classrooms

Overcrowding	Frequency	Percent
Strongly agree	6	20.0
Agree	6	20.0
Strongly disagree	8	40.0
Disagree	6	20.0
Total	30	100.0

Table 4.48 indicates that 20.0% of the respondents strongly agreed that classrooms were overcrowded, 20.0% of the respondents agreed that that classrooms were overcrowded. On other hand, 60.0% of the respondents were not of the opinion that classrooms were overcrowded. This findings can be interpreted to mean that the classes are not overcrowded.

Table 4.49: Government Provision of Teaching Resources

Teaching Resources	Frequency	Percent
Yes	19	80.0
No	5	20.0
Total	24	100.0

Table 4.49 indicates that 80.0% of the head teachers were of the view that the government provided teaching resources while 20.0% of the head teachers were not of the same view. This results can be interpreted to mean that government provided teaching resources in schools.

Table 4.50: School Motivation of Pupils

Motivation	Frequency	Percent
Yes	2	40.0
No	3	60.0
Total	24	100.0

Table 4.50 shows that 40.0% of the head teachers were of the opinion that schools motivated pupils' while 60.0% were not of the view. These results can be interpreted to mean that schools did not motivate pupils to perform better in Mathematics. This explains why pupils lacked motivation to do Mathematics.

Table 4.51: Main Hindrance in Mathematics' Performance by Pupils

Hindrance	Frequency	Percent
Lack of enough teachers	5	20.0
Lack of teaching resources	5	20.0
Pupils' Attitude	14	60.0
Total	24	100.0

According to the Table 4.51, 20.0% of the head teachers were of the view that the main hindrance in Mathematics performance by pupils was lack of enough teachers, 20.0% believed that lack of teaching resources was the main hindrance in Mathematics performance by pupils and 60.0% were of the opinion that pupils' attitude was the main hindrance in Mathematics performance. This data can be interpreted to mean that the main hindrance in Mathematics performance is pupils' attitude.

Table 4.52: Adequate Space and Resources to Interact with Pupils

	Frequency	Percent
Strongly agree	3	10.0
Agree	15	50.0
Strongly disagree	9	30.0
Disagree	3	10.0
Total	30	100.0

Table 4.52 shows that 10.0% teachers strongly agreed that there was adequate space and resources to interact with pupils, 50.0% agreed, 30.0% strongly disagreed and 10.0% disagreed. The data can be interpreted to mean that there was adequate space and resources to interact with pupils in schools.

4.7 Parental Influence on Pupils' Mathematics Performance

This section sought to investigate how parents influence pupils' performance in Mathematics.

Table 4.53: Parents Having Highest Level of Education

Education	Pupils'	Percent	Head Teachers	Percent
	Frequency		Frequency	
Agree	52	24.5	7	10.0
Strongly agree	27	12.7	7	30.0
Disagree	125	59.1	5	20.0
Strongly disagree	8	3.6	7	60.0
Total	212	100.0	26	100.0

According to 4.53, the proportion at 24.5% of the pupils agreed that their parents had the highest level of education, 12.5% strongly agreed, 59.1% disagreed and 3.6% strongly disagreed. On the other side, 40.0% the head teachers were of the view that parents had highest qualification while 80.0% of head teachers were not of the view. The data

indicates that both head teachers and pupils concurred that parents did not have highest qualifications.

Table 4.54: Parents Assisting in Mathematical Achievement at Home

	Frequency	Percent
Agree	39	18.2
Strongly agree	19	13.6
Disagree	141	66.4
Strongly Agree	4	1.8
Total	212	100.0

Table 4.54 indicates that 21.8% of the respondents either strongly agreed or agreed that parents assisted children in mathematical achievement at home, while 68.2% of the respondents either strongly disagreed or disagreed with the idea that parents assisted children in mathematical achievement at home. This results can be interpreted to mean that parents did not assist children in Mathematical achievements at home.

Table 4.55: Parents Motivating Pupils' Mathematical Achievement

Motivation	Frequency	Percent
Agree	79	37.3
Strongly agree	50	23.6
Disagree	83	39.1
Total	212	100.0

Table 4.55 designates 37.3% of the respondents agreed with the view that parents motivated their children in Mathematical achievement, 23.6% strongly agreed parents motivated their children in Mathematical achievement, while 39.1% disagreed with the same idea that parents motivated their children in Mathematical achievement. This findings can be interpreted to mean that parents motivated their children in Mathematics achievement.

Table 4.56: Parental Discouragement of Pupils in Mathematics Achievement

Discouragement	Frequency	Percent
Agree	35	16.4
Strongly agree	33	15.5
Disagree	135	63.6
Strongly Agree	10	4.5
Total	212	100.0

Table 4.56 shows that 31.9% of the respondents either strongly agreed or agreed that parents discouraged their children in Mathematics performance, while 68.1% of the respondents either strongly agreed or disagreed with view that parents discouraged their children in Mathematics achievement. This can be interpreted to mean that parents did not encourage their children in Mathematics achievement in schools.

Table 4.57: Parental view of Boys as being Better in Mathematics than Girls

Parental View	Frequency	Percent
Strongly agree	5	20.0
Uncertain	5	20.0
Strongly Disagree	14	60.0
Total	24	100.0

According to Table 4.57, 20.0% of the respondents indicates that parents view was that boys do better in Mathematics than girls, 20.0% of the respondents were uncertain that boys do better in Mathematics than girls while 60.0% of the respondents strongly disagreed with the same idea. These findings indicates that parents does not view boys as being better than girls in Mathematics.

Table 4.58: Home Background Influencing Pupils' Mathematics' Performance

Home Background	Frequency	Percent
Strongly Agree	14	60.0
Agree	10	40.0
Total	24	100.0

Table 4.58 indicates that 60.0% of the respondents believed strongly agreed believed that home background influenced pupils' Mathematics performance while 40.0% of the respondents agreed that home background influenced pupils' Mathematics performance. This results mean that home background influences pupils' Mathematics performance.

Table 4.59: Collaboration between Teachers and Parents to Better Mathematics

Collaboration	Frequency	Percent
Agree	15	50.0
Uncertain	6	20.0
Strongly disagree	6	20.0
Disagree	3	10.0
Total	30	100.0

Table 4.59 shows that 50.0% of the respondents agreed that 50.0% of the respondents agreed that there was collaboration between teachers and parents to better

Mathematics, 20.0% of the respondents were uncertain that there was collaboration between teachers and parents to better Mathematics, 20.0% of the respondents strongly disagree that there was collaboration between teachers and parents to better Mathematics and finally, 10.0% of the respondents strongly disagree that there was collaboration between teachers and parents to better Mathematics. This findings indicates that there is collaboration between teachers and parents to better Mathematics.

Table 4.60: Parents Motivating their Children to Study Mathematics

Parental Motivation	Frequency	Percent
Agree	12	40.0
Uncertain	9	30.0
Strongly disagree	6	20.0
Disagree	3	10.0
Total	30	100.0

Table 4.60 shows that 40.0% of the teachers agreed that parents motivated their children to study Mathematics, 30.0% were uncertain, 20.0% strongly disagreed and 10.0% disagreed. This findings can be interpreted to mean that parents did not motivate their children to study Mathematics.

Table 4.61: Parental Support to the Children to Excel in Mathematics

	Frequency	Percent
Agree	9	30.0
Uncertain	3	10.0
Strongly disagree	15	50.0
Disagree	3	10.0
Total	30	100.0

Table 4.61 indicated that 30.0% of teachers agreed that parents supported their children to excel in Mathematics, 10.0% were uncertain, 50.0% strongly disagreed and 10.0% disagreed. This results means that parents did not support their children to excel in Mathematics.

Table 4.62: Parents Informed about their Children's Performance

Parents Informed	Frequency	Percent
Agree	9	30.0
Strongly disagree	18	60.0
Disagree	3	10.0
Total	30	100.0

According to Table 4.62, 30.0% of the teachers agreed that parents were informed about their children performance, 60.0% strongly disagreed and 10.0% disagreed. This findings can be interpreted to mean that parents were not informed about their children performance.

Table 4.63: Parental Social Economic Status affect Pupils' Performance in Mathematics

Social Economic Status	Frequency	Percent
Yes	19	80.0
Sometimes	5	20.0
Total	24	100.0

Table 4.63 indicated that 80.0% of the teachers were of the view that parental social economic status affected pupils' performance in Mathematics while 20.0% believed that sometimes parental social economic status affected pupils' performance in Mathematics. This data can be interpreted to mean that parental social economic status affected pupils' performance in Mathematics.

Table 4.64: Pupils' Suffering from Lack of Basic Nutrition

Basic Nutrition	Frequency	Percent
Strongly agree	3	10.0
Agree	12	40.0
Strongly disagree	15	50.0
Total	30	100.0

Table 4.64 shows that 10.0% of teachers strongly agreed that pupils' suffered from lack of basic nutrition, 40.0% agreed and 50.0% disagreed. This findings can be interpreted to mean that children have or did not suffer from lack of basic nutrition.

4.8 Discussions of the Findings

This section presents the discussions of the findings of the study.

4.8.1 Influence of Teaching Resources on Pupils' Performance In Mathematics

The major findings in this section about teaching resources influencing pupils' performance in Mathematics was a general view of lack of a well-equipped library and lack of enough teaching resources such as text books. However, the schools needed

support in raising more learning resources. This was evident when 59.1% of the respondents affirmed that they did not have enough teaching resources, 73.6% of the respondents stating that they did not have a well-equipped library in their schools and 53.6% of the respondents noting that the pupils noted that their parents did not buy extra text books. This was attributed to pupils stealing text books from school, an indication that they did not have enough text books at home for revision. This can be attributed to the poor performance in Mathematics since with no enough teaching resources, it is ultimately clear that pupils will be affected in their mathematical performance. It was clear that influence of text books, library and parents buying of textbooks was confined to imparting of subject performance. Teachers with fewer years of teaching experience are less likely to teach effectively. The study further established that majority of the respondents at 80.0% were of the view that fresh teachers from college had more vigor and strength which concurs with the study carried out by Boyd (2008) which established that fresh teachers from college had their greatest productivity during their first few years on the job after which their performance level tends to level off. This results further indicated that 70.0% of the teachers were not comfortable with the results in Mathematics in their schools. Finally, 50.0% of the teachers were of the view that there was enough instructional materials for Mathematics as a subject. This findings contradicts with the findings which indicated that the library was not well-equipped. The study also revealed that there was adequate space and resources to interact with pupils in schools. 80.0% of head teachers also revealed that government provided teaching resources in schools however, schools needed assistance to raise more resources as indicated by 60.0% of the head teachers.

4.8.2 Relationship between Teachers' Qualifications and Pupils' Performance in Mathematics

The study sought to assess whether there was some relationship between the teacher qualification and the pupils' performance. In Kenya as a whole, schools do not have enough teachers meaning that the ratio of teacher-pupil relationship is very poor in both primary and high schools. Turkana is not left out on this issue since, there are some primary schools with one or two teachers which could be very devastating and worrying. This study sought to find out the association of the professional qualification and the

pupils' performance. The study established that only 45.5% of the respondents were of the view that schools had enough qualified Mathematics teachers. Jepsen (2005), stated that teachers' experience is determined by the training teachers go through and the duration of their teaching significantly determines their efficiency in teaching. From the findings of this research, one would expect that pupils' achievement in Turkana Central Sub-County region to be reasonable. Nevertheless, the results were still poor.

The findings also indicated that 81.8% of the participants were of the opinion that teachers used right strategies in planning and teaching. Further study also revealed that 67.3% of the participants stated that teachers contributed to performance. With teachers' use of the right strategies in teaching Mathematics, it is expected that the performance will be reasonable. This is an indication that for better achievement in Mathematics, teachers need the right qualification as well as use of the right strategies in classroom. It is for this reason that the study sought to assess the association between the teachers' qualification and pupils' performance. However, Boyd et al., (2008) stated that teachers with fewer years of teaching experience are less likely to teach effectively. Teachers show their greatest productivity during their first few years on the job after which their performance level tends to level off. Pupils consulted their teachers about their challenges in Mathematics at KCPE in Turkana Central Sub-County. 67.3% of the pupils believed that teachers contributed to performance of pupils in Mathematics and that English was predominantly used in teaching Mathematics by teachers. Majority of head teachers at 60.0% revealed that teachers had undergone through a proper teacher qualification programme as well and majority of teachers had more than 6 years teaching experience. It further revealed that 80.0% of teachers were able to handle pupils' from diverse backgrounds at the same time teachers believed that their experience affected pupils' performance.

4.8.3 Influence of Parents on Pupils' Performance in Mathematics

This portion sought to investigate whether parents influenced pupils' performance in Mathematics in schools. The study revealed that 62.7% of the respondents were not of the view that parents had highest level of education. According to the results, majority at 68.2% stated that parents did not assist their children at home in mathematical

achievement. This could be evident that parents did not have highest qualification. On the other hand, the study at 60.9% further revealed that parents motivated their children in mathematical achievement. However, it was noted that 68.1% of the respondents disagreed that parents discouraged their children in achieving good grades. To some extent this study concurs with the study by Nyabuto and Njoroge (2014) in their findings on Parental Involvement on pupils' performance in Mathematics in Public Primary Schools in Kenya which showed that parents exert a great influence to their children especially at their early stages of development. This is because if the parents have low level of education, they might be good role model as well as have very little to offer to their children in terms of academic assistance especially in Mathematics. Jacobs (2004), affirms that children's perceptions of their abilities in Mathematics are directly influenced by parents' beliefs about their children's academic competencies, however, this study reveals that parents do not view boys performance as being better than girls. According to the study, it was also established that parents influenced pupils' performance in Mathematics at KCPE by not supporting their children to excel in Mathematics as well as parents were not informed about their children performance.

4.8.4 Pupils' Attitudes in Mathematics Performance

This section sought to establish whether the pupils' attitude influences performance in Mathematics. The study established the following major results; majority at 63.6% noted that gender was not a hindrance with learning Mathematics. This findings does not correspond with the findings by Sara et al. (2011) who affirmed that parents believed that their sons' mathematical ability was higher than their daughters. This results explains why girls are also doing well in Mathematics than even boys in some instances. However, this result does not correspond with the study by HMI Survey (1977) who documented reports in Britain noting that fewer girls than boys participate in Mathematics courses in tertiary levels. It was noted that 54.6% of the respondents were of the idea that pupils' attitudes influenced Mathematics performance. This findings corresponds with the study by Mata (2012) who found out that attitude can influence a pupil in two ways, positively or negatively. A positive attitude towards Mathematics reflects a positive emotional disposition in relation to the subject and, in a similar way, a negative attitude towards Mathematics relates to a negative emotional disposition. Twoli (1986) further supports

this study asserting that there is a relationship between achieved grades in earlier examinations at same level and attitudes formed by students towards learning sciences and Mathematics. 88.2% of the respondents also noted that best pupils did Mathematics to the fullness due to their positive attitude towards Mathematics.

However, it was noted that majority at 56.4% were of the opinion that Mathematics was difficult to understand. It was also established that majority at 72.7% were of the idea that pupil's do Mathematics for the sake of doing. With this in mind, the children cannot get the right stuff in Mathematics since they are already decided in their minds that Mathematics is not their portion. Finally, 61.9% of the respondents were of the view that Mathematics was favourite. This findings contradict each other since they are sure that Mathematics is good yet majority of them just do it for sake of doing it. There were more public schools than private schools. 60.0% of the head teachers revealed that boys performed better than girls as well as male dominance affected girls' dominance. Pupils' had interest in Mathematics. 87.3% of pupils revealed that their attitude was good towards learning Mathematics and pupils enjoyed Mathematics. Gender did not interfere with learning Mathematics. 88.2% of pupils indicated that they were best in Mathematics and as well as pupils worked hard to excel in Mathematics. Pupils and teachers to some extend believed that Mathematics is difficult. Main hindrance in pupils' performance was their attitude.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusions, recommendations, and suggestions for further research.

5.2 Summary of the Study

The purpose of this research study is to determine the factors influencing pupils' performance in Mathematics at KCPE in Turkana Central Sub-County. The objectives of the study was to determine the influence of teaching resources in pupils' performance in Mathematics at KCPE, to examine the relationship between teachers' qualification and pupils' performance in Mathematics at KCPE, to determine the influence of parents on pupils' performance in Mathematics in primary schools in Turkana Central Sub-County and finally to establish pupils' attitudes in Mathematics performance at KCPE in Turkana Central Sub-County.

Research question one sought to determine the influence of teaching resources in pupils' performance in Mathematics at KCPE. Research question two sought to examine the relationship between teachers' qualification and pupils' performance in Mathematics at KCPE. Research question three sought to determine the influence of parents on pupils' performance in Mathematics at KCPE and research question four sought to establish pupils' attitudes in Mathematics' performance at KCPE in Turkana Central Sub-County. The study adopted a descriptive survey research which was quantitative in which it targeted 24 head teachers, 30 Mathematical teachers and 212 pupils. Both purposive, stratified and random sampling design was used to sample the respondents. The data was collected by use of questionnaires and quantitative approach was used in analysing data.

5.3 Major Findings of the Study

This section has discussion of the findings in relation to theories in the literature review and the discussions are the research objectives of the study.

The first objective was to determine the influence of teaching resources in pupils' performance in Mathematics at KCPE. The study established that majority 59.1% disagreed that teaching resources was available in the schools. The study also established that 53.6% were not of the view that parents bought text books for their children as a result the pupils were stealing school text books from school as indicated by 59% of the respondents. The study further established that 73.6% of the respondents were of the idea that schools did not have a well-equipped library, however, the study revealed that there was adequate space and resources to interact with pupils in schools. The government provided teaching resources in schools as revealed by head teachers however, the schools needed assistance to raise more teaching resources.

The second objective was to examine the relationship between teachers' qualification and pupils' performance in Mathematics at KCPE. The study established that according to majority of the respondents at 51.1% either agreed or were of the opinion that may be they had qualified Mathematics teachers. Majority of the pupils at the 81.8% were of the opinion that the teachers used the right strategies and that English was predominantly used in teaching Mathematics by teachers. At the same time, it was revealed that teachers had undergone a proper teacher qualification programme and that they had more than six years in teaching experience. It was also worth noting that teachers contributed to Mathematics performance and they handled pupils from diverse backgrounds. The study further established that 71.8% of the respondents were of the idea that there was good teacher-pupil interaction.

The third objective was to determine parental influence on pupils' performance in Mathematics at KCPE in Turkana Central Sub-County. It was established that 62.7% of the respondents were not of the view that parents had highest level of education at the same time 68.2% of teachers were not of the opinion that parents assisted their children in Mathematical achievements at home. However, it was noted that parents motivated pupils' Mathematical achievement at the same time 68.1% disagreed that parents discouraged the pupils' in Mathematics achievement. It was also further revealed that parents did not support their children to excel in Mathematics and were not informed about their children performance due their social economic status.

The fourth objective of the study was to establish pupils' attitudes in Mathematics performance at KCPE. The study further established that 64.6% of the respondents indicated that attitude either or sometimes influenced pupils' Mathematics performance. Majority at 54.6% also affirmed that Mathematics was difficult to understand. However, it was established that gender was not a hindrance in learning Mathematics, this was evident by 63.6% of the respondents disagreeing with the issue. 60.0% of the head teachers revealed that boys performed better than girls as well as male dominance affected girls' performance which contradicts with the finding that gender did interfere with learning Mathematics however, it was further revealed that pupils were interested in Mathematics. 87.3% of pupils revealed that their attitude was good towards learning Mathematics and they enjoyed Mathematics, however the study noted that main hindrance in pupils' performance was their attitude. On the other hand 88.2% of pupils indicated that they were best in Mathematics and pupils worked hard to excel in Mathematics. Pupils and teachers to some extent believed that Mathematics is difficult.

5.4 Conclusion

The study made the following conclusions:

The study established that the availability of teaching resources influenced pupils' performance in Mathematics at KCPE in Turkana Central Sub-County. Due to lack of enough teaching resources in school as well as parents not buying children textbooks this makes them to steal text books in schools which later affects their Mathematics performance. However, the study also indicated that there was enough instructional materials for the teachers. The study further established that lack of a well-established library influenced Mathematical performance at KCPE. It was also noted that schools needed assistance to raise more teaching resources. The study also established that there was a relationship between teachers' qualification and pupils' performance in Mathematics. With enough teachers and the right planning and use of strategy, pupils can get good grades in Mathematics. This can be attributed to having enough teachers as well as pupils having a good interactions with their teachers.

The study established that parents influenced pupils' Mathematics performance. This was attributed to parents not buying their children text books, as well as not assisting them in

achievement of Mathematics. However, parents motivated their children mathematical achievement. The study finally established that pupils' attitudes influenced performance in Mathematics at KCPE. Pupils had a notion that Mathematics was difficult, however gender alone did not influence Mathematics performance. On the other hand, it was also revealed that boys do better in Mathematics than the girls. It was however noted that schools were making improvements in Mathematics performance.

5.5 Recommendations

This section presents the following recommendations of the study:

- i. The study recommends that the schools should have a well-established library so that pupils have enough teaching and learning resources for Mathematics.
- ii. The government should increase Mathematics teachers in schools.
- iii. Government and other sponsors should also increase funding to facilitate schools to buy more teaching materials and resources.
- iv. Parents should be encouraged to assist their children in Mathematical achievements by buying them Mathematics text books.
- v. Pupils should have a positive attitude so that they may do well in Mathematics.

5.6 Recommendations for Further Studies

The study suggests the following for further research:

- i. This study was done in Turkana Central Sub-County only, the study suggests that the study be replicated in other sub-counties in Turkana County to determine how type of school affects Mathematical performance at KCPE.
- ii. The study recommends that further study be done on how gender influences Mathematical performance at KCPE.

REFERENCES

- Adler et al. (2005). *Mathematics Teacher Education In Twelve African Countries*. Johannesburg: Marang.
- Ahmed, S.A. (2011). African Education System.
- Anaduaka et al. (2013, June). Consistent Poor Performance of Nigerian Students in Senior Secondary Certificate Examination (SSCE). What is not working? *Journal of Research in National development*, 11(1).
- Ann, N & Philomena, N. (2014, January). Parental Involvement on Pupils' Performance in Mathematics in Public Primary Schools in Kenya. *Journal of Educational and Social Research*, 4(1).
- Boyd et al. (2008). Teacher preparation and students achievement. *International Journal of Mathematics*.
- Boyd, D. J. (2007). The narrowing gap in New York city teacher Qualification and its implicating for students achievement in high poverty schools.
- Bursal, M. & Paznokas, L.(2009). Mathematics anxiety and preservice elementary teachers' confident to teach Mathematics and science. *School of Science and Mathematics*, 173-180.
- Busbridge, J. & Womack, D. (1991). *Effective Maths Teaching*. Cheltenham: Stanley Thomas.
- Chinyere, F. & Uche, S. (2013). Nigerian School Children and Mathematics Phobia: How the Mathematics Teacher can Help. *American Journal of Educational Research*, 1(7), 3.
- ClotFeleter et al. (2007). How and why do teachers credentials matter for student achievement? *Journal of Education and Practice*.
- Cremer & Holla. (2013). Improving education in development world. *International Journal of Education and Research*.

- Forgasz, H. J. (2001). *International Perspectives on Gender and Mathematics Education*. 2010 Information Age Publishing Incur.
- Frome, E. J. (1998). Parents' influence on children's achievement-related perceptions.
- Gall, B. A. (1971). Motivation theory and Practice. *International journal of motivation*.
- Geary, D.C. (2006). *Development of mathematical understanding*. New York: John Wiley & Sons.
- Harris, D. N. (2007). Teacher Training, Teacher Quality and student Performance. *The urban Institute*.
- Helen, F. R. (2010). *Towards Equity in Mathematics Education: Gender, Culture, and Diversity*. London New York.
- Holla, M.K. (2013). Improving Education in the Developing World: What Have We Learned from Randomized Evaluations? *HHS Public Access*.
- Jacobs, B. A. (2004). *The Use of Geospatial Technologies to Increase Students' Spatial Abilities* .
- Juan, M. V. (2015). Home and school resources as predictors of Mathematics performance in South Africa . *South African Journal of Education, Volume 35, Number 1, February* .
- Kiplagat et al. (2012). Teacher commitment and Mathematics. *International Journal of Development and Sustainability*.
- Kodiaga, T. (2015). *Ministry of Education, Science and Technology Moest*. EMC Consultants Limited.
- Kothari, C. R. (2004). Research Methodology: Methods and Techniques (2nd Ed.). *New Age International limited*.
- Ladd, H. F. (2008). Value added Modelling of teacher credentials: policy implications. *CALDER Research conference "The Ins and Outs of value added measures in education What research says"*. washington D.C. Retrieved from http://www.caldercenter.org/upload/sunny_Ladd_presentation.pdf

- Lawson, G. A. (2004). *Teaching and Learning Mathematics: The report of the Expert panel on Mathematics in Grades 4 to 6 in Ontario*. Ontario: Government of Canada.
- Lee et al. (2002). Sex Differences: Summarizing More than a Century of Scientific Research. *Journal of Scientific research*.
- Lerner, K. & Lerner, W.(2004). The Gale Encyclopedia of Science (3rd Edition), New York: Thomson Gale. *Journal of Education and Social Research*.
- Maria (2012). Attitudes towards Mathematics: Effects of Individual,. *Research article*.
- Maria de Lourdes Mata, V. M. (2013). Attitudes towards Mathematics: Effects of Individual,. *Research paper*.
- Mata et al. (2012). Attitudes towards Mathematics: Effects of Individual motivation and social support factors. *Journal of Educational and Social Research*, 3-6.
- Mata, M. D. (2012). Attitudes towards Mathematics: Effects of Individual, *Research article*, 6.
- Mbugua et al. (2012). Affecting Mathematics Academic Counselling. *International Journal of Education and Research Vol. 1 No. 12 December 2013*.
- Mbugua, K. M. (2013). Factors Affecting Mathematics Academic Counselling. *International Journal of Education and Research Vol. 1 No. 12 December 2013*.
- Melanie, J. G. (2000). *Handbook of Moral Development*.
- Miheso, K. (2002). *Factors affecting Mathematics performance among secondary school students in Nairobi Province*. Nairobi: Unpublished Med Thesis, Kenyatta University.
- Morris, R & Arora, M. (1992). *Studies in Mathematics Education: Moving into the Twenty-First Century*. Paris: UNESCO.
- Murimo, F. A. (2011). Cognitive perception. *Research paper*.

- Mwenda et al. (2013). Factors contributing to poor performance in Mathematics in Public Secondary Schools Tharaka South District, Kenya. *Journal of Education and Practice*.
- Mwenda et al. (2013). Factors Contributing to Students Poor Performance in Mathematics in Public Secondary Schools in Tharaka South District Kenya. *Journal of Education and Practice*, 96.
- Nawose, I. D. (2016). Factors Affecting Primary school Pupils' Performance from Nomadic Pastoral Communities in Turkana East District, Kenya. *International Journal of Education and Research*, 4(4).
- Nicole et al. (2010). Cross-National Patterns of Gender Differences in Mathematics:. *American Psychological Association*.
- Nicole, M. & Else-Quest, J. S. (2010). Cross-National Patterns of Gender Differences in Mathematics:. © 2010 *American Psychological Association*.
- Nissinen et al. (2011). Background factors behind Mathematics achievement in Finnish education context:. *Journal of Educational and Social Research*.
- Nissinen, P. K. (1999 and 2011). Background factors behind Mathematics achievement in Finnish education context:. *Explanatory models based on TIMSS 1999 and TIMSS 2011 data*.
- Nissinen, P. K. (2011). Background factors behind Mathematics achievement in Finnish education context:. *TIMSS 2011 data*.
- Nur, M. A. (2010). *Factors that Influence Secondary School Students' Performance in Mathematics in Banadir Region, Somalia*. Nairobi: Unpublished.
- Nyambuto, A. N. (2014). Parental Involvement on Pupils' Performance in Mathematics in. *Journal of Educational and Social Research*.
- Okafor, C. F. (2013). Nigerian School Children and Mathematics Phobia: *American Journal of Educational Research*.
- Orodho (2005). Descriptive research. *International Journal Association*.

- Oundo, M. B. (2013). Factors Affecting Mathematics Academic Counselling. *International Journal of Education and Research Vol. 1 No. 12 December* .
- Sara et al. (2011). New Trends in Gender and Mathematics Performance: A Meta-Analysis. *HHS Public Access*.
- Sifuna, D. N. (1994). *An introductory History of Education*. Nairobi: Nairobi University Press.
- Suthar et al. (2009). Mathematical beliefs of Mathematics Undergraduate Students. *Proceedings of the 4th International Conference on research and Education in Mathematics* (pp. 171-178). Kuala: Lumpur.
- Tin. (2003). Factors affecting student performance in Mathematics. *Journal applied sciences research*.
- Tomas et al. (2010). More than just IQ: A longitudinal examination of self-perceived abilities as predictors of academic performance in a large sample of UK twins. *Journal of Educational and Social Research*.
- Twoli, W.N. (1986). *Sex difference in Science Achirvement Among Secondary Schools Students in Kenya*. Flinders University Of outh Australia: Unpublished PhD Thesis.
- Waheed, M.A. (2011). Research Article. *Attitude perception*.
- Wasiche, J. (2006). *Teaching Techniques that enhance Students' Performance in Mathematics in selected Public Secondary Schools Butere-Mumias District, Kenya*. Nairobi: Unpublished Med thesis.

APPENDICES

Appendix I: Letter of Introduction

The University of Nairobi
Department of Educational Foundation
P.O.BOX 30197-0100
Nairobi

Dear Respondent,

I am a student at the University of Nairobi pursuing Master in Educational Foundation degree. I am through with course work and now expected to carry out a research on the **Factors Influencing pupils' Performance in Mathematics at Kenya Certificate of Primary Education (KCPE) in Turkana Central Sub-County, Kenya.** Kindly find a Questionnaire attached herewith that seeks your opinions and answers about the factors influencing pupils' performance in Mathematics at KCPE. The outcome will be used to make recommendations to the stakeholders. Your opinions will be used only for the purpose of this research and will be kept confidential. I will be grateful if you will spare some of your precious time to respond to the following questions.

Yours faithfully,

Moses Jamin Simotwo

Appendix II: Pupils' Questionnaire in Mathematics (PQM)

The purpose of this questionnaire is to find out factors affecting pupils' performance in Mathematics at KCPE exam.

Instructions:

1. Do not write your name anywhere in this questionnaire.
2. Information you give about performance in Mathematics will be handled with confidentiality. Please respond to the items below as honestly as possible.
3. Use [√] in the brackets corresponding to your answer.

Section A: Pupils' General Information about The School.

1. Type of school: Private [] Public []
Gender: Male [] Female []
2. I have low interest in Mathematics.
Yes [] No [] Uncertain [] Sometime []
3. Language used by teachers is difficult to understand.
Strongly agree [] Strongly disagree [] Agree [] Uncertain []

Section B: Pupils' Attitudes and how it Influences Pupils' Performance in Mathematics.

This section has statements that you are to decide carefully whether you agree or not. (Yes or No, Sometime and Uncertain).

1. I enjoy learning Mathematics.
Yes [] No [] Sometime [] Uncertain []
2. I would like to be the best pupil in Mathematics after completing KCPE.
Yes [] No [] Sometime [] Uncertain []
3. I find it hard to understand Mathematics.
Yes [] No [] Sometime [] Uncertain []
4. I think I just do Mathematics for the sake of doing it.
Yes [] No [] Sometime [] Uncertain []
5. I think Mathematics should be optional in primary school.
Yes [] No [] Sometime [] Uncertain []

6. Being a boy or girl, interferes with my learning of Mathematics as a result affecting my performance.

Yes [] No [] Sometime [] Uncertain []

7. Out of the five subjects taught, Mathematics is my favourite subject.

Yes [] No [] Sometime [] Uncertain []

Section C: Teachers' Qualifications and Experience and how they Influence Pupils' Performance in Mathematics

This section has statements that you are to decide carefully whether you (agree, disagree, May be or Not sure).

1. In your view, do you think there are enough Mathematics teachers in your School?

Agree [] Disagree [] May be [] Not Sure []

2. Do teachers interact with you when teaching Mathematics?

Agree [] Disagree [] May be [] Not Sure []

3. The teachers teaching you in Mathematics, do they use the right strategies in planning and teaching?

Agree [] Disagree [] May be [] Not Sure []

4. Do you think teachers contribute to your performance in Mathematics?

Agree [] Disagree []

Section D: Teaching resources influencing pupils' performance in Mathematics

This section has statements that you are to decide carefully whether you agree or disagree by answering (Yes or No).

1. Do you think the school has enough teaching resources in Mathematics subject?

Yes [] No []

2. Does your parents buy you extra text books and other resources to assist you in Mathematics?

No [] Yes []

3. When provided with school text books, do the pupils steal them?

Yes [] No []

4. Do you have a well equipped library?

Yes [] No []

Section E: Parental influence on pupils' performance in Mathematics

This section has statements that you are to decide carefully if you think they are correct do you by either (Agreeing, Strongly agreeing, Strongly disagreeing, or Disagreeing).

1. My parents have the highest level of education.

Agree [] Strongly agree [] Disagree [] Strongly agree []

2. Does your parents assist you in Mathematics when you have assignments at home?

Agree [] Strongly agree [] Disagree [] Strongly agree []

3. Has your parents been a motivator in your mathematical achievements?

Agree [] Strongly Agree [] Disagree [] Strongly disagree

4. Has your parents ever discouraged you to do Mathematics?

Agree [] Strongly Agree [] Disagree [] Strongly disagree

Appendix III: Head Teachers' Questionnaire in Mathematics (HTQM)

The purpose of this questionnaire is to find out factors affecting pupils' performance in Mathematics at KCPE exam.

Instructions:

1. Do not write your name anywhere in this questionnaire.
2. Information you give about pupils' performance in Mathematics will be handled confidentiality. Please respond to the items below as honesty as possible.
3. Use [\surd] in the brackets corresponding to your answer.

Section A: Contains Head Teachers General Question About The School.

In this section, you are to decide depending on how the statement has been framed.

1. Gender of the respondents.
Male [] Female []
2. How long have you headed this school?
1-5 Years [] 5-10 Years [] 10-15 [] 15 Years and above []
3. Has your school been performing well in Mathematics for the last three years in KCPE?
Yes [] No []
4. What do you think could be the main hindrance in Mathematics performance in the school?

Lack of enough teachers [] Lack of teaching resources [] Pupils' attitudes [] Lack of qualified teachers in the subject []

Section B: Pupils' Attitudes in Mathematics Performance

The purpose of this questionnaire is to find out how attitude affect pupils' performance in Mathematics at KCPE exam.

1. Do you think Pupils' attitudes influences pupils' performance in Mathematics?
Yes [] No []
2. Does your school motivates pupils who do well in Mathematics?

Yes [] No [] Sometime []

3. Does temporary homes affect the pupils' performance in Mathematics?

Yes [] No [] Sometime []

4. Do you think Boys do well in Mathematics than girls?

Yes [] No []

5. Do you think some pupils just do Mathematics for the sake of doing it?

Strongly agree [] Agree [] Uncertain [] Strongly disagree [] Disagree []

Section C: Teacher Qualifications and Teacher Experience

1. Do you think experienced teachers make pupils to understand Mathematics better than the teachers with less experience?

Yes [] No [] Sometime [] Not Sure []

2. Does all teachers in your school who teach Mathematics undergone a proper teacher qualification programme?

Yes [] No []

3. Most of the teachers teaching Mathematics in your school are Turkana or from other tribes.

Agree [] Strongly agree [] Strongly disagree [] Disagree []

4. Which language is used by teachers when teaching Mathematics?

English [] Kiswahili [] Turkana []

5. Do you think that Male dominance in Mathematics have an effect on girls performance in Mathematics?

Strongly agree [] Agree [] Strongly disagree [] Disagree [] Uncertain []

Section D: Teaching Resources

1. Does your school have adequate text books and other resources to assist in teaching Mathematics?

Yes [] No []

2. Does enough teaching resources influence pupils' performance in Mathematics?

Yes [] No []

3. Do you need assistance to raise teaching resources in your school?

Strongly agree [] Agree [] Disagree [] Uncertain []

4. Is there a library in your school?

Yes [] No [] Sometime []

5. Does the government assist with teaching resources in your school?

Yes [] No []

Section E: Parental and Pupils' Gender Influencing Performance In Mathematics

1. Do you think home background has influence on pupils' Mathematics performance?

Agree [] Strongly agree [] Strongly disagree [] Disagree []

2. Does parents' education have influence on Mathematics performance?

Yes [] No [] Sometimes []

3. Do you think parental social economic status influence pupils' performance in Mathematics as a subject.

Yes [] No [] Sometimes [] Uncertain []

4. Does boys do better in Mathematics compared to girls in your school?

Yes [] No [] Sometime []

5. Do you think parents view of boys as being better in Mathematics is true?

Very True [] True [] False [] Uncertain []

Appendix IV: Teachers' Questionnaire in Mathematics (TQM)

Section A: General questions for teachers teaching Mathematics

1. What is your gender?
Male [] Female []
2. How long have you been teaching in this school?
Below 3years [] Between 3 – 6 years [] Above 6 years []
3. Kindly indicate your type of school.
Public [] Private []

Section B: Teachers Experience

1. Does teachers' experience affect pupils' performance in Mathematics at KCPE in your school?
YES [] NO []
2. If yes, how does teachers' experience affect pupils' performance in Mathematics in this school?
.....
.....
.....
3. To what extent does teachers experience affect pupils' performance in Mathematics at KCPE in Turkana Central Subcounty? Mark with an \surd for instance [\surd]
Great extent [] Average [] Little extent [] Not at all []
4. Do teachers use structural models and real life samples when teaching Mathematics
YES [] NO []
5. Does your teacher involve you in class discussion and providing answers to topical questions and during Mock examination?
YES [] NO []
6. Have you improved in your performance in Mathematics for the last two years?
YES [] NO []

7. To what extent do you agree with the following statements concerning the effect of teachers' experience on pupils' performance in Mathematics in Turkana Central Subcounty?

Answer using a five point scale where 1=strongly agree, 2=agree, 3= uncertain, 4= Disagree, 5= strongly disagree.

Statements	1	2	3	4	5
Beginning teachers are not well prepared to meet the Mathematics classroom requirements?					
Many years of experience in teaching Mathematics translates into good pupils' performance at KCPE					
Freshly employed teachers lack the necessary examination tips and guidelines needed by pupils for better performance in Mathematics					
Unexperienced teachers fresh from college have more vigour and strength to teach Mathematics more than the most experienced ones					
Experience teachers have the ability to effectively handle pupils with diverse cultural back grounds					

Section C: School Teaching Resources

To what extent do you agree with the following statements about your current school?

Answer using a five point scale where 1=strongly agree, 2=agree, 3= uncertain, 4= Disagree, 5= strongly disagree.

Statement	1	2	3	4	5
The school buildings and classrooms are in favourable conditions					
The school is located in a safe environment and a conducive neighbourhood					
The school has enough text books for teaching Mathematics and reference for the pupils					
Pupils are overcrowded in the classes you are currently teaching					
Teachers have too many teaching hours					
Teachers do not have adequate space and resource to interact with pupils concerning their Mathematics difficulties					
The instructional materials supply is not adequate in this school					
Teachers in this school are comfortable and contented with the current performance standards in Mathematics at KCPE					

Section D: Parental Influence

To what extent does the following affect your class performance in Mathematics at KCPE?

Statement	1	2	3	4	5
Pupils in my class are suffering from lack of basic nutrition					
My pupils have adequate parental					

support to enable them do their homework and extra practice as instructed					
Most parents are informed about their pupils' performance and do regular follow up with teachers					
Pupils in my class have acquired all the minimum requirements to learn Mathematics, e.g. personal text books, rulers, pencils and graph books					
Pupils in my class attend school regularly and punctual enough					
Parents are fully motivating their children to study Mathematics					
There is a clear collaboration between teachers and parents in this school to better the performance in Mathematics					

Section E: Pupils' Attitude towards Mathematics


To what extent do you agree with the following statements? Answer using a five point scale where 1=strongly agree, 2=agree, 3= uncertain, 4= Disagree, 5= strongly disagree.

Statements	1	2	3	4	5
Pupils in my class take Mathematics as their most favorite subject					
Pupils with positive attitude towards math in my class understands faster when teaching and their performance is exemplary					
My pupils often consult teachers about their challenges in Mathematics					
Majority of the pupils desire and work hard to excel in the subject					
Most pupils complain that math is a difficult subject					
Pupils in my class are self-motivated to study Mathematics					
Pupils with positive attitude are confident and accurate in handling Mathematics problem.					

Appendix V: Research Permit from NACOSTI

THIS IS TO CERTIFY THAT:
MR. MOSES JAMIN SIMOTWO
of UNIVERSITY OF NAIROBI, 0-30500
LODWAR, has been permitted to conduct
research in **Bungoma County**
on the topic: **FACTORS INFLUENCING
PUPILS PERFORMANCE IN
MATHEMATICS AT KENYA CERTIFICATE
OF PRIMARY EDUCATION IN TURKANA
CENTRAL SUB COUNTY KENYA**
for the period ending:
6th December, 2018

Permit No : **NACOSTI/P/17/50282/20507**
Date Of Issue : **7th December, 2017**
Fee Received : **Ksh 1000**



J. Kalerwa
.....
Director General
**National Commission for Science,
Technology & Innovation**

Applicant's
Signature

CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.



REPUBLIC OF KENYA



National Commission for Science,
Technology and Innovation

RESEARCH CLEARANCE
PERMIT

Serial No.A 16851

CONDITIONS: see back page