

**FACTORS INFLUENCING PERFORMANCE OF MATHEMATICS
IN SECONDARY SCHOOLS OF KEUMBU DIVISION
KISII, KENYA.**

**BY
NYANG'AU O. JOHNSON
BED/13728/61/DF**

**RESEARCH PROJECT SUBMITTED IN THE PARTIAL FULFILMENT
OF THE AWARD OF A DEGREE IN BACHELOR OF EDUCATION
SCIENCE OF KAMPALA INTERNATIONAL UNIVERSITY.**

AUGUST, 2008

DECLARATION

I, Johnson Ongeta Nyang'au, do hereby declare that this research report is my original work and has not been submitted for any other Bachelor of Education Science to any other University before.

JOHNSON ONG'ETA NYANG'AU

(Student)

Signature.....

Date29/8/2008.....

This research report has been submitted for examination with my approval as the university supervisor.

SULEIMAN KEDIR

(Supervisor)

Signature.....

Date29/08/08.....

DEDICATION

I dedicate this project to my close family members for their material and moral support that saw me through a degree in Bachelor of education in Kampala International University.

My wife Annah Kwamboka who acted as a source of inspiration throughout the years of my study; my three children Lillian, Jeremmy and Joash for their inspirational support during the project writing- they will live to read it; My beloved mother Sabina Nyaga'u for her financial help.

I shall also commend my principal Richard Nyariki particularly his initiative and insistence that I undertake the said course.

ACKNOWLEDGEMENT

I hereby acknowledge the co-operation of all those who contributed towards making this research

Foremost, I show my gratitude to our heavenly father who tendered me throughout the time of writing this support.

I also thank the teachers and students Keumbu Division for their support during data collection and more specifically through filling the questionnaire.

Finally, I acknowledge the encouragement and support accorded me by my colleagues in Kampala International University (Uganda).

ABSTRACT

The study was aimed at ascertaining the causes of poor performance of Mathematics in K.C.S.E. In the past, many researches have been done on the same area of study.

The review of the information related to the study as found in Journals and books acted as a source of this study.

To ensure validity of the report, sampling was both random and stratified sampling.

Five specific secondary schools were investigated in Keumbu Division.

A questionnaire was prepared for both students and teachers whereas one for the learners was completed by one hundred fifty respondents while that of teachers was completed by ten teachers within the division.

The research considered the methods used in teaching Mathematics by the said teachers; the mathematics content (syllabus). Level of qualification of teachers and motivation, attitude of students towards Mathematics, and the teaching/ learning resources available at school and at home.

The data collected was analysed, discussed and conclusions and recommendations given.

The findings in this study will be used to give the cause of poor performance in Mathematics in the K.C.S.E in the said school and even in Kenya as a whole.

TABLE OF CONTENTS

DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
CHAPTER ONE : INTRODUCTION	
1.1 Background of the study.....	1
1.2 Statement of the problem.....	1
1.3 Research objectives	2
1.3.1 General objectives	2
1.3.2 Specific Objectives	2
1.4 Research questions	2
1.5 Research Hypotheses.....	3
1.6 Significance of the study.....	3
1.7 Scope and Limitation of the study.....	4
1.8 Limitations of the study	4
1.8.1 Definition of key terms	5
CHAPTER TWO: LITERATURE REVIEW	
2.0 Introduction	6
2.1 Factors related to education	6
2.2 The school	6
2.3 Interaction in the class	7
2.4 Social/Affective/ Attitudinal factors	8
2.5 Attitude and Motivation	8
2.6 Evaluation of Pupils work	9
2.7 Teacher Qualifications	9

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction	11
3.2 Population and sampling	11
3.3 Instruments	11
3.4 Data Collection Procedures.....	12
3.5 Data Analysis	12

CHAPTER FOUR: PRESENTATION AND ANALYSIS

4.1 Introduction.....	13
4.2 Mathematics Performance at K.C.S.E (2003-2007)	13
4.3 Methods of teaching Mathematics.....	17
4.4 The Mathematics content	18
4.5 Resources used by teachers	19
4.6 Teachers' level of Qualification	20
4.7 Attitude of students towards mathematics	21
4.8 Discussions	22

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction	24
5.2 Summary and Conclusions.....	24
5.3 Recommendations.....	26
5.4 Recommendations for further research.....	26

REFERENCES

APPENDIX ONE: Students questionnaire	30
APPENDIX TWO: Mathematics teachers Questionnaire.....	32
APPENDIX THREE: Head Teacher Questionnaire.....	34

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The poor performance in mathematics is a global issue that has caused a lot of concern to many individual and groups of people. For many years, in Kenya, this issue has been a subject of debate and yet it has not been established why there is poor performance in this subject, Mathematics. Nevertheless, many possible reasons have been put forward. Some of these related to social factors, some to biological factors, some to child rearing practice, some to factors within school and some to culture.

The activities which are chosen to be done by girls are different from those done by boys.

A lot of books which students come across in school reinforce their stereotyped view of male and female behaviour. They show men in active dynamic roles and women in passive roles, often in domestic situation.

Many teachers often unconsciously reinforce and validate students' perceptions of appropriate gender related behaviour. They expect certain forms of assertive behaviour from boys and be prepared for them, thus encouraging a view that acceptable standards favour boys than girls. There is evidence shows that teachers react differently to good work in mathematics from boys and girls. Classroom research studies by Weiner (1990) suggest that a boy who does well is likely to be told that he has a real talent for mathematics, while a girl is unlikely to be praised for putting in the hard work needed to produce such good results.

1.2 Statement of the Problem

This study was set to ascertain the factors that determine mathematics performance in K.C.S.E. The research was necessary because of the vital role which mathematics play in our day to day life.

The reason for poor performance include; negative attitude, motivation , method of instruction, lack of enough resources, nature and components of mathematics, level of qualification of teachers , biological factors, culture, and other factors within the school.

The study is therefore aimed at investigating the causes of poor performance. There was need to explore the problems that deter mathematics from being effectively taught in Keumbu Division central Kisii District.

1.3 Research objectives

1.3.1 General objective

To investigate the causes of dismal performance of Mathematics in Secondary school students of Keumbu Division Kisii.

1.3.2 Specific objectives of the study include;

- To establish whether the teaching methodology used by teachers are appropriate.
- To establish whether the syllabus content (width) is appropriate to the pupil.
- To ascertain if other resources are of use in teaching Mathematics a part from class text books.
- To find out the level of qualification of Mathematics teachers.
- To establish the attitude of the students towards Mathematics
- To find out how motivating the illustrations and example in the Mathematics text books are to the students.

1.4 Research Questions

- Are the teaching methodology employed by teachers appropriate?
- Is the syllabus content appropriate for the students
- Do teachers use other resources in the teaching of Mathematics A part from the class text book?
- What is the level of qualification of Mathematics teachers?

- What is the attitude of the learners towards Mathematics?
- How motivating and appropriate are the illustrations and examples in the class text books?
- Do Mathematics teachers motivate the learners?
- h) Are there other factors that motivate the students apart from the teachers?.

1.5 Research Hypotheses.

- There is no significant relationship between teaching methodology and poor performance of Mathematics.
- There is no significant relationship between the syllabus content and poor performance of Mathematics.
- There is no significant relationship between teaching resources and poor performance in Mathematics.
- There is no significant relationship between the level of qualification of teachers and poor performance of Mathematics.
- There is no significant relationship between the students' attitude and poor performance of Mathematics.
- There is no significant relationship between the students' motivation and poor performance of Mathematics.

1.6 Significance of the Study

The study can be of use to teachers and students of Mathematics and also to the Kenyan education system as a whole.

The study was intended to:

- Create awareness on teachers to realize the importance of teaching methodology in the delivery of content. In this regard, teachers of Mathematics would make a conscious and deliberate effort to ensure that they do not make use of teaching methods which are liable to put any of the sexes at a disadvantage.

- It is hoped, also that the study findings will serve as a basis for career guidance and counseling so that the society can benefit from the capabilities of both boys and girls in as far as those jobs which require sound mathematical knowledge are concerned.
- c) It is also hoped that the findings will help the public in realizing the role it has to play in enhancing the performance of secondary school going children and more especially in Keumbu Division secondary school.
- Make students change their attitudes towards Mathematics.
- In a general, the findings of the study will bring to the limelight the factors that cause poor performance in Mathematics in KCSE hoping that the situation will be corrected.

1.7 Scope and Limitation of the Study

The study was carried out in just one Division – Keumbu.

1.8 LIMITATIONS OF THE STUDY

Like other studies done elsewhere in the past, it had its own limitations.

- The major limitation encountered during the study was time. The time for the research was limited because the researcher was just given a very short period of less than four months. Such a study is supposed to be given a period of at least one year to be efficient.
- Further the data drawn from one division cannot be generalized to other parts of the country because gender differences can be affected by both social and cultural factors which are among different ethnic groups in Kenya
- Also there was shortage of finance to purchase the required materials for the processing of the research report.
- The inadequate relevant literature in the libraries around the District limited the researcher from reading widely about the problems at hand.

1.8 Definition of key terms

Sex: Refers to the biological characteristics of men and women. They are natural and cannot change.

Gender: This refers to being female, or male. The term is more frequently used than sex. Within our gender groups we are influenced by societal expectations of how we should behave.

Gender Stereotype: A stereotype is a fixed impression, opinion or belief which is applied to a group of people or an individual within a group e.g. the belief that women belong to the kitchen or that boys are better than girls in Mathematics and Science.

Attitude: An attitude is how we feel and think about any one of the thousand and one elements in our environment. This is according to Oliver (1964).

KCSE: This is an abbreviation of Kenya certificate of secondary education. An examination done at the end of 4 years secondary education to make the end of that education cycle.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter looks at works done by different researchers on factors affecting performance of in secondary schools Mathematics.

The chapter looks at factors related to education, methodology, attitude and social.

2.1 Factors Related to Education

The researcher followed the fact that education is a branch of human knowledge which basically deals with the task of preparing the young in society to be useful members in the days ahead.

This section concerned itself with the school and classroom interaction influences from the institutional point.

This section concerned itself with the school and classroom interaction influences from the institutional point.

2.2 The School

In a school, teachers and students interact to each other. The factors which are related to the school have a hand in influencing the performance of students at school.

This implies that such factors help to reinforce the impression that Mathematics is dominated by boys as compared to girls.

It should therefore, be clearly understood that it is through moving towards more active teaching methods, the introduction of more open-ended tasks and the greater value given to collaborative work, that can at least pave way to a leaning environment which is more attractive and accessible to the students. Teachers and Educators alike should provide interesting and stimulating materials which challenge the learners understanding

Studies by Jacinta and Regina (1981) have revealed that," the more senses that are used in acquiring knowledge, the deeper the impression that is made on the mind and the more sure we are that the knowledge will be retained."

This implies that the knowledge obtained acquired through doing is better retained and remembered, compared to information acquired theoretically.

Learning by doing is crucial in the learning process. The students should be enabled to learn through discovery (guided learning).

This is because" nothing is learnt unless we are active" (Jacinta and Regina 1981:26).

This method of learning enables the child to "correct wrong concepts and refine imperfect ones,(Siminyu, 1996:136).

2.3 Interaction in the Classroom

The teachers in charge of a class together with the students operating together make the classroom.

The interactions in the classroom and expectation of the teacher to his students are of considerable importance in terms of the performance of the pupils in a specific classroom.

Research studies (Weiner 1980) suggest that during Mathematics lessons, teachers in secondary schools interact more with boys than they do with girls.

This is likely to discourage girls from having interest in learning Mathematics.

The message which girls get in relation to this is that, they are not expected to perform as well as boys. The classroom teacher must endeavor to pay attention to both boys and girls and encourage both of them to contribute during Mathematics lessons.

Teaching strategies which boost girls confidence must be developed if their lack of experience is treated insensitively their insecurity will be reinforced.

Research studies Maurice G .and William J.(1992) suggest that group work give pupils varied experience as well as stimulate interest. This is an implication that for group work, students should

be given the opportunity to work a variety of grouping, single sex, mixed sex and mixed availability. Both boys and girls must have the chance to lead and to follow.

Teachers and students need to develop respect for one another. The students will emulate the attitude shown by their teachers.

2.4 Social / Affective/ Attitudinal factors

Social factors also have influence over the educational performance of the pupils.

Such factors include ethnicity, family and peer-group pressure.

This section will therefore discuss some of these influences as they affect the performance of our school going children where Mathematics as a subject is one of them.

2.5 Attitude and Motivation

There are two types of motivation namely: - extrinsic motivation and intrinsic motivation. Extrinsic motivation is the one which comes from outside an individual whereas intrinsic motivation is one which is from within an individual. In a school situation, extrinsic motivation usually takes the form of rewards and punishment for certain kinds of behaviour. It can be said that satisfaction of curiosity and interest serve as intrinsic motivation and intellectual activity. If educators are therefore to improve the performance of pupils in Mathematics, a subject that no doubt requires self-reinforcing aspect of intrinsic motivation, then they must provide them with abundant opportunities for active involvement. Not only in carrying out an activity, but also choosing and planning what to do.

In instructional programmes, the active involvement of the child is crucial Light, Sheldon, Wood head (1991:44). This active involvement; I believe will be physical and intellectual, as well as social and students discuss their work and ideas with each other.

This active involvement will nourish the students' needs and stimulate their motivation and then shape their attitude towards this essentially important subject, Mathematics.

Students self-esteem and self-confidence may also affect their performance in Mathematics. Fennema (1981) states that girls often feel inadequate about intellectual problem solving activities and as such underestimate their ability to solve Mathematical problems. At this point it is worth noting that inability to do Mathematics and not liking Mathematics seems to go together among both boys and girls.

Equally, success more than not seems to lead to a favorable attitude; a student enjoys Mathematics when he or she can do it.

2.6 Evaluation of Pupils Work.

According to Downey and Kelly (1986) it is pointed out that evaluating children is an inevitable part of any school teachers work. What a teacher says about a pupils either in informal staff-room conversation or on a more formal staff room conversation may affect the pupils future performance more than the teacher can ever imagine. Although all of us are born with obvious physical sexual differences, we adopt our gender role mainly from unconscious pressure applied by parents and other adults during our early years of development. Future interest and performance in Mathematics will be affected if the pupils lack positive pre- school experiences.

2.7 Teachers Qualifications

Hansen (1976) on the international study of achievement in Mathematics concluded that there is a relationship between Mathematics achievements and the length and type of the teacher's post-secondary education. He said that the more training a teacher has received the better would be the achievement of his student. This clearly indicates that a teacher's post- secondary training will expose him to the skills needed to deliver the relevant knowledge and skills. Later to his students, at the secondary level.

Sobe and Maletsky (1988) present this view:

"Teachers must know their staff. They must know the pupils whom they are stuffing. And above all they must know how to stuff them critically," Teachers without proper qualification fail to do

justice to the subject. Adequate qualification of the teachers develops self- confidence and serves as a source of inspiration and a good role model to the students.

According to participants in the strengthening of Mathematics and Science Secondary school Education (SMASSE) conference, shortage of trained Mathematics teachers was identified as one of the major obstacles to good performance in Mathematics. The few that are there are overloaded with other teaching duties (Daily Nation, October 2, 2002.pg17).

A vacant survey by SMASSE indicates that the most popular teaching methods in schools were teacher- centered , lecturing and note-taking. These methods are preferred because they are less time consuming. But they deny learners a chance to have more active and direct participation in teaching and learning process. Teachers are an agent of curricula implementation on the ground. It is therefore very necessary to have well qualified and trained teachers who have flexibility and receptiveness needed in a classroom situation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methods and procedures that were used to generate and analyze data. It discusses how the research was conducted.

The study adopted a survey due to the fact that it allowed for a wider space from the researcher to collect data from various sources without him being present where the research is done.

3.2 Population and Sampling

This study was intended to ascertain the poor performance of Mathematics in Keumbu Division secondary schools based on the grade scores of K.C.S.E examinations for the five year period 2003-2007.

The sample had an intention of involving ten of the teachers at the schools who teach Mathematics and one Hundred and fifty students from form three of the same division.

The method of sampling used was both simple random sampling and stratified random sampling. To ensure validity of data collected it was necessary to select thirty students from each school from form three whereas the number of boys and girls was proportional.

This was done to provide a balanced representative of the five classes.

3.3 Instruments

Due to the fact that the number of respondents was large, it was necessary for the preparation of questionnaires.

Two types of questionnaires were prepared namely:- for teachers and also for students .

Both of them were supposed to fill the blank spaces and or tick as appropriate.

Since the survey was done within one division it was easy to direct the students on how to go about filling the questionnaires.

The researcher felt convinced that the selected sample was adequate and a representative proportion of the entire population capable of providing wholesome information about the population from which it was drawn.

3.4 Data Collection Procedures

The study was done at the researcher's own division

The researcher sought appointment with the district education officer to be allowed to administer questionnaires to the teachers and students concerned.

The researcher then sought assistance from the Mathematics teachers who in turn guided the students on how to fill the questionnaires as appropriate.

It was then possible for the researcher to collect the filled questionnaires as soon as they were ready.

3.5 Data Analysis

After data collection exercise was over, it was necessary to assemble the instruments after checking them thoroughly and organizing them for analysis.

A code sheet was developed for each instrument and the information therein entered in a sheet and analyzed. A numerical value was given to each item.

Data collected was then analyzed quantitatively using statistical techniques such as calculation of percentage. The results of the analysis were later presented in form of tables and bar graphs. Qualitative description followed this and provided an explanation on the foresaid facts and the summary of the outcome of research.

CHAPTER FOUR

PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter gives a detailed description of the findings of the study on the poor performance of Mathematics in Keumbu Division.

4.2 Mathematics Performance at K.C.S.E (2003-2007)

The finding shows that the problem as it occurs in the schools under the area of study by presenting the information of how the students performed in Mathematics in the period 2003-2007.

TABLE 1 K.C.S.E EXAMINATION RESULTS FROM 2003 TO 2007 Mathematics results for Keoke Secondary

Year	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	No of students	% pass D And above	Mean score
2003	0	0	0	1	1	0	0	3	9	10	22	37	83	28.91	2.156
2004	0	0	0	0	2	2	2	4	5	14	13	31	73	39.72	2.479
2005	0	1	0	1	0	1	0	3	4	15	25	35	85	29.41	2.212
2006	1	0	0	0	2	1	2	3	4	11	21	30	75	32.0	2.280
2007	0	0	0	0	0	1	0	0	7	10	15	48	81	22.22	1.175

Source Source: Kenya National Examination Council Computer shee

Table 1, shows the general performance of Keoke secondary school. For the period of five years only two students scored a mean grade of A. But in general the performance is lower than expected.

Table 2 TABLE 1 K.C.S.E EXAMINATION RESULTS FROM 2003 TO 2007 Mathematics
results for Riondonga Secondary

Year	A	t/-	B+	B	B-	C+	C	C-	D+	D	D-	E	No of student	% pass D and above	Mean Score
2003	0	0	0	0	0	0	0	1	1	13	24	69	108	13.89	1.528
2004	0	0	1	0	0	1	4	4	5	8	28	52	103	22.33	2.068
2005	0	0	0	0	0	2	1	1	3	4	32	49	92	11.96	1.761
2006	0	0	0	0	0	0	2	2	2	10	22	58	96	16.69	1.687
2007	0		0	0	0	1	2	5	7	10	15	66	107	24.30	1.953

Source: Kenya National Examination Council Computer sheet

Table 2 shows that general mean grade for the entire five years is dismal. The mean grade is just E except for the year 2004, which had a mean of D-.

Table 3 TABLE 1 K.C.S.E EXAMINATION RESULTS FROM 2003 TO 2007 Mathematics
results for Birongo Secondary

Year	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	No of student	% pass D and above	Mean Score
2003	0	0	0	0	0	1	2	3	5	3	6	16	36	38.89	2.528
2004	0	1	0	0	0	0	0	3	2	5	12	22	44	22.73	1.909
2005	0	0	0	0	0	0	0	5	4	2	0	30	41	26.83	1.829
2004	0	0	0	0	1	2	1	3	4	0	9	22	42	26.19	2.357
2007	0	0	0	0	0	2	0	1	2	1	10	13	38	39.47	2.368
										0					

Source: Kenya National Examination Council Computer Sheet

Table 3 shows generally that in a period of five years, only one student scored an A-. This tells us that only one student has so far qualified to join public university. Something must be done before too late.

Table 4 TABLE 1 K.C.S.E EXAMINATION RESULTS FROM 2003 TO 2007 Mathematics
results for Amasago Secondary

year	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	No of student	%pass D and above	Mean score
2003	0	0	0	1	0	3	2	3	7	8	21	32	77	31.17	2.377
2004	0	0	0	0	3	3	1	3	3	12	22	31	78	32.05	2.423
2005	0	0	0	0	0	2	1	1	3	4	32	49	92	11.96	1.761
2006	0	0	0	0	2	1	2	3	4	11	21	30	75	32.0	2.280
2007	0	0	0	3	1	3	1	1	2	10	21	33	75	26.67	2.440

Source: Kenya National Examination Council Computer Sheet

Table 4, is for Amasago High School. The performance is not better than other schools in the area. This is because the mean grade for the five years is a D- like other schools. It also shows that the majority of the students score a mean grade of E.

Table 5 TABLE 1 K.C.S.E EXAMINATION RESULTS FROM 2003 TO 2007 Mathematics
results for Irondi Secondary

year	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	No of student	%pass D and above	Mean score
2003	0	0	0	1	0	1	2	3	7	5	21	27	61	28.17	2.477
2004	0	0	0	0	3	3	1	3	3	12	22	31	78	31.51	2.241
2005	0	0	0	0	0	2	1	1	3	4	31	49	84	9.69	2.823
2006	0	0	0	0	2	1	2	3	4	11	21	30	60	31.3	2.280
2007	0	0	0	1	1	2	1	1	2	9	18	32	57	23.27	2.450

Source: Kenya National Examination Council Computer Sheet

Table 5, is for Irondi secondary school. The general overview indicates that majority of the students score D- and Es. This tells the researcher that concerted efforts must be put in place to correct the situation.

The findings shown on Table 1-5 give an impression that Mathematics is poorly done at the K.C.S E level in the named schools. The researcher expects good performance in Mathematics since the region under study has the potential of doing well and more especially when the government has provided most of the materials required for learning and teaching.

The mean grades for the period stated below are an average of C (plain). To ascertain the causes of the above findings the following information was obtained which would assist in improving for the better in Mathematics performance.

4.3 Methods of Teaching Mathematics

The main aim here was to find out the teachers in the schools under study, the methods of instruction they commonly use on the teaching of the subject under study. Table 6 gives a description of the research question a): Are the teaching methodology employed by teachers appropriate?

Table 6 : Methods of teaching Mathematics

Method	Respondents	Percentage
Discovery	1	10
Demonstration	1	10
Lecture	1	10
Discussion	3	30
All combined	4	40
Total	10	100

The finding on Table 6, shows that $\frac{2}{5}$ of the teachers (40%) use a variety of methods in their lesson presentation with an intention to achieve the desire goals.

It is also clear that a $\frac{3}{10}$ of the teachers interviewed (30%) show their preference for discussion method since it allows for student participation and interaction during the lesson. Most of the students interviewed showed that they wish to be taught through discovery method.

4.4 The Mathematics Content

The objective here was to find out the impact of various topics in Mathematics in students performance at K.C.S.E. The findings obtained on pupil's response are found in table 7 for the research question b): Is the syllabus content appropriate for the pupils?

Table 7: Topic seen to be difficult by students.

Topic	Respondents	%
Vectors	20	13.3
LOCI	35	23.3
Latitude & Longitude	60	40
Algebra Graphs/tables	20	3.3
Navigation	20	13.3
Total	150	100

It can be seen from table 7, that there are different responses in favour of the Mathematics content. The table reveals that a bigger percentage finds Latitude & Longitudes to be the most difficult topic in Mathematics (40%). The mathematics content as seen by the teachers is appropriate.

Some students find difficulties on solving problems in some Mathematics topics like vectors, Graphs, tables and LOCI from which K.C.S E setup.

4.5 Resources used by teachers.

The researcher was interested in ascertaining whether teaching facilities in the schools under study are influence in determining the K.C S E results. The results are contained in Table 8 which is for research question c): What other resources are used in teaching Mathematics other that Text books?

Table 8: Resources used by teachers.

Resources	Respondents	%
Charts	5	50
Real object	2	20
Model	2	20
Other resources	1	10
Total	10	100

The findings in table 8, indicate that the commonly used resource other than the prescribed class textbooks is the charts (50%). Children learn better when they see, hear, handle, smell and even taste the objects they are dealing with. The fact that there is minimal use of other resources as pertains to the area under study it implies that the learners lack a conducive environment necessary for high retention of knowledge.

4.6 Teachers' Level of Qualification

In this case the researcher was concerned with finding out if teachers handling mathematics in the school under study are qualified to handle mathematics effectively and efficiently and the level of their contentment. Table 9 is for the research question

d) What is the level of qualification of the mathematics teachers?

Table 9: teachers' level of qualification

Qualification	Respondent	%
Graduate	5	50
Untrained	2	20
Graduate	0	0
ATS	2	20
Diploma	1	10
Others		
Total	10	100

Table 9., shows that a greater number of mathematics teachers in the school under study are qualified to handle the subject. The teachers in grades of graduate and diploma holders comprise 80% of the respondents and this leaves 20% of the respondents who are not fully qualified to teach the subject.

4.7 Attitudes of Students Towards Mathematics

The objectives here was to find the attitude of students towards the learning of mathematics at Keumbu division .The finding are obtained in table 10. This is in response to the research question e) : what is the general attitude of pupils towards the learning of mathematics?

Table 10: Attitude of students in leaning mathematics

Attitude	Respondent	%
Very easy	20	13.3
Easy	40	26.7
Difficult	60	40
Very difficult	30	20
Total	150	100

The finding on table 10, shows that a greater percentage of the respondents in the school under study, (60%) regard mathematics as a difficult subject. Such attitude can have negative repercussions in that students in such schools will tend to get discouraged and fail to work hard leading to poor performance of the subject.

4.8 Discussions

The findings on the results obtained indicate that there is a problem in the process of teaching and learning of mathematics in Keumbu division.

Foremost, the area of concern was the use of other resources use of other resources in teaching other than most teachers did not use a variety of learning resources. Learning by doing is more effective but there was no indication of the same. Most teachers centred on the class text books and a few charts on teaching. Retention of know relation to the use of test book only.

According to Jacinta and Regina (1981) it is asserted that “The more senses that are used in acquiring knowledge, the deeper the impression that is made on the mind and more sere we are that knowledge will be retained.

This implies that knowledge obtained/acquired through doing is better retained and remember, compared to information acquired theoretically.

It is true the Chinese saying goes;

“I hear and I forget, I see and I remember. I do and I learn.”

As far as Mathematics content is concerned, the various topics; Vectors, LOCI, Latitude & Longitude, Graphs/tables and Navigation appeal to divergent tastes.

Majority of the respondents (40%) did not like Latitude & Longitude while 3.3 % of the respondents did not like graphs and tables. Although the teachers feel that the Mathematics content is of quality, most students find quite hard. In this regard, the students should be encouraged to balance the topics involved in Mathematics.

Since the adoption of the 8-4-4 system of education, Mathematics subject has been and is always prominent in that it is compulsory in K.C.S.E Examination.

The researcher found out that there was a shortage of qualified teachers to handle Mathematics. However, with concerted efforts by both the Ministry of Education and other educational institutions, this deficiency can be dealt with. There is an indication that combined effort with motivation generated by good remuneration, the Mathematics teacher is bound to provide admirable results.

Most students regard Mathematics as difficult as seen in the results under table 9. The students have realized that majoring in Mathematics will bear good fruits as they progress with their education to higher level.

When considering employment opportunities, a pass in Mathematics plays a major role. Generally the attitude of the student towards Mathematics subject is prone to change drastically and positively.

CHAPTER FIVE

SUMMARY, CONSLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents discussions, conclusions and recommendations of the research findings of the previous chapters, they discussed in relation to research carried out (Questionnaire, Interview and Observation) that was used to guide the study and where applicable related literature used to support the arguments of the research

5.2 Summary and Conclusions

The researcher ascertained that a variety of the factors were held responsible for the poor performance in Mathematics at K.C.S.E level in Keumbu division discussed by the researcher through answering the research questions which were contained in the study. The answers were based on the findings provided by the respondents and in this case the students and teachers.

The necessary recommendations were also given with regard to improving the teaching of Mathematics and as a result raise the standard of Mathematics in Keumbu Division and in the whole country. From the findings it was clear that most students preferred discovery method in learning Mathematics to other approaches.

Such preference can be due to the fact that in other methods such as lecturer, question and answer, the learners are recipients.

The poor teaching methods by teachers can be solved through the teacher taking time to select the appropriate methods from the various teaching methods available at their disposal. To achieve the desired teaching/ learning objectives, the teachers should ensure that learners take an active part in the learning of Mathematics.

The content of Mathematics as seen by teachers was suitable for the learners. But on the other hand as indicated by the findings of the study, it was noted that some pupils had difficulties in solving problems in some specific topics like vectors, Loci and graph/ tables. From the same topics many questions are set in K.C.S.E. From the analysis, it showed that more than twenty questions are set from the topics in the area under study.

The mathematics teachers should take time to ensure that the students get the concepts involved in the topics which the students find difficult.

This can be done though giving more exercises on the topics mentioned and using learning aids. It is hoped that with more practise on the same topics, the results in Mathematics will improve in Keumbu Division and the whole district and the country as a whole.

It was noted with a lot of concern that the attitude of most students was negative towards Mathematics. The students regard Mathematics as a hard subject and therefore divert their concentration to other subjects. For a student to pass well in K.C.S.E examination he/ she is supposed to pass in all subjects. Mathematics was also noted with a lot of concern included; yet they don't work hard to pass it. In this regard, all the Mathematics teachers should ensure that they show the pupils the importance of Mathematics in life and how it would assist them in choosing their career. Incase the pupils want to pursue some courses in future, they should be encouraged to pass Mathematics which is one of the necessary requirements to join some courses e.g Medicine, and other educational courses. This will lead to good performance in Mathematics.

It was also noted with a lot of concern that there were no enough teaching learning resources. This adversely affects the performance of Mathematics in the negative sense.

Both teachers and learners must have access to course text books, reference materials, apparatus, and audio visual aids necessary for the good learning of Mathematics as a subject. If materials are made available then it is a clear indication that the results of Mathematics will improve in the whole Division, District and the whole nation of Kenya.

5.3 Recommendations

Good performance in Mathematics depends on the joint efforts of all stakeholders. In this regard, all students, teachers, parents and the government itself should avail the necessary resources to enable the good performance of Mathematics in K.C.S E.

Teachers, who are considered as drivers of the subject, should try as much as possible to improvise learning and teaching resources from the locally available materials.

This will create interest in the learners and hence lead to good performance in Mathematics. The major part of making the subject a success depends on the teacher. Hence the teacher should make the subject to be as interesting as possible. The teacher can do this through varied methods of teaching the subject. This will ensure that if one method fails the teacher will apply a different method to ensure that learners benefit. By so doing the learners will be stimulated to learn and improve in performance.

The researcher noted that some teachers were not qualified to teach the subject. From the findings, it showed that graduate teachers were handling the subject. I hereby recommend that only those teachers, who are informed, conversant and good at the subject, should be allocated to handle it at all levels in schools.

The school administration should check the ability of all teachers and agree on who should or should not teach a given subject. The ministry of education should control the posting of teachers to schools and ensure that there is proper staffing.

Monitoring on proper teaching should also be strictly done by the ministry of Education to ensure that there is no laxity among teachers

5.4 Recommendations for Further Research

The researcher carried out a study which covered a single Division, Keumbu in Kisii District. The performance of Mathematics in the area of study is very poor as seen from the K.C.S.E results for the period of the past five years (2003-2007).

This is an indication that performance on the same subject is very poor in the Kisii District as a whole. Therefore the researcher recommend that another study should be carried out to others parts of the district to ascertain if the factors for poor performance at Keumbu Division would be the same for poor performance in other areas of the district.

The study should not only be done on Mathematics, but to be extended to other subjects so that it would determine the main causes of poor performance in national examinations.

In this regard, after establishing the cause of poor performance, long lasting solutions should be reached which could boost performance in the educational standards

REFERENCES

- Achora, P.P.W(1990). *The influence of selecting teacher factors and schools practice in school achievement*. BER Seminar paper no. 20206: Bureau of Educational research 22nd May 1990, Nairobi, Kenyatta University.
- Ayot etal, (1987). *Instructional methods (General methods)*.
- Cockroft, W.H. (1981). *Mathematics Count Report of the committee into Teaching Mathematics in schools*. Her majesty's stationary office London.
- Cuttance, P.(1980). *Do Schools consistently influence the performance of their students Education?* Review Vol. 32 No.3
- Eshiwani, GS (1983). *Research in education*. Nairobi University
- Eshiwani, GS (1982). *Mathematics and science in Kenya: Issue and Problems* ; Nairobi, Bureau of Education Research, Kenyatta University.. *Female Education in mathematics and science in Africa (FEMSA). Promoting the participation and performance of girls in science, mathematics and technology*.
- Gathathi, (1975). *Report of the national committee of educational objectives and policies*, Nairobi; government printer.
- Garafalo, j. (1989). *Beliefs and their influence on mathematics*. Mathematics teacher vol.82 no.1
- Hanset, (1976). *Intenational study of achievements in mathematics* vol.12 Almostquisty and Locksell, Stockholm, England.
- Ifelunni, C.S (1997). *School and home factors as correlate of achievement of Nigerian female teenagers' .in mathematics*. A bridged research reports no.24 academy science publishers, Nairobi Kenya.
- Kyriacoa (1997). *Effective teaching in schools*, Stanley T ltd.
- Light P. Sheldon and wood M. Education (1991) *Learning to think*, Routledge

Maurice G and Williamson J (1992) Group work in primary classroom, London Routledge.

Weiner G (1980). *schooling for women's work* Wood D (1980). *How children think and learn*.

Blankwell Publisher.

APPENDICES

APPENDIX ONE: STUDENTS QUESTIONNAIRE

Dear student,

I Johnson Nyangau student at Kampala International University , Institute of Open and distance learning , doing academic research on “ Factors Affecting performance of Mathematics in secondary Schools in Keumbu division –Kisii District “

I request you to fill the questionnaire with sound mind. The information given will be kept in secret. The purposes of research is purely academic.

Thank you.

Instructions:

Put a tick () against the statement, which most accurately describes your feelings or that which is correct. For question without suggestions. Write your answer (s) in the spaces provided.

1. How is the distribution of mathematics textbooks in this school? One per student () one per two students () one per three students () one pre more than three students ()
2. Our mathematics teachers are unfriendly and willing to discuss problems with us. Strongly agree () agree () undecided () disagree () strongly disagree ()
3. We often miss math lessons and these are never recovered consequently. Strongly agree () agree () undecided () disagree strongly disagree ()
4. in this school students do not like mathematics strongly agree () agree () undecided () disagree () strongly disagree ()
5. Do you think math is? Boring (yes) (no) interesting (yes) (no)
6. Based on No 5 who discouraged you most in learning mathematics? Head teacher () subject teacher ()desk mate parent / guardian () classmate friends ()
7. in this school there no enough teachers for math strongly agree () agree () undecided () disagree strongly disagree ()
8. How many quizzes do you do per term in mathematics? Weekly () monthly () once a term () fortnight ()
9. apart from your regular teacher, have you taught by other teacher in the same subject yes () No ()

10. In your opinion, which factors cause poor performance in math in your school

.....
.....
.....

APPENDIX TWO

MATHEMATICS TEACHERS QUESTIONNAIRE

Dear Sir,

The researcher is seeking information for the purposes of research only. Any information given will be treated with the secrecy it deserves and will be kept strictly confidential.

Please give your answers as accurately as possible for the benefit of researcher and the entire education sector as a whole.

Thank you

INSTRUCTIONS:

Put a tick against the statement, which most accurately describes your feelings or that which is correctly. For question without suggestions, write your answer (s) in the spaces provided.

Note the following:

SA – strongly agree A – agree UN – undecided D – disagree SD-strongly disagree

1. in this school schemes of work and lesson plans are strictly followed by the head teacher
the head of department

SA () A () UN () D () SD ()

2. in this school mathematics teachers do not work in a term

SA () A () UN () D () SD ()

3. How many times do you attend a refresher course within a year? Not at all () once ()
thrice

() four times () more than four times ()

4. there are enough mathematics textbooks in this school

AS () A () UN () D () SD ()

5. How many math quizzes do you give within a term?

Weekly () monthly () once a term ()

6. How many lessons per week do you have?

15 () 16- 20 () over 20 () over ()

7. What is the average size of your teaching class?

Less than 20 students () between 20 45 () over 45 ()

8. students join this school with poor background

SA () A () UN () D () SD ()

9. In this school there are enough teaching resources materials

SA () A () UN () D () SD ()

10. For how have you been teaching?

Less than 1 year () 1- 2 years () 2-4 years ()

11. math syllabus is never covered before exams at the end of 4 years

SA () A () UN () D () SD ()

12. Math teachers have no role in text books selection

SA () A () UN () D () SD ()

13. there are regular teachers transfer in this school

SA () A () UN () D () SD ()

14. Are the hours allocated for teaching math enough

Yes () No ()

15. In your opinion what factors cause poor performance in math in your school?

.....
.....
.....

APPENDIX THREE

HEADTEACHER QUESTIONNAIRE

Dear Sir/ Madam,

The researcher is a student at Kampala International University doing his end of course research. He is seeking data from your school to enable him compile a final report. The given will be kept secret and confidential. The information is for research purposes only. Please give correct and accurate answers.

INSTRUCTIONS;

Put a tick against the statement, which most accurately describes your feelings or that which is correct. For questions write your answer(s) in the spaces provided

Note the meaning of the following:

SA strongly disagree D - disagree A – agree SD - strongly disagree UN - undecided

1. What has been the performance of mathematics in KCSE since 2001 to date? Please indicate below

Year	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	No of students	%pass and above
2003														
2004														
2005														
2006														
2007														

2. How many streams are there in your school?

One () Two () Three () Four ()

3. School inspectors rarely come for their routine duty

SA () A () UN () D () SD ()

4. No emphasis is put on the unity value of mathematics

SA () A () UN () DO SD ()

5. Maths teachers don't use scheme of work and lesson plans

SA () UN () DO SD ()

6. Indicate how many teachers of mathematics in your school fall into the following categories:-

Category	Number of teachers
Masters	
Trained graduate	
Untrained graduate	
S.I	
A.T.S	
Diploma education	
A ^I Level	
O' Level	

7. Are hours allocated for teaching Mathematics enough?

8. In your school there are enough teaching resource materials?

SA () A () UN () D () SD ()

9. Students join this school with poor Mathematics background?

SA () A () UN () D () SD ()

10. Suggest ways of improving mathematics performance in your school.

.....
.....