PUPILS' ATTITUDES AND ACADEMIC PERFORMANCE IN MATHEMATICS IN K.C.P.E IN CHANIA ZONE PRIMARY SCHOOL, THIKA DISTRICT, KENYA.

By

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DECLARATION

I Gichuhi M. Wangu declare that this dissertation is my original work and has never been submitted to any other university for academic credit

I hereby declare that its conception, research, organization and writing are entirely my own effort.

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APPROVAL

This project has been submitted with my approval as the University Supervisor

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Date:.....19/08/08.....

DEDICATION

This piece of work is wholly dedicated to my loving husband and to my loving child for their prayers, great support and encouragement throughout the study period. May God bless them mightily.

ACKNOWLEDGEMENTS

First my heart felt gratitude goes to the almighty God for his support, guidance, protection and providence as I worked and toiled to make this piece of work a success .May His name be praised.
Amen.

Much appreciation goes to my supervisor Dr Joseph Owoeye who, though tightly scheduled sacrificed some of his time to guide me step by step in this research work. May God remember him in his endeavors

I cannot also forget Mrs Ngugi (colleague and college mate) whose company was great comfort throughout the study period, Ngui Peter (classmate) for the light moments he created for me ,Ellena Gachaul (classmate) for her company and friendship and at last but not least Mr. Nganga (colleague) for his support.

To all, may God Reward them Mightily.

TABLE OF CONTENTS

TITLE PAGE.....

DECLARATION.....II

APPROVAL.....III

DEDICATION.....IV

ACKNOWLEDGEMENTS.....V

TABLE OFCONTENTS.....VI

ABSTRACT.....VIII

DEFININATION OF TERMS.....IX

CHAPTER ONE.....1

INTRODUCTION.....1

1.1 BACKGROUND TO THE STUDY.....1

1.2 STATEMENT OF THE PROBLEM.....4

1.3 OBJECTIVES OF THE STUDY.....5

1.3.1 GENERAL OBJECTIVES.....5

1.3.2 SPECIFIC OBJECTIVE.....5

1.4 SIGNIFICANCE OF THE STUDY.....6

1.5 THEORETICAL FRAMEWORK.....6

1.6 RESEARCH QUESTIONS.....7

CHAPTER TWO.....8

2.0 INTRODUCTION.....8

2.1 DIFFERENT EXPECTATIONS.....9

2.2 GENDER ISSUE AND ACADEMIC PERFORMANCES.....9

2.3 TEACHERS' PERCEPTIONS OF STUDENTS' ATTITUDES TO MATHEMATICS.....11

2.4 STUDENTS ATTRIBUTION OF SUCCESS AND FAILURE.....12

2.5 CONFIDENCE AND PERFORMANCES.....13

CHAPTER THREE.....15

RESEARCH METHODOLOGY.....15

3.1 DESIGN.....15

3.2 ENVIRONMENT.....15

3.3 RESPONDENTS.....15

3.4 INSTRUMENTS.....15

3.5 DATA COLLECTION PROCEDURES.....16

3.5 STATISTICAL TREATMENT OF DATA....16

CHAPTER FOUR....17
4.0 FINDINGS AND INTERPRETATIONS....17
4.1 INTRODUCTION....17
4.2 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS....17
4.3 TEACHER BELIEFS AND GENDER DIFFERENCES IN MATHEMATICS....18
4.4 STUDENTS ATTRIBUTES OF SUCCESS AND FAILURE....21
4.5 CONFIDENCE OF STUDENTS AND PERFORMANCE IN MATHEMATICS.....23

CHAPTER FIVE....25
CONCLUSION AND RECOMMENDATIONS....25
5.1 INTRODUCTION....25
5.2 SUMMARY OF MAJOR FINDINGS....26
5.2.1 STUDENTS ATTRIBUTES OF SUCCESS & FAILURE....26
5.2.2 STUDENTS ATTRIBUTES OF SUCCESS....26
5.2.3 CONFIDENCE OF STUDENTS ON PERFORMANCE....27
5.3 CONCLUSIONS....27
5.3.1 FINDING OUT ON TEACHERS BELIEFS &PUPILS DIFFERENCE IN MATHEMATICS....27
5.3.2 FINDING OUT STUDENT ATTRIBUTES OF SUCCESS& FAILURE....28
5.3.3 FINDING OUT ON CONFIDENCE OF STUDENTS AND PERFORMANCE IN MATHEMATICS....28
5.4 RECOMMENDATIONS....29
BIBLIOGRAPHY....31
APPENDIX A....32
APPENDIX B....36
APPENDIX C....37
APPENDIX D....38
APPENDIX E....39
APPENDIX F....40

ABSTRACT

Mathematics is one of the major subjects especially when it comes to career choice. most of the careers in our economy demands that one joining them must not only have basic knowledge in mathematics but also have better knowledge in this important subject.

It has been noted with great concern that there is general poor performance in this subject to both boy child and girl child in all levels of education. Researcher has tried to carry out studies aimed at redirecting their scenario. But it has been very hard to change the situation. The more the researchers work hard, the more the student continues performing poorly.

With this respect, it has called for more researchers to come out and try to get better solutions. That is, there is need for change of students attitudes towards mathematics and the need for all stakeholders to support materially and morally the good cause of mathematics.

Due to the fact that most researchers has pulled out of the race due to the continuous poor performance in mathematics year in year out. This research has used both quantitative and qualitative techniques, so that come up with the real reasons that has lead to poor performance in mathematics.

DEFINITION OF TERMS

The following are some of the terms used in this paper.

K.C.P.E:	Kenya Certificate of Primary Education. This is the education and final Examination done by primary pupils in the intermediate level.
MR:	Mathematical Review
Performance :	The action or process of performing a task or function.
Poor performance :	Grade below average
Attitude :	The perception of student towards the study of mathematics i.e. dislike for behaviours of a student.
D.E.O:	District Educational Office
Sample :	Is part or section of the population under consideration.
Sampling:	It is dividing the population into manageable units or samples aimed at enhancing research work.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

From the history, the major disciplines within mathematics arose out of the need to do calculations relating to taxation and commerce, to understand the relationships among numbers, to measure line, and to predict astronomical events. These needs were the studies of *quantity*, *structure*, *space*, and *change.*

Mathematics has since been greatly extended, and there has been a fruitful interaction between mathematics and other discipline like science, to the benefit all both. Mathematical discoveries have been made throughout history and continue to be made today. According to Mikhail B. Sevryuk, in the January 2006 issue of the Bulletin of the American Mathematical Society, "The number of papers and books included in the Mathematical Reviews database since 1940 (the first year of operation of Mathematic Review) is now more than 1.9 million, and more than 75 thousand items are added to the database each year. The overwhelming majority of works in this ocean contain new Mathematical theorems and their proofs.

Mathematics arises wherever there are difficult problems that involve quantity, structure, space, or change. At first these were found in commerce, land measurement, and later astronomy. Nowadays, all sciences suggest problems studied by mathematicians, and many problems arise within mathematics itself. Newton was one of the infinitesimal calculus inventors, although nearly the entire notation used in infinitesimal calculus was contributed by Leibniz with the exception of a dot above a variable to signify differentiation with respect to time. Feynman invented the Feynman path integral using a

combination of reasoning and physical insight, and today's string theory also inspires new mathematics. Some mathematics is only relevant in the area that inspired it, and is applied to solve further problems in that area. But often mathematics inspired by one area proves useful in many areas, and joins the general stock of mathematical concepts. The remarkable fact that even the "purest" mathematics often turns out to have practical applications is what Eugine Wigner has called "the reasonable effectiveness of mathematics."

Today many students especially in primary level fear mathematics just because they believe they are hard, they think of complex jargons and notation used and fear and infact they have the right to fear for some of them are not well elaborated. Most of the mathematical notation in use today was not invented until the 16th century. Before that, mathematics was written out in words, a painstaking process that limited mathematical discovery.[In the 18th century, Euler was responsible for many of the notations in use today. The good news is that modern notation makes mathematics much easier for the professional, but beginners and primary pupils often find it daunting. It is extremely compressed: a few symbols contain a great deal of information. Like musical notation, modern mathematical notation has a strict syntax and encodes information that would be difficult to write in any other way. There is therefore a need to do more investigation on how to make mathematics easy and more enjoyable through encouraging young people not to fear mathematics, and to help them to study them more.

Mathematical language also is hard for beginners. Words such as *or* and *only* have more precise meanings than in everyday speech and confusing to beginners, especially primary school pupils. Words such

as *open* and *field* have been given specialized mathematical meanings. Mathematical jargon includes technical terms such as homeomorphism and integrable. But there is a reason for special notation and technical jargon: mathematics requires more precision than everyday speech. Mathematicians refer to this precision of language and logic as "rigor". Rigor is fundamentally a matter of mathematical proof. Mathematicians want their theorems to follow from axioms by means of systematic reasoning. This is to avoid mistaken "theorems", based on fallible intuitions, of which many instances have occurred in the history of the subject.

We are living in a changed world where we cannot avoid mathematics in day to day live. Everything that surrounds us requires a great knowledge of calculation especially in the science world. Infact many pupils fear mathematics just because they relate so much to science and there is a need to eliminate this in their mind, everything just need determination in order to excel. A clear clarification is needed to make this pupil to make up their mind from the word go. The opinions of mathematicians on this matter are varied. Many mathematicians feel that to call their area a science is to downplay the importance of its aesthetic side, and its history in the traditional seven liberal arts; others feel that to ignore its connection to the sciences is to turn a blind eye to the fact that the interface between mathematics and its applications in science has driven much development in mathematics. One way this difference of viewpoint plays out is in the philosophical debate as to whether mathematics is *created* (as in art) or *discovered* (as in science). It is common to see universities divided into sections that include a division of *Science and Mathematics*, indicating that the fields are seen as being allied but that they do not coincide. In practice, mathematicians are typically grouped with scientists at the

gross level but separated at finer levels. This is one of many issues considered in the philosophy of mathematics.

Several studies have shown that instruction, especially at the primary school level, remains overwhelmingly teacher-centered, with greater emphasis being placed on lecturing and textbooks than on helping students to think critically across subject areas and applying their knowledge to real-world situations (Cobb, Wood, Yackel, & McNeal, 1992; Cohen, McLaughlin, & Talbert, 1993; Ladson-Billings, 1997). Nevertheless, mathematics remains extremely useful for solving real-world problems. This fact led the researcher, a student of Kampala International University to seek to investigate the factors responsible for the negative attitudes of pupils towards the learning of mathematics. The researcher has a great hope that there will be a great improvement in mathematical performance in Kenya Certificate of Primary Education if teachers and the concerned party empower this young generation for a better tomorrow.

1.2 Statement of the problem

Mathematics is an integral subject in school curriculum. It forms prerequisite for the study of any science based subject in the country. Its fundamental role lies in its everyday application in most social sciences, government and business transactions, and physical sciences and engineering, biological sciences and medicine, military and aerodynamic advancements and household chores. (Mutunga and Breakel, 1992)

This has made the subject compulsory in the school curriculum in Kenya (Mutunga and Breakel, 1992; Republic of Kenya, 1999). This is because students are expected to apply the knowledge of Mathematics in both familiar and unfamiliar situations. However, the attitude of pupils towards the study of mathematics in our schools nowadays

leaves a lot to be desired. Observations of academic performance of most students in mathematics in. One wonders if the gap is a general phenomenon or not as a result of this researcher seeks to investigate the factors responsible for the negative attitudes of pupils in mathematics reflected in their poor academic performance in order to come up with solutions to alleviate the problem.

1.3 Objectives of the study

1.3.1 General objectives

This study will examine the factors that influence pupils attitude toward mathematic in Kenya Certificate of Primary Education in Chania zone, primary school, Thika District, Kenya.

1.3.2 Specific objective

This study seeks to;

- ✓ Asses the learners attribution of success and failure in mathematics
- ✓ To establish whether students attitudes toward mathematics is as a result confidence
- ✓ To find out teachers' perception of students influences their attitude towards mathematics.
- ✓ To find out gender issue and academic performance.
- ✓ To assess different expectations teachers has towards students on mathematics.

1.4 Significance of the study

This study will benefit;

Kenya Ministry of Education to design policies that encourage and attract pupils to find interest in studying Mathematics and changing their attitudes towards mathematics.

The district supervisors will be able to make a follow up of the policies designed by government to see to it that pupils' negative attitudes towards Mathematics are changed.

The pupils will also be sensitized about the need to take Mathematics seriously in order to have a brighter future.

1.5 Theoretical Framework

This study is based on Kenya's joint Admissions University Board (KJUB) which states that performance in mathematics has made students in universities study degree programme that they have no interest in even after qualifying for other programme with very high grades in other subjects except mathematics. The policy in Kenyan Education is that without a grade C+ and above in mathematics , you cannot study prestigious degree programme like medicine, engineering , accounting pharmacy etc. a student who scores A's in all science subjects but fails to pass mathematics is restricted to the less prestigious courses.

Students who perform well in mathematics at primary level will experience few problems in handling complex calculation in

Secondary schools. The same said student progresses to university level with no career choice problem whatsoever.

The senate doubted the commitment of mathematics teachers in assisting the learners improve in the performance . it also wondered why the Ministry of Education would not allow teachers to specialize in particular subjects only in teachers training colleges which they argued that it would prepare the teacher to deliver effectively.

1.6 Research Questions. -

- What are the teachers expectations towards mathematics?
- How the gender does affects the pupils attitude towards academic performance in general?

CHAPTER TWO

2.0 Introduction

This chapter reviews literature as an account of the knowledge and ideas that have been established by accredited scholars and experts in the field of study. It is guided by the objectives of the study outlined in chapter one. In the area of mathematics, several studies have shown that instruction, especially at the high school level, remains overwhelmingly teacher-centered, with greater emphasis being placed on lecturing and textbooks than on helping students to think critically across subject areas and applying their knowledge to real-world situations (Cobb, Wood, Yackel, & McNeal, 1992; Cohen, McLaughlin, & Talbert, 1993; Ladson-Billings, 1997).

This research suggests the need to adopt some of the more recent reform-based instructional strategies, along with some traditional practices that have been overlooked and underutilized in high school mathematics classrooms (National Council of Teachers of Mathematics, 1989, 1991, 2000; Stein, Grover, & Henningsen, 1996). Such strategies and practices include individual exploration, peer instruction, and small group work, each of which emphasizes the use of multiple approaches to problem solving, active student inquiry, and the importance of linking mathematics to students' daily life.

Research has shown some effect of these instructional reforms on student achievement and attitudes toward mathematics (Hart, 1989; Leder, 1987, McLeod 1991).

However, the bulk of these studies have focused mainly on the elementary and middle school levels (e.g., Silver & Stein, 1996). Very few have focused on African American and Hispanic American students' mathematics achievement at the high school level (Porter, Kirst, Osthoff, Smithson, & Schneider, 1993).

The literature has also examined the effects of other variables on students' mathematics attitudes and achievement such as their socioeconomic status (SES), gender, and school type as well as teacher experience and beliefs about different students' abilities to succeed in mathematics (Tate, 1997). These variables have been shown to exert a strong effect on student performance.
This chapter is guided by the following;

2.1 Different Expectations

Reyes and Stanic [1988] suggest those teachers' attitudes about the "aptitudes of students and the appropriateness of their achievement at a high level in mathematics differ on the basis of sex" [p 30].compound the gender difference in Mathematics. These attitudes are reflected in the expectations teachers have for male and female learning. Since there has been very little research addressing the problems of differential teacher expectancy for females and males, however, it is difficult to support a conclusion that differential teacher behavior is a reflection of different expectations.

2.2 Gender Issue and Academic Performances

Fennema and Sherman found that gender differences in achievement which favored males were accompanied by a greater male perception of the usefulness of mathematics. Eccles [1983] supported this by his

findings that females felt that mathematics was of less value to them than it was to males. If a teacher has a strong belief in the usefulness of mathematics, presumably this has an effect on the students' learning; if a teacher believes that a student's career path will be facilitated by mathematics presumably the teacher will make appropriate choices for the student. There have been some indications about teacher beliefs causing gender differentiation as they tend to choose males over females with the same learning problems for remedial mathematics programmes, suggesting they believe it is more important for males to learn mathematics. Furthermore many teachers actively encourage males to persist in mathematics but do not encourage females. Some all-female schools in Australia have a more limited mathematics curriculum and some co-educational schools have reported scheduling problems that prohibit females from taking advanced mathematics courses. Finally, girls forced to make choices about conflicting advanced courses which include mathematics tend to choose other courses instead of objecting to the conflict [Fennema and Leder, 1990].

Teachers will often encourage females to perform well in routine mathematics and offer them less encouragement to try more cognitively challenging tasks such as problem solving, Expecting also more conformity and dependence from females [Grieb and Easley, 1984]. In Casserly's study [1975] of females in advanced mathematics classes in the secondary schools, Casserly found that many teachers, with good intentions, solved difficult mathematical problems for the girls, fearing tears and negative emotions, thus actually prohibiting the females from becoming successful problem solvers

2.3 Teachers' Perceptions of Students' Attitudes to Mathematics

Attribution Theorist [Weiner 1972] identifies a number of perceived causes of academic success which he characterized as internal, external, stable and unstable. He used to characterize the different attributions of success and failure in terms of specific factors such as ability, task difficulty, effort and luck. In mathematics participation and achievement for both males and females attributive style interacts with many other internal influences, such as confidence, perception of the usefulness of mathematics and fear of success and greatly influence them. Looking at these components potentially it offers a valuable insight into understanding why gender differences in mathematics occur. Clark and Peterson [1986] researched attributions for the causes of learners' successes and failures in teacher beliefs. They found, "The most important beliefs that teachers have about students are those that deal with the teachers' perceptions of the causes of students' behavior "[p.281] overt teacher behavior is thus directly related to how the teacher attributes causation of successes and failures. Studies on teachers' attributions of males' and females' successes and failures have produced varying results. Clark and Peterson [1986] found that the sex of the student was not a variable affecting teachers' attributions. Dweck et al. [1978] reported significantly different evaluative feedback from teachers relating to gender. They found the following for males more than females: positive feedback was addressed to the intellectual quality of the work; less negative feedback was addressed to the intellectual competence of the work; and males' failure tended to be attributed to effort. They concluded that children are reinforced in such a way that males assume their failures are due to insufficient effort and females assume

their failures are due to lack of ability. Applying the causal relationship of stable or unstable factors, Dweck et al.'s [1978] results indicate that males are reinforced in a way which encourages them to believe that they can control their own learning; effort is an unstable factor, so if they increase it, they can learn. Females are reinforced in a way which causes them to believe their failures are due to lack of ability and their successes are due to effort; they can only continue to succeed if they exert equal or greater effort in the future. Females thus have little chance to develop confidence in their ability and develop a fear of failure; if they do experience failure they may believe they cannot overcome it. It may be questioned as to whether the damaging effects of teacher beliefs on females about attributions for success and failure would be lessened by removing gender comparisons i.e. by single-sex teaching.

2.4 Students Attribution of Success and Failure

A further associated factor is the way in which the students themselves attribute causation for success and failure in mathematics. This links with earlier discussion of attribution of success and failure by Clark and Peterson [1986], and Dweck et al [1978]. Wiener [1974] identified four categories to which people attribute their success or failure: ability, effort, task difficulty and luck. These four causes can be classified along the dimensions of stability and locus of control.

These two dimensions of stability and locus of control are important determinants of an individual's future expectations of performance. A student, who attributes failure to lack of effort, can adjust this to attain success in the future but a student who attributes failure or lack of success to lack of ability will have very little reason to expect

success in the future. On the other hand, a student who attributes success to ability will most likely expect success in the future as ability is a stable factor; conversely, a student who attributes success to luck will hold no such expectation, since luck is outside of one's control.

There have been many studies investigating attribution patterns relating to gender. In 1979, Fennema, Wolleat and Pedro created a Mathematics Attribution Scale which measured attributions for success and failure. They found several gender differences: the males attributed their success to ability more strongly than females, whereas females claimed effort more frequently to be the reason for their success; females also attributed their failure more readily to lack of ability or task difficulty. A comparison between sex and achievement scores showed other gender differences: at all levels of achievement, females were more likely to attribute their success to effort, but as the level of achievement increased, the extent to which they attributed success to effort decreased; for both sexes, the attribution of success to ability increased as achievement increased and the attribution of failure to low ability decreased as achievement increased.

2.5 Confidence and Performances

Confidence, which has generally been accepted as a belief about one's competence in mathematics, has been identified as one of the most important affective variables [Reyes, 1984], influencing the students' approach to new material including a determining factor of their persistence. The student will persist if confident of finding a solution or eventually gaining understanding; likewise, a confident student is more likely to participate in mathematical courses at a higher level. Fennema and Sherman [1976] produced the Fennema-Sherman Mathematics Attitude Scales which measured confidence using a

confidence subscale; they also measured the students' mathematics achievement. Their results showed that when a gender difference in mathematics achievement in favour of males was found, it was accompanied by a gender difference in confidence, also in favour of males. These gender differences in confidence existed even when there were no differences in achievement. Leder [1995] states that the weight of evidence in the US suggests that females are less confident than males about their mathematical ability and therefore less likely to persist on difficult tasks They are also more ambivalent about the value of mathematics as an occupational prerequisite.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Design

This study followed a descriptive research design. Both qualitative and quantitative methods were used. The quantitative technique was used to collect and analyze data on attitudes and academic performance of students as well as different responses from both students and teachers. The qualitative technique was used to assess the factors affecting students' academic performance in respect in respect to attitudes towards mathematics for pupils as well as responses from teachers.

3.2 Environment

The research was carried out in chania zone, Thika District in Kenya.

3.3 Respondents

The study collected data from teachers and pupils of the school and the District Education Officer of Thika District. The researcher selected 80 teachers at random and 100 students were as well selected. This group of people was to give the primary information about the school. They willingly filled the required questionnaires and submitted them to the researchers.

3.4 Instruments

Questionnaire was employed to gather information from pupils and teachers of the school. The questionnaire was used because of the advantage of obtaining data within a short time. It also has an element of privacy so students are able to express themselves freely.

3.5 Data Collection Procedures

The researcher obtained an introductory letter from the Institute Of Continuing And Distance Studies. This enabled the researcher to go to the field to carryout the study. The researcher personally distributed and supervised the filling into questionnaires by pupils. This was done with the help of school authorities. The questionnaire for the teachers was left with the head teacher or deputy who later distributed them to teachers. They were collected back after two weeks. The interview with the head teachers was held in there offices on appointment since they are very busy officers. The same was done with the District Education Officer at the district headquarters.

3.5 Statistical Treatment of Data

Quantitative Analysis: Data was categorized according to the research variables. Data was then coded in sheets from which it was keyed into the computer. Quantitative data generated from questionnaires was computed into frequency courts and percentages using the formula below;

$$\text{Percentage (\%)} = \frac{F}{\text{Total number of}} \times 100$$

Where F = number of respondents
Observed

Qualitative Analysis: Data from semi-structural, observation, and in-depth interviews was not standardized hence did not require categorization. Such data was presented in a descriptive form and was used to discuss the results of quantitative data.

CHAPTER FOUR

4.0 FINDINGS AND INTERPRETATIONS

4.1 Introduction

This chapter is a presentation, interpretation and discussion of the field results. The results are presented in tables and in form of frequency counts and percentages. The results and discussions are centered on the set objectives of the study.

4.2 Demographic characteristics of respondents

The study covered 50 randomly selected respondents of whom 40(80%) are male and 10(20%) are female.

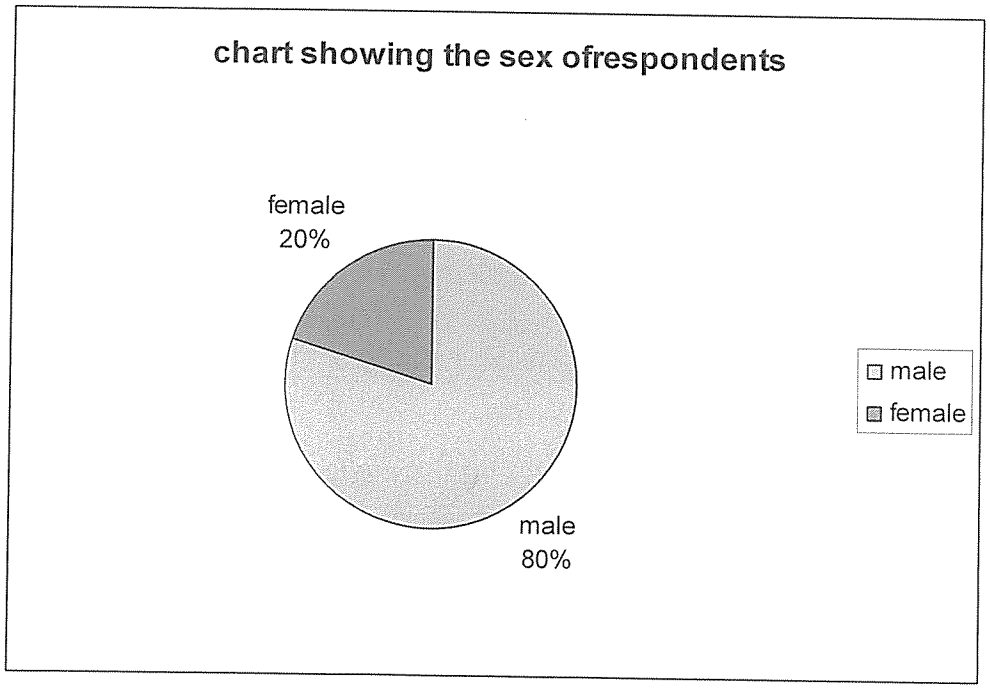


Table 1: Below shows respondents age brackets

Age brackets	Frequency	Percentage
10- 14	40	80
31- 40	5	10
41- 50	4	8
50 - Above	1	2
Total	**50**	**100**

The table1 above shows that the majority of respondents 80% were in the age brackets of 10-14. This is because the major respondents were pupils of the primary schools and only a few teachers were included.

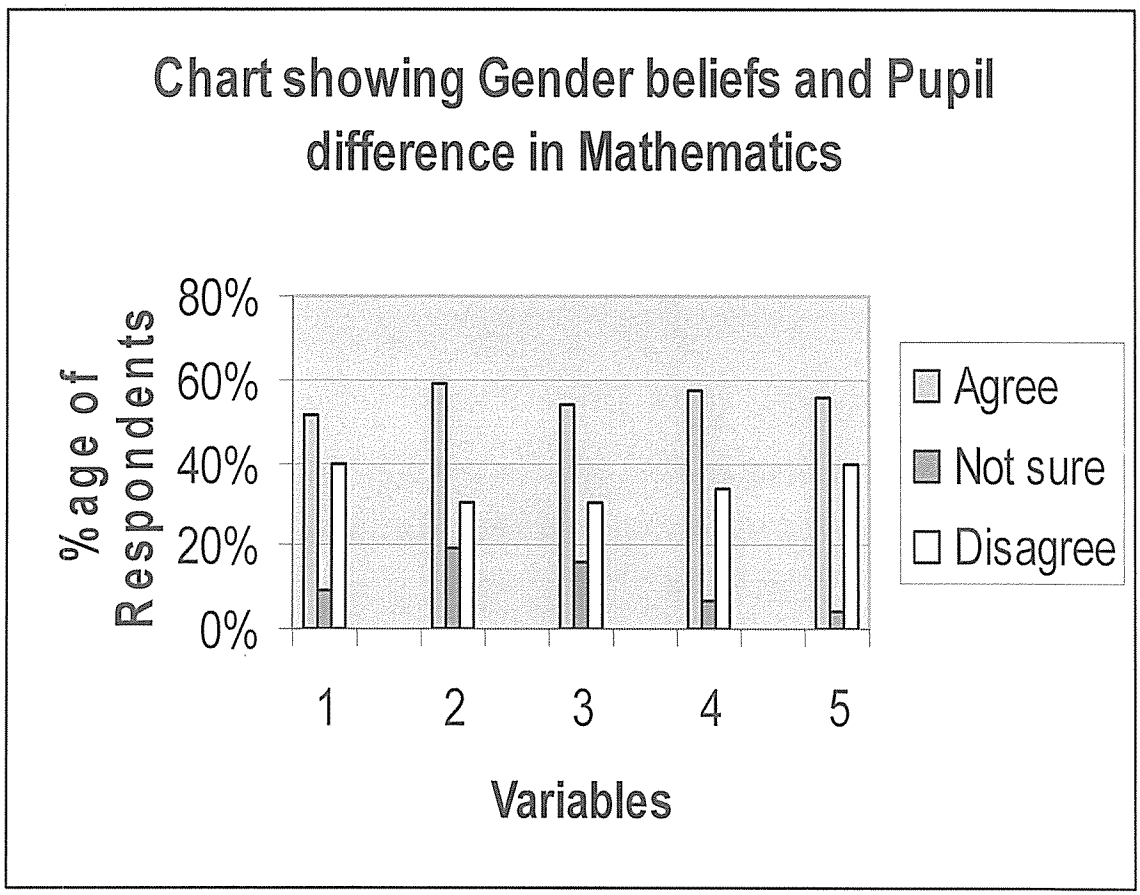
4.3 Teacher beliefs and gender differences in mathematics

The mind setting of a teacher contributes greatly on the preparation and presentation of the lesson. If the teacher believes that a pupil cannot do mathematics this will reduce the time taken to prepare the lesson for the class and the delivery too will lack enthusiasm and patience. But if a teacher believes a pupil can do well in mathematics, then the preparation will be good and the lesson made interesting and this in the end will change the pupil's attitude towards the subject

The findings of the study are presented in table II and chart I below.

Table I: Teacher beliefs and Pupil differences in mathematics

	Item	Agree	Not sure	Dis-agree
1	Teachers think some pupils can not excel in mathematics	51%	9%	40%
2	Teachers believe some pupils naturally hate mathematics	59%	19%	30%
3	Teachers believe it's a waste of time to concentrate on teaching mathematics to some students	54%	16%	30%
4	Teachers discourage some pupils on taking mathematics as their principal subject.	57%	7%	34%
5	Some Teachers only encourage boys in mathematics	56%	4%	40%



Results from the table above indicate 59% of respondents are of the view that teachers believe some pupils naturally hate mathematics. On the other hand 54% of the respondents are of the view that it's a waste of time to concentrate on teaching mathematics to some pupils. More still, 51% the respondents are of the view that Teachers think some pupils can not excel in mathematics

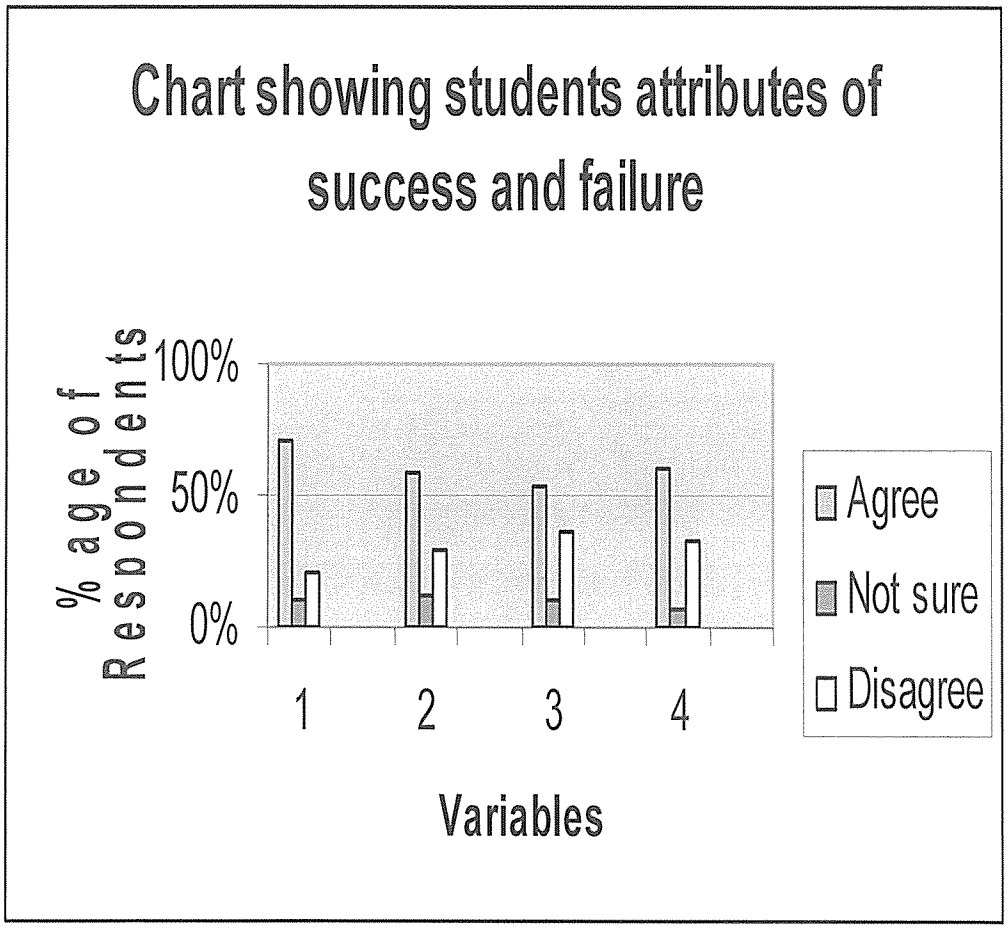
4.4 Students attributes of success and failure

The findings on Students attributes of success and failure are presented in table II below;

Table II: Students attributes of success and failure

	Items	Agree	Not sure	Disagree
1	Some pupils perform poorly in mathematics because they are lazy	70%	10%	20%
2	Some pupils perform poorly in mathematics because they have incompetent teachers	58%	12%	30%
3	Some pupils perform poorly in mathematics because no one encourages them to read hard in mathematics	54%	10%	36%
4	Girls perform poorly in mathematics because they think it is a subject for boys.	60%	7%	33%

Chart II: Students attributes of success and failure



The results from table III and chat II show that 70% of the respondents are of the opinion that some pupils perform poorly in mathematics because they are lazy. 60% of the respondents are of the view that pupils especially Girls perform poorly in mathematics because they think it is a subject for Boys. Further more 58% of the respondents are of the view that pupils perform poorly in mathematics because they have incompetent teachers

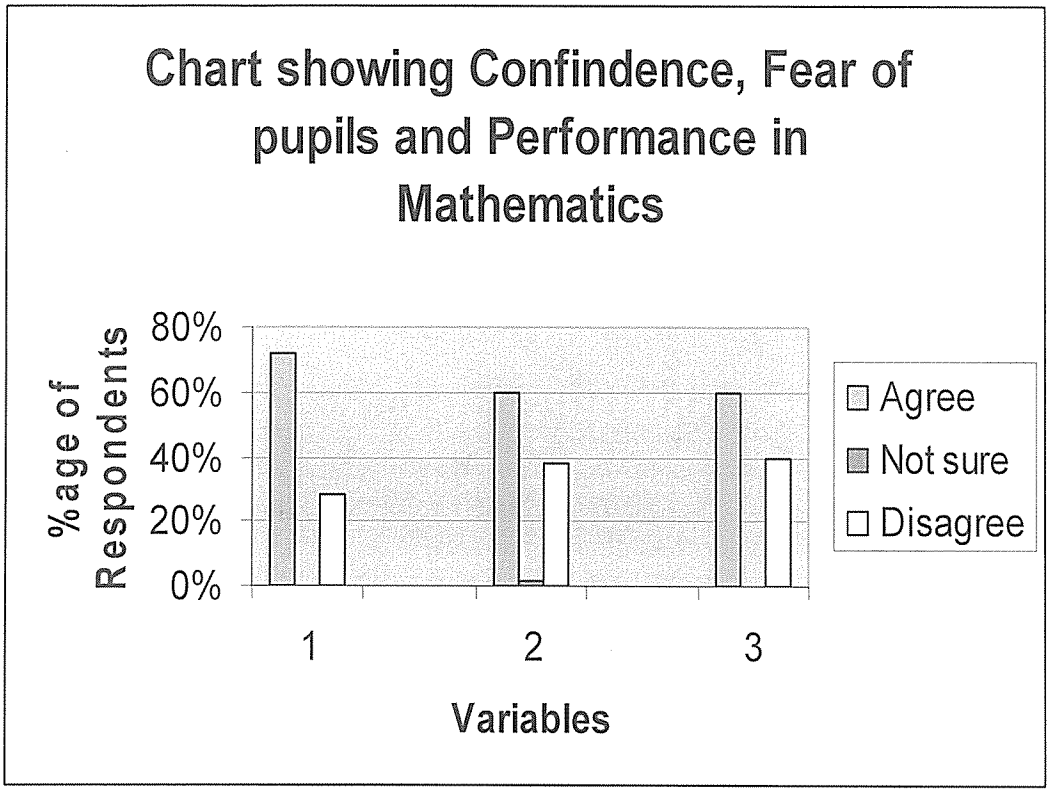
4.5 Confidence of students and performance in mathematics.

The findings on the Confidence of students and performance in mathematics are presented in table IV below;

Table IV: Confidence, fear of success of students and performance in mathematics.

	Items	Agree	Not sure	Disagree
1	pupils students fail mathematics because they are not told by their teachers to be confident	72%	0%	28%
2	Pupils do not take mathematics because they fear they will fail	60%	2%	38%
3	Girls do not take mathematics because they are told they can not compete with boys in the same subject and they are advised to take other subjects.	60%	0%	40%

Chat III: Confidence, fear of success of students and performance in mathematics.



Results from table IV and chat III above show that 72% of the respondents agreed with the statement that pupils fail mathematics because they are not told by their teachers to be confident. Also 60% of the respondents agreed with the view that Girls do not take mathematics because they are told they can not compete with boys in the same subject and they are advised to take other subjects. More still another 60% were also of the view that some pupils do not take mathematics because they fear they will fail

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study looked at the attitudes and academic performance of pupils in mathematics in selected primary schools in Chania Zone, Thika district, Kenya. In an attempt to achieve the above, this chapter presents the summary, conclusions and recommendations of the findings.

The study gives a clear picture that teachers contribute greatly toward mathematics failure.

From the summary above, the researcher arrived at the conclusion that the negative attitude has really affected the teaching and performance of Mathematics.

Secondly, Lack of equipped Libraries and the tendency of pupils' not practicing has also affected the teaching of Mathematics and performance.

The pupils poor foundation in the teaching of Mathematics from primary school level and lack of adequate exercises have had negative effects on teaching and performance of Mathematics in this locality. On the solution that can be put in place to improve the performance and teaching of Mathematics, use of enough practice by pupils when in school and home. Setting up and equipping Libraries was also emphasized. However the researcher based his research on a very small area of Chania Zone and this finding cannot be used to generalize on the teaching and the performance of Mathematics countrywide.

The findings revealed that 51% of the respondents believe that pupils cannot excel in mathematics, 59% of the respondents believe some pupils naturally hate Mathematics 54% of the respondents see Mathematics as a waste of the time.

It was concluded that, 70% of the respondents perform poorly in Mathematics because they are lazy. Many of the people agreed with the second statement, and 58% of the respondents agreed with the third statement

5.2 Summary of the major findings

5.2.1 Teacher beliefs and pupils difference in mathematics

The first sought to investigate Teacher beliefs and pupil differences in mathematics.

The findings revealed that 51% of the respondents agreed with the first statement, 59% of the respondents agreed with the second statement, 54% of the respondents agreed with the fourth statement and 56% were in agreement with the last statement.

5.2.2 Students attributes of success and failure

The second objective sought to investigate the students attributes of success and failure.

The findings revealed that 70% of the respondents agreed with the first statement , 60% of the respondents agreed with the second statement, and 58% of the respondents agreed with the third statement.

5.2.3 Confidence of students and performance in mathematics

The third objective to investigate the confidence of pupils and performance in mathematics.

The findings revealed that 72% of the respondents agreed with the first statement, 60% of the respondents agreed with the second statement, and another 60% also agreed with the third statement and 56% of the respondents agreed with the fourth statement.

5.3 Conclusions

5.3.1 Finding out on teachers beliefs and pupils differences in mathematics

The first objective sought to investigate Teacher beliefs and pupil differences in mathematics.

The findings revealed that the respondents were in agreement with the following statements; teachers think pupils can not excel in mathematics, teachers believe some pupils naturally hate

Mathematics, teachers believe it is a waste of time to concentrate on teaching mathematics to some pupils, teachers discourage girls on taking mathematics as their principal subject, and teachers only encourage boys to study in mathematics.

5.3.2 Finding out students attributes of success and failure

The second objective sought to investigate students attributes of success and failure.

The finding revealed that the respondents were in agreement with the following statements, some pupils perform poorly in mathematics because they are lazy, pupils perform poorly in mathematics because they have incompetent teachers, pupils perform poorly in mathematics because no one encourages them to read hard in mathematics, and girls perform poorly in mathematics because they think it is a subject for boys.

5.3.3 Finding out confidence of students and performance in mathematics

The third objective sought to investigate the confidence of students and performance in mathematics.

The findings revealed that the respondents were in agreement with the following statements ; pupils fail mathematics because they

are not told by their teachers to be confident, pupils do not take mathematics because they fear they will fail, and girls do not take mathematics because they are told they can not compete with the boys in the same subject and they are advised to take other subjects.

5.4 Recommendations

1. The researcher recommended that pupils should be assessed on daily basis as Mathematics subject is taught daily. If this is done, the learners would learn their mistakes and areas of weakness and thus improve.

secondly, there's need to have fully equipped libraries in the schools and teachers of Mathematics should make sure that the reading lesson in the time table is conducted condusively . The researcher found out that very few of the pupils visit the library few times while many of them never visit the library at all. The use of Mathematics should be emphases by all teachers in school irrespective of the subject they teach.

The ministry of Education should make sure that the pupils' teacher ratio is well balanced so that the Mathematics teacher is able to mark the pupils work daily. The researcher found out that enrollment for class is 35- 46 pupils is on the higher side for an Mathematics teacher who may be have four Mathematics classes. The Head teacher should make sure that teachers plan their work as required by the ministry and make lesson plans before teaching the lesson. The relationship between teachers and pupils should be cordial so that pupils can freely express themselves, ask and answer questions as required.

The ministry of Education should make sure that teachers attend in-service courses regularly in order to update themselves with the recent updates.

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APPENDIX A

PUPIL QUESTIONNAIRE

Please read the following statements carefully. Tick those which you agree with and put a cross against those you disagree with.

1] I enjoy Mathematics. [ ]

2) You have to be clever to do well in Mathematics [ ]

3) You have to work hard to do well at Mathematics [ ]

4) I am lucky when I do well on a Mathematics test. [ ]

5) I usually understand a new Mathematics idea quickly. [ ]

6) I think that my Mathematics teacher thinks that I work hard at Mathematics. [ ]

7) I think that my Mathematics teacher thinks that I am good at Mathematics. [ ]

8) Knowing Mathematics 9) I think Mathematics will be an important part of my job when I leave school. [ ]

10) I believe that I am good at Mathematics. [ ]

11) I enjoy trying to solve a new Mathematics problem. [ ]

12) I feel confident about my ability in Mathematics [ ]

13) I do not like it if I miss a Mathematics lesson. [ ]

14) I think my Mathematics teacher enjoys teaching me. [ ]

Read the following statements, and tick the explanation which you feel applies to you.

15) If I do well in Mathematics it is usually because:

- I am naturally good at it. [ ]
- I work very hard. [ ]
- I was lucky. [ ]
- The work is very easy. [ ]

16) If I do badly in Mathematics it is usually because:

- I am not naturally good at it. [ ]
- I did not work hard enough. [ ]
- I was unlucky. [ ]
- The work is too hard. [ ]

17) To be good at Mathematics is:

- More important for girls. [ ]
- More important for boys. [ ]
- Equally important for boys and girls. [ ]

18) The teacher usually asks me to answer:

- As often as anyone else. [ ]
- More than anyone else. [ ]
- Less than anyone else. [ ]

19) When the teacher asks another student to answer:

- I usually know the right answer. [ ]
- I sometimes know the right answer. [ ]
- I hardly ever know the right answer. [ ]

20) In lessons most people work hard:

- Time All of the. [ ]
- Most of the time. [ ]
- Some waste too much time. [ ]

Do you feel you have the teacher's attention?

- More than most other students. [ ]
- Less than most other students. [ ]
- The teacher's attention is equally distributed. [ ]

22) Do you think you would learn more if your class was:

- Boys and girls together. [ ]
- Just your own sex. [ ]

23) Which sex do you think is naturally better at Mathematics?

- Boys [ ]
- Girls [ ]
- Both sexes do equally well. [ ]

24) Do you think it is more important for:

- Boys to be good at Mathematics? [ ]
- Girls to be good at Mathematics? [ ]
- It is equally important for both.

Thank you very much for your assistance in completing this questionnaire.

APPENDIX B

TEACHER'S QUESTIONNAIRE

Please read the following statement carefully. Tick those which you agree with and put a cross against those you disagree with.

1. I think some pupils cannot excel in mathematics.

   Agree ( ) Disagree( ) Not sure ( )

2. Teachers believe some pupils naturally hate mathematics.

   Agree ( ) Disagree( ) Not sure ( )

3. Teachers believe it's a waste of time to concentrate on teaching mathematics to some students.

   Agree ( ) Disagree( ) Not sure ( )

4. Teachers discourage some pupils on taking mathematics as their principal subject

   Agree ( ) Disagree( ) Not sure ( )

5. Some teachers only encourage boys in mathematics

   Agree ( ) Disagree( ) Not sure ( )

6. Some pupils perform poorly in mathematics because they are lazy.

   Agree ( ) Disagree( ) Not sure ( )

7. Girls perform poorly in mathematics because they think it is a subject for boys.

   Agree ( ) Disagree( ) Not sure ( )

APPENDIX C

SCHEDULED TIME	ACTIVITY
Jan –March 2008	Writing proposals and submission for approval
June 2008	Collection of data
July 2008	Writing the research report
August 2008	Submitting the research report for approval

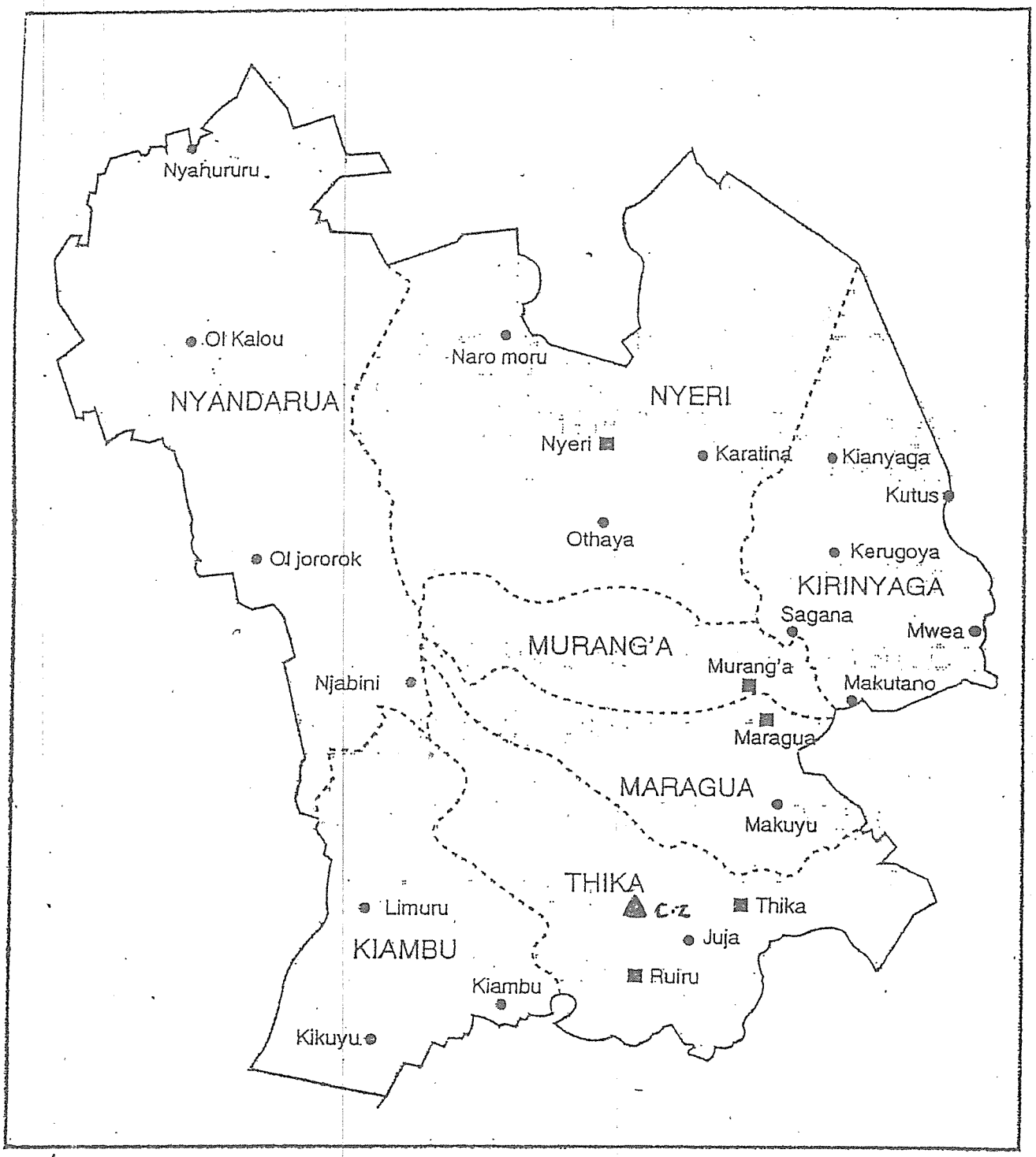
APPENDIX D

BUDGET

The researcher incurred the following expenses.

PARTICULAR	SHILLINGS	CENTS
Transport	2,000	00
Stationery	1000	00
Typing and printing	2,000	00
Binding	3,000	00
Total cost	**8,000**	**00**

Our Province



▲ C·Z : CHANIA ZONE

A MAP OF CENTRAL PROVINCE

SOURCE : TEACHER'S ADVISORY CENTRE DEO'S OFFICE (YEAR 2008)

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Office of the Director

24th April 2008

TO WHOM IT MAY CONCERN:

Dear Sir/Madam,

RE: INTRODUCTION LETTER FOR MS/~~MRS/MR~~...GICHUHI...M..WANGU...

REG. #........BED/1008/42/DF..................

The above named is our student in the Institute of Open and Distance Learning (IODL), pursuing a ~~Diploma~~/Bachelors degree in Education.

He/she wishes to carry out a research in your Organization on:

PUPIL'S ATTITUDES AND ACADEMIC PERFORMANCE IN MATHEMATICS

The research is a requirement for the Award of a ~~Diploma~~/Bachelors degree in Education.

Any assistance accorded to him/her regarding research will be highly appreciated.

Yours Faithfully,

MUHWEZI JOSEPH
HEAD, IN-SERVICE