

A STUDY OF ATTITUDES OF TEACHERS AND
PUPILS TOWARD THE TEACHING AND LEARNING
OF MATHEMATICS RESPECTIVELY IN UPPER
PRIMARY SCHOOLS IN MASIMBA EDUCATIONAL
ZONE, IRIANYI DIVISION, KISII DISTRICT
(KENYA).

BY

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"A Project submitted in part fulfilment
for the Degree of Master of Education
(Primary Teacher Education) in the
University of Kenyatta.

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of teachers and*

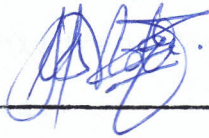


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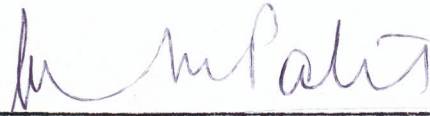
DECLARATION

"This thesis is my original work and has not been presented for degree in any other University".



ISAAC MOGAKA ORORA.

"This thesis has been submitted for examination with my approval as University Supervisor".



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DEDICATION.

To my loving wife, Ephisiba Nyaboke
and our children, Nyamori, Kerubo
and Kemunto.

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A B S T R A C T

The purpose of the study was to identify the attitudes held by the primary school teachers and pupils toward the teaching and learning of Mathematics respectively.

The study was done at Masimba Educational zone, Irianyi Division, Kisii District. It is a typically rural area inhabited by Abagusii.

The zone consisted of thirty seven schools but due to time limit the researcher selected five schools for the study.

Randomly selected sample of 40 teachers and 151 pupils participated in the research. The pupils were from standard seven.

The writer used two questionnaires, one for teachers and the other for the pupils. The questionnaires were administered personally by the researcher in the schools involved.

The responses were tabulated itemwise and data analysed and interpreted. The analysis was done using percentages.

The main findings of the study were:

1. Primary school teachers in Masimba Educational Zone had a positive attitude toward the teaching of Mathematics.

2. The Pupils in standard seven in Masimba Educational zone had a negative attitude toward the learning of Mathematics.
3. There was no significant relationship between the teachers' attitude and his background

It was suggested that a study to be carried out to unearth the factors affecting teachers to have a positive attitude toward teaching Mathematics and how the conditions can be bettered and another research to look into the attributes to the negative attitudes of pupils to learning Mathematics.

It was implicated that although the teachers have a positive attitude toward the teaching of Mathematics, it does not necessarily rule out the possibility of some teachers instilling fear and hatred in some pupils as far as Mathematics is concerned.

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CHAPTER ONE

1.0 INTRODUCTION:

One of the general aims of Mathematics teaching in Kenya is that the pupils should acquire and preserve desirable attitudes about themselves and their relationship with the environment. Monteith¹ maintains that one of the causes of backwardness in Mathematics is lack of first-hand experience of Number in everyday life. In this case the subject has no roots in reality. To most children, it appears unreal and artificial and to the less gifted is quite incomprehensible. The information about pupils' attitudes to Mathematics is vital in that the thought and feelings of pupils toward the activities they freely engage in at school are an important feature of their learning.

The teacher, apart from being competent in and liking Mathematics must understand the pupils' perceived difficulty, usefulness and enjoyment of Mathematics. To do good work, every child must feel secure and be able to count on the sympathy and understanding of the teacher. It is essential too that every child should feel he is making progress and that there is always something next for him to do.

The importance of Mathematics should not be over-emphasized. Downes² says that with developing

civilization man's needs grew and he found it necessary to calculate, count his possessions, compare and assess their value.

1.1

STATEMENT OF THE PROBLEM

Most educators agree that attitudes play an important part in learning and teaching processes. Attitudes formed early in life persist throughout life. Primary schools seem to have a heavy responsibility in helping to create favourable attitudes toward subjects.

The aim of the survey is to find out whether children as early as in standard seven (primary school) have rather firm attitudes toward Mathematics and whether teachers work to establish a wholesome frame of mind in children concerning the need for and importance of Mathematics. Do both teachers and pupils view Mathematics as an optional subject for the gifted or a compulsory subject for all?

Do pupils in a given class need to learn Mathematics to attain short-term success in an examination or to reach a long term understanding?

1.2

PURPOSE OF THE STUDY

The purpose of the research was to study the attitudes of children and teachers in upper primary schools. The researcher intended to uncover within a limited field the present-day attitudes of both teachers and pupils by attempting to find out the following:-

- (i) What are the attitudes taken by children in the upper primary?
- (i i) Are teachers really infecting fear and dislike into a large number of boys and girls?
- (iii) Is Mathematics a much disliked subject with little application in our daily life?
- (i v) Is Mathematics for immediate applications or for further education?
- (v) What is the place of Mathematics within the school curriculum as a whole?
- (v i) Should Mathematics be left to specialists?

The survey findings may shade some light on what has to be done to improve on the unfavourable attitude in order to attain better performance in Mathematics.

The recommendations based on this study may help in bringing the teachers, and parents in a better position

to encourage the pupils to have favourable attitudes toward Mathematics. Mathematics is handled with mixed feelings as evidenced by Cornelius (1982)

"There is the danger of emphasising the fact that Mathematics consists of a collection of abstract structures. There is tremendous pressure on both teacher and pupil to ignore concrete examples and to regard Mathematics as an artificial game with meaningless jargon"

Parents have a role to play in their children's progress in Mathematics by supporting their interest and confidences in the subject.

The survey may help in showing whether language used in text-books and by the teacher is suitable for the pupils.

Glenn⁴ (1977) has said that children learn nearly all their language by imitation and for this reason it is very important for the teacher always to use the language of Mathematics correctly but at an appropriate level of sophistication.

1.3 THE ASSUMPTIONS OF THE STUDY

The researcher has made the following assumptions:

- (i) Children in the Upper Primary classes are more informative because they have had

exposure to Mathematics and have formed stronger opinions than their counterparts in lower classes.

(i i) Teachers generally find Mathematics difficult and this attitude may be injected to their learners.

(iii) Parents play a role to the favourable or otherwise attitudes of their children toward subjects depending on their background.

1.4 SIGNIFICANCE OF THE STUDY

Should the study prove that there is a trend in attitude toward Mathematics among teachers and pupils then this can provide a strong base for comparing performance with attitude and a further investigation should be done to unearth why some children and teachers take unfavourable attitudes towards Mathematics.

Mathematics educators are of the opinion that if pupils acquire a dislike for Mathematics while learning it, further learning could be hindered and thereby defeating the objective of instruction.

1.5

LIMITATIONS OF THE STUDY:

From the onset the researcher realized that the study has definite limitations and they are as follows:

- (i) The researcher did not make an attempt to compare achievement with attitude.
- (i i) Individual differences in children's abilities to read and interpret the attitude scale was not taken into account.
- (iii) Attempt was not made to discover why some children take unfavourable attitudes toward Mathematics.
- (i v) The target population was limited to one educational zone in the District and it was not a good representative sample of the District.
- (v) The attitude scale was not standardized.
- (v i) The socio-economic status of the parents was not considered and how it affects the child's attitude toward Mathematics.
- (vii) Due to the short time available the researcher did not pretest the tools.

1.6 DEFINITION OF SIGNIFICANT TERMS

1.61 TEACHERS' ACADEMIC QUALIFICATION

This refers to the examination that the teacher has passed.

- K.A.P.E - Kenya African Preliminary Examination
- K.P.E. - Kenya Preliminary Examination
- C.P.E. - Certificate of Primary Education
- K.J.S.E. - Kenya Junior Secondary Examination
which was taken after two years of
secondary education.
- C.S.C. - Cambridge School Certificate
- E.A.C.E. - East African Certificate of Education
- K.C.E. - Kenya Certificate of Education
- K.A.C.E - Kenya Advanced Certificate of
Education
- E.A.A.C.E - East African Advanced Certificate
of Education

1.62 TEACHERS' PROFESSIONAL QUALIFICATION

- UT - Untrained Teacher.
- P₃ - Primary Teacher Grade Three.
Teachers in this grade are usually
standard seven leavers who have passed

K.A.P.E./K.P.E./C.P.E. and qualified in an Examination on Primary Teacher Training Course.

P₂

- Primary Teacher Grade Two.

Teachers in this grade are usually Form Two leavers who have passed K.J.S.E. and qualified in an examination on a primary training course.

P₁

- Primary Teacher Grade One.

Teachers in this grade are usually Form Four leavers who passed C.S.C./ E.A.C.E / K.C.E. and qualified in an examination on a Primary Teacher Training course.

S₁

- Secondary Teacher Grade One.

Teachers in this grade are usually Form Six leavers who passed H.S.C/E.A.A.C.E/K.A.C.E. and passed in an examination on a secondary training course.

1.63

ATTITUDE:

According to Oppenheim⁵ (1966), an attitude is a state of readiness, a tendency to act or react in a certain manner when confronted with certain stimuli. The individual's attitudes are present but dormant most of the time; they become expressed in his speech or other behaviour only when the object of the attitude is perceived. Attitudes are abstractions though they are real enough to the individual who holds them. While most of us have many attitudes in common, some may have attitudes which few other people have.

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CHAPTER TWO:

LITERATURE REVIEW:

2.1 INTRODUCTION:

There may be many factors affecting the achievement of pupils in Mathematics. Seemingly one factor that has attracted the attention of many educators and researchers is the attitude toward subject matter. A basic notion of teachers is that student attitudes toward Mathematics are important and that a major task of the teacher is to promote positive attitudes. Wain¹ (1978) maintains that the teacher acts as a mediator between his students and the body of knowledge. The form that this medication takes varies from teacher to teacher depending upon his developing knowledge, experience and attitude.

The literature review has been dealt with in two sections, namely, Concept formation and Method.

2.2 LITERATURE RELATED TO CONCEPT FORMATION :

The child comes to school with prior experiences on which the teacher draws to organize further experience into beginning mathematical concepts. He finally learns to operate on these concepts to form and understand the more formal abstract rules of Mathematics. The child's progress along a Mathematical path is guided by his capabilities, his home environment and his formal

education. The role of the teacher is to give each child the formal education in Mathematics most suited to his capabilities and environmental interests. Griffiths (1963) has found out the following:-

"The crucial period in developing attitudes in a child seem to lie in the infant school where his first formal acquaintance with arithmetic is made; there after should proceed at a pace commensurate with his understanding so that he is not baffled on the other hand or bored on the other".²

Murphy and Murphy³ (1962) say that attempts to favourably influence attitudes toward mastery of material require changing the pupil's perception of himself in relation to the material. He must see himself as being able to master the material, as being able to use it after mastery, as succeeding not only in his own eyes but also in the eyes of others. This calls for the help of not only teachers but also the parents and the peers to enhance effective learning in Mathematics. The two researchers further maintain that unlike interest, attitude does not respond so readily to mere verbal appeal. This demands the teacher himself to be exemplary in solving Mathematical problems and by merely telling the pupils to like and work hard in Mathematics does not in itself help. The researchers underscores the importance of the teacher creating a favourable working condition instead of simply telling the pupils to work hard but must expend due

effort to show them how to do it.

Another educator Schminka⁴ (1973) is of the view that the cumulative effect of teacher enthusiasm and wise teacher behaviour based on awareness from the child's point of view of subtle importance of motivation, curiosity, frustration and conflict and desire for approval - will result in a classroom where appropriate human relationships are fostered. The atmosphere will provide the necessary environment for maintaining independence, self-direction, constructive self-concepts and equally important positive attitudes toward the study of Mathematics. Therefore, teachers have to be conscious of the fact that teacher behaviour in pupil frustration and conflict does not promote a positive emotional commitment to learning tasks.

Children sometimes develop a dislike in a subject not because they are unable but due to the influence of the parents and/or relatives. In support of the foregoing statements, Evan (1965) had this to say:-

"Most people are likely to acquire many of their attitudes in the homes in which they are brought up. A large part of education of children consists in training and conditioning them to take their place in adult society, and parents provide examples which are constantly appearing before their children. Parental attitudes may be taken over by children and made their own and this is one way⁵ in which their influence may be exerted".

Gate⁶(1948) and Lamon⁷ (1972) maintain that when a program is properly graded and sequenced and properly taught, the majority of students will display positive attitudes toward learning.

Briessenden (1971) says:-

"The teacher needs to establish a relaxed classroom atmosphere so that he has time to think on the job, has time to listen to what the pupils are saying and to talk with the pupils"

A Mathematician turned psychologist Skemp (1971) says:-

"The student has no need to accept anything which is not agreeable to his own intelligence - ideally he has a duty not to. And it is by the exercise of the teacher's intelligence and not by his prestige, eloquence, or tyranny, that the students should be led to agree with him. The teaching and learning of Mathematics should thus be an interaction between intelligences, each respecting that of the other. The student respects the greater knowledge of the teacher and the teacher expects his own understanding to be enlarged"

Mathematics is a subject mainly dealing with concept formation. The essence of active learning is variety in approach, in the interaction of children and in the experiences provided for individual children. This variety in the environment is sometimes provided by children themselves but more often by the teachers.

Krutetskii¹⁰ (1957) maintains that one cannot become a creative scholar in Mathematics without feeling enthusiasm for the work. Positive attitude toward Mathematics, the presence of deep and valid interests in the appropriate area, striving and need to study it and an ardent enthusiasm for it is the kind of inclination facilitating the strongest motivating force in the development of Mathematical abilities.

2.3 LITERATURE RELATED TO METHOD:

A lot of study has been done on attitudes but most researchers have investigated the attitudes of teachers and not that of pupils towards Mathematics. The two parties are dependent on each other to some extent.

Mungutu (1984) in his study says:-

"More research in all areas is necessary in all vital considerable difficulties from subjects who responded to the research. Although this research was done on teachers, it is reflected on the pupils".

This latter statement need to be investigated.

Gitonga (1984), a science researcher, studied the attitudes of teachers toward science in Meru District and he had this to say:-

"Since teachers have been found to have a positive attitude toward primary science it would be worthwhile to find out what attitudes pupils have towards science".¹²

Marube¹³ (1985) in his research studied the attitudes of teacher - trainees in Migori College (kenya). In his recommendation , he suggests that a study of secondary school and primary school students' attitude towards Mathematics should be carried out.

Another researcher , Patel (1984), studied the attitudes of secondary school students in Nairobi and has this to say in her study:-

"For the students to build the positive attitudes, the teacher should provide a good atmosphere; show attitudes to his students which are sympathetic especially to the weak ones; show enthusiasm in teaching those students who are sincere and show respect to his pupils so that the student's will be supportive. He should also be able to bear to his student's answers and have a good personality as this plays a great role¹⁴ in communication and motivation".

Wamani (1980) researched on pupils in standards three, four and five and his work centred on sex differences and he maintains that:-

"The sex of the child does not relate positively to the development of Mathematical abilities among Kenya School children at class levels of 3 to 5. This implies that the parents should see to it that they encourage the children equally as far as learning of Mathematics is concerned".

Many more scholars like Loeft¹⁶ (1971), Aiken¹⁷ (1970), Thuo¹⁸ (1984) and Callagan¹⁹ (1971), have studied attitudes and have found a strong relationship between achievement in Mathematics and attitudes toward Mathematics.

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CHAPTER THREE:

DESIGN OF THE STUDY:

3.1 INTRODUCTION:

The nature of this study is a simple survey that was intended to look into the attitudes of both pupils and teachers towards Mathematics in Primary schools. The researcher dealt with standard seven pupils. The variables that were considered included the following:-

1. Teachers' attitudes.
2. Teachers' teaching experience, grade and age.
3. Pupils' attitudes and age.

There are of course many factors affecting the teaching and learning processes but due to time and money elements, the researcher did not venture into them but general observation and reflection from the responses can suffice.

3.2 RESEARCH INSTRUMENTS.

The researcher used one basic tool. There were two questionnaires, one for the teachers (refer to Appendix A) and the other for pupils (Appendix B). Each questionnaire consisted of two sections. Section I dealt with general information and Section II consisted of attitude statements. In all cases, there were twenty five attitude statements covering various aspects in Mathematics

Curriculum. The aspects that the researcher had in mind included attitudes toward the content, method of teaching, concept of Mathematics, its evaluation, teaching materials and language used in Mathematics textbooks and by teachers.

3.3 RESEARCH SAMPLE AND ITS SELECTION:

The researcher limited to five schools in an educational zone of thirty seven schools due to short time available for the research. The schools were selected randomly and the researcher had no control over the subjects of the selected schools.

With the help of the local Assistant Primary Schools Inspector and his clerk, the researcher was able to balance the sample on the basis of performance. Since the zone is in a typical rural area, the need for rural and urban subjects did not arise.

3.4 DESCRIPTION OF THE SAMPLE:

The teachers that were involved in the study were selected on the understanding that they were teaching Mathematics in the upper primary regardless of sex, age experience and grade. In all, there were forty respondents; 36 men and 4 women. There were 19 P_{1s}, 10 P_{2^s}, 7 P_{3s}, and 4 UTS. The teaching experience ranged from

one year to twenty five years. The average age was 33 years.

The pupils that participated in the study were standard sevens. In all there were 151 (65 girls and 86 boys), Their ages ranged from 13 years to 20 years with an average age of 15.72 years.

3.5 METHODS AND PROCEDURES OF COLLECTING DATA:

The researcher selected for this study children from standard seven and teachers in the upper primary level.

First and foremost, the researcher explained the purpose of the exercise. The study was pursued through the cooperation of the teachers and the Assistant Primary Schools Inspector, Masimba Zone.

The questionnaire was distributed by the Headteachers so that children would perhaps feel freer to give a true answer and not merely the answer he/she thought would please his/her teacher. It was explained that the teacher would not see the answers, and because neither the child's nor the teacher's questionnaire asked for names, there was no pressure for approval or disapproval on certain questions.

In either cases there was no time limit for responding but instead the respondents were asked to answer all items. The subjects were encouraged to ask for an explanation where the statements were not clear to them.

3.6

PLAN FOR THE ANALYSIS OF DATA:

The attitude scale included 25 items to be checked as to whether the subjects agreed or disagreed with the statement. The respondent was under no pressure as he might be in taking a test, for the questionnaire had no means of identifying him except by age and sex for the pupils and age, sex, grade and experience for the teachers.

Responses to the 25 questions on the attitude scale are tabulated and in order to make comparisons, the data were converted into percentages.

CHAPTER FOUR

ANALYSIS OF DATA.

4.1 INTRODUCTION:

Since the purpose of the study was to find out the attitudes of pupils and teachers in upper primary school toward Mathematics the researcher only analysed the findings of the survey without bothering the implications of the study.

The analysis was done itemwise but at the end, the items were clustered on the basis of the aspects covered. For every item the number of responses were indicated and the general observation done in the light of the responses given. Finally the general observation is made on the basis of the content, method, objectives and evaluation of Mathematics.

4.2 PUPILS' RESPONSES:

The following were the responses of pupils in 25 items. The general description of the statement was given and the responses put in tabular form.

4.2.1 Every Child Should study Mathematics.

Table No. 1: Showing Pupils' responses to statement 4.2.1.

	Strongly disagree	dis agree	un- decided	Agree	Strongly Agree	Total
No of respon- dents	25	22	20	25	59	151
%	16.6	14.5	13.3	16.6	39.1	100

Observation:

It seems the opinion of the subjects was scattered, although 55.7% of the subjects agreed to the statement.

4.2.2. Mathematics is one of the most useful subjects. Table IV.II showing pupils' responses to statement 4.2.2.

	Strongly disagree	dis- agree	un- decided	Agree	Strongly Agree	Total
No. of respon- dents	31	18	15	25	62	151
%	20.5	11.9	9.9	16.6	41.1	100

Observation:

The views of pupils on the usefulness of Mathematics were divergent. However, 57.7% of the pupils agreed that Mathematics is one of the useful subjects.

4.2.3 Mathematics will help us in our daily lives.

Table IV.III showing responses to statement

4.2.3.

	Strongly disagree	Dis-Agree	Un-decided	Agree	Strongly Agree	Total
No of respn-dents	27	23	21	31	49	151
%	17.9	15.2	13.9	20.5	32.5	100

Observation: On the applicability of the subject in daily lives, the pupils had varied opinions but the trend is similar to the opinions expressed in statement 4.2.2. More than half of the respondents agreed that Mathematics will help them in daily lives.

4.2.4 Mathematics is very uninteresting.

Table IV.IV showing the responses to statement
4.2.4.

	Strongly disagree	Dis- Agree	Un decided	Agree	Strongly Agree	Total
No. of respondents	28	22	42	29	30	151
%	18.5	14.6	27.8	19.2	19.9	100

Observation: The statement was received with mixed opinion and the responses were nearly normally distributed. 39% of the pupils agreed that Mathematics is uninteresting.

4.2.5 Nobody in my class likes Mathematics.

Table IV.V. showing the responses to statement
4.2.5.

	Strongly disagree	Dis- agree	Un- decided	Agree	Strongly Agree	Total
No. of respondents	49	33	30	18	21	151
%	32.5	21.9	19.8	11.9	13.9	100

Observation:

The opinion were scattered. 54.4% disagreed to the statement.

4.2.6. Mathematics might be worthwhile if it was taught in a better way..

Table IV.VI showing responses to statement 4.2.6.

	Strongly disagree	Dis- agree	Un- decided	Agree	Strongly agree	Total
No. of respon- dents	27	26	27	42	29	151
%	17.9	17.2	17.9	27.8	19.1	100

Observation: The reactions varied nearly evenly from one extreme to another but 47% agreed to the statement.

4.2.7. Pupils take Mathematics because it is compulsory.
Table IV.VII illustrating the responses to statement 4.2.7.

	Strongly disagree	Dis- agree	Un- decided	Agree	Strongly Agree	Total
No. of respon- dents	21	21	18	45	46	151
%	13.9	13.9	11.9	29.8	30.5	100

Observation: From the table it shows that 60.3% agreed although the responses were disperse.

4.2.8. Pupils do not try even their best in Mathematics. Table IV.VIII showing how pupils respond to statement 4.2.8.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	34	37	31	27	22	151
%	22.5	24.5	20.5	17.9	14.6	100

Observation: Seemingly there was no inclination to one end but 47% of the pupils disagreed that they do not try even their best in Mathematics.

4.2.9: Pupils really enjoy Mathematics.

Table IV.IX. illustrating the responses to whether pupils really enjoy Mathematics.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	24	23	20	40	44	151
%	15.9	15.2	13.3	26.5	29.1	100

Observation: The responses were scattered but 55.6% enjoyed Mathematics.

4.2.10: Pupils wish they would miss Mathematics.

Table IV.X showing responses to statement 4.2.10.

	Strongly disagree	Disagree	Un-decided	Agree	Strongly Agree	Total
No. of respondents.	34	31	30	26	30	151
%	22.5	20.5	19.9	17.2	19.9	100

Observation: The pupils were in doubt as to whether to miss Mathematics lessons or not. The responses were evenly distributed from one extreme to another. Despite this trend 43% disagreed and nearly the same proportion, 37.1% agreed to the statement.

4.2.11: Extra work in Mathematics is just done for fun.

Table IV.XI showing pupils' responses to statement 4.2.11.

	Strongly disagree	Disagree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	29	34	25	33	30	151
%	19.2	22.5	16.6	21.9	19.9	100

Observation:

41.7% were in disagreement and about the same proportion, 41.8% were in agreement with the statement.

4.2.12: Parents encourage their pupils to learn Mathematics.

Table IV.XII showing the number of pupils encouraged by their parents to learn Mathematics.

	Strongly disagree	Disagree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	21	23	25	34	30	151
%	13.9	15.2	16.6	21.9	19.9	100

Observation. The opinions were scattered but 41.8% claimed to be encouraged by their parents to learn Mathematics.

4.2.13: Pupils cannot see how Mathematics will be of any use to them.

Table IV.XIII showing the responses of pupils to statement 4.2.13.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents.	49	27	32	18	25	151
%	32.4	17.9	21.2	11.9	16.9	100

Observation: The opinions of the pupils were divergent even if 50.3% disagreed with the statement.

4.2.14: Mathematics is just too hard to understand.

Table IV.XIV showing responses of pupils to the difficulty in understanding Mathematics.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents.	47	24	19	28	33	151
%	31.1	15.9	12.6	18.5	21.9	100

Observation: From the table the responses were scattered. 47% of the pupils were not of the opinion that Mathematics is just hard.

4.2.15: Mathematics is not useful out of school.

Table IV.XV showing the responses to statement 4.2.15.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents.	51	29	27	15	29	151
%	33.8	19.2	17.9	9.9	19.2	100

Observation: 53% of the pupils disfavoured the statement; and fairly reasonable portion of 29.1% were in favour of the statement.

4.2.16: Mathematics teaches one to be accurate .

Table IV.XVI showing various reactions of pupils to statement 4.2.16.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	28	20	26	38	39	151
%	18.5	13.3	17.1	25.2	25.8	100

Observation:

The opinions are at variance although 51% of the pupils appreciate the fact that Mathematics teaches one to be accurate.

4.2.17: Mathematics is the best subject in school.

Table IV.XVII showing responses of pupils to statement 4.2.17.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	23	18	19	27	64	151
%	15.2	11.9	12.6	17.9	42.4	100

Observation:

The responses range from strongly disagree to strongly agree; however, 60.3% of the pupils agree that Mathematics is the best subject in the school.

4.2.18: The language used by our teacher during Mathematics lessons is difficult.

Table IV.XVIII showing the response of pupils to language used by a teacher.

	Strongly disagree	dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	49	33	17	24	28	151
%	32.5	21.9	11.6	15.9	18.5	100

Observation: Seemingly there is no compromise but 54.4% disagree with the statement and 34.4% are in favour of the statement.

4.2.19: Our Mathematics teacher encourages us to discuss problems among ourselves.

Table IV.XIX showing responses to statement 4.2.19.

	Strongly disagree	dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	35	19	32	25	40	151
%	23.2	12.6	21.2	16.6	26.5	100

Observation: 42.1% of the pupils agree that they are encouraged by their teachers to discuss problems among themselves.

4.2.20. The number of Mathematics periods, should be increased.

Table IV.XX showing responses to statement 4.2.20.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents	22	30	36	26	37	151
%	14.6	19.8	23.9	17.2	25	100

Observation:

The statement was received with mixed feelings with nearly an even distribution of responses.

4.2.21. The sums done in Mathematics are completely rubbish and a waste of time.

Table IV.XXI showing reactions of pupils to statement 4.2.21.

	Strongly	Dis-	Un-	Agree	Strongly	Total
		Agree	decided		Agree	
No. of respondents.	81	22	16	14	18	151
%	53.6	14.6	10.6	9.3	11.9	100

Observation:

68.2% of the pupils did not shun the sums done in Mathematics whereas 21.2% seemed to label them as rubbish and considered the time spent as a waste.

4.2.22: It is the wish of pupils to understand Mathematics more closely.

Table IV.XXII illustrating the responses of pupils to statement 4.2.22.

	Strongly disagree	Dis-	Un-	Agree	Strongly agree	Total
		agree	decided			
No. of respondents.	25	26	32	23	45	151
%	16.6	17.2	21.2	15.2	29.8	100

Observation:

44.0% favoured the statement whereas 33.8% took the opposite view.

4.2.23: Pupils would do better if they had more time to understand the work they do:

Table IV.XXIII showing responses of pupils to the time allotted to Mathematics lessons.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	16	13	18	46	58	151
%	10.6	8.6	11.9	30.5	38.4	100

Observation:

68.9% agreed that they would do better in Mathematics if they were given more time for the subject.

4.2.24: Mathematics is for the few talented pupils.

Table IV.XXIV showing the responses to the attitudes to statement 4.2.24.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents	20	40	29	34	28	151
%	13.3	26.5	19.2	22.5	18.5	100

Observation:

The views of the pupils were at divergent but 41% agreed that Mathematics should be left to the talented few whereas 39.8% were in disfavour.

4.2.25: Mathematics learning in Primary School level is merely a preparation for the next stage of education. Table IV.XXV showing responses to statement 4.2.25.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	40	14	17	31	49	151
%	26.5	9.3	11.3	20.5	32.4	100

Observation:

52.9% viewed Mathematics learning as a mere preparation for the next stage of education.

4.3: RESPONSES OF 40 TEACHERS ON ATTITUDE SCALE:

The responses to the 25 questions on the attitude scale was tabulated and the data were converted into percentages. The tabulation is done separately for every item.

4.3.1. Mathematics is of great value.

Table IV, XXVI showing teachers' responses to the value of Mathematics.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	0	0	0	11	29	40
%	0	0	0	27.5	72.5	100

Observation:

The responses were skewed to the right where all teachers agree with the statement.

4.3.2: One can teach Mathematics well without reading guides and method books.

Table IV.XXVII showing teachers' responses toward reading guides and method books.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly Agree	Total
No. of respondents.	24	11	1	0	4	40
%	60.0	27.5	2.5	0	10	100

Observation:

87.5% disagreed with the statement but 10% were of the opinion that they can teach well without guides and method books.

4.3.3: Mathematics develops good reasoning ability.

Table IV.XXVII showing teachers' reactions toward statement 4.3.3.

	Strongly agree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	0	1	1	8	30	40
%	0	2.5	2.5	20.0	75.0	100

Observation:

95% of the teachers were in favour of the opinion that Mathematics develops good reasoning ability.

4.3.4 Teachers give extra assignments in Mathematics as a punishment.

Table IV.XXIX showing responses of teachers towards extra assignment.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	21	16	1	1	1	400
%	52.5	40.0	2.5	2.5	2.5	100

Observation:

Although a good portion, 92.5% disagreed with the statement. 5% agreed that they gave extra assignment as a punishment.

4.3.5: The content in Mathematics textbooks is difficult for pupils.

Table IV.XXX showing the responses of teachers towards the difficulty of the Mathematics content.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	5	14	10	10	1	40
%	12.5	35	25	25	2.5	100

Observation:

The opinions of the teachers were divergent despite the fact that 47.5% of them claimed that the content is suitable for the learners.

4.3.6: Teachers encourage pupils to evaluate their work. Table IV.XXXI showing the responses of teachers to statement 4.3.6.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	1	7	1	25	6	40
%	2.5	17.5	2.5	62.5	15.0	100

Observation; The statement was received by teachers with mixed opinions. However, 67.5% agreed that they encourage pupils to evaluate their work.

4.3.7: If some class has to be skipped Mathematics is usually it.

Table IV.XXXII showing feelings of teachers to statement 4.3.7.

	Strongly disagree	Disagree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	27	7	1	4	1	40
%	67.5	17.5	2.5	10	1.5	100

Observation:

It seems the opinion of teachers was scattered even though 85% disagreed with the statement.

4.3.8: Mathematical abilities are tested using Multiple choice questions.

Table IV.XXXIII showing the feeling of teachers as whether multiple choice questions test Mathematical abilities.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	8	16	2	13	1	40
%	20.0	40.0	5.0	32.5	2.5	100

Observation:

60% of the teachers were not in favour whereas 35% supported multiple choice as a suitable tool for testing Mathematical abilities.

4.3.9: Teachers should allow pupils to try several ways of solving problems rather than follow a suggested pattern. Table IV.XXXIV showing the respondents' views to statement 4.3.9.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents	1	0	0	28	11	40
%	2.5	0	0	70.0	27.5	100

Observation:

97.5% of the teachers were in favour of allowing pupils to try several ways of solving problems.

4.3.10: Mathematics will benefit only brighter pupils.

Table IV.XXXV showing the teachers' responses to statement 4.3.10.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	25	11	0	4	0	40
%	62.5	27.5	0	10	0	100

Observation:

90% of the teachers disagreed that Mathematics is beneficial for only brighter pupils. 10% felt that Mathematics should be left to brighter pupils.

4.3.11: A good teacher needs to keep up with modern methods in teaching Mathematics.

Table IV.XXXVI showing the views of teachers toward modern methods in teaching Mathematics.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	1	3	0	26	10	40
%	2.7	7.5	0	65.0	25.0	100

Observations:

Even if 90% of teaching agreed on up-dating themselves with modern method 10% maintained that they were comfortable with what they knew.

4.3.12: Teaching aids should be used during Mathematics lessons.

Table IV.XXXVII showing the teachers responses to statement 4.3.12.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	0	0	0	17	23	40
%	0	0	0	42.5	57.5	100

Observation:

All the teachers who participated in the study agreed on the use of teaching aids.

4.3.13: Mathematics is not receiving the attention it deserves in primary schools.

Table IV.XXXVIII showing the opinions of teachers toward statement 4.3.13.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	7	23	6	4	0	40
%	17.5	57.5	15.0	10	0	100

Observation:

75% of the teacher were of the view that Mathematics is receiving its due attention although 15% were not sure and 10% thought that something more should be added.

4.3.14: Explaining the meaning of difficult words to the class is not the duty of the Mathematics teacher.

Table IV.XXXIX showing teachers' responses to statement 4.3.14

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	24	11	0	3	2	40
%	60.0	27.5	0	7.5	5	100

Observation:

87.5% of the teachers agreed that to explain the meaning of difficult words was the duty of the Mathematics teacher.

4.3.15: A good teacher follows the Mathematics textbook closely.

Table IV.XL showing the responses of teachers toward statement 4.3.15.

	Strongly Disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	1	3	2	29	5	40
%	2.5	7.5	5	72.5	12.5	100

Observation:

85% agreed to the statement that a good teacher follows the text book closely.

4.3.16: It worries me if I found a child had done only a few sums in a week in his/her exercise book.

Table IV.XLI: showing responses of teachers.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	0	3	3	29	5	40
%	0	7.5	7.5	72.5	12.5	100

Observation:

The views of the teachers seemed to converge in that 85% were in favour of the statement.

4.3.17: One should spend more time on Mathematics than the schedule calls for:

Table IV.XLII showing the respondents' views toward statement 4.3.17.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	2	6	2	27	3	40
%	5	15	5	67.5	7.5	100

Observation:

75% of teachers did see the need of one spending more time on Mathematics than the schedule calls for, but 20% did not agree to the statement.

4.3.18: Understanding of Mathematics depends on the inborn abilities and no amount of teaching can change these abilities.

Table IV.XLIII showing the feelings of teachers toward statement 4.3.18.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents	8	24	1	5	2	40
%	20	60	2.5	12.5	5	100

Observation:

80% disagreed to the statement whereas 17.5% agreed.

4.3.19: Teachers should emphasize the importance of understanding rather than covering the syllabus. Table IV.XLIV showing the teachers' responses to statement 4.3.19.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	1	1	1	30	7	40
%	2.5	2.5	2.5	75	17.5	100

Observation:

92.5% of the teachers agreed that understanding is more important than covering the syllabus.

4.3.20: If the teacher is sure he/she can solve the problems and exercises in Mathematics he/she does not need to plan the lessons.

Table IV.XLV showing the respondents views to statement 4.3.20

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	17	17	1	4	1	40
%	42.5	42.5	2.5	10	2.5	100

Observation:

The opinions of the teachers seem scattered despite the fact that 85% agreed on the need of the lesson plan.

4.3.21: Pupils find it difficult to understand some of the words and questions in Mathematics textbooks. Table IV.XLVI showing responses of teachers toward statement 4.3.21.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	1	2	1	29	7	40
%	2.5	5	2.5	2.5	17.5	100

Observation: 90% of the teachers were of the opinion that the language used in Mathematics textbook was difficult for the pupils.

4.3.22: Mathematics teaching should be given to specialists.

Table IV.XLVII showing responses of teachers to statement 4.3.22.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	3	29	2	6	0	40
%	7.5	72.5	5.0	15	0	100

Observation:

The views of the respondents were divergent but 80% of them disagreed that Mathematics teaching should be given to specialists and 15% felt that Mathematics should be left to specialists.

4.3.23: It is difficult to attend to individual pupils' problems in Mathematics.

Table IV.XLVIII showing teachers' responses to statement 4.3.23.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	16	21	0	2	1	40
%	40	52.5	0	5.0	2.5	100

Observation:

92.5% disagreed to the statement whereas the rest agreed.

4.3.24: Mathematics teaching in Primary school level is merely a preparation for the next stage of education.

Table IV.XLIX showing teachers responses to statement 4.3.24.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	2	3	2	27	6	40
%	5	7.5	5.0	67.5	15	100

Observation:

82.5% of the teachers viewed Mathematics in primary level as a mere preparation for the next stage of education.

4.3.25: Mathematics serves the needs of a large number of pupils.

Table IV.L showing responses of teachers to statement 4.3.25.

	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	Total
No. of respondents.	3	0	0	27	10	40
%	7.5	0	0	67.5	25	100

Observation:

92.5% of the teachers agreed that Mathematics serves the needs of a large number of pupils but 7.5% disagreed to the opinion.

4.4 RESPONSES OF TEACHERS TO CHOICE OF SUBJECTS

ONE WOULD MOST LIKE TO TEACH

The subjects were put into four categories, that is, Language Arts, Mathematics, Science and Social subjects. The teachers were asked to choose the subject they would most like to teach.

Table IV.LI showing the responses of teachers to subjects one would most like to teach which were converted to percentages.

Subject Grade	Language Arts	Mathematics	Science	Social subjects	Total
OUT	5	2.5	0	2.5	10
P3	5	10	0	2.5	17.5
P2	7.5	15	0	2.5	25
P1	12.5	27.5	2.5	5.0	47.5
	30	55	2.5	12.5	100

Observation:

55% of the teachers preferred to teach Mathematics on their first choice and 45% would like to teach other subjects apart from Mathematics.

4.5 GENERAL OBSERVATION OF RESPONSES

In the light of sections 4.2 and 4.3, the writer made general observations as pertains to the attitudes of pupils and teachers toward the Mathematics content, its objectives, method of presentation and evaluation.

4.5 : GENERAL OBSERVATION ON PUPILS' RESPONSES:

- (i) As small as 51.5% of the pupils appreciate the fact that Mathematics is of great value, and the content taught in standard seven is suitable to their capability. There was a substantial portion who felt the content in Mathematics-books is difficult for them.
- (i i) Regarding to the objectives of studying Mathematics, 39.6% of the pupils agree to the usefulness and application of Mathematics not only in school but also in daily life - activities.
- (iii) 44.4% of the pupils were in favour of the valuation procedures.
- (i v) About 47% of the pupils appreciated that the way Mathematics was handled by their teachers was appropriate.
- (v) 41.7% of the pupils indicated that they were encouraged by their parents to learn Mathematics.
- (v i) 34.4% claimed that the language used by their teachers was difficult for them to understand.

4.52:

GENERAL OBSERVATION ON THE
RESPONSE OF TEACHERS

(i) 80.5% of the respondents agreed on the suitability of the content for the standard sevens.

(i i) 89.4% of the teachers agreed that Mathematics is useful and serves the needs of many children.

(iii) 86.9% agree that they use appropriate teaching methods. This includes use of teaching aids, lesson preparation, encouraging pupils to evaluate their work and discuss among themselves and explaining of vocabulary to the pupils.

(i v) 80.4% of the teachers constant evaluate pupils' work and appreciate that the multiple choice is apt for testing Mathematical abilities.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

5.0: INTRODUCTION:

The researcher realizes that true attitudes are difficult to measure, however, on the strength of the data tabulated in the preceding chapter the following summary, conclusions, implications and suggestions may be appropriate.

5.1: SUMMARY ON THE RESPONSES OF TEACHERS AND PUPILS

The writer summarized the findings based on the results of chapter four. Because of the wide disparity in the responses of the teachers and the pupils, it was fitting to put the summary separately for each group.

5.11: SUMMARY ON RESPONSES OF TEACHERS

The attitudes of teachers toward Mathematics teaching seems favourable. The views of teachers were convergent and always skewed to one extreme. In any case, the following need particular note.

1. 27.5% of the teachers were of the opinion that the content in Mathematics textbooks is difficult for the pupils.

2. For those who wished to skip Mathematics lessons, the percentage was 12.5
3. 35% of the teachers favoured multiple choice type of testing Mathematical abilities whilst 60% shunned the use of multiple choice questions.
4. The common opinion held by many people that Mathematics benefits only brighter pupils was supported by 10% of the teachers.
5. All teachers who participated in the research recognized the importance of using teaching aids in teaching Mathematics.
6. 15% of the respondents were on the fence as whether Mathematics is receiving the attention it deserves or not.
7. As large as 97.5% of the teachers were in favour of allowing pupils to try several ways of solving problems rather than following a particular suggested pattern.
8. 12.5% of the teachers felt that explaining the difficult words is not the work of the Mathematics teacher and 85% advocated for the following of the textbook closely.

9. 17.5% of the teachers agreed that understanding of Mathematics depends on the inborn abilities and no amount of teaching can change these abilities.
10. 7.5% of the teachers recognized the fact that pupils found it difficult to understand some of the words and questions in Mathematics.
11. A small portion of 15% felt that Mathematics should be left to specialists.
12. 7.5% of the respondents agreed that they found it difficult to attend to individual pupil's problems in Mathematics.
13. 82.5% of those that participated in the study viewed Mathematics Teaching in primary schools merely as a preparation for the next stage of education.

5.12: SUMMARY OF THE RESPONSES OF PUPILS:

The views of the pupils were scattered but the following need particular mention.

1. In line with the common opinion held by many, 41% of the pupils felt that Mathematics should be left to the talented few.

2. 19.2% of the pupils were of the view that even if they were given extra time they would not improve on their performance in Mathematics.
3. 21.2% of the respondents labelled the sums done in Mathematics as rubbish and a waste of time.
4. 34.4% agreed with the fact that teachers used a language which was not commensurate with the sophistication of the learners.
5. 40.3% viewed Mathematics as a hard subject to understand.
6. 28.5% of the pupils did not see how Mathematics would be of any use to them.
7. 29.1% of the pupils were not encouraged by their parents to learn Mathematics.
8. 60.3% of the pupils agreed they took Mathematics because it was compulsory.
9. 39.1% felt that Mathematics was dull and boring.

5.2: CONCLUSIONS AND IMPLICATIONS:

After analyzing the results of the study of pupils' as well as teacher attitudes responses, the research draws the following conclusions.

1. The teachers seemed to have a definite attitude toward Mathematics because their views were convergent whereas the pupils had no particular stand. The pupils' responses were scattered, and in view of that one is forced to infer that the pupils do not understand what they are actually doing even at standard seven level of primary education.
2. A large percentage of primary teachers really enjoy teaching Mathematics and try their best to make it interesting. This does not imply that they actually do it.
3. All teachers felt that the lessons should be carefully planned. It was not felt sufficient that the teacher just know to solve the problems and exercises. This does not imply that all these teachers do plan each Mathematics lesson, but that they know the value of careful planning.
4. The teacher's educational background, age, and experience seemed to make no significant difference toward the teaching of Mathematics. This does not mean that a good educational background and long experience do not affect

the way a teacher looks at Mathematics.

5. A small percentage of pupils do like Mathematics and feel it is a very useful subject.
6. A good number of teachers see clarity and understanding as a teaching aim. This does not imply that many teachers have sound Mathematical understanding themselves and that they do not rush to complete a half-understood syllabus.
7. All teachers agreed to use teaching aids but this does not indicate that they actually develop and use them in Mathematics lessons.
8. A reasonable number of teachers felt that explaining the difficult words that occur in Mathematics textbooks is not the work of the Mathematics teacher. This implies that most teachers assume that all pupils understand the words used and in case of difficulty, it should be referred to the English teacher. This can contribute to the complexity of the subject matter.
9. A large percentage of pupils indicated that they studied Mathematics as a subject because they had no option. This implies that their

attitude toward the subject is unfavourable and this may be attributed partly to their teachers and parents. This is evidenced by the fact that some teachers felt that the teaching of Mathematics should be left to the specialists, and a small percentage of the pupils are encouraged by their parents to study Mathematics.

10. Pupils lack confidence which may initially arise from society's attitudes that few normal people understand Mathematics and the impression is consolidated for many at school.
11. A good percentage of both teachers and pupils view Mathematics teaching in primary school level as a preparation for the next stage. This implies that one concentrates on what he thinks is relevant to Examination shelving aside the use of Mathematics for those who cannot continue to the next stage.
12. Although a small percentage indicated that they found it difficult to attend to individual pupils' problems in Mathematics, it is not certain that the teachers give remedial work to the slow learners. This is further

reinforced by the fact that some teachers were on the fence not to commit themselves as to whether Mathematics is receiving the attention it deserves in the primary schools.

5.3: SUGGESTIONS FOR FURTHER RESEARCH

1. Since the findings of this study are limited to Masimba Educational Zone, the same study can be done in other zones and at District level to find out how the findings at the zonal level compare with those of other areas, both urban and rural.
2. Since the attitude of the pupils toward Mathematics learning was negative another research should be carried to find out the possible attributes. This may include the parents/guardians background and influence, the past history of the Mathematics performance, the teachers' mode of teaching, available facilities, language barrier among others.
3. The attitudes held by teachers involved in the sample were found to be unrelated to the teachers' background. Research should be done to find out the factors that influence teachers' attitudes

toward Mathematics. The possible factors to be investigated, among others, are the grade one obtained in Mathematics, the type of education system one went through, the satisfaction of teachers in their profession and the type of supervision from their superiors.

4. Since it is difficult to measure true attitudes, the study should be accompanied by several observations of actual teaching and the performance of the pupils.
5. Mathematics topped in the list of those subjects teachers would most like to teach irrespective of the grade or experience. A study should be done to unearth the factors affecting the teachers to prefer Mathematics to others and whether there is any significant difference in performance in Mathematics than in other subjects.

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APPENDIX A

TEACHER QUESTIONNAIRE

This Questionnaire consists of two sections. In each section you are instructed on how to respond.

Please answer ALL items.

SECTION I: BACKGROUND INFORMATION:

Put a tick () in the place provided:

1. Sex:
 - (a) Male
 - (b) Female

2. Age:
 - (a) Under 25 years
 - (b) 26 to 35 years
 - (c) 36 to 45 years
 - (d) Over 45 years

3. For how long have you been a teacher

 - (a) Under 5 years
 - (b) 5 - 15 years
 - (c) 16 - 25 years
 - (d) Over 25 years

4. Indicate the class(es) you are currently teaching Mathematics:

- (a) std. I
- (b) std. II
- (c) std. III
- (d) std. IV
- (e) std. V
- (f) std. VI
- (g) std. VII
- (h) std. VIII

5. For how long have you been teaching
Mathematics at the Primary school level?

- (a) under 2 years
- (b) 3 to 7 years
- (c) 8 to 14 years
- (d) over 14 years

6. What is your professional Qualification?

- (a) P₃
- (b) P₂
- (c) P₁
- (d) S₁
- (e) Dip Education
- (f) Graduate
- (g) Other specify (.....)

7. What is your highest academic Qualification?

- (a) KAPE/KPE/CPE
- (b) K.J.S.E.
- (c) C.S.C/E.A.C.E/G.C.E
- (d) HSC/EAACE/KACE
- (e) Graduate

8. Have you ever attended an in-service course in primary Mathematics teaching?

- (a) Yes
- (b) No

9. If you were given the following subjects to choose from, which one would you Most like to teach?

- (a) Language Arts (English/Swahili)
- (b) Mathematics
- (c) Science
- (d) Social subjects (History, Geography etc)
- (e) Other Specify (.....)

SECTION II:

Each of the following statements expresses a feeling which a particular person has toward Mathematics. You are to express, on a five-point scale to the extent of agreement with the feeling expressed in each statement. The five points are:- strongly Disagree (SD) Disagree (D), Undecided (U), Agree (A), and Strongly Agree (SA). You are to circle the letter which best indicates how closely you agree or disagree with the feeling expressed in each statement. There is nothing like wrong or right answer.

1. Mathematics is of great value: SD: D: U: A: SA.
2. One can teach Mathematics well without reading guides and Method books. SD: D: U: A: SA.
3. Mathematics develops good reasoning ability. SD: D: U: A: SA.
4. Teachers give extra assignments in Mathematics as a punishment SD: D: U: A: SA.
5. The content in Mathematics textbooks is difficult for the pupils. SD: D: U: A: SA.
6. Teachers encourage the pupils to evaluate their work. SD: D: U: A: SA.
7. If some class has to be skipped Mathematics is usually it SD: D: U: A: SA.
8. Mathematical abilities are tested using multiple choice questions. SD: D: U: A: SA.

9. Teachers should allow pupils to try several ways of solving problems rather than to follow a suggested pattern SD: D: U: A: SA.
10. Mathematics will benefit only brighter pupils SD: D: U: A: SA.
11. A good teacher needs to keep up with modern methods in teaching Mathematics. SD: D: U: A: SA.
12. Teaching aids should be used during Mathematics lessons: SD: D: U: A: SA.
13. Mathematics is not receiving the attention it deserves in primary schools SD: D: U: A: SA.
14. Explaining the meaning of difficult words to the class is not the duty of the Mathematics teacher. SD: D: U: A: SA.
15. A good teacher follows the Mathematics textbook closely SD: D: U: A: SA.
16. It worries me if I found a child had done only a few sums in a week in his/her exercise book SD: D: U: A: SA.
17. One should spend more time on Mathematics than the schedule calls for SD: D: U: A: SA.

18. Understanding of Mathematics depends on the inborn abilities and no amount of teaching can change these abilities. SD: D: U: A: SA.
19. Teachers should emphasize the importance of understanding rather than covering the syllabus. SD: D: U: A: SA.
20. If the teacher is sure he/she can solve the problems and exercises in Mathematics he/she does not need to plan the lessons. SD: D: U: A: SA.
21. Pupils find it difficult to understand some of the words and questions in Mathematics textbooks. SD: D: U: A: SA.
22. Mathematics teaching should be given to specialists. SD: D: U: A: SA.
23. It is difficult to attend to individual pupil's problems in Mathematics. SD: D: U: A: SA.
24. Mathematics teaching primary school level is merely a preparation for the next stage of education. SD: D: U: A: SA.
25. Mathematics serves the needs of a large number of pupil, SD: D: U: A: SA.

PUPIL QUESTIONNAIRESECTION I: GENERAL INFORMATION:

1. NAME OF THE SCHOOL
2. SEX BOY/GIRL
3. DATE OF BIRTH

SECTION II:

Each of the following statements expresses a feeling which one has toward mathematics. You are given five alternatives depending on the extent of agreement with the feeling in each statement. The alternatives are: Strongly Disagree (SD), Disagree (D), Undecided (U), Agree (A), Strongly Agree (SA). You are to circle the letter or letters which best indicate how closely you agree or disagree with the feeling expressed in each statement.

1. Everybody should study Mathematics. SD: D: U: A: SA.
2. Mathematics is one of the most useful subjects. SD: D: U: A: SA.
3. Mathematics will help us in our daily lives. SD: D: U: A: SA.
4. Mathematics is very uninteresting. SD: D: U: A: SA.
5. Nobody in my class likes Mathematics. SD: D: U: A: SA.

6. Mathematics might be worthwhile if it was taught in a better way SD: D: U: A: SA.
7. Pupils take Mathematics because it is compulsory SD: D: U: A: SA.
8. Pupils do not even try their best in Mathematics SD: D: U: A: SA.
9. Pupils really enjoy Mathematics. SD: D: U: A: SA.
10. Pupils wish they would miss Mathematics SD: D: U: A: SA.
11. Extra - work in Mathematics is done just for fun. SD: D: U: A: SA.
12. Parents encourage their children to learn Mathematics SD: D: U: A: SA.
13. Pupils cannot see how Mathematics will be of any use to them. SD: D: U: A: SA.
14. Mathematics is just too hard to understand. SD: D: U: A: SA.
15. Mathematics is not useful out of school SD: D: U: A: SA.
16. Mathematics teaches one to be accurate. SD: D: U: A: SA.
17. Mathematics is the best subject in school. SD: D: U: A: SA.

18. The language used by our teacher during Mathematics lessons is difficult SD: D: U: A: SA.
19. Our Matheamtics teacher encourages us to discuss problems among ourselves. SD: D: U: A: SA.
20. The Number of Mathematics periods should be increased SD: D: U: A: SA.
21. The sums done in Mathematics are completely rubbish and a waste of time. SD: D: U: A: SA.
22. It is the wish of pupils to understand Mathematics more closely. SD: D: U: A: SA.
23. Pupils would do better if they had more time to understand the work they do. SD: D: U: A: SA.
24. Mathematics is for the few talented pupils. SD: D: U: A: SA.
25. Mathematics learning in primary school level is merely a preparation for the next stage of Education SD: D: U: A: SA.