

**SCHOOL INFLUENCE ON THE LEARNING OF MATHEMATICS
IN SELECTED PRIMARY SCHOOLS KOMOTHAH LOCATION,
GITHUNGURI DIVISION KIAMBU DISTRICT KENYA**

BY

ANNE N. KAMONDO

BED/SNE/13176/61/DF

**A RESEARCH REPORT SUBMITTED TO THE INSTITUTE OF OPEN AND
DISTANCE LEARNING IN PARTIAL FULFILMENT OF THE REQUIREMENT
FOR THE AWARD OF DEGREE, BACHELOR OF EDUCATION SNE
KAMPALA INTERNATIONAL UNIVERSITY**

AUGUST 2008

DECLARATION

This research is my original project and has not been submitted for examination in any other college

Anne Kamondo

Anne N. Kamondo

28/08/08

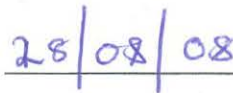
Date

APPROVAL

This research project has been submitted for examination with approval of my college supervisor.



Diborah Taligola



Date

Dedication

I dedicate my research to my beloved husband James and my two children, Peninnah and Simon who have tirelessly supported me in my work.

ACKNOWLEDGEMENT

My grateful thanks are due to m college tutor Ms Taligola for his tireless direction, the support she accorded and the guidance throughout the course.

I would equally wish to thank Rahab Wambui my younger sister to whom I dedicate most of this project, for the so many hours of her spare time devoted for the typing of this project works.

Special thanks goes to the very many people, head teachers, family members and colleagues for understanding an assisting me in compiling of this project

ABSTRACT

Mathematic is an important subject in curriculum it improves the ability of students to solve problems and communicate ideas in everyday life. Primary level it is a compulsory subject and is allocated more coverage hours in a week compared to other subjects.

Performance of students in mathematics at Gathiru-ini Primary School and other parts of the country has been below average. This trend has persisted inspite of intervention measures taken to alleviate the problem. The objective of the study was to investigate the influence on the learning of mathematics in selected primary schools, Komothai location Githunguri Division Kiamba District Kenya.

It was recommended that teachers should adequately prepare for the mathematic lessons and improve their teaching methods. They should also implement discipline among learners and motivate them to learn. Teachers should initiate a mathematical subject panel.

TABLE OF CONTENT

Title page:.....	i
Declaration:.....	ii
Approval:.....	iii
Dedication	iv
Acknowledgements:.....	i.v
Abstract:.....	vi

CHAPTER ONE INTRODUCTION

1.0 Back ground:.....	1
1.2 Statement of problem:.....	2
1.3 Purposed of the day:.....	3
1.4 Objective of the study:.....	3
1.5 Research questions:.....	3
1.6 Scope of the study:.....	3
1.7 Significance of the study:.....	4
1.8 Limitation and delimitation:.....	5
1.9 Definition of terms:.....	5-

CHAPTER TWO REVIEW OF RELATION LITERATURE.

2.0 Introduction:.....	7
2.1 Effective learning and performance in mathematics:.....	8
2.2 Learning context and performance in mathematics:.....	9
2.3 Learning style and performance in mathematics:.....	10
2.4 Learning recourse and performance in mathematics:.....	11
2.5 Quality teachers and performance in mathematics:.....	12
2.6 School curriculum and performance in mathematics:.....	13
2.7 Conclusion:.....	14-
22	

CHAPTER THREE METHODOLOGIES

3.0 Introduction:.....	23
3.1 Research design:.....	23
3.2 Organization of the study:.....	23
3.3 Type of the data collected:.....	23
3.4 Data collection:.....	24
3.5 Reliability of instruments:.....	24
3.6 Sample size:.....	24
3.7 Target population:.....	24
3.8 Sampling technique:.....	25

CHAPTER FOUR

4.1 Introduction:.....	26
4.2 Learning environment:.....	26
4.2.1 Professional qualification:.....	27
4.3 Professional qualification:.....	27
4.3.1 Academic qualification:.....	28
4.3.2 Experience:.....	29
4.4 Assessment style:.....	30
4.5 Method of assessment:.....	30
4.6 How often assessment is done:.....	31
4.6.1 Learning style used in mathematics:.....	32
4.6.2 Scope of content:.....	34
Conclusion:.....	35

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATION

5.0 Summary:.....	36
5.1 Conclusion:.....	37-38
5.2 Recommendation:.....	38

REFERENCE

APPENDIX A-C INSTRUMENTS

APPENDIX D INSTRUMENTS

INTRODUCTION

A number of studies have been carried out by specific researchers to identify and analyse factors that influence performance of students in mathematics in National Examinations. Most of these studies have been conducted in developed countries in Kenya, for example there are a few comprehensive studies that have been carried out on factors that affect the performance of students in mathematics. This is particularly so with the 8. 4.4 system of education. Most of the studies have however come up with the proposed factors that affect the performance of mathematics as well as some recommendations which have been implemented. The fact that the situation has yet improved may be an indicator that there is need for further research in this area.

The performance in mathematics is not a recent problem world wide the subject suffers a minority acceptance. In Kenya yearly mathematics has never gone missing in the subject badly performed in Kenya certificate of education, Wasiche, J.L (2004). Investigating teaching techniques that enhance students performance in mathematics in selected secondary schools in Butere Mumias districts med research proposal Kenyatta university revealed that less than 10% of all candidates who sit for national examination as an important subject for entering various types of employment and courses. It also enjoy some status in Kenya school curricula by being among the core subjects. If not affectively taught to the students who perform poorly then scores are likely to be low. This has therefore to put pressure on mathematics teachers to ensure that students acquire the basic knowledge and skills in the subject. Teachers in both low and high performing schools have tried to device various teaching strategies and learning resources which are important in helping learners improve performance in the subject. Whether these teaching

strategies and learning resources are used by teachers as well as the teachers capabilities in using them in class situations is the contention of the study.

STATEMENT OF THE PROBLEM

Most school perform well in mathematics at all levels (2005). The Kenya National Examination board results, show evidence to this but surprisingly mathematics of Gathiru-ini primary school is not performed well as in other schools. It appears that there are some factors leading to this poor performance. There is therefore need to investigate these factors otherwise poor performance will continue if the factors are not identified and solution discovered.

K.C.P.E Mathematics performance in Gathiru-ini Primary school

2004	69.5
2005	63.4
2006	56.1
2007	50.0

PURPOSE OF THE STUDY

The purpose of this study was to examine the influence of schools on the performance of learners in mathematics.

SPECIFIC OBJECTIVES

To establish the type of learning environment context in which learners study mathematics.

To find out the learning styles used to study mathematics.

Assess the type of curriculum that has been adopted by school for mathematics.

RESEARCH QUESTIONS

- In what context is mathematics
- In what type of learning environment learners study mathematics
- What type of curriculum has been adopted by the school for learning mathematics.
- In what learning styles are used to study mathematics.

SUBJECT SCOPE

The study was conducted in five primary schools among all fourteen primary schools in Komothai Zone in Kiambu East District. The researcher used stratified sampling procedure to come up with five schools and reached sixty people in order to obtain data.

This include:

- 5 head teachers
- 25 parents or guardians
- 5 mathematics teachers
- 25 children

SIGNIFICANCE OF THE STUDY

The study would be useful to the stakeholders in the following ways.

The school may benefit from information provided by the study . The school might use the information to find solutions to poor performance by solving the problems that it would identify.

Teachers would try to improve their teaching techniques. This would lead to improved performance of pupils in mathematics. Study would highlight some areas in which parents can give support in order to make teaching and learning mathematics more effective. This would foster better performance in mathematics in schools.

School administration could use the findings of the study in formulating strategies of improving teaching and learning in their schools. It could also assist them in supervisory roles especially where punctuality and teaching techniques are concerned. The finding of this study could assist the administration in decision making.

Ministry of education science and technology may use the findings of this study to formulate future mathematics education policies aimed at enhancing pupils achievement in learning mathematics. This would alleviate problems and constraints encountered in teaching and learning mathematics.

Future researchers may use this study as a source of literature review when conducting similar studies.

DELIMITATION

This study was centered on the parents, pupils, head teachers and teachers of mathematics in Komothai location.

DELIMATION

This study will only be centered on the parents' pupil and teachers of mathematics in Komothai location.

LIMITATIONS

The limitations of this study are as stated here below.

The finding of this study can only be used in Komothai location or any other rural area in Kenya with similar conditions.

The findings and recommendations of this study can be used to improve mathematics performance in Komothai location.

DEFINITION OF TERM

For the purpose of study , the following terms were designed operationally.

Level of teaching performance is whether it is excellent, very good, fair and poor in the following aspects.

Teaching resources which includes the following guides pupils to make models, prepare simple clear and visible charts or diagrams ensure that the learners have adequate textbooks and geometrical sets write clearly on blackboard during the lessons displays proper sitting arrangement and care of class equipment such as chats and desks and engages learners in activities such as mathematical games and figure puzzles.

Teaching methods which involves whether the teacher uses simple, clear and understandable language, uses varied teaching methods to explain content taught, encourages interactions and co-operation among pupils associates subjects matter to real

life situation, includes a variety of pupils activities in the lesson . supportive with the pupils learning well for the lesson.

Teachers' qualities which includes the following wears clean decent clothes reports to class on time regularly dignified in his/her behavior speaks with audible voice, shows concern for pupils, submits test and assignment results on time and available for academic consultation .

Classrooms management which includes the following , introduces the mathematics lesson assesses pupils as bases to improve delivery of instruction ,implements disipline among pupils in class motives to learn .

Monitors the pupils progress through tests and assignments not over –react to pupil relations. Profile is a description of the important information of pupil as to age, gender and class

CHAPTER 2

REVIEW OF RELATED LITERATURE

INTRODUCTION

This chapter has tried to review the existing literature that is similar to the study so as to get a clear understanding of the problem .

This study is based on vygotkys, thinking and reasoning are products of social activity. As children interact with adults or more capable peers, they not only gain new information but also learn how to think. For vygotsky, thinking itself is a product of social interaction. Vygotsky's theory is often described as taking a socio-cultural perspective on cognitive development. All cognitive activities reflect the cultural context in which people live. Each culture provides its members (children and adults) with a distinctive set of tools for thought, including not only and strategies for solving cognitive problems.

The theory further states that the zones of proximal development is the difference between children's level of performance when working independently and their level while working under the guidance of an adult help children develop when their guidance stays within this zone. Due to the fact that a social interaction is important for cognitive development , this theory has great relevance to education .Vygotsky emphasized that humans have invented many aids to thought that are transmitted to children with the rest of a culture. Children learn to use these inventions as part of formal instruction.

A good example is a student learning how to use a protractor in a junior high school mathematics class or learning how to prepare an outline or use reference cars in an

English class. These cultural inventions help children develop their minds as instruments for planning reasoning and regulating their behavior.

Education primarily as training in the use of tools for thought. Reciprocal teaching is one method that is consistent with theory and that is constant with this theory and that improves children's reading comprehension.

This method involves the use of discussion group with a teacher and several students. These groups are designed to provide children with instruction beyond their independent level of competence but their zone of proximal development.

The theory further highlighted those students whose teachers also receive higher scores on special tests of ability to summarize information. This method is effective with students who vary greatly in age and ability.

2.1 EFFECTIVE LEARNING

Learning does not occur in a vacuum. Human beings learn (intentionally or unintentionally) in a variety of contexts, and from a variety of situations. Therefore, in order for learning to take place there must be a context (for instance a school setting) and a learning experience (a learning activity intended to bring about behavior change. Learning also differs from context to context.

In this study, the school was selected as the major formal learning context.

Schools are social institutions in which groups of individuals are brought together to share educational experiences. Such interactions may breed positive or negative influences on learners. Schools influence learning in the way context is organized and in the teaching , learning and assessment procedures. Watkins et al (1996) use the term

teaching characteristics that are the curriculum assessment course design and teachers conception of teaching as having a major influence on learners. However, the general school policies and regulations, the hidden curriculum and school financial conditions contribute a lot in promoting learning.

In this study, teachers and parents observed that school, whether urban or rural promoted learning through the implementation of a standardized school curriculum, having focused and clear aims on teaching, having a timetable, frequent, assessment and supervision of pupils and availability of study material and activities.

It was also noted that the above aspects were more organized in urban schools than in rural schools in the focus group discussions, a pupil who had studied in a poor rural school and later on moved to an urban school to prepare for his primary leaving examination brought out the role of the school clearly, as well as the difference between a rural and urban school. Knowledge acquired in school may not be useful especially when such knowledge is almost obsolete and appeals to the lower level cognitive aspects. Watkins, Carnell. Lodge and Whalley (1996) observes the goal of effective learning include the acquisition of learning and thinking. It is not enough to respond to changes that have already occurred. School aims and processes must anticipate future needs. These include learning to manage change and diversity and developing the foundation skills for self directed learning.

Effective learning therefore implies that what has been learnt can be retrieved in future situations rather than the short-term function schools and learn especially attach to learning. Learners are actively involved in meta-learning process of planning monitoring and reflecting on what they learn.

According to Kananu, S.B (2005) factors contributing to poor performance in national Examination is seen as the greatest single influence on the school curriculum and children's in Kenya. The education system in Kenya is quite results oriented and any school or pupils performance is measured by how well the pupils have performed. This is true because in the eyes of the public success in education is based on good examination results.

Learning Context

This is learning space or environment in which learner can engage in active and strategic learning and also be able to understand their learning. Some writers have defined it as the interaction between learning and the circumstances in which learning takes place. Its situated ness in term of particularization and coherence.

To them the learning context is to do with the concept of embeddedness of the meaning in some kind of surrounding (saljo ed.1998) . Others have gone further to define it not merely as synonym for a concrete external situation, but as assuming the character of mental framework as well. In this study, the school setting was selected as the learning context.

In some school, there is no time for students to interact with teachers not even with other students. In order to encourage improvement in performance, students are supposed tp work in discussion group and to solve problems together. This results to collaborative learning (Mpalampa 2004) .

A positive learning environment and student learning are enhanced when teachers believe that all students can learn and teachers themselves make a difference. Positive learning

environment is built upon the realistic expectations for student learning and the instructional strategy should be developed by considering the learners characteristics and needs (Aldeman ,1990).

The various ways the teacher can manage some behaviors in the classroom to enhance learning. Some of these include organizing time in the classroom, organizing space in the classroom establishing classroom organizing space in the classroom rules , preventing behavioral problems, presenting classroom procedures and preparing children for special events (Otiato ,2002) careful use of proper mode of instruction is a key factor in individualizing instruments for a class of students with diverse needs (Waiche,2004).

Learning Style

Research evidence shows that each learner has a preferred learning style. Pragmatists may not learn in the same way as theorists and the reverse is also true (Watkins et al 1996) learning style can be best be accommodated when the teacher. Learner ratio is small so that teachers allow independent and problem based learning. What quality learning then? It is learning that takes place in a meaningful way and relates, the past, present and future and upon whose very experience are hinged opportunities for further learning .This occurs when the learner and the teacher are aware of the mental- learning processes.

Learning

Various writers define learning differently depending on the purpose they attach to the concept. Lambert and In Columbus (1998) define learning as the process guided by

individual learner's goals arising from the activity itself and interactions with other stemming from the activity in which try to make sense of their experience by contracting knowledge meaning and understanding , Watkins et al (1996) define it as that reflective activity which enables the learners to draw upon previous experience to understand and evaluate the present, so as to shape future action and formulate new knowledge.

The main objective of mathematics as subject is to assist in the producing a person who will be numerical, orderly, logical, accurate and precise in thought. It is highlighted that a person should be competent in appraising and utilizing mathematical skills in playing a positive role in the development of modern society. Generally the performance of mathematics nationally leaves a lot to be desired. There are various reasons attributed to this trend but the central cause is the quality of teaching. The major areas in teaching that may influence performance of pupils in mathematics are, the use of teaching /learning resources, teaching strategies, teachers' qualities and classroom management skill. Studies have been carried out to try and identify the causes of poor performance of pupils in mathematics (Kenya institute of Education 2002).

The public outcry and concern by parents' students and educationists about decline in performance in mathematics in local examination is a clear indication that factors influencing pupils' performance in mathematics need urgent investigation (Galava 1991). The candidates performed poorly in questions on areas such as arithmetic's in data from tables, geometry, graphs and algebra. The report advocated that teachers should endeavour to instill confidence to learners in problem solving skills (Kenya National Examination Council) (2005).

Learning Resources

The use of learning resources involves the use more than one of the human senses at the same time during the learning process. This is true according to the researcher because studies by psychologists also found that different human senses account for varying percentages of learning. It is estimated that taste accounts for 5 touch 1 ½ % smell 3 ½ learning 11% and sight 83%. It is believed that 20 % of what is heard is retained, while 50% of what is seen is retained and therefore, there is need for the use of visual teaching aids for the active learners' participation and better performance in mathematics (Wachiye, 1990).

The textbook availability was positively related to achievement. The textbook as a teaching resource help individualize instructions and give students a chance to refer to areas he/she did not understand during the lesson (Orodho,1996)

The school with adequate textbooks apparatus and other instructional materials are an upper hand of performing better. They certainly agrees with these studies because the use of teaching resources in learning and teaching is directly related to better performance (Angura,2003).

The mathematics teacher should choose appropriate resources by considering factors such as size, quantity, quality, variety and availability of the resources. Mathematics resources should be used appropriately through proper timing, handling and display. The proper management of resources improves teaching and learning (Kervin L.M, 2003).

The utilization of lesson time in mathematics can greatly determines 'students' performance. Proper use of contact time between the teachers and the students could lead to proper syllabus coverage which could in turn lead to better performance. The

researcher agrees with this study because proper utilization of contact time will lead to competition of the planned content (kabui, 2005).

Quality of Teachers

The teacher's enthusiasm is an important aspect of teachers' effort, which is positively correlated to student's achievement. Good mathematics teachers need to be cheerful .Supportive and enthusiastic, having those characters students tends to feel more comfortable thus encouraging them to like mathematics.

The initial steps in preventing classroom behavior problem is to keep students

SCHOOL CURRICULUM

The school curriculum refers to a list of subject or academic content learners are taught in school. More school research and literature abounds on areas including teaching methodologies, classroom control, assessment styles than on effective learning (Scott & Arkinson 1995; Munene, Odada, Kasente, Carasco, Epeju, Obwoya, Omona & Kinyera 1997). The school, has the greatest influence in promoting learning, however there are also factors that have a detrimental effect to effective learning. The teachers and learners (and parents) conceptualist learning and the approaches they use during and outside teaching and learning processes impact on learning. And yet, their conceptualization of learning influences the way they prepare for learning to take place and the styles pupils adopt during learning.

The large group instruction (whole class) as one of the teaching strategies will help the teacher maintain students' participation and attention. If the teacher uses effective

presentation techniques like demonstration, modeling and guided practice and supplement with co-operative learning, then large-group instruction can be effective for teaching (Kirk S.A et. Al 2002).

The child-centred approach is the best approach in teaching mathematics as opposed to the teacher centered approach, which reduces pupils to passive listeners. The child centered approach includes methods such as investigations, discovery, experimentation, and discussion which introduce mathematical ideas to learners in away that appeal to their needs and interests and develop their understanding (Ndungu et al, 2001).

CONCLUSION

There are some ways that we can assist learners with Directionality related problems.

Provide information : That most mathematics operations are carried out from right to left except division. Many learners often go through school without being given such information.

Clues e.g. arrows for direction : Red and green sticker should be put on the learners desk to notebook, where the green sticker on the left side of the desk could mark the left side and the red put on the right side to mark right side. You may then encourage the learner to put an arrow either on his desk, page cover of his exercise book or in his/her special note book as follows:-

- To remember on which side the sum goes

→→→ Red to green – addition, subtraction and multiplication (+ - x).

←←← Green towards red – Division, direction of writing

- To remember the concept of top and bottom up/top (head) Bottom (legs) lower down.

Direction for writing Numbers

Encourage the learner to write numbers from the top of the line (number) as shown below

1↓ 2↓ 3↓ 4↓ 5↓ 6↓ 7↓ 8↓ 9↓

Use of grids : You should teach learners to use grids to block the ones, tens and a hundreds digits to avoid place value errors.

Support given to learners with memory problems in mathematics

- Limit the number of directions and procedures given orally to the learners.
- Use of mnemonics : The most common mnemonics used for teaching all the operations is BODMAS.
- BODMAS is used to aid memory of the order of the different mathematics operations when they appear together in one sum. For example
- BODMAS : Signifies.

1st B Brackets

2nd O of/over

D Divide

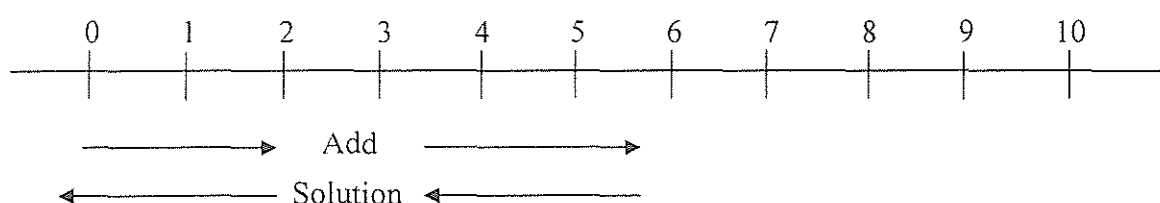
M Multiply

3rd A Add

S Subtract

Number lines containing the numbers 0 -10

You may introduce the use of number line, especially when introducing, counting, addition and subtraction. Number line is useful because it saves them the need to hold more facts in their short-term memory than is necessary. What one has to remember is to move right when adding and to count to left when subtracting. Right and left directions can be indicated by arrows as shown in this figure.



Talking through the operation

This strategy has a multi-sensory touch to it. The importance of a such a method was underscored in the section on reading. Talking through the operation also helps the learners in the following ways.

- Monitoring themselves as they work
- It provides corrective feedback to the learner.
- Helps learner to maintain a attention during the task. This especially useful with problems with short-term memory and attention related problems.

How to support learners who find the language used in mathematics confusing.

- Develop mathematics vocabulary carefully through discussion and giving examples.
- Present concept and new ideas concretely all the time.

- Encourage peer discussion of the problems before they attempt to solve them.
- When you give a word problem, ensure that the learner can read it and understand what is expected of him/her.
- Encourage learners to use items he/she can manipulate and let use items he/she can manipulate and let him/her draw pictures to help him/her clarify the problems.
- Use simple language which is familiar to the learner. However, this may not always work.
- Appoint somebody in class to help the learner whenever he/she has problems in understanding mathematical concepts.

Time related sums

- These learners can be supported as follows
- Constantly remind them of time.
- Pair them with a peer who has the concept of time.
- Use concrete material e.g. face of a clock to help them learn the concept of time.

Difficulties with fractions

To assist learners who experience difficulties with action, you may

- Reinforce the concepts of fraction with practical demonstrations e.g.
 - Cutting an orange into relevant parts, and practically showing the learner what is half, quarter whole and so on.
 - Helping the learners to understand the words that describe how a fraction is written e.g. numerator and denominator.

Numerator : how many pieces an orange has been out into.

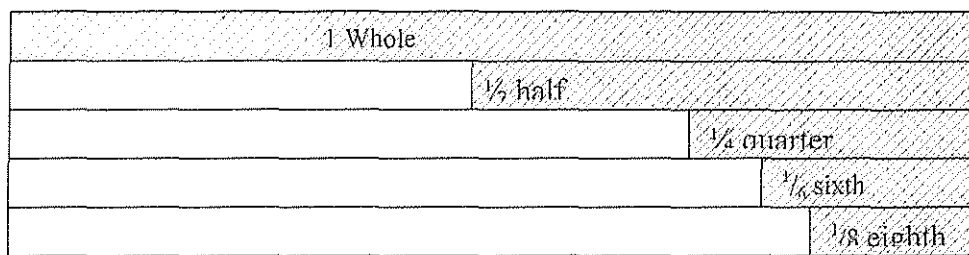
Denominator – how many equal pieces are in the orange altogether.

- Use the mnemonic shown to help the learner tell which one comes down and which one goes up.

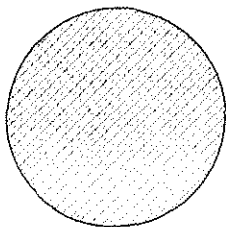
Numerator : North

Denominator : Down

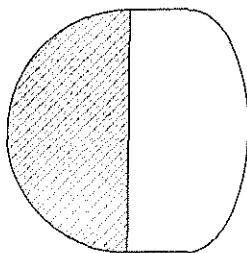
Fraction strip



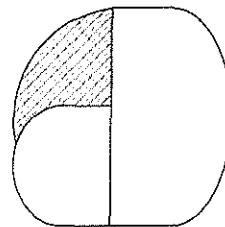
Circle



1 whole



Half



Quarter

GENERAL STRATEGIES

In addition to the already mentioned strategies you can use the following suggestions to assist the learners.

Rehearsal and over-learning

This is a cognitive strategy that can be used in all areas. It helps in keeping information in short term memory. You should encourage learners to over-learn concepts they find difficult to remember, for example mathematical tables. You should not be tired of

repeating new concepts and directions to the learners. Remember , mathematics requires practice.

Fun in learning

You should ensure that learning mathematics is fun and a challenge to them. Try to use relevant games, poems and songs in order to enlist and maintain the learners interest.

Addressing individual learners problems

Work closely with learners with difficulties and aim at addressing their areas of need. You should do this all the time and more so, during the application phase of teaching. That is, as the other learners work independently you can move about assisting those with difficulties. You should also support these learners during teaching or during preps.

Peer Tutoring

Assign one or so of the learners peer, the task of assisting when he/she is stuck and you are unable to reach him/her immediately. This is the person he/she can whisper to if he/she cannot remember an instruction, meaning of a word operation, a strategy method or other concepts.

Practical, concrete materials and examples

Use and also allow materials and examples to clarify explanation as long as it is necessary, to establish mathematics concepts. For example, real or paper money may be used to enable the learner to acquire the concept of exchange of goods and giving the

correct change. This will contribute to the functional aspects of learning that is relating mathematical concepts to real life applications.

Use of a Notebook

Encourage learners to keep a special notebook for putting down :

- Key points for various sums
- Mathematics formulae or vocabulary
- Any important points mnemonics strategy or any other relevant information to be used for reference and revision.
- Rules, principles and directions

You should encourage the learner to rehearse such information and other new concepts constantly. Ensure also that rules and concepts are clear to the learners before allowing them to begin homework and assignment.

Use of relevant materials and skills for mathematics

- Encourage the learner to use.
- Squared exercise book/papers and to learn to use a square (grid) for each figure.
This should check against mistakes arising from wrong alignment, place value or decimals.
- Margins and rulers to encourage neatness and to check against messy work.
- Calculators in cases where he/she has extreme computational difficulties.

However, as he/she uses the calculator you should encourage him/her to develop the skill of estimation.

- The practice of proof-reading and checking all written work for spelling, number sequence and other errors. The practice of checking his/her work can enable a learner to detect some of the errors such as forgotten, borrowed or carried numbers.
- The habit of showing his/her rough work on the page. This will help both of you to trace some errors in his/her work.

CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

This chapter describes the methodology which was used in the study. It includes sample size, data collection technique and data analysis procedure

3.1 RESEARCH DESIGN

The research used the quantitative design in the study to investigate the factors that influence learning of mathematics in Komathai Zone.

3.2 Organization of the Study

Kiambu District is one of the eight districts in Central Province of Kenya. It is a district which is moderately populated. There are public schools and private schools. The area was selected because the researcher works as a teacher in the district. She also teaches in a Public School.

3.3 Type of Data Collected

Data was collected in numerical form. The data was sourced from five schools. The questionnaire was meant for five mathematic teachers, twenty five parents, five head teachers and twenty five pupils. The questionnaire was divided into four sections as per the research questions.

3.4 Data Collection

The researcher presented the questionnaire to the mathematic teachers, head-teachers and pupils. She explained how to fill the information needed. Once completed she used the raw data for analysis.

3.5 Reliability of Instrument

The questionnaire served as a reliable data collection tool as very specific questions were asked and very specific answers were supplied in numerical form.

The responses were correct as the researcher was physically present and could also observe the learners who were the target groups.

Filling in numbers in questionnaire boxes was easy and time saving for research respondents.

3.6.1 Sample Size

Out of the forty three schools in the district only five schools were selected for the study.

There were two hundred and fifteen teachers, ten thousand pupils and forty three head teachers.

Target population

The target population was 25 pupils, twenty five parents, five headteachers, five mathematic teachers in the five schools were the research respondents.

3.6.2 Sampling techniques

The researcher used purposeful sampling techniques which is direct, deliberate and specific.

CHAPTER FOUR

This research study was carried out to find the school influence on learning of mathematics in selected schools in Komothai zone.

The objective

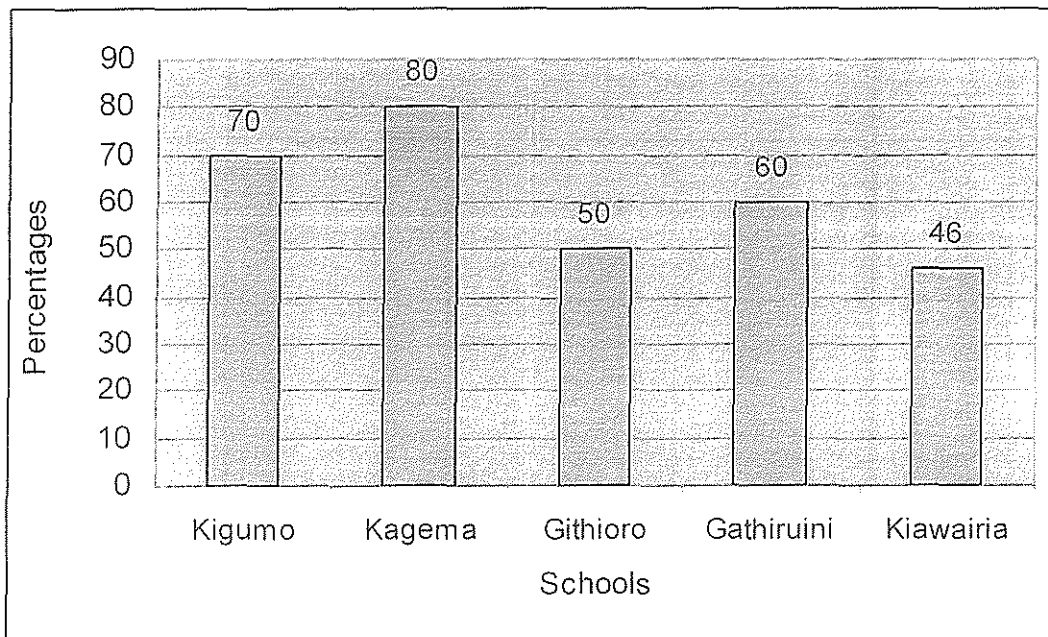
- To establish the type of learning environment in which learners study mathematics
- To find out the learning styles used to study mathematics.
- Assess the type of curriculum that has been adopted by school for mathematics.

In this chapter data was presented, analyzed and interpreted. The variables that were examined included; learning context, learning style, curriculum and performance in mathematics.

4.1 The type of learning environment in which the learners study mathematics.

4.2 Learning Environment

The table shows the number of pupils in one class is high leading to overcrowding in classes. The number of pupils in Kigumo Primary was 70% which is a large class; Kageema Primary was 80% which is also a large class, Gathiru-ini primary 60% which indicates they are many, Githhioro Primary 50% and Kiawairia 40% which is fair. These have been consolidated and presented in percentage in a histogram.

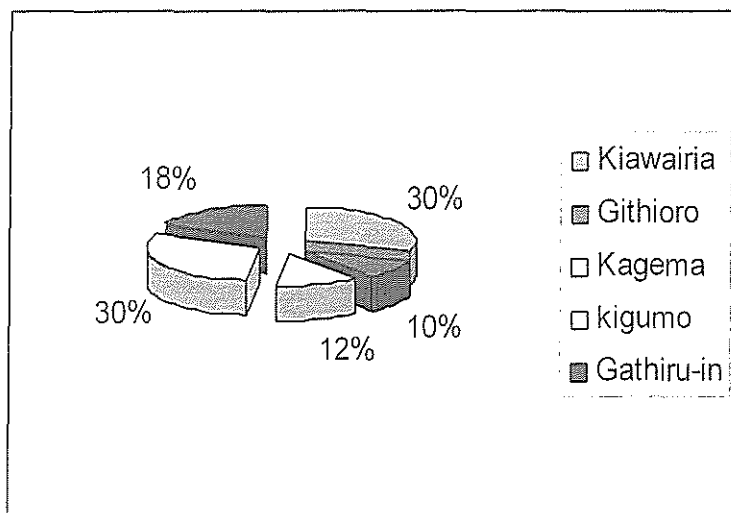


This shows that this environment is not conducive due to the overcrowding in class. It contributes highly to the poor performance of mathematics in Komothai Zone.

According to Waiche, 2004. The various ways the teacher can manage some behaviours in the learning. Some of these include organizing time in the classroom organizing space in the classroom preventing behavioural problems presenting classroom

4.3. Professional Qualification

This study sought to establish the professional qualifications.



The number of professional teachers in Kiawairia is 30% which is fair: Githioro 10% which is poor, 12% in Kagama is poor, 30% in Kigumo which is fair and 18% in Gathirurini which is poor.

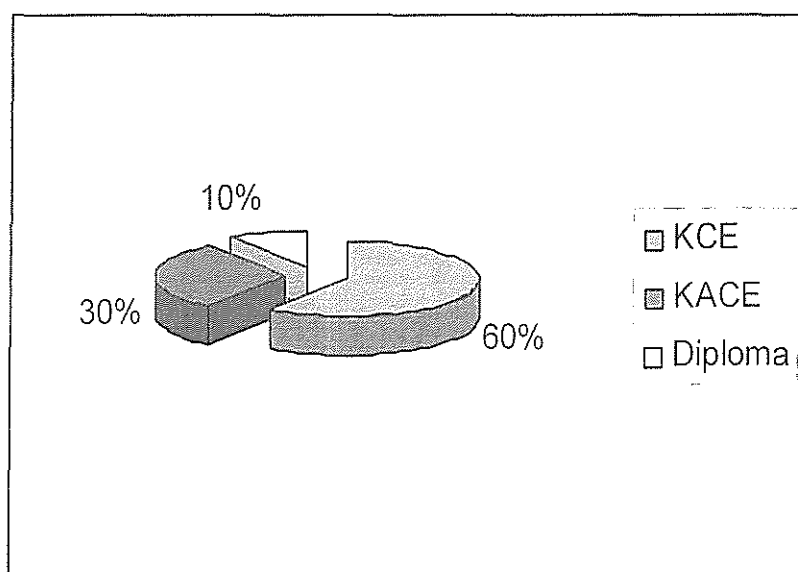
This has greatly contributed to the poor performance in mathematics because, according to Ndungu, K. R. Indimuli, J. & Ndicu 2001 the teacher's enthusiasm is an important aspect of teachers' effort, which is positively corrected to student's achievement. Good mathematics teachers need to be cheerful supportive and enthusiastic having those characters students tends to feel more comfortable thus encouraging them to like mathematics. The initial step in preventing classroom behavior problem is to keep students. If there are so many professional mathematic teachers there could be no poor performance in mathematics.

4.3.1 Academic qualification

This shows the academic qualification of mathematic teachers in the selected schools.

KCE 60% which is fair, KACE 30% which is fair and only 10% who have reached to

Diploma level

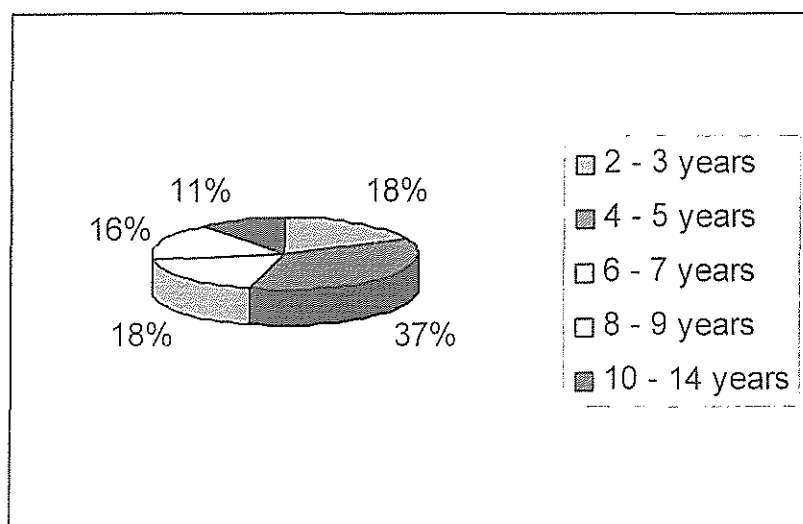


The pie chart above shows that many of these mathematic teachers have the same level of education. There were very few teachers who had advanced knowledge as mathematic is concerned.

According to Watkins et al 1996 it is learning that takes place in a meaningful way and relates, the past, present and future and upon whose very experience are hinged opportunities for further learning. This occurs when the learner and the teacher are aware of the mental-learning process.

4.3.2 Experience

This shows the teachers experience in teaching mathematics. 2years -3years 20% which is poor, 4 - 5years 40%, which is fair 6 - 7years 20%, which is poor, 8 - 9 years 18% which is also poor and 10 - 14years we have 12%. This shows that most of the teachers in these schools have no experience as teaching of mathematic is concerned.



Since these teachers have no good experience in teaching mathematics it contributes highly to the poor performance. According to (Keruin L.M. 2003). The mathematic teacher should choose appropriate resources by considering factors such as size, quantity, quality, variety and availability of the resources, mathematic resources should be used appropriately through proper timing, handling and display. The proper management of resources improves teaching and learning. The utilization of lesson time in mathematic can greatly determines students' performance. Proper use of contact time between the teachers and students could lead to proper syllabus coverage which could in turn lead to better performance. The researcher agrees with study because proper utilization of contact time will lead to completion of the planned content.

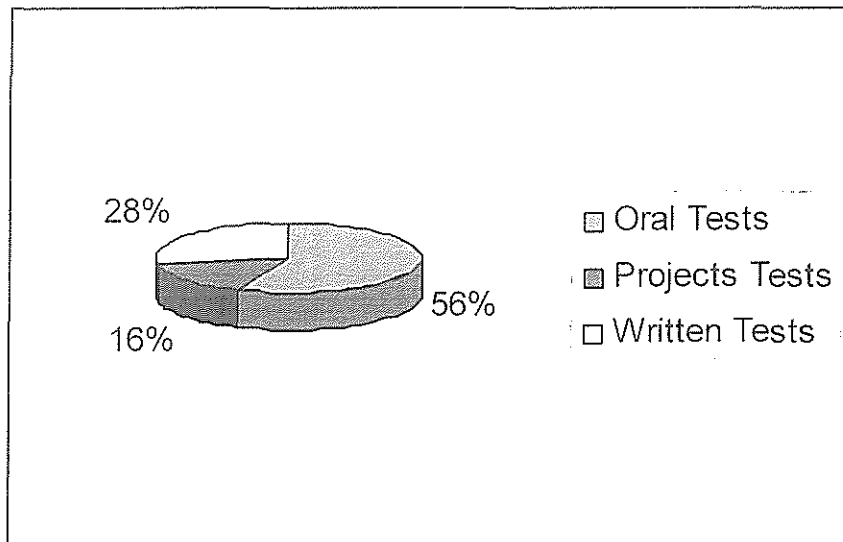
4.4 Assessment style

The researcher wanted to establish how learners are assessed in mathematics and how often assessment is undertaken. The following analysis reflects both.

4.5 Methods of assessment

How Chn are assessed	Frequency	Percentage
Oral tests	### ### ## ### ### ///	56%
Written tests	### ### -///	28%
Projects	### ///	16%

According to the table above it shows that children scored 56% when they are given oral test in projects 16 % they formed poorly when written test 28%



According to Vygostsky Research evidence shows that each learner has a preferred learning style. Pragmatists may not learn in the same way as theaorists and the reverse is also true learning style can be best be accommodated when the teacher, learner ratio is small so that the teacher allow independent and problem based learning.

4.5.1 How often Assessment is done

This study sought to establish how often assessment was carried out

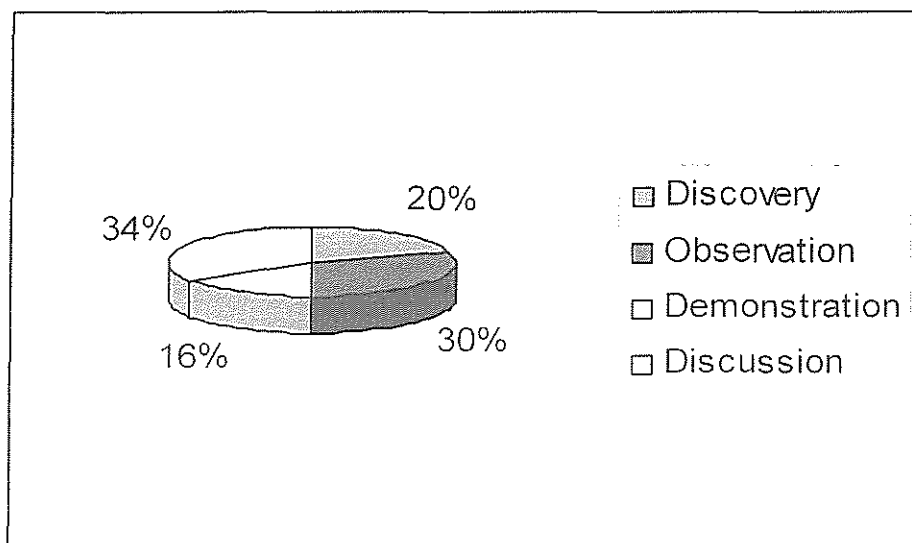
Number time of assessment	Frequency	Percentage
3	### ### ### ###	40%
1	### ### ### ### ##	50%
4	###	10%

According to the table above most of the teachers assess their pupils only at end of the term. 50%, 40% assess pupils three times in a term which is fair and only 10% assess their pupils four times in a term, which is good and they can perform better because they have enough practice. Lambert and Columbus (1998) define learning as the process guided by individual learner's goal arising from the activity itself and interactions with other stemming from the activity in which to try to make sense of their experience by contracting knowledge meaning and understanding Watkins et al (19996) define it as that reflective activity which enables the learners to draw upon previous experience to understand and evaluate the present, so as to shape future action and formulate new knowledge.

4.6 Learning Styles used in Mathematics

The researcher wants to establish the learning styles in mathematics

Learning styles commonly use	Frequency	Percentage
Discovery	### ##	20%
Observation	### ## ##	30%
Demonstration	### ///	16%
Discussion	### ## ## //	34%



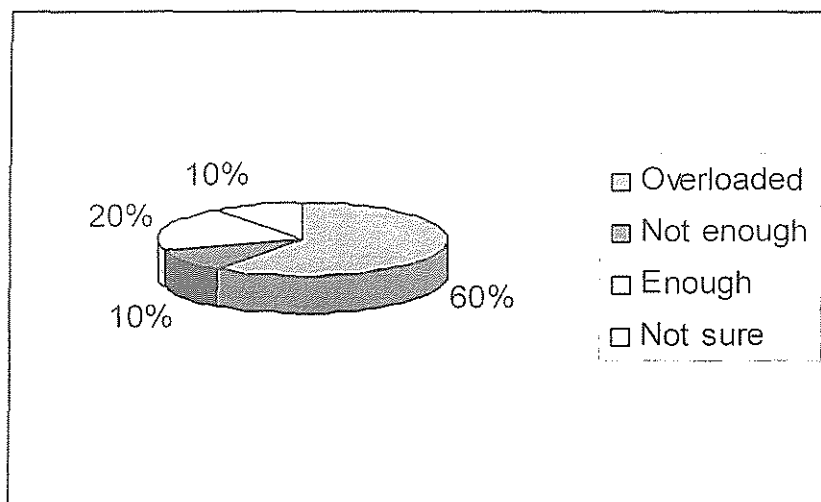
The table above shows that 20% of the teachers use discovery method, 30% use observation which is fair, 16% use demonstration method which poor and 34% use discussion method which is fair. Discussion method should be highly used so that the teacher can interact with the learners. According to Wachiye (1990). The use of learning resources involves the use of more than one of the human senses at the same time during the learning process. This is true according to the researcher because studies by Psychologists also found that the different human senses account for Varying Percentages of learning.

4.6.1 Learning content

Scope of the content

This sought to establish the content

Content	Frequency	Percentage
Over loaded	### ### ### ### ### ###	60%
Not enough	###	10%
Enough	### ###	20%
Not sure	###	10%



The table above shows that 60% of the teachers said mathematic content was overloaded. 10% said it was not enough, 20% said it was enough and 10% were not sure. According to the findings it shows that the content is overloaded because there was under teaching pupils seem not to have understood the mathematical concept.

According to Mpalampa (2004) in some school, there is no time for students to interact with teachers not even with other students, in order to encourage improvement in performance. Students are supposed to work in discussion groups and to solve problems together. This results to collaborative learning.

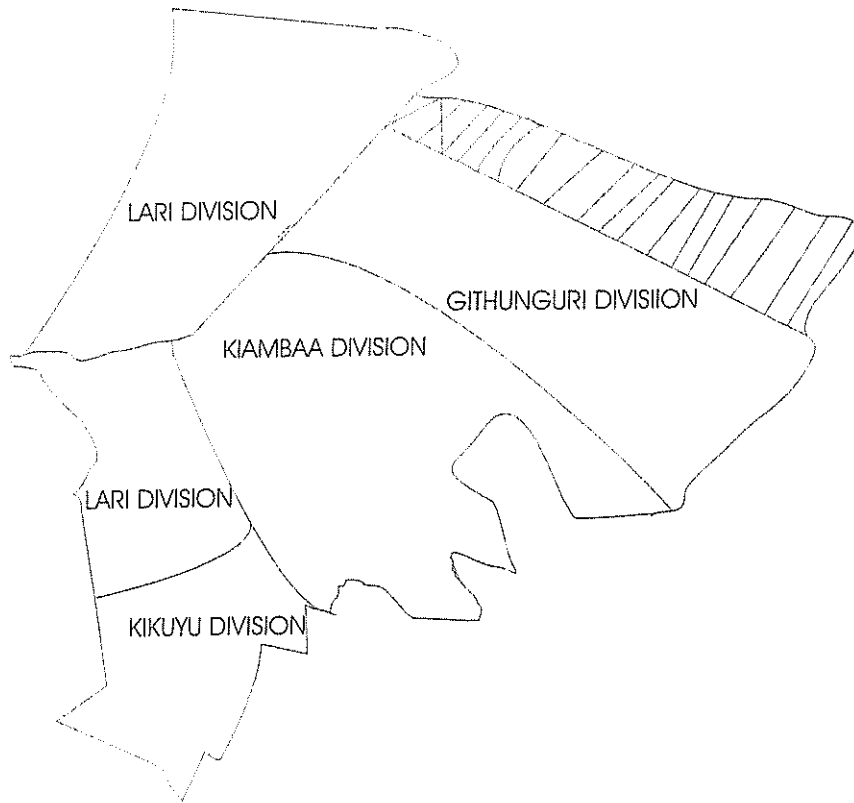
Conclusion

The researcher found out the following

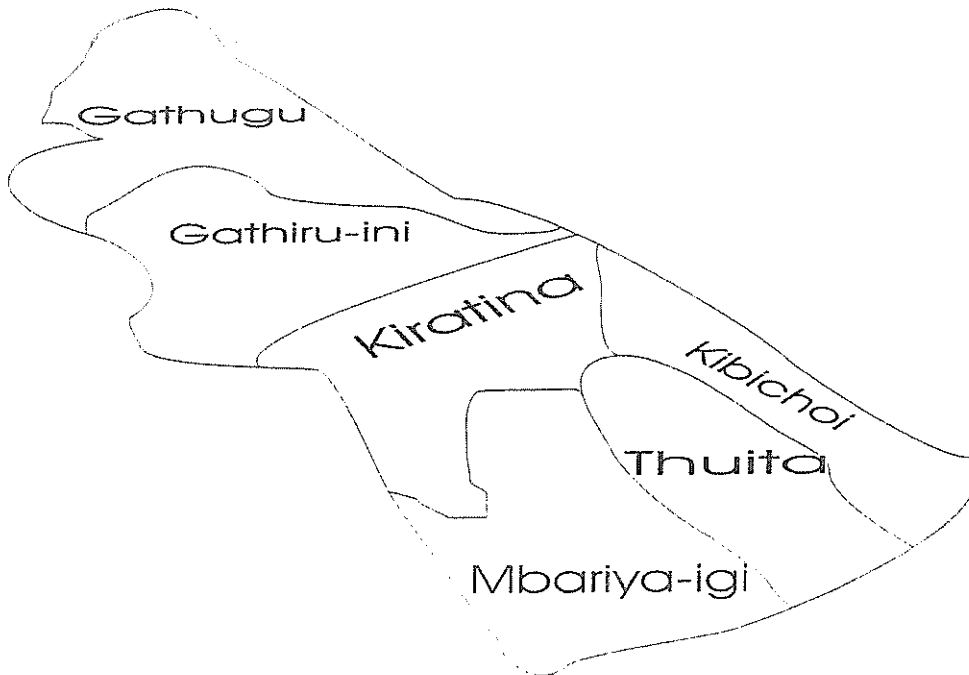
The environment was not conducive due to the overcrowding in classes. There was need to employ more teachers. It contributes highly to the poor professionals. The teacher's enthusiasm is an important aspect of teacher's effort, which is positively correlated to student's achievement. Good Mathematic teachers need to be cheerful supportive and enthusiastic having those characters student tend to feel more comfortable thus encouraging them to like mathematics.

Most of the mathematic teachers had the same level of academic education. There were very few teacher's who had advanced knowledge as mathematic is concerned. Also they had no good experience in teaching mathematics. Learners were not assessed frequently. Learners seem not to understand teacher's language. The content was overloaded, there was under teaching, pupils seem not to have understood the mathematic concept.

MAP OF KIAMBU



MAP OF KOMOTHA



Source: District Survey Office (Kiambu)

CHAPTER 5

This chapter contains summary of the project conclusion of what the researcher has found and recommendations derived from the research findings.

SUMMARY

This project was carried out under the normal atmosphere within Komothai Zone of Kiambu East District. The findings of the researcher may have variations, but what is contained here and the data used reflect what he believes to be true.

The researcher has also tried to compare his findings based on the current social political situations in the country.

Finally the tools used to collect and analyse the data collected indicates that the objectives of the project have been realized.

CONCLUSION

From the study analysis it can be concluded that, the profile of the respondent as to age gender and class was appropriate and balanced Equal opportunity was given to both male and female pupils. It was gender sensitive majority of the respondents were in the range of 13 years - 14 years.

There was inadequate use of teaching and learning resources by mathematics teachers. This could have been influenced by lack of sufficient pre-teaching preparation, insufficient funds and negative attitudes of teachers are not learner friendly. They are not child centred due to failure of instructors to use simple and understandable language vary the

teaching methods, inadequate preparation, failure to involve learners in learning activities, inadequate support given to learners and low motivation.

Teaching methods like lecture method rather than discovery method could be a factor to poor performance in mathematics. This could lead to ineffective syllabus coverage, thus poor performance in mathematics. Majority of mathematics teachers at Gathiru-ini primary school portrayed below average teachers qualities. They don't report to classes on time, speak audible voice, assess pupils regularly nor are they readily available for academic consultation. Such inappropriate qualities may have caused pupils negative attitude towards mathematics. This may have led to poor performance.

There was poor classroom management by mathematics teachers. They poorly introduce the lesson, fail to implement adequate discipline among pupils, fail to motivate the learners and rarely monitor pupils progress through evaluation. There is poor teacher – pupil relationship and all there factors might have contributed to pupil's poor performance in mathematics.

RECOMMENDATIONS

The researcher would like to make the following recommendations as per the objectives of the study.

To solve the problem of teachers failing to use adequate teaching and learning resources the researcher has the following suggestions :-

Teachers should adequately prepare for the mathematics lesson by preparing teaching aids and improving the learning aids from the locally available materials. Teachers should improve their teaching by writing clearly on the blackboard, displaying charts and

ensuring proper sitting arrangement. They should also engage learners in activities such as mathematics games and figure puzzles.

Education stake holders at school level should solicit for funds through the ministry of education science and technology to purchase text books, teaching and learning aids like geometrical sets, pens, manila papers and other relevant resources. Teaching should not solely depend on course text books but should also use supplementary books.

In order to ensure that there is effective teaching methods teachers should; use proper and effective teaching methods which are child centred, such as investigations discovery, experimentation and discussion. They should vary the teaching methods to cater for diverse educational needs for the learners. They should also use simple, clear and understandable language, include a variety of pupils activities in the lesson, support pupils solving learning problems and make their mathematics lesson to be lively in order to avoid boredom.

In order for the teachers to improve on their teaching qualities they should report in class on time regularly, display dignified behaviour, speak with audible voice, submit tests and assignment results on time and display dignified behaviour. Teachers should also be committed and devoted to teaching mathematics. They should teach for understanding in order for pupils to apply the knowledge to various mathematics problems. Lastly they should initiate mathematics subject panel.

To improve on the teachers, classroom management ability, the following measures should be put in place. The teachers should implement discipline among pupils in class, motivate pupils to learn, monitor the pupils, progress through test and assignment, check

or control pupils misbehaviour through guidance and counseling and interact with the learners in order to create excellent teachers – pupils relationship.

The ministry of education science and technology should therefore continue un loading the primary school curriculum to have a manageable load for teachers and pupils. Adequate teachers should be employed in order to improve the teachers – pupil Ratio. Teacher's good work should be rewarded by offering them better salary and other terms of service. Teaching performance can be checked and evaluated through inspection and advisory measures. The ministry of education should continue offering and support free primary education.

For social cultural background which influence the profile of the learners the parents should be encouraged to take their children aware of the outdated cultural practices such as early marriages for girls.

REFERENCES

- Ayot, H.O. (1985). Language for learning. Nairobi Macmillan Kenya Publishers Ltd.
- Borich, G.D (1992). Effective teaching method, 2nd edition. Upper Saddle River, N.J. Merrill Pentice Hall.
- Kenya Institute of Education, (2002) Primary Education Syllabus. Nairobi Kenya Literature Bureau.
- Kenya National Examination Council, (2005). Kenya Certificate of Primary Education results slips fro Gathiru-ini Primary school Kiambu District.
- Kervin, L.M. (1996). Mathematics teaching. Nairobi, Lake publishers.
- Kirk, S.A Gallagher, J.J, & Anastaslou, N.J. (2002). (9th ed) Educating exceptional children. New York, Nicholas Publishing Co.
- Ndungu, K.R Indimuli, J & Ndichu, J. (2001). Teaching and Learning mathematics, in classroom , mathematics module, Ministry of Education, Science and Technology.
- Otiato, C.A & Makarios, K. (2002). Managing Leaning in an inclusive setting. Module2. Kenya Institute of Special Education (KISE).

Kabui, G. (2005) AN investigation into the use of lesson time its effect to performance in mathematics in public secondary schools in Nairobi Med Proposal. Catholic University of East Africa.

Kananu, S.B (2005). Factors contributing to pupils poor performance in mathematics at KCPE in Public primary school in Isiolo District Eastern Province, Kenya. Med Thesis, kenyatta University Nairobi.

Orodho, A.J. (1996). Factors determining achievement in science subjects at secondary school level in Kenya. Bed Kenyatta University.

APPENDIX A

Profile of the Headteachers

The purpose of this study is to find out school influence on the learning of mathematics in selected primary schools, Komothai Zone, Githunguri Division, Kiambu District, Kenya.

I will appreciate your patience spent in answering the questions. The information you give will be treated in confidence and will only be used for this study.

School: _____

Headteacher's Qualifications

Name: _____

Class: _____

Sex: Male ☐

Female ☐

1. Age below 20 years ☐

21 – 30 years ☐

31 – 40 years ☐

41 – 50 years ☐

Over 50 years ☐

2. Marital status Married ☐

Divorced ☐

Separated ☐

Others (specify) _____

3. Education KCPE ☐

KCE ☐

KACE ☐

University ☐

Others (specify) _____

4. Training PTE ☐

Diploma ☐

University ☐

Any other specify: _____

5. Teaching experience 1 – 3 years ☐

3 -6 years ☐

6 -9 years ☐

Above 9 years ☐

6. Type of school Day ☐

Boarding ☐

7. Number of classes Enrolment ☐

Streams ☐

Class	4	5	6	7	8	Total
Age						
Boys						
Girls						
Total						

8. What are the methods that you use in mathematics _____

APPENDIX B

Profile of the mathematics teachers

The purpose of this study is to find out school influence on the learning of mathematics in selected primary schools, Komothai Zone, Githunguri Division, Kiambu District Kenya.

I will appreciate your patience spent in answering the questions. The information you give will be treated in confidence and will only be used for this study.

School: _____

Teacher's qualifications

Name: _____

Class: _____

Teachers position held in class: _____

1. How long have you taught in this school?
2. What is the average number of pupils in your school?
3. How do you describe the participation during mathematics lesson?

4. What are the methods that you use in teaching mathematics

5. Do you always have enough/adequate teaching and learning resources?

Yes ☐

No ☐

If no why _____

6. How do you compare the mathematics performance after the introduction of free primary education.
7. What do you think can be done to improve mathematics performance?
8. How do you comment the performance of boys and girls in mathematics.

9. Age below 20 years ☐

21 – 30 years ☐

31 – 40 years ☐

41 – 50 years ☐

Over 50 years ☐

10. Education KCPE ☐

KCE ☐

KACE ☐

University ☐

Others specify: _____

11. Teaching experience 1- 3 years ☐

3 -6 years ☐

6 – 9 years ☐

Above 9 years ☐

APPENDIX C

INTERVIEW SCHEDULE FOR CHILDREN

Profile of the pupils

The purpose of this study is to find out the school influence on the learning of mathematics in selected schools. I will appreciate your patience spent in answering the questions. The information you give will be treated in confidence and will only be used for this study.

Gender Boys ☐

 Girl ☐

Direction : Please tick on the blanks provided your best response which indicates your mathematics teachers performance in class.

Level of teaching performance

1. Does the teacher show concern for pupils?

Yes ☐ No ☐

2. Does s/he submits tests and assignment results on time

Yes ☐ No ☐

3. Does s/he reports to class on time regularly.?

4. Do you always have adequate textbooks and geometrical sets.

Yes ☐ No ☐

If No. why _____

5. How does the teacher motivate you in class _____

6. How often does the teacher involve you in the lesson activity.

All the time ☐ sometime ☐ Never ☐

7. Which language does the teacher use to communicate

Kiswahili ☐

Mother tongue ☐

English ☐

8. What do your parent do/occupation

9. Do you carry any type of food when coming to school.

Yes

No

b. If Yes, which is the commonest type?

INTERVIEW SCHEDULE FOR PARENTS

1. Names in full
2. Marital status Married ☐ Single ☐
3. Sources of income
 - a. _____
 - b. _____
 - c. _____
 - d. _____
4. Number of children in school ? Primary ☐
 Secondary ☐
 University ☐
5. What is your occupation ?
6. How do you earn your living?
7. Which is your level of education

Level of education	Response
Not attended any	
Std 1 – std 6	
Std 4 – std 6	
Std 7 – std 8	
Secondary	
Form I – Form II	
Form III – Form IV	



Kampala International University
Institute of Open and Distance Learning
P O Box 20000 Kansanga, Kampala, Uganda
256 41 373 498/ 256 41 373 889 (Ug) 254 20246275 (Ke)
e-mail: efagbamiye@yahoo.com Tel: 0753142725

Office of the Director

24th April 2008

TO WHOM IT MAY CONCERN:

Dear Sir/Madam,

RE: INTRODUCTION LETTER FOR MS/MRS/MR. ANNE NJOKI KAMONDO

REG. # BEA/SMEL/13176/6/1/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:

School influence on the learning of
mathematics in selected primary schools
Komothai Location, Githunguri Division
Kiambu District Kenya.

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

