

**FACTORS INFLUENCING STUDENTS' PERFORMANCE IN
MATHEMATICS IN SECONDARY SCHOOLS
IN BURETI DISTRICT, KENYA**

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BY

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DECLARATION

I Chepkemoi Kamoing Alice declare that this is my original work and has not been presented for any academic award to any institution.

Signature: 

Date: 10th Dec. 2009

Candidate's Name:

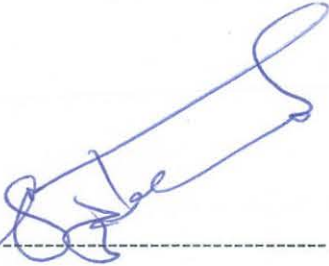
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APPROVAL

This project has been submitted for examination with my approval as the candidate's University Supervisor.

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DEDICATION

This Project is dedicated to my dear parents Thomas and Loise Kamoing; My Husband Mr Kirui, My friend Mr. Chepkwony. My beloved children Geoffrey, Edward, Dickson Viola, Jedida, Brian, Emmanueal and my Daughter-in law Catherine.

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ABSTRACT

Students perceive mathematics as a difficult subject. This is reflected in the students' poor performance in both internal school examination and national examination.

This study attempted to find the causative factors of the students' poor performance in mathematics in Bureti district, Kenya.

The researcher used questionnaires, which were filled in by students, mathematics teachers and head teachers from the selected schools in the division.

Both descriptive and statistical analyses were used. The data was organized into tables, bar graphs, pie charts and percentages.

This study established that inadequate facilities and infrequent student supervision were leading to student's poor performance in mathematics in the division.

Negative peer influence, lack of interest, laxity and general negligence of students towards learning mathematics also led to their poor performance in mathematics.

Most popular methods used by teachers in teaching were teacher centered including lecture method. Question/Answer method and class exercise which denied learners the chance to have active and direct participation in the learning of mathematics.

Teachers had negative attitudes towards student class performance and showed general discontent in teaching mathematics to weak students.

The researcher recommended that a further and through diagnostic study and evaluation of the current status to be undertaken which would facilitate the identification of the difficulties and problems encountered in mathematics teaching and learning

CHAPTER ONE

INTRODUCTION

1.0 *Overview*

Under this chapter, the background to the study, the statement of the problem showing clearly what the researcher is addressing, the purpose for which the study has been conducted with its specific objectives, the boundaries of the study in terms of location and study sites and the significance of the study are fully addressed.

1.1 Study background

The vision of Jomtien, Thailand (1990) remains pertinent and powerful. It provides a broad and comprehensive view of education and its critical role in empowering individuals and transforming societies. Its key points and principles include universal access to learning; a focus on equity; emphasis on learning outcomes; broadening the means and the scope of basic education; enhancing the environment for learning; and strengthening partnerships. Tragically, reality has fallen far short of this vision: millions of people are still denied their right to education and the opportunities it brings to live safer, healthier, more productive and more fulfilling lives. Such a failure has multiple causes: weak political will, insufficient financial resources and the inefficient use of those available, the burden of debt, inadequate attention to the learning needs of the poor and the excluded, a lack of attention to the quality of learning and an absence of commitment to overcoming gender disparities. There can be no doubt that the barriers to achieving Education for All are formidable. Yet they can and must be overcome.

There is a powerful correlation between low enrolment, poor retention and unsatisfactory learning outcomes and the incidence of poverty. Experience in the post-Jomtien decade, however, has demonstrated that significant progress can be made towards the goals of Education for All where there is a strong political commitment, backed by new partnerships with civil society and more strategic support from funding agencies. It is also clear that ensuring that girls and boys benefit equally from education requires nothing less than the integration of gender equality concerns into the design and implementation of sector policies and strategies. The importance of gathering and carefully analysing reliable gender-disaggregated data at national and sub-national levels is evident.

Starting from early childhood and extending throughout life, the learners of the twenty-first century will require access to high quality educational opportunities that are responsive to their needs, equitable and gender-sensitive. These opportunities must neither exclude nor discriminate. Since the pace, style, language and circumstances of learning will never be uniform for all, there should be room for diverse formal or less formal approaches, as long as they ensure sound learning and confer equivalent status.

The right to education imposes an obligation upon States to ensure that all citizens have opportunities to meet their basic learning needs. Primary education should be free, compulsory and of good quality. The education systems of tomorrow, however diversified they may be, will need to be transparent and accountable in how they are governed, managed and financed. The indispensable role of the State in education must be supplemented and supported by bold and comprehensive educational partnerships at

all levels of society. Education for All implies the involvement and commitment of all to education to as well enhance better performance. Mathematics is not an exception to this EFA reality.

Mathematics is a study of numerals and requires deep reasoning. It is a creation of the human mind concerned principally with ideas, processes and reasoning (Johnson & Rising 1972).

Mathematics is offered as a core subject at secondary school level. It is viewed as a catalyst for individual, social, economic, scientific and technological development. It aims at developing problem solving skills, innovative and logical thinking and equipping learners with analytical skills.

In Kenya however, the performance in mathematics at secondary school level has been generally poor year in year out. The national mean score hardly exceeds twenty percent (20%) since the start of the 8-4-4 system of Education in Kenya .

The Scenario according to 1998 KCSE Mathematics results was worse. The percentage candidate of those who got between Grade D-E per province is shown in table 1.2.2 below.

Table 1.1 Mathematics KCSE, 1998 Grade D to E by province (school Candidate)

Province	D-E % of the total
Coast	82.31
Central	75.45
Eastern	77.09
Nairobi	59.50
Rift Valley	73.25
Western	75.95
Nyanza	74.40
North Eastern	91.15
Average	75.51

Source: SMASSE Report (1999) at National heads conference in Mombassa page 28.

The grades “D-E” accounted for 75.51% of the school candidates nationally (124, 8880) exclude private candidates and those who scored “Y”

A detailed analysis of each district by gender gave a more serious scenario. Seventeen (17) districts had boys scoring 80% of the candidature between Grades “D-E”, while 21 districts had girls scoring over 90% of the candidature scoring between grades “D-E” in the 1998 KCSE mathematics results.

One third of Kenya’s National income is spent on education annually. Part of this money is expected to uplift the performance in mathematics and sciences as the country aims as

becoming an industrialized nation by the year 2020. Very little if any improvement has been realized.

Except in 1997 where there was a minimal improvement, students' performance in mathematics in secondary schools in Bureti district had been steadily deteriorating. The mean grade hardly reached D+ equivalent to grade mean score of 4.0.

Table 1.3: Students grade mean score in mathematics in Bureti District, correct to 3 decimal places.

Year	1996	1997	1998	1999
Grade mean score	3.114	3.569	3.074	2.659

Source: Bureti heads Examination appraisal 2000, page 3

The score in Konoin division in 1999 KCSE, mathematics results was worse. The grade mean score in the division hardly reached (2.0) equivalent to Grade (D-). For instance the first three schools scored 3.2, 2.8 and 1.78.

If this trend continued we would have exceptional few students passing in the subject and this had received call for review.

The reasons for students poor performance in mathematics had been sought and resolutions offered but with very minimal success. It then followed that the problems were still there.

1.2 Statement of the Problem.

The national students' performance in mathematics for the last six years (1995-2000) was generally poor. The percentage mean score hardly reached twenty percent (20%). This is illustrated in table 1.2.1 below.

Table 1.4 Average percentage scores in mathematics in KCSE examination in Kenya between 1995 and 2000 correct to one decimal place.

Year	1995	1996	1997	1998	1999	2000
% mean score	13.2	18.1	16.3	17.5	12.2	16.3

Source: Kenya National Examination Council Report (2001). By Mrs Njuguna of SMASSE.

This study therefore, sought to investigate factors influencing students' poor performance in mathematics in Mutito Division, Kitui district and establish the relationship between the factors and the students' performance in mathematics.

1.3.0 Purpose of the study

The purpose of this study was to investigate factors influencing students' poor performance in mathematics and seek to find possible solutions to the factors, which may lead to improvement of performance in mathematics both in Mutito Division and in Kenya as a whole.

1.3.1 Research questions

The following research questions were formulated to guide the study.

- (i) Does peer influence affect students' performance in mathematics?
- (ii) Does students' background as indicated by sex, parental education and occupation has any effect on their learning and performance in mathematics?
- (iii) Does teaching methods and teachers' attitude on class performance have any influence on students' performance in mathematics?

- (iv) Do facilities and teaching resources have any influence on the students' performance in mathematics?

1.4 Research objectives

The specific objectives were to:-

- (i) Analyze the extent of peer influence on learning and performance in mathematics.
- (ii) Analyze the influence of student's background as indicated by sex, parental education and occupation on learning and performance in mathematics
- (iii) Identify how teaching methods and teachers' attitude on class performance affect general student performance in mathematics.
- (iv) Analyze the availability of facilities and resources for teaching mathematics in secondary schools and their influence on the learning and students' performance in mathematics.

1.5 Scope of the Study

The study was aimed at investigating factors influencing students' poor performance in mathematics in Konoin Division, Bureti district. Some of the factors influencing students' poor performance in mathematics were broadly classified as: (i) those affecting the schools (ii) those affecting the students and (iii) those affecting the teachers.

1.6 Significance of the Study

This study draws its significance from the importance attached to mathematics. Mathematics is the back bone of all other subjects in secondary school curriculum. It helps in the learning of other subjects and in the evaluation of the students performance for example, marks scored are in numerals. Thereafter the addition and ranking of students depends entirely on mathematics.

Therefore, there is need to instill positive attitudes to the students about mathematics which would lead to improvement in the performance in mathematics in schools

Mathematics is a relevant subject to every day's life experience. For instance when traveling people would like to approximate distance, speed and time during their journey. Other approximations such as amount of food to be cooked for specific number of people, depends on knowledge derived from mathematics.

This study outlines the underlying causative factors of the students' poor performance in mathematics and spelt out possible solutions of these factors. It also establishes possible comments as advisory guidelines to student's performance in mathematics nationally, the study outlined solutions/guidelines for the students, teachers and school administration, the study also provides solutions to the government as a way forward in improving the performance level of students.

CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

2.0 Overview

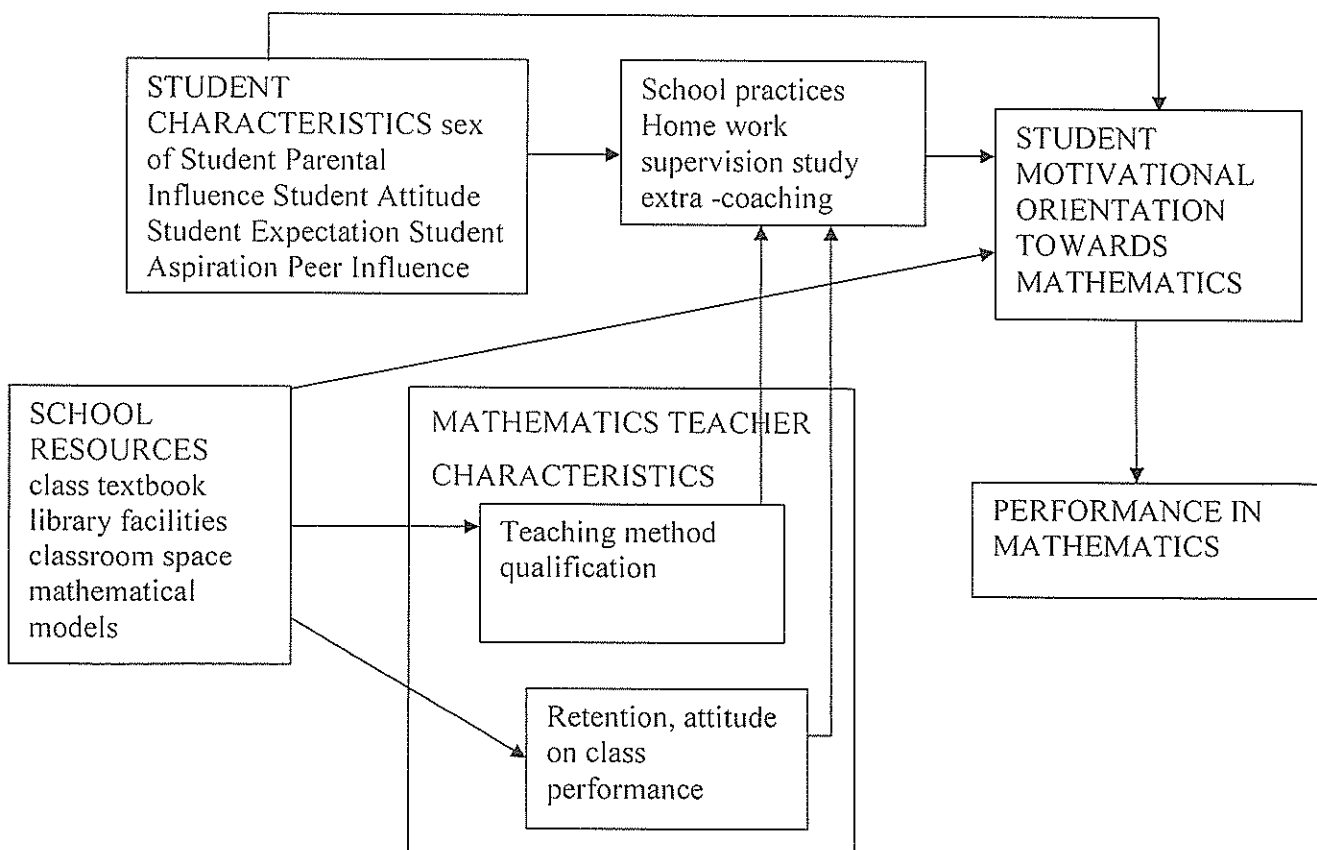
In this chapter the researcher reviewed previous studies done concerning the factors that influence students' poor performance in mathematics at secondary school level.

Main focus was on the causative factors of students' poor performance in mathematics.

The study also filled the gaps by expanding what had already been said in previous studies.

2.1 The Conceptual Frame Work

This correlates students' performance in mathematics.



This conceptual framework was constructed, using student characteristics, school practices and resources and mathematics teacher schematic model of determinants of performance in mathematics at secondary school level.

2.2.0 Review of Related Literature according to objectives

According to (Eshirwani, 1981), a person with the ability to think critically is competent to reflect, evaluate and accept an opinion on the basis of the available evidence, mathematics enables learners to think critically.

Chamdimba et al (2001) argued that due to the importance of mathematics in Malawi, it is offered as a core subject at both Junior and Senior Secondary School levels. It is viewed as a catalyst for individual, social economic, scientific and technological development. It aims at developing problem solving skills, innovative and logical thinking and equipping learners with analytical skills.

2.2.1 Peer Group Influence

Mwangi (1985) argued that, peer group influence in learning mathematics at secondary school level led to students' poor performance in mathematics especially where students were negatively influenced. This showed that peer influence could negatively influence. This showed that peer influence could negatively affect students' performance in mathematics.

In support of Brembrek S.C (1966) student level of educational aspiration is positively related to peer group. According to him peers group membership with a student with low mathematics aspirations led to poor performance in mathematics

2.2.2 Sex and Parental education and occupation of the students.

Primm (1999) demonstrated in his work that the rewards and approval granted girls for appropriately “feminine” behavior such as dates, pretty clothes, marriage and children and the conflict between for example behaving like proper woman and behaving in a manner appropriate to an engineer or scientist were some of the process whereby girls tended to disassociate themselves from mathematics. He also showed that, boys adopted careers which were traditionally male hence took mathematics seriously whereas girls adopted traditionally female choices and modes of behavior hence losing track in learning mathematics.

The Kenya Journal of education volume, 4 no. 1988 showed that Parental education and occupation were important in determining scholastic success in mathematics in Kenya schools. Students whose parents featured prominently in higher levels of education and prestigious occupations had good performance in higher levels of education and prestigious occupations had good performance in mathematics (Mwangi D.T 1985). This evidently showed that parental education and occupation were important in influencing students’ performance in mathematics.

Servais and Varga (1971) pointed out that it was amazing and disappointing when parents found on their children’s exercise books notes on subjects which they themselves had over learnt, unknown mathematical symbols and problems they had difficulty in solving. It was disturbing and distressing for a father to admit to his twelve –year – old son that he knew nothing about a classroom problem, particularly when the father in his time had schooling at the same, or even a high level.

This indicated how it was encouraging to a student to understand and learn mathematics when his or her parents understood and found the subject very easy. At the same time it was difficult for a student to understand mathematics if the parents were discouraging him or her by stressing how mathematics was hard to learn.

2.2.3 Teacher Attitudes on Performance and Teaching methods.

Evertson et al (1980) argued that teaching method coupled with mathematics teacher qualifications had a lot of influence on students' performance in mathematics. They defined individualized contracting, allowing some student choice about what is studied, and infrequent use of whole class instruction. Research in mathematics had consistently favored more emphasis on large group instruction. In their study the authors conclude that

"In Mathematics classes, the results from a consistent picture of the practices of 'good' teachers (using both achievement and student attitude as criteria) the effective teachers. Were active, well organized and strongly academically oriented. They tended to emphasize whole class instructions, but with some time also devoted to seat work"

However, the most recent research favored group instructions over working with one or two students at a time.

Rosenshine (1979) summarized studies on grouping for learning as follows

"Students spend more time off-task in transition when they are working alone whereas the use of large -group settings allows for more adult supervision. Although many educators prefer that teachers work with one or two children at a time, the reality is that when teachers are working with only one or two children they are unable to provide supervision for the remaining children.

A study by SMASSE (1998) revealed that the most popular methods used by teachers in the teaching and learning process were teacher centered involving lecturing, note taking and demonstration. They were preferred because they were less time consuming and therefore assist the teachers in coverage of the allegedly overloaded curriculum. This however denied the learners the chance to have a more active and direct participation in the teaching and learning process.

The same study found out that teachers displayed a neutral attitude towards the teaching of mathematic.

However Mwangi (1985) pointed out that teacher's negative attitude on students' class performance was reflected in students' poor performance in mathematics. This showed how teachers' attitude on students' class performance could lead to students' poor performance in mathematics.

2.2.4 Adequacy of Resources and other Facilities for Learning Mathematics

In support of chamdimba et al (2001) who said: 'Inadequate teaching and learning materials limits teaching strategies and reduces the interest in teaching. Lack of textbooks makes pupils fail to learn by themselves:- for they need them for revising and consolidating a topic also for supplying additional background information and in clarifying principles and procedures. Also lack of textbooks makes pupils develop a poor research culture.

Textbooks are very essential for individual students' learning of mathematics because the student can do his/her own exercise.

Cundy and Rollet (1961) argued that mathematics teachers were few and most schools had inadequate facilities. They also continued to point out that inadequate resources gave an impression that mathematics was not an important subject. In that regard, the school heads and board of governors should provide adequate resource for learning mathematics in recognition of its importance.

According to Taiwo (1974), It is essential to provide a mathematics laboratory and where possible, a suitably equipped mathematics laboratory to facilitate group working and particle classroom activities, also suitable furniture should be provided.

According to Bureti Head's examination appraisal (2000) Heads in more than half of the schools (56%) said that their schools had inadequate facilities and equipment and this had a negative impact on their student's performance in mathematics.

In support of the Bureti heads association there was need to provide a wide range of useful resources available for pupils in mathematics lessons. It was therefore essential that mathematics be recognized as a subject which had special accommodation requirements.

2.3 *Review*

This chapter successfully looked at the literature of other authors of similar problem and gave critiques where necessary. Therefore, the preceding chapter shall give emphasis on the methodologies used to ascertain these critiques.

CHAPTER THREE

METHODOLOGY

3.0 *Overview*

This chapter made use of questionnaires, which were filled in by Head Teachers mathematics teachers and form three students from selected schools in Bureti District. Three questionnaires were administered including Head teachers, Mathematics teachers and student questionnaires.

3.1 Research Design

The study adopted survey method of carrying out research. A sample of the target population was selected randomly from the selected schools.

The schools were tentatively selected to cater for gender balance. Then questionnaires were given to the sampled population for filling in.

3.2 Target Population and Sample Section

Purposive sampling was used. The target population was form three students' mathematics teachers and Head teachers from the selected schools in the division. Among the form three students, equal number of boys and girls from the selected schools was sampled to account for gender balance. Fifty (50) students, ten (10) mathematics teachers and three (3) Head teachers filled in the questionnaires from the selected schools.

3.3 Sampling Procedure

The researcher visited the selected schools and booked an appointment to bring the questionnaires for filling in, with the Head teacher. Then later visited the schools on the agreed dates and gave out the questionnaires and the data was filled in

3.4 Research Instruments

The researcher used questionnaires in collecting data. Three questionnaires were designed and used, including students, mathematics teachers and head teachers questionnaires.

During the questionnaires development process, pre-testing of the questionnaires was done.

This was very helpful because it enabled the researcher to modify questions to be more clear, relevant and easily interpretable by the respondents.

3.5 Data Collection Technique

To get the sample of the students to be given the questionnaires, the researcher used two digit random number tables.

In the two pure boys and pure girl's schools, fifteen students were selected randomly from each school using the random number tables in form three classes. They were then given the questionnaire to fill in the data.

In the coeducational school the form three class students were first divided into two groups boys and girls only. Then a sample of ten (10) girls and ten (10) boys was selected using the random number tables. They were then given the questionnaires to fill in the data.

There were only ten (10) mathematics teachers in the selected schools. Since the number of mathematics teachers were only three, therefore the researcher gave the questionnaire to all three teachers to get the data. The random number tables were used to avoid biases in the sample selection. The respondents were assisted by the researcher to fill in the questionnaires in cases where they encountered problems to ensure completeness of the questions. To avoid interference with the school programs of the selected schools the researcher had made prior arrangements with the school heads before actual data of the interview.

3.6 Data Analysis

The data collected was both qualitative and quantitative. Both descriptive and statistical analysis was used, including tabulations, percentages, pie charts and graphic presentation. This is reflected in chapter four. It was easy to organize the data because the questionnaires were designed in such a way that it was easy to prepare dummy tables and hence come up with real tables.

CHAPTER FOUR

RESEARCH FINDINGS

4.0 *Overview*

This chapter gives detailed answers to the research questions that were set to guide the study. It explains the actual findings of the study by the researcher. The chapter categorizes the factors to the solutions into (i) student factors ;(ii) school factor and (iii) teacher factor.

4.1.1 Student Factor One: Peer Influence

The researcher carried out the study within three selected schools out of the schools in Konoin Division.

Depending on the analyzed data three was positive peer influence on studying mathematics. This is indicated on the Bar graph below

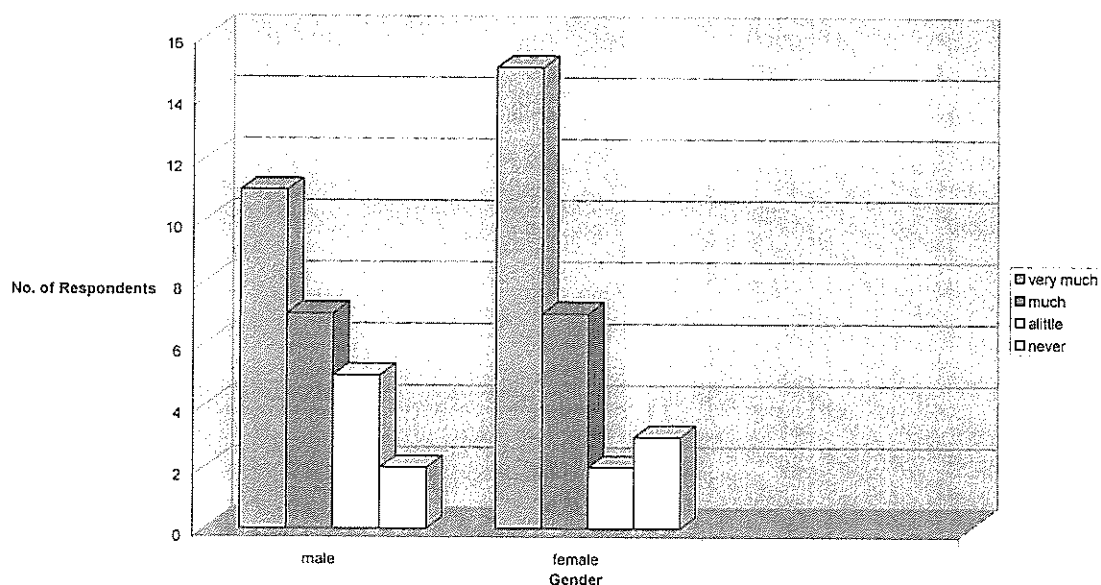


Fig 4.1: Bar graph on peer encouragement to study mathematics

Peer encouragement to study mathematics was relatively higher for female students than for male students. However, this positive peer influence had no significant relationship with students' performance in mathematics.

4.1.2 Student factor two: Back ground to sex and parental education and occupation of students

According to the analyzed data most of the parents had education up to secondary level and majority of the parents were peasant farmers. This is presented on the table and pie charts below: -

Table 4.1 shows the percentage respondents who indicated the level of the education of their parents.

	No schooling	Primary	Secondary	University	Others
Fathers	10%	22%	68%	0%	-
Mother	14%	36%	50%	0%	-

According to these results it was expected that the parents would otherwise give their children morale in learning mathematics since the greatest percentage was educated up to secondary level. The two pie charts below indicate occupation of the parents.

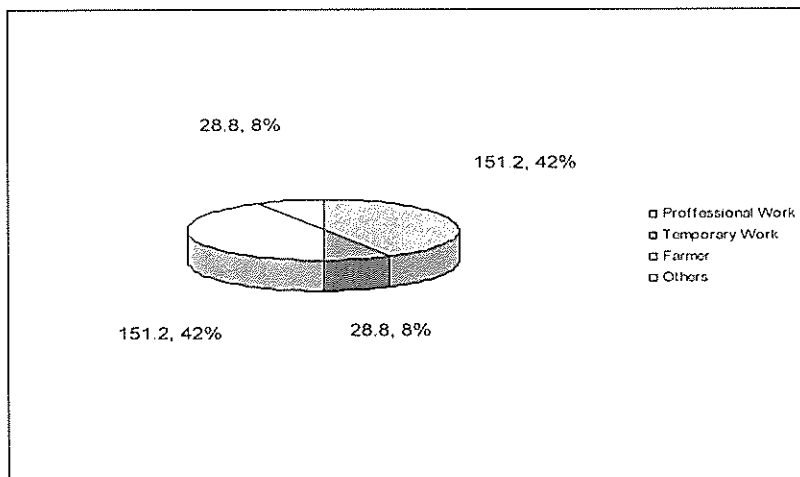


Fig 4.2 showing the occupation of father

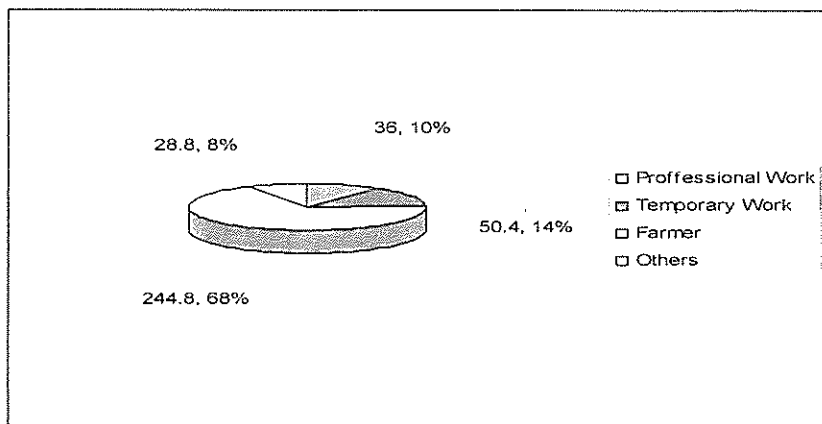


Fig 4.3 Occupation of mother

Generally what can be seen on the pie charts above is that many of the parents of the respondents were farmers fathers who were farmers were relatively fewer than mothers while fathers who were professional workers were more in numbers than mothers. This was an indication that many of the mothers were housewives and might have not been concerned about what goes on in school, where their children go to learn.

This was a clear indication that occupation of the parent was related to the level of motivation of the student by the parent to study mathematics.

There was no strong relationship between students versus expected grade in mathematics.

Table 4.2 Sex of respondents versus expected general grade

		Grade					
sex		A	B	C	D	E	Total

	Male	7	7	8	3	0	25
	Female	6	8	11	0	0	25
	Total	13	15	19	3	0	50

Almost equal number of respondents expected the first three grades A, B and C in mathematics.

This was an indication that sex was not a powerful determinant of student performance in mathematics.

4.2 School Factor: Adequacy of facilities and resources for teaching Mathematics

According to the analyzed data there was no serious problem of lack of facilities such as textbooks, class size, library and mathematical models. The bar graph below indicates the adequacy of the above facilities from the data collected.

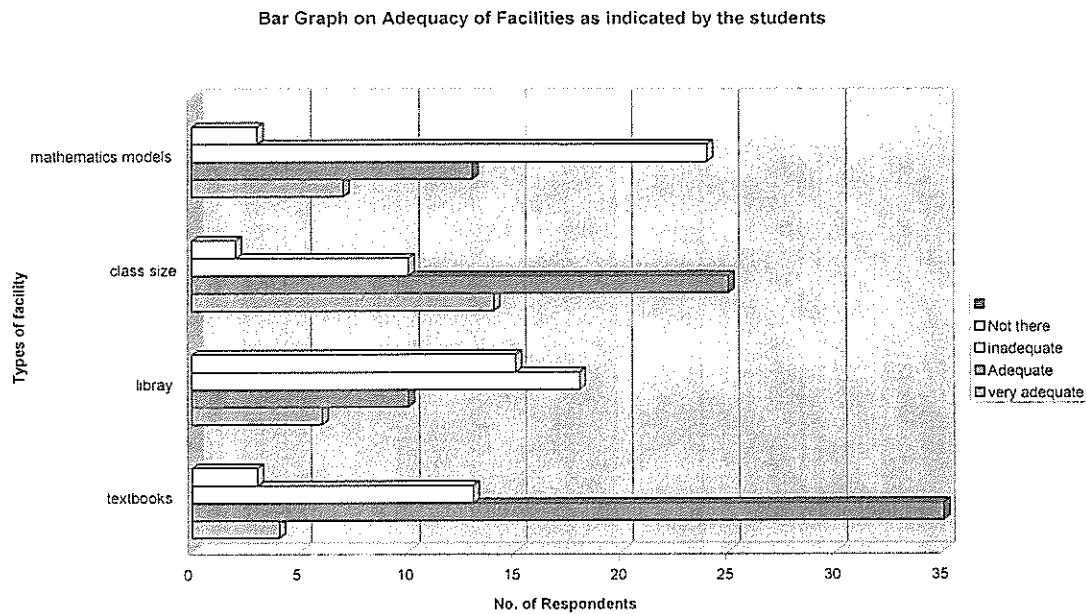


Fig 4.4 shows a Bar graph.

Although the general picture was that there were adequate facilities in the schools the level of adequacy was not satisfactory. This is explained below:

The ratio of textbooks to students ranged from 1.5 to 1.10. This kind of sharing of textbooks was due to inadequacy of textbooks.

There was actually no library in all the selected schools. Students termed their bookstore as the library and that is why they indicated the presence of library in their school

The class sizes were adequate because the student population was relatively the recommended forty students

Infact the mathematical models present in the selected schools were only for three dimensional geometry made up of wires. No other mathematical model was available.

This indicated the inadequacy of mathematical model

4.3 Teacher Factor: Attitudes towards Mathematics students

Mathematics teacher contribution towards student performance in mathematics is paramount. The teacher is the number one resource whose improper utilization could otherwise lead to a near a hundred (100%) failure in the teaching and learning of mathematics.

The study revealed that the teacher attitude towards student class performance in mathematics was negative. The table below shows degree of teacher attitude towards student's' performance in mathematics.

Table 4.3: Degree of teacher attitude towards students' performance in mathematics expressed as percentage.

Degree of teacher attitude in percentage					
	Very strong %	Strong %	Weak %	very weak %	Total %
Teacher	3	5	82	10	100

One hundred percent (100%) of teachers interviewed had weak and very weak attitude towards their student performance in mathematics

This kind of attitude could otherwise lead to teachers being harsh to students, failing to attend classes to assist student in learning mathematics and lack of teacher motivation in the teaching –learning process of mathematics.

Therefore the study found out that teacher attitude towards student class performance in mathematics had strong relationship with student's poor performance in mathematics.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 *Overview*

This chapter expresses the researcher's main idea behind the study. This gives the descriptive part of the research finding not statistical. This chapter clearly outlines a linkage between the researcher's findings and other cited literatures.

5.1 DISCUSSION

From the analyzed data it was evident that performance in mathematics at Konoin division was poor.

The scenario in the district according to 2000 KCSE mathematics results was worse within the selected schools 82.6% of the candidates scored between grades D and E.

The study revealed several factors which were giving rise to such poor results in the KCSE mathematics and other mathematics examinations in general.

Although according to the analyzed data there were no serious problems on adequacy of facilities the level of adequacy was not satisfactory. The ratio of textbooks to students was 1.5 to 1: 10. This ratio showed the inadequacy textbooks as one book were supposed to be shared between 5 to 10 students. This inhibited homework assignments especially in schools which were day schools.

Lack of library and mathematics models gave the students limited chances of exposure towards teaching and students morale in learning mathematics and at the same time

minimizing the time for learning mathematics which otherwise were disadvantages to proper teaching and learning of mathematics.

According to the analyzed data there was positive peer influence to studying mathematics.

However, it had no significant relationship with students' performance in mathematics.

Student background as determined by sex, parental occupation and education were not powerful determinants of students' performance in mathematics. Twenty six (26%) of parents were professional workers while (55%) of the parents were peasant farmers and about (59%) of the parents had received secondary education. Using the data collected students whose parents were peasant farmers had low morale and negative attitude towards studying mathematics.

One hundred percent (100%) of both female and respondents were expecting to get professional jobs including teaching nursing and pilots. However career inspiration had very little influence on student performance in mathematics.

Over seventy two percent (72%) of the respondents liked studying mathematics. Although this was not positively reflected on the students performance in mathematics.

Asked why they were not performing well in mathematics they blamed it on among other: inadequacy of facilities, hostility of teachers and inadequate time for studying mathematics.

Ninety percent (90%) of the teachers interviewed were all trained. Teacher training and qualification therefore seemed to have a significant influence on students' performance in mathematics

The study revealed that most popular methods used by teachers in the teaching and learning process were teacher centered involving lecturing, question/ Answer and giving class exercises. They were preferred because they were less time consuming and therefore assist the teachers in the coverage of the allegedly overloaded syllabus. However, this denied the learner the chance to have a more active and direct participation in the teaching and learning of mathematics.

About one hundred percent (100%) of the teachers interviewed had a negative attitude towards student class performance in mathematics. However, this could lead to poor teaching methodology, and general discontent in teaching mathematics which could otherwise lead to students' poor performance in mathematics.

The researcher established that (50%) of the teachers interviewed had taught in their station for more than 4 years where as (40%) had taught in their station for more than 8 years.

However, this did not even improve the student performance in mathematics.

Requested to give reasons as to why mathematics was done poorly in their schools eighty percent (80%) of the teachers blamed it on the overloaded syllabus and timetables

Teachers said they were overworked and extra speed was required to complete the syllabus. This otherwise left very little time for content grasp.

Over Sixty percent (60%) blamed the poor performance on unsupportive administration where the school failed to buy facilities, textbooks mathematics models and give necessary motivational support.

Seventy percent (70%) of the teachers said lack of interest, laxity and general negligence of students led to poor performance in mathematics.

The overall goal of this project was to contribute to the upgrading of the young stars in Kenyans in mathematics. The study aimed at strengthening mathematics at secondary school level in Konoin division and in Kenya as a whole through seeking solutions to problems that led to students poor performance in mathematics such as: (i) Negative peer influence leading to discouragement in learning mathematics;(ii)The effect of student back ground on student performance in mathematics and (iii)Lack of appropriate teaching methodology and negative teacher attitude in teaching and learning mathematics.

The researcher now expects the results of the study to improve the general teacher attitude towards student class performance in mathematics.

The recommendations of the study is to improve student study skills reduce influence of peer group; induce motivation and positive attitude to the students towards studying mathematics.

5.2 CONCLUSIONS

This study established some factors, which were contributing towards student poor performance in mathematic. Different factors had their varied degrees of influence towards students' performance in mathematics although generally all of them led to the general students' poor performance in mathematics in Bureti district.

In adequate facilities such as text books, library and mathematics models limited students homework assigned, study chances and exposure towards teaching and learning of mathematics.

According to the analyzed data students whose parents were peasant farmers had low morale and negative attitude towards studying mathematics. Otherwise students' sex,

parental occupation and education had no significant influence on students' poor performance in mathematics.

Teachers interviewed had negative attitude towards student class performance. This led to poor teaching methodology and general discontent in teaching mathematics, which could have led to student's poor performance in mathematics.

Requested to give reason as to why their schools were not doing well in mathematics the teachers blamed it on overloaded syllabus and timetable. They also blamed it on unsupportive school administration where schools failed to buy facilities and did not give motivational support.

There was a general feeling that there was no link between primary and secondary mathematics education because the primary mathematics was aimed at preparing the pupils to pass in their examinations without putting a lot of weight on the content grasp, which was the case in secondary school mathematics.

5.3 RECOMMENDATIONS

According to the findings of this project the following guidelines are important for adoption in order to improve students' performance in the subject.

- ❑ Provision of adequate facilities including textbooks library mathematical models water and electricity to schools
- ❑ Increase the number of qualified and trained teachers and retention of teachers in their stations.
- ❑ Rewarding of best students in mathematics after every examination will motivate the students to study mathematics.

- ❑ Advice should also be given to students on the importance of studying mathematics with respect to their career choice so as to change their attitude towards mathematics.
- ❑ Parents should be advised to visit the schools where their children are learning regularly and guide their children on the importance of studying mathematics and stop demotivating them by telling them mathematics is for talented children.
- ❑ Strengthening management of schools to facilitate support by principles and also strengthen budgeting team work and planning to avoid the problems coming out of unsupportive administration.
- ❑ The government can be advised to design the primary and secondary curriculum in such a way that there is continuity between primary and secondary mathematics syllabus. At the same time the syllabus should be timed to fit in the school timetable in other words, reduced to avoid overloading of mathematics teachers provided the necessary content required at secondary level is taught.
- ❑ In service courses and seminars for teachers who are already serving will be necessary to update teachers on the curriculum changes and teaching methodology variations. This will also help change the attitude of teachers on the class performance of their students.

The researcher also recommended a further and thorough diagnostic study and evaluation of the current status and the approaches being used be undertaken. Which would facilitate the identification of the difficulties and problems encountered in mathematics? Appropriate approach and solution would then be advanced so as to remedy the situation both in Konoin division and in Kenya as a whole.

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APPENDICES

APPENDIX A (I)

(Students' questionnaire)

This study aims at finding out the causes of poor performance in mathematics in Bureti district. All information that you will give is confidential and will only be used for the intended purpose. I kindly request you to co-operate in this exercise.

SECTION A: Background Information (Tick the appropriate)

1. Sex

- ☐ Male
- ☐ Female

2. What is the highest educational level of your father?)

- ☐ No schooling
- ☐ Primary level
- ☐ Secondary level
- ☐ University level
- ☐ Others specify

4. Occupation of father

- ☐ Professional Worker (Engineer, bank officer, Accounts clerk etc)
- ☐ Temporary worker (daily wages job)
- ☐ Farmer (peasant farmer)
- ☐ Others specify

5. Occupation of mother

- ☐ Professional worker (Engineer, bank officer, accounts clerk)
- ☐ Temporary worker (daily wages job)
- ☐ Farmer (peasant farmer)
- ☐ Others specify

SECTION B: Student Characteristics (Tick the appropriate)

6. What level of education are you aiming at?
- ☐ Form 4
 - ☐ Diploma
 - ☐ University
 - ☐ Other specify
7. What occupation do you expect to take after form 4?
- ☐ Professional e.g. (Engineer, Bank officer, Accountant etc)
 - ☐ Temporary worker (daily wages job)
 - ☐ Peasant farmer
 - ☐ Others specify.
8. To what extent would you say your age mates encourage you to study mathematics?
- ☐ Very much
 - ☐ Much
 - ☐ A little
 - ☐ Never.
9. To what extend would you say you like mathematics
- ☐ Very much
 - ☐ Much
 - ☐ A little
 - ☐ Not at all.
10. What general grade are you aiming to get in mathematics in your K.C.S.E?
A, B, C, D, E
11. Why do you think students perform poorly in mathematics?

SECTION C: School Resources (Tick the appropriate on the table)

12. In your experience how adequate are the following learning resources in your school

- (i) Very adequate
- (ii) Adequate
- (iii) Inadequate
- (iv) Not there

a) Relevant Mathematics	i	ii	iii	iv
b) Class size	i	ii	iii	iv
c) Library facilities	i	ii	iii	iv
d) Mathematics modes	i	ii	iii	iv

Thank you for your cooperation

APPENDIX A (II)

(Mathematics teacher's questionnaire)

This research aims at finding out some of the factors that influence students' poor performance in mathematics in Bureti district. Your school is one of the selected schools in the division. That is why you have been requested to fill in this questionnaire. All information that you will provide is confidential and will only be used for the intended purpose. I kindly request you to cooperate in this exercise.

SECTION A: Mathematics Teacher Characteristics (tick the appropriate)

1. Do you teach mathematics in the classes indicated?
 - ☐ Form one
 - ☐ Form two
 - ☐ Form three
 - ☐ Form four
2. How long have you been in your present school?
 - ☐ Less than 1 year
 - ☐ 1-2 years
 - ☐ 3-4 years
 - ☐ 5-8 years
 - ☐ Above eight years (specify)
3. How would you rate your students in terms of mathematics ability?
 - ☐ Very good
 - ☐ Good
 - ☐ Poor
 - ☐ Very poor
4. Which of the following teaching methods do you adopt while teaching mathematics?
 1. Very frequent
 2. Frequent

3. Occasionally

4. Never

Lecture	1	2	3	4
Discussion	1	2	3	4
Question/Answer	1	2	3	4
Class exercise	1	2	3	4
Small group discussions	1	2	3	4

SECTION B: School Practices (tick the appropriate)

5 How often do you perform the following teaching activities in mathematics?

1. Daily

2. two days per week

3. Once per week

a) Give home work	1	2	3	4
b) Mark students homework	1	2	3	4
c) Extra teaching	1	2	3	4
d) Give cats	1	2	3	4
e) Students approach you for help	1	2	3	4
f) Give individual help to students				

6 (a) What problems do you think are affecting the teaching of mathematics?

(b) How do you overcome these problem?

(c) What steps have you taken to improve the teaching of mathematics in your school?

APPENDIX A (III)

(Head teachers' questionnaire)

This research aims at finding out some of the factors that influence student's poor performance in mathematics in Bureti district. Your school is one of the selected schools in the division. That is why you have been requested to complete this questionnaire. All information that you will provide is confident and will only be used for the intended purpose. I kindly request you to cooperate in this exercise.

Tick where possible

1. Number of student per class

	BOYS	GIRLS
FORM 4		
FORM 3		
FORM 2		
FORM 1		

Teacher Characteristic

2 Number of mathematics teachers

- ☐ Trained
- ☐ Untrained
- ☐ Other specify

Student Characteristics

3 Assess your students' attitude towards mathematics is it?

- ☐ Very positive
- ☐ Positive
- ☐ Negative

4 How often do you reward your student whenever they perform well in mathematics?

() Always

() Seldom

() Never

5 In your own opinion explain how could learners' attitude towards mathematics should be made positive?
