INFLUENCE OF SECONDARY STUDENTS' SOCIO-ECONOMIC STATUS ON THEIR ACHIEVEMENT IN MATHEMATICS: A CASE OF ELDORET MUNICIPALITY, KENYA.

BY

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DECLARATIONS

DECLARATION BY THE STUDENT

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DEDICATION

This thesis is dedicated to Almighty God the creator and giver of all things, to my beloved husband, Mr Allen K. Chovu and my children; Arnold Kalage, Asaph Kalage and Anita Kalage for their love, patience, kind heartedness and gentle encouragement which helped me get through this research process.

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ABSTRACT

The main objective of the study was to determine influence of students' socio-economic status on achievement in Mathematics among secondary students in Eldoret Municipality among Form three (3) students. In order to achieve the objective of this study, causal-comparative study design and quantitative research methodology was adopted. The target population for this study comprised of form 3 secondary school students within Eldoret municipality. Simple random and purposive sampling techniques were used to select samples of 350 students drawn from 18 schools of the target population. The data for this study was collected from primary and secondary sources. The research instruments were questionnaires and interviews, personal observations and documentary analysis. The study was based on social learning theory postulated by Bandura (1977), which asserts the importance of learned behaviour in humans. Data was collected, organized and summarized using tables to describe the characteristics of the sample population. Data was analyzed using descriptive statistics, including frequencies and percentages. One way analysis of variance (ANOVA) was used to find out if there were significant differences in the mean responses. In particular, the researcher wished to analyze the variations between each of the two groups as well to test the research hypotheses. Chi-square test of independence was performed to test Significance of differences in female and male student's achievement in mathematics across socio-economic status. The data from the research instruments were coded and analyzed using the statistical package for social sciences. Results indicated that the students in most of the schools were of middle to low socio-economic status. The students from high socio-economic status performed better than those from low socio-economic status. Male students from low socio-economic status performed better than those from high and middle socio-economic status. Female students from high socio-economic status performed better than those from middle and low socio-economic status. The finding of the study further indicated that difference in achievement in mathematics between female students and male students across social economic status is not significant. It is recommended that schools should establish a comprehensive guidance and counselling programme to help cushion students who come from extremely low socio-economic status homes, helping them to accept the situation and focus on their studies. The government needs to increase Constituency Development Funds (CDF) allocations to schools so as to assist students who have school fees challenges to settle down at school. This will give students from low socio-economic status some hope of getting equal opportunity like their fellow students, despite their poor family background.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

DEO   -   District Education Officer

DMS   -   District Mean Score

EFA   -   Education for All

FAWE -   Forum for African Women Educationalists

FPE   -   Free Primary Education

KCPE   -   Kenya Certificate of Primary Education

K.C.S.E -   Kenya Certificate of Secondary Education

KIE   -   Kenya Institute of Education

KNEC -   Kenya National Examination Council

KNUT   -   Kenya National Union of Teachers

MOEST -   Ministry of Education, Science and Technology

NGO   -   Non Governmental Organization

SES   -   Socio-Economic Status

SMASSE – Strengthening of Mathematics and Science in Secondary Education

SSA   -   Sub-Saharan Africa

STM   -   Science, Technology and Mathematics

TAC   -   Teacher Advisory Centre

TSC   -   Teachers Service Commission

SMC   -   School Management Committee

UNESCO - United Nation Educational Scientific and Cultural Organization

UNICEF   - United Nations International Children's Emergency Fund

WEZOJE- Western Zone Joint Exam

CDF   - Constituency Development Fund

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter examines the background information to the study, the statement of the research problem and the purpose of the study. The research objectives, research questions, hypothesis of the study, significance of the study, assumptions of the study scope and limitations of the study, theoretical framework of the study and conceptual framework of the study are also discussed.

1.1 Background of the Study

Education is fundamental in the development of human persons and has been viewed principally in light of a fundamental human right (Kyalo, 2006) as well as being the cradle of mankind. Worldwide, education is a prominent subject that helps in shaping the future of an individual. Such an important attachment to education can be established based on the investment that goes towards education in relation to other programmes in most countries (Cohn, 2000). Many countries of the world have invested huge sums of money from their meagre budgets to enhance attainment of education to its citizens.

Education reform efforts in less industrialized countries have aimed at making education an effective vehicle for national development. Governments, policy makers, and civil societies have emphasized that developing countries need to invest more in education and ensure that systems of education are efficiently managed, that limited funds allocated to the sector have maximum impact, and that cost-recovery measures are adopted (Unesco, 1990; World Bank, 2007). Therefore providing an enabling environment for students in schools remains a major and fundamental issue among policy designers.

Kenya attained political independence in 1963 inheriting an education system, which was based on racial segregation (Bogonko, 1992). Soon thereafter, the government embarked on reforming and restructuring the education system to make it multi-racial with emphasis on training African personnel to take over from the colonial officials (Abagi and Olweya, 1999). Both primary and secondary education in the country expanded rapidly in the first two decades after attainment of independence in 1963. Between 1963 and 1980, the number of secondary schools doubled from about 2000 to 4,500 while enrolment increased from 200,000 in 1965 to over one million in 1990 (Eshiwani, 1987; Bogonko, 1992; Abagi, 1998). Parents were therefore encouraged to take proactive roles to ensure that they mould their children to the challenges in the education of the country (Abagi, 1997b). This represented a major improvement in educational development in the country.

During the process of formulating the policy guiding education in Kenyan Secondary schools, certain subjects that were considered to be important for development of the students' minds were made compulsory. These subjects were English, Kiswahili and Mathematics and were even made the core subjects in any secondary school curriculum. For any student to acquire a good course at the University or tertiary institutions, their performance index in Mathematics was quite important. However, students who could not pass in Mathematics found themselves with limited chance at the post secondary levels of education. Therefore the performance in this subject is quite crucial for any student.

Since the quality of education system in Kenya is still tied intimately to attainment of the top most echelon grades in the education system (Eshiwani, 1993), most students

achieve desired learning satisfaction when they make it through the echelons of education. One way in, which success of students is determined in Kenyan educational system is the students' performance, which is based on evaluation of end year exams. Ultimately, the performance of students after eight years in primary school is the Kenya Certificate of Primary Education (KCPE) and after four years in secondary schools is the Kenya Certificate of Secondary Education (KCSE). As Kamugisha (2004) put it, the success of students in education in Kenya follows the notion of "all or nothing" principle. The fundamental behind the principle is that a student is academically able to go successful through the system aforementioned examinations or they cannot manage them and thus will not progress beyond certain threshold education points. (Kamugisha, Tanui, Koross, Ondieki & Simiyu, 2005)

In such scenario, and taking cognizance that certain students easily go through the examinations while others are far unsuccessful, one fundamental question arises; does the achievement of students to successfully go through the system intertwined in their academic talents, sheer luck, hard work or external factors beyond their control? Therefore examining the structure of education in Kenya could provide preliminary approach to such pertinent questions.

However, a number of researchers have tried to establish the achievement of Mathematics among several students and have come to a common conclusion that the subject is one of the most intricate and quite complex to understand. Whereas many students were found to perform poorly in the subject, others could perform so well within the same schools, under the same teachers' instructions. This indicates that there could be another factor beyond the control of the students that was influencing

achievement in Mathematics. Since Mathematics is a subject that requires critical thinking, it has often been argued by Quin (2002) that performance in the subject is subject to the psychological condition of the student, which is based on a number of factors including the social background. Other authors have found innate relationships among various factors as key determinant of performance and not just the students' inherent educational abilities. The fundamental challenge that any policy maker will consider is, whether socio-economic aspects of the students have any role to play in the achievement in Mathematics.

Many African countries envision being industrialized by the year 2030 and Kenya is no exception. However, looking at the performance of mathematics and science subjects at secondary education level in Kenya, the vision to be industrialized is in doubt because the performance by the students in these subjects has been very poor. Improving the performance of Mathematics and Science education is a great societal need in Kenya not only for industrialization of the country but also for producing scientifically empowered citizens. Research by one of the key stakeholders in secondary education in Kenya, the Strengthening of Mathematics and Science in Secondary Education (SMASSE) project in 1998 has shown that consistent failure and negative attitude by students, towards Mathematics, continues to characterize the classroom. Based on this same research, teachers have been found to present lessons that are too much teacher-centered with the teacher as the main actor and sometimes the only actor in the classroom as students remain passive recipients. Mathematics lessons have been found to be difficult, boring and lacking in effective teaching/learning materials. This is the practice also widely employed in Africa. The challenge thus has been how to make Mathematics more "alive", more "real" and

more "accessible. It is, therefore, strongly felt that students' involvement during lessons must be enhanced to increase motivation. Teaching/learning materials used should be effective and lessons taught should be made more interesting.

An individual's learning is affected by social interaction. An individual can not learn on his or her own, but the social environment around him also affects this learning. The main factor of the social environment is the students' Socio-Economic Status (SES) which can affect the learning of an individual. The Students SES in this study is determined by Parents' Educational Level, Parents' Occupational Status, Students' Home Property, and Students' Home Environment.

White, Reynolds and Thomas (1993) described the "Socio-economic Status (SES) as the term used to distinguish between peoples' relative position in the society in terms of family income, political power, educational background and occupational prestige". According to these indicators people are categorized in SES, classes or groups. The group that has a higher degree, better job, higher income and some status in the society is categorized as upper class, the other which has relatively low income, less education and less status are categorized as middle class and the group which is low on these indicators is known as lower class. Socio-economic factors of the students' were described by Hall (2004) as a predictor of the students' performance.

Brooks-Gunn (2005) showed that SES of students has fairly significant effects on their achievement without giving a clear description regarding which SES class has greater achievement and which one performs poorly. Shittu (2004) showed that there was a strong relationship between SES and achievement. They pointed out that high

achievers belonged to high SES and low achievers belonged to low Socio-Economic Status.

According to the Pitiyanuwatt & Campbell (1994) SES is distributed into five categories such as "upper class", "upper middle class", "middle class", "lower middle class" and "lower class". There may be some variations in this class structure but most of the time the five class structure is used. A general perception is that the students belonging to upper class have greater opportunities to interact with learning environment and show greater achievement, on the other hand students who come from lower SES class have fewer opportunities and less resources, thus remain behind in every walk of life. They may not be more productive as compared to other groups.

Socio-economic factors of the students were described by Brooks-Gunn (2005) as a predictor of the students' performance. The justification of the above statement has been investigated in Kenya by Meme (1997) who carried out a study to investigate the factors contributing to students' mathematics performance in primary schools in Akithi location, in Meru District and concluded that performance in Mathematics among the students, vary from a school to another, a district from another due to economic, social, physical and cultural variations. Poor performance in this area appeared to be most common among students from a high socio-economic background but more prevalent in the rural than in the urban areas among females than males. Some empirical studies have also shown that in areas with high socio-economic potential or where the students came from rich families; there has been improved performance among the students in their school undertakings. In areas of low socio-economic status, other studies established that students' performance was higher (Magrett, 2002). Ndege (1993) established a positive correlation between

pupils' academic performance and the family background levels in Kiisi District, while Ogoma (1987) and Leggett (2005) established no discrete and discernable pattern of student's performance based on their socio-economic status. Therefore, based on a number of documented studies, both in Kenya and elsewhere, it is quite difficult to conclusively determine the achievement of students in Mathematics based on their socio-economic factors without carrying out an empirical research into their achievement versus socio-economic factors. For this reason, there is need to investigate the factors affecting students' Mathematics achievement as a way of providing solutions that can help reverse the situation. It is against this background that the researcher set to investigate the influence of students' socio-economic status on their achievement in Mathematics in Eldoret Municipality.

1.2 Statement of the Problem

Mathematics remains the "key" and "gateway" to many facets of learning among students in both primary and secondary schools of Kenya. Since it is a core subject, there is no way a student can escape taking the subject in both primary and secondary schools. A number of subject combinations will also include Mathematics, therefore students' advancement to the university or tertiary institution is linked remotely to how they perform in Mathematics. Observations and reports from examining bodies like KNEC (National level), WEZOJE (Western Zone Joint Examination) (District level) revealed that a high percentage of secondary school students continue to perform poorly in Mathematics examinations despite the fact that students use the same text books, cover the same syllabus, majority are taught by trained teachers and they use same school facilities . This poor performance is likely to be caused by some factors beyond school factors.

This poor performance has been varying among the students in many schools, between boys and girls as well as among the various types of schools, a phenomenon that has necessitated a number of researchers to explain the differences in achievement in Mathematics based on the prevailing factors. Out of the many research outputs, no single factor has been obtained to be the key determinant of students' achievement in Mathematics. Therefore, there could be other factors other than school based factors which could be playing a crucial role in shaping students' achievement in Mathematics.

Ogoma (1987) and Leggett (2005) established no discreet and discernable pattern of student's performance based on the socio-economic status of their parents. Therefore based on these conflicting results it is difficult to conclusively determine the influence of student's socioeconomic status on their achievement in Mathematics without conducting an empirical research into students'socio-economic status as a factor affecting their achievement in Mathematics. It is against this background that the researcher set to investigate the influence of students' socio-economic status on their achievement in Mathematics.

1.3. Purpose of the Study

The purpose of this study was to confirm if there was any relationship between poor achievement in mathematics and students' socioeconomic status in Eldoret Municipality..

1.4 Objectives of the study

The following specific objectives guided this study:

i. To determine the differences in achievement in Mathematics among students from high, middle and low socio-economic status.

ii. To determine the differences in achievement in Mathematics among male students from high, middle and low socio-economic status.

iii. To determine the differences in achievement in Mathematics among female students from high, middle and low socio-economic status.

iv. To compare the differences in achievement in mathematics between female and male students from high, middle and lower socio-economic status.

1.5 Research questions

To address the above objectives, the study was guided by the following research questions:

i. What are the differences in achievement in Mathematics among students from high, middle and low socio-economic status?

ii. What are the differences in achievement in Mathematics among male students from high, middle and low socio-economic status?

iii. What are the differences in achievement in Mathematics among female students from high, middle and low socio-economic status?

iv. What are the differences in achievement in Mathematics between female and male students from high, middle and lower socio-economic status?

1.6 Hypotheses

The study was guided by the following hypotheses:

Ho_1: There is no significant relationship between students' achievement in mathematics and their socio-economic status.

H_{O2}: There is no significant difference in achievement in mathematics among male students from different socio-economic status.

H_{O3}: There is no significant difference in achievement in mathematics among female students from different socio-economic status.

H_{O4}: There is no significant difference in achievement in mathematics between

female and male students from high, middle and low socio-economic status.

1.7. Assumptions of the study

The study was based on the following assumptions:

1. The researcher assumed that the students gave their correct socio-economic status without exaggerating the situation to please other members of the class.

2. That the students' progress records were available and were the true records of students' achievement in Mathematics.

3. The respondents would be cooperative and be able to give the required information without any reservation.

4. Teachers of mathematics in the study schools were trained in mathematics

5. In this study the following factors do not affect the study; school management, size of the school, number of teachers.

1.8. Justification of the study

It is not clear whether or not student's socio-economic status influences their achievement in Mathematics. There have been many theories to explain this relationship. Studies done in Meru (Meme, 1997), indicate high levels of illiteracy, poverty and low socio-economic status among parents. This has made many parents not be able to purchase the necessary textbooks and reference materials for their children. This has led to many students dropping out of school to engage in other menial jobs to support their academic pursuits.

As a result, many students have taken schooling as a secondary assignment and school attendance on rotational basis, resulting to poor academic performance in school

examinations. Most educators and researchers believe that early childhood is a critical time to begin preventing achievement gaps.

Many factors have been found to influence learners' academic success and motivation to learn. Bandura's (1986) social cognitive theory, suggests that a child's personal beliefs, his/her behavior, and environmental factors such as teachers, parents, and peers' beliefs influence their learning.

Several studies have shown that the influence of students' socio-economic status is the key to improving children's academic learning (Olotu, 1994). In addition, a variety of studies have shown the importance of students' socio-economic background and how they could perform better when their parents SES is okay to support their learning. It has also been realized that the quality of students' home background goes a long way to predict the regularity of provision of a child's survival and academic needs involved in their learning (Shittu, 2004).

SES (Socio-Economic status) affects an assortment of achievement-related variables (i.e., ability, perceived competence, academic adjustment). Additionally, there have been implications of a relationship between SES and students achievement. A study of Brazilian children found a relationship between achievement and SES, and more specifically, family income (Oakland, 1994). Additionally, Koutsoulis and Campbell (2001) found a direct effect of SES on students' educational aspirations. These studies have explicitly examined the relationship between SES and achievement in other study areas. The present study is different from other similar studies, because it investigates the relationship between students' socio-economic status and their

achievement in Mathematics among secondary school students in Eldoret Municipality.

1.9. Significance of the study

This study will shed light on the influence of student's socio-economic status on achievement in Mathematics in secondary schools within Eldoret Municipality. It will also pave way for the identification, intervention and management of educational programmes of the students in secondary schools. The findings of the study will be of benefit to the Ministry of Education when formulating policies concerning curriculum contents, curriculum implementation and improvement of students' performance.

The study will also enable the provision of differentiated curriculum that offers individualized type of services for the high academic achieving child with poor socio-economic status. These programmes do not exist in the Kenyan regular schools at the moment. The findings and recommendations, it is hoped, will assist policy makers in reviewing existing curriculum so as to consider the individual students' differences.

The study will enable Ministry of Education and education stakeholders to understand student's individual abilities that influence academic performance hence they will be able to decide on the learning and teaching methods to cater for the high achieving students. It is hoped that this study will solve the misconception that has always arisen between the policy makers, parents and teachers concerning the students' academic performance.

Furthermore, the study is expected, to form a basis for a continuing search into factors influencing performance which are associated with various types of giftedness, sex of students, learning and teaching methods that were not covered in the study.

The results of this study will also help the ministry of basic Education to re-examine its policies regarding the teaching of mathematics using the results and knowledge revealed. The ministry will be able to organize workshops and seminars throughout the country to provide in-service training to the already serving teachers on the current instructional strategies.

1.10. Scope of the study

The study focused on the Mathematics achievement of students relative to their socio-economic status. Secondary schools in Eldoret Municipality were selected and used for the study. Conclusions were made solely from the research study based on the respondents in the study area.

Conceptually, this study was limited to the influence of student's socio-economic status on achievement in Mathematics among secondary student in Eldoret Municipality. It did not appraise all issues related to the teaching and learning of mathematics which is a very wide area as these will exceed the scope of the study.

1.11. Limitations of the study

There were some limitations encountered by the researcher while carrying out the study: For instance; Lack of cooperation from the members of staff in the selected schools, which would likely result in some of the respondents viewing the study with suspicion and probably fear that the information could be used to their disadvantage.

This study was not able to cover all the secondary schools in the country. This means that only a small sample of the schools is feasible. Thus, the 21 public and private secondary schools in Eldoret Municipality which is a very small fraction of the total number of secondary schools in the country involved in this study.

The finding of this study was therefore confined to the sampled schools and secondary schools students in Eldoret Municipality.

Another limitation is the fact that special authorization to gain access to government data or conduct interviews with any of the respondents will be required by researcher and this took time.

The findings of this study are likely to be a reflection of the situation in Eldoret Municipality. The findings cannot be used to generalize the rest of the Secondary schools in the country because the scope is limited to one Municipality, but they can provide insight for more extensive investigations. There are likely needs for the study to be replicated in other areas in order to generalize the results.

1.12 Theoretical Framework of the study

The study was guided by the social learning theory advanced by Bandura (1977), whose main emphasis was behaviour modelling. This advanced social learning theory postulates that parents, apart from punishing and rewarding children's behaviour, according to socially defined standards; provide models that children are encouraged to emulate. The concept of social learning evolved from an awareness that much learning is based on observing and imitating other people's behaviour. Bandura & Ross (1963) states that, changes in behaviour can occur without a specific pattern of positive or negative reinforcement. They can also occur without numerous opportunities for trial and error practice. A child can observe someone, say a new expression and imitate that behaviour accurately on the first try.

In this case the desire of a child to become a high academic achiever tends to reflect on pressure exerted by the parents. Therefore, the child rearing conditions becomes an important aspect. From infancy onwards, people develop responses to the models the

society offers them starting with parents as role models. People learn their language and become socialized by the cultures, customs and acceptable behaviours. Persons who deviate from cultural norms have learned their behaviour the same way as everyone else. The difference is that the deviant persons have followed models the society considers undesirable (Bandura, 1977).

A great deal of early research in social learning theory was devoted to identifying the conditions in which a child will imitate aggressive, altruistic, helping and stingy models. They are most likely to imitate models who are prestigious, who control resources who themselves are rewarded. Bandura, Ross (1963) suggested that children not only observe the behaviour of a model, but also watch what happens to the model. When the model's behaviour is rewarded, the behaviour is more likely to be imitated. When the models' behaviour is punished, the behaviour is more likely to be avoided.

Through observational learning a child can learn behaviour and also acquire the motivation to perform the behaviour or resist performing that behaviour depending on what is learned about the consequences of the behaviour. Thus observational learning encourages self-regulation and the internalization of standards for resisting certain behaviour as well as for enhancing other behaviour (Grusec, 2002).

People's judgments about how well they expect to perform or whether they expect to improve their skill level through training have a clear impact on their performance. Bandura (1977, 1986) identified self-efficacy as a key element in the cognitive basis of behaviour. Self-efficacy is defined as the sense of confidence that one can perform

the behaviour demanded by a situation. According to Bandura (1986), the decision to engage in a situation as well as the intensity of effort expended in the situation depends on a person's confidence of success.

Those who have a high sense of efficacy visualize success scenario that provides positive guides for performance and they cognitively rehearse good solutions to potential problems. Those who judge themselves as inefficacious are more inclined to visualize failure scenarios and to dwell on how things go wrong. Such inefficacious thinking weakens motivation and undermines performance.

The principles of social learning theory are assumed to operate in the same way throughout life. The concept of social learning highlights the relevance of model's behaviour in guiding the behaviour of others. These models may be parents, older siblings, peers, teachers etc. In so far as new role models may be encountered at any life stage, new observational learning is always possible. Exposure to certain array of models and a certain pattern of rewards or punishments results in the encouragement to imitate some behaviour and inhibit the performance of others. Another reason why people respond differently in the same situation is that they often have very different estimates of their own capabilities (Bandura 1977, 1986). In Bandura's terms, when people believe they are capable of dealing effectively with a situation, they posses a sense of self-efficacy about it. Self-efficacy is important to personality development because it greatly affects whether or not a person will even try to behave in a certain manner.

Bandura points out that the individuals' degree of self-efficacy in any given situation depends both on our own past experiences and on the experiences of others that were

observed. To sum up, the social learning approach to personality stresses the interaction between a person's thoughts and expectations (shaped by past experiences) and factors in the internal environment. People, it says, size up events in terms of possible outcomes, assess how valuable those outcomes are, judge their own abilities to deal with situations and select their courses of action accordingly.

The family socio-economic status can put children in different situations. Children from families of high socio-economic status can experience a different environment (in terms of the money available to buy books, pay for extra tuition e.t.c) from children from a low socio-economic background. The levels of family socio-economic status may affects the level at which the parents can get involved in their children's academics financially.

Parental occupation may influence students' achievement in various ways. For example, occupation related income might determine access to learning outcomes. The education and types of skills associated with different occupations and modelled by parents may motivate students to develop their own skills in particular ways.

Parental occupation may also influence how students perceive the value of mathematics and the learning environment at home. If occupation is considered as an indicator of parental skill use, it appears that students whose parents worked in occupations with greater skill requirements also performed better in mathematics.

1.13 Conceptual Framework of the study

This study was based on conceptual relationship between independent and dependent variables where student's socio-economic statuses was an independent variable while academic achievement in Mathematics was itemized as a dependent variable. The student's socio-economic status is made up of; Parents' levels of education, Parents' occupational levels, Students' Home Property, and Students' Home Environment. The achievement in mathematics was in form of students' grades/ marks/ means scores. The confounding extraneous variables include school management, student leadership, school facilities and dedication and competency of teachers. The covariates were gender, school type, age and family size. It is assumed that, if the students' socio-economic status is appropriate, it will lead to high performance levels indicated by high grades/ high marks. This is shown in Figure 1.1 below.

Figure 1.1 Student's Socio-Economic Status and achievement in Mathematics

However, the suitability of student's socio-economic status will influence the achievement in mathematics positively, especially if the parents are educated, family's' source of income is stable, the students' home property/ resources and home environment are adequate. However, the extraneous and covariate variables must be incorporated to assist the student's socio-economic status. Extraneous variable include: school management, student leadership, school facilities, dedication and competency of teachers and covariate variables were gender, school type, age, family size, and parental life status.

1.14 Operational Definitions of key terms

The following concepts are defined to convey the sense in which they were used in this study:

Academic Achievement: In the context of this study, Academic Achievement of students referred to WEZOJE mathematics scores for second term 2008. This is a common examination done by schools in Uasin-Gishu District. This examination is set in a central place by a panel of experienced teachers (some who are KNEC examiners). The results of Form 3 Mathematics were used in this study. The results were graded using the WEZOJE grading system.

Mathematics: In the context of this study, mathematics was defined as the science of numbers.

Parents'/ Guardians' Educational Level: In the context of this study, Parents'/ Guardians' Educational Level referred to various levels of education attained by the parents or Guardians of the students (respondents).

Parents'/ Guardians' Occupational Status: In the context of this study, Parents'/ Guardians' Occupational status referred to the jobs or type of employment done by the parents/ Guardians of the students. The respondents were asked to chose (from the listed choices) what best described what their parents did.

Students' Home Property: In the context of this study, Students' Home Property referred to the items/ physical resources owned by the parents. This includes items available at home, land owned by the parents, and type of houses the students lived in and whether it was their own house or rental house.

Students' Home Environment: In the context of this study Students' Home Environment referred to the environment at home/ standard of living of the students.

Socio-Economic Status: In the context of this study Socio-Economic Status was measured by totalling the scores of all the four indicators which ranged between 10-

44 points. These scores were divided into three groups to give the three levels of Socio-Economic Status which was as follows:

High Socio-Economic Status referred to students who scored 34-44 points.

Middle Socio-Economic Status referred to students who scored 23-33 points.

Low Socio-Economic Status referred to students who scored 10-22 points.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews relevant literature and documented information related to effects of socio-economic on the overall and specific performance of students across the world and in particular Kenya. The main sources of the literature were textbooks, publications, newsletters, theses and Internet. The review was divided into different sections: Socioeconomic Indicators, Situation of Mathematics in school curriculum, the relationship between Socioeconomic Status and Achievement in mathematics among students from high, middle and low socio-economic status, relationship between gender and students' academic achievement relative to socio-economic status and summary of the literature review.

2.1 Socio-economic Indicators

According to this study, students' socioeconomic status is based on parents'/guardians' educational level, parents'/guardians' occupational status, students' home property and students' home environment. Families with high socioeconomic status often have more success in preparing their young children for school because they typically have access to a wide range of resources to promote and support young children's development. They are able to provide their young children with high-quality child care, books, and toys which encourage them in various learning activities at home. Also, they have easy access to information regarding their children's health, as well as social, emotional, and cognitive development. In addition, families with high socioeconomic status often seek out information to help them better prepare their young children for school.

It is believed that low socio-economic status (SES) negatively affects academic achievement because it prevents access to vital resources and creates additional stress

at home (Eamon, 2005). These economic hardships, in turn, lead to disruption in parenting, an increasing amount of family conflict and an increased like hood of depression in parents, The following Socioeconomic indicators were used in this study;

2.1.1 Parents' Educational Level

Ominde, (1964) observes that Education plays a major role in skill sets for acquiring jobs, as well as specific qualities that stratify people with higher from lower Social economic status. Lareau, (2003), speaks on the idea of concerted cultivation, where middle class parents take an active role in their children's education and development by using controlled organized activities and fostering a sense of entitlement through encouraged discussion. Lareau (2003) argues that families with lower income do not participate in this movement, causing their children to have a sense of constraint. A division in education attainment is thus born out of these two differences in child rearing situations.

Children of educated and affluent parents according to Joan, (2009) generally have more opportunities for achievements. Educated parents encourage their children to have relationship with peers who share their values, especially values of achievement Menheere & Edith (2012). Parents, who are better educated, tend to communicate better with their children when compared to parents who are less educated. Educated parents interact with the children at home by way of reading with them, conversing with them and directly teaching them required social skills. All these help to the knowledge base of the children and also their performance at school (Bicer, Capraro & Cetin, 2012).

Devi and Kiran (2002) designed a study to find out the family factors associated with scholastic backwardness among secondary school children. Their sample consisted of 100 low achieving students (50 boys and 50 girls) of 9th and 10th grade, drawn from

ten private schools selected from all the five zones of Hyderabad city in India. Their study revealed that low educational status of parents, large family size, and low parental involvement and encouragement were the major family factors associated with scholastic backwardness.

Alexander, Entwistle & Bedinger, 1999) conducted a study on 467 rural children in the age range of 6-12 years to investigate the correlates of intellectual abilities in them. The findings of the study revealed that socio-economic variables, viz., parental education and occupation, were the significant predictors.

Barry, (2005) in another study, examined the role of socio-economic status, interests and adjustment in the academic achievement of children. The study revealed that educational and occupational status of the family, small and nuclear family, as well as support and encouragement from parents and siblings, significantly enhanced the academic achievement of school children. It has been noted that there is a positive association between assistance with home work and children's' academic achievement, regardless of the source of assistance in the family. But this assistance was found more often among parents who were of high educational levels (Joan & Smrekar, 2009).

Parental education has been related to increase in academic performance (Davies-Kean, 2005). When parents are poor, they tend to send their children to poor schools with less facilities and crowded classes. In such schools, the teacher student ratio is high, which restricts individual attention for the learners from the teacher's side.

A study by Phillips (1998) found that parental education and socio-economic status have an impact on student achievement, thus, students with both parents having college education tended to achieve at the highest levels. Supporting this finding,

Krashen (2005) concluded that students whose parents were educated scored higher on standardized tests than those whose parents were not educated

. According to Davies-Kean (2005), there was significant gradient between each parent's educational level and their child's educational attainment. Attendant on higher levels of education may ease access to resources, such as income, time, energy, and community contacts, that allow for greater parental involvement in a child's education. Thus, the influence of socio-economic status and parents' level of education on student outcomes might best be represented as a relationship mediated by interactions among status and process variables (Joan, 2009).

Joan, (2009) also suggests that level of education influences parents' knowledge, beliefs, values, and goals about childrearing, so that a variety of parental behaviours are indirectly related to children's school performance. For example, higher socio economic status and high levels of education may enhance parents' facility at becoming involved in their children's education, and also enable parents to acquire and model social skills and problem-solving strategies conducive to children's school success. Thus, students whose parents have higher socio-economic status and higher levels of education may have an enhanced regard for learning, more positive ability beliefs, a stronger work orientation, and they may use more effective learning strategies than children of parents with lower socio-economic status and lower levels of education (Joan, 2009).

There is evidence that parents' education will affect students' academic achievement in schools. According to Crosnoe & Cooper, (2010) parents' level of education is the most important factor affecting students' academic achievement.

 Davies- Kean (2005) submits that parents' educational background influences the academic achievement of students. This, according to him, is because the parents

would be in a good position to be second teachers to the child; and even guide and counsel the child on the best way to perform well in education and provide the necessary materials needed by the child. This was supported by Musgrave (2000) who said that a child that comes from an educated home would like to follow the steps of his or her family and by this, work actively in his or her studies. He said further that parents who have more than a minimum level of education are expected to have a favoured attitude to the child's education and to encourage and help him or her with school work. They provide library facilities to encourage the child to show examples in activities of intellectual type such as reading of newspapers, magazines and journals. They are likely to have wider vocabulary by which the children can benefit and develop language fluency.

Amutaba, (2003) concludes that a child from a well educated family with high socio-economic status is more likely to perform better than a child from an illiterate family. This is because the child from an educated family has a lot of support such as a decent and good environment for academic work, parental support and guidance, enough textual and academic materials and decent feeding. He or she is likely to be sent to good schools where well seasoned teachers will handle his or her subjects. Children's academic achievement was found to be affected by varying family processes. Davies-Kean (2005) said that the home environment and family processes provide a network of physical, social and intellectual forces and factors which affect the students' learning. According to them, the family's level of encouragement, expectations, and education activities in the home are related to socio-economic status, while Michael, (2004) agreed that families from different socio-economic groups create different learning environments that affect the child's academic achievement. There is no doubt that parents' attitudes help to condition their children's, attitudes. A parent who shows

complete regard for education might have some effect upon his or her children's education progress. Many studies have examined the relationships among those constructs and students' achievement.

Davies-Kean, (2005) affirms the fact that there is a consistent finding of motivation being related to achievement behaviours. In a nutshell the influence of socio-economic and educational background of the parents on their children education cannot be undermined. Research shows that pupils from families where parents have less education tend to systematically perform worse in schools than pupils whose parents have more education.

According to Nanyanjo, (2007) students from the educated parents who attended and finished senior 4 or senior 6 or university performed considerably better than the students with parents who did not finish primary or just finished primary school. Students whose fathers had university degree may likely expect to have the highest increase in test score. Similarly cited in Robert, (2010) in a study of Socioeconomic Determinants of Primary School Dropout found that High academic attainment of the parents significantly reduces chances of primary school drop out for both boys and female children in rural and urban areas. Also educated parents are more concerned and more effective in helping their children in academic work. In doing so, they are also able to supervise and monitor their children's' academic progress. And this can in no small measure contribute to the academic progress of children. But parents with low educational attainment mostly do not care to supervise their children performance due to lack of sufficient knowledge to face the challenge and this will discourage the children and may lead to their dropping out of school Nidhi kotwal & Rani (2007) . Educational level usually creates differences between people in terms of access to information and the level of proficiency in benefiting from new knowledge, whereas

income creates differences in access to scarce material goods. In families where parents happen to experience difficulties in reading and writing continuously, there is a danger that low literacy is passed on to the next generation (Meheere, 2012).

Demir, Kilic, and Unal (2010) found that parents' educational background was also an important indicator for students' mathematics achievement, and noted that if parents had higher educational background, this could increase their children's later mathematics success.

Cross & Woods (2009) noted the gap between students' mathematics achievement associated with their SES background was not only explained by parents' financial resources, but it was mostly based on parents' educational background and exposure to mathematics. This demonstrates one of the reasons for the gap associated with SES background and why it is more likely due to parents' educational background rather than their financial resources.

Demir, Kilic, and Unal (2010) demonstrated that students whose parents were highly educated and exposed to mathematics before in their lives tended to show more success in mathematics than their peers whose parents were less educated and not being exposed to mathematics. The reason for this correlation is because highly educated parents knew the learning requirements and had the opportunity to provide the best educational environment for their children (Alomar, 2006).

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2.1.2 Parents' Occupational Status

Occupational prestige is one component of socio-economic status which encompasses both income and educational attainment. Occupational status reflects the educational attainment required to obtain the job and income levels that vary with different jobs and within ranks of occupations.

Additionally, it shows achievement in skills required for the job Erick, (2012). Occupational status measures social position by describing job characteristics, decision making ability and control, and psychological demands on the job. The extent to which children's academic performance is affected by the parental job or employment is especially important because education attainment has profound impact on future career of the children. Employment for majority of the people means economic security through earning and access to financial resources Crosnoe & Cooper, (2010).

Parental employment is expected to have significant effect on the welfare of their children. As far as academic performance of children is concerned, parental occupation might have both positive and negative impact. Firstly the source of income

is essential for meeting the child's educational needs as well as participating on social activities. On the other hand, possessing a job also reduces the time available for parents to spend with their children and to involve themselves in their life at school. Each household needs to strike a balance that optimizes their time use, (Crosnoe & Cooper, 2010).

Research studies available indicate that there is a relationship between occupational status and academic performance. Guo & Harris, (2000) undertook a study to investigate the relationship of parental occupation with academic achievement. This sample of the study consisted of 1359 randomly selected high school students (age range 14-17 yrs.) studying in 22 urban and six rural secondary schools in Lucknow district. The study showed that there was a positive relationship between the level of parental occupation and mean high school marks. It was also seen that the differences in the mean achievement scores of the students belonging to different occupational groups were statistically significant (F=32.50, p<.01). Analysis of covariance showed that this relationship held good even when intelligence (measured by progressive matrices test) was held constant (F=24.34, p < .01) High occupational status people have more resources to meet the needs of their homes, while the low occupational status people have limited resources for the same. Unstable or insufficient funds limit family's ability to purchase the resources and goods (school, housing, food and cognitively enriched learning environment) that are critical for successful development and academic performance (Halle, Kurtz- Costes & Mahoney, 1997).

Research has also established that parents of low occupational status may not feel free with or capable of assisting their children in school work (Guo & Harris, 2000). The researchers further report that these parents may not become involved in their children's schooling in ways that enhance performance. Davies-Kean, (2005) notes

that parents of low occupational status have been known to distrust schools and even go to an extent of monitoring rather than collaborating with school due to perceived or actual discrimination of their children by the school.

Hijazi & Naqvi, (2006) found out that lack of guidance and support from parents of low occupational status was the primary reason that low income, middle school students were less likely to attend college despite the parent's aspirations and involvements. Lower academic performances, completion of fewer years of schooling, and lower career aspirations were associated with adolescents from lower socio-economic status backgrounds and ethnic minorities in America (Davies Kean, 2005).

Krashen, (2005) reports that children from homes with low income due to low parental occupations may model their parents lower levels of educational attainment and thus not work hard to attain high grades in school. He further observes that the link between academic performance and future occupational success may be less clear for children from low socio-economic status homes. Increased reliance on public assistance and greater receipt of welfare income has been associated with children's lower academic achievement, perhaps due to stigma (Crosnoe & Cooper, 2010).

Unstable work and unemployment is psychologically stressful for parents, which in turn inhibits parents' emotional warmth and increases their erratic or disengaged behaviours. Ineffective parenting can lead to poorer adjustment in the children at school (Guo & Harris, 2000).

 Smith, Schneider & Ruck (2005) hypothesized that watching one's parent experiencing job insecurity would be experienced as stressful and elicit feelings of uncertainty and powerlessness in children. Their results showed that undergraduates

who perceive their parent to be insecure about their jobs are distracted cognitively and have worse academic performance.

Guo & Harris (2000) showed that fathers job losses predict the probability that teenage children will be held back in grade or suspended from school. Young people have been reported to indirectly get influenced by parental academic achievement and occupation and this results in them modelling both positive and negative attributes in their parents, whether in occupation or achievement.

Davies & Kean, (2005) earlier research has established that there is an association between scholarly culture in the home as indicated by home library size, and educational attainment in a very wide range of societies and under considerable variety of institutional arrangements and political regimes. For scholarly culture to be available in a home there must be enough money to buy books and other study resources. The money can only be there due to good occupational status Davies-Kean, (2005).

High socio-economic status families, which are also an indication of high occupational status homes, have been reported to be more efficacious in their interaction with schools and more effective advocates for their children's academic needs (Lareau, 2003). Children from parents with high occupational status have been known to model their parents' positive educational experiences and higher prestige occupations and thus may serve as role models for the child's own occupational aspirations (Joan, 2009.)

Checchi (2000) study concluded that family income provides an incentive for better student performance; richer parents internalize this effect by investing more resources in the education of their children.

However, Hijazi and Naqvi (2006) found that there was a negative relationship between student performance and student family income. Similarly, Beblo and Lauer (2004) found that parent's income and their labour market status have a weak impact on children's education.

Akanle (2007) also mentioned Parental income in his work to be a strong factor upon which the academic and vocational successes of secondary and junior secondary school students lie. According to his investigation, parental income cannot be sufficient to sustain the academic and personal social life of the student in sub rural school areas. And this can seriously affects the psychological balance or homeostatic balance in the classroom, which causes low concentration, low perception, frustration, sickness and emotional disability in academic performance of the students and can also lead to dropping out or withdrawal. Therefore a child may be found to perform poorly in his school work and even drop out of school, when he is deprived of essential needs.

 This is consistent with Demir, Kilic & Unal (2010) findings which suggested that child welfare at school is a determinant of child retention and also incorporates the rights of children to adequate living standards (shelter, nutrition and healthcare, water, and sanitation services) that are vital for child growth and development.

 Demir, Kilic & Unal (2010) explained that in urban areas, most poor families can hardly afford the cost of water talk less of education of their children; and this can no doubt lead to a low academic performance and high dropout rate.

2.1.3 Students' Home property and Home Environment

Once parents believe their support is of importance to their children' s mathematical development, they will try to provide as many opportunities as they can (Bicer, 2012),

and students who have had opportunities at home to learn mathematics demonstrated more mathematical achievement than their peers who lacked such opportunities.

Zadeh, Farnia and Ungerleider (2010) showed that providing an enriched home environment was essential for the reading and mathematics achievement of both boys and girls, and they indicated that providing an enriched home environment was one of the options available to influence children's mathematics achievement, particularly that of children of less well-educated mothers.

Crosnoe and Cooper (2010) noted that the achievement gap due to the students' economic background was larger for reading but more related to family socialization factors in mathematics.

Guo and Harris (2000) found that the economic status of parents has had significant effects on mathematics achievement during early childhood, but its effects have not been shown to be as noteworthy as during later childhood. The reason is because there is a vital period in a child's life when development of cognitive skills is greatest and that is during the time before formal schooling when involvement by parents is generally the highest. In other words, the worst effects of poverty on children can be explained by a lack of early cognitive development within the home (Guo & Harris, 2000).

Unfortunately, low-SES students receive less support in their home environment to develop their mathematical skills than their middle and high-SES peers (Zadeh, Farnia & Ungeleider 2010), (Demir, Kilic, and Unal (2010) found that parents' educational background was also an important indicator for students' mathematics achievement, and noted that if parents had higher educational background, this could increase their children's later mathematics success.

Yan & Lin, (2005) noted the gap between students' mathematics achievement associated with their SES background was not only explained by parents' financial resources, but it was mostly based on parents' educational background and exposure to mathematics. This demonstrates one of the reasons for the gap associated with SES background and why it is more likely due to parents' educational background rather than their financial resources.

Children from poor families are likely to attend poor schools with fewer resources to offer to their students.

Eamon (2005) observes that poor neighbourhoods often lack positive role models, adult supervision, and connections to good schools. This kind of environment often prevents students from creating healthy social net works, which in turn leads to lack of motivation and low academic performance.

Bandura (1986) asserts that disadvantaged families lack means to provide their children with developmentally enriching experiences, unless the parents make considerable self sacrifice by dedicating a great deal of their time and effort and meagre resources for such purposes. The quality of home background of students goes a long way to predict the quality and regularity of satisfaction of a child's survival and academic needs (Zadeh, Farnia & Ungeleider, 2010). Poor parental care combined with gross neglect of the socio-economic needs of a child usually lead to poor academic performance of the child.

2.2 Situation of Mathematics in school curriculum

As a vital tool for the understanding and application of science and technology, Mathematics plays the vital role of a precursor to the much needed technological and national development, which has become an imperative in the developing nations of the world (Danesty, 2004).

Obe (1996) conceptualises Mathematics as the master and servant of most disciplines and thus, a source of enlightenment and understanding of the universe. He further opines that without it, the understanding of national problems would be superficial. Improving the performance of Mathematics and Science education is a great societal need in Kenya not only for industrialization of the country but also for producing scientifically empowered citizens. Graeber and Weisman (1995) agree that Mathematics helps the individual to understand his/her environment and to give submits that no other subject forms a strong binding force among various branches of science as Mathematics, and without it, knowledge of the sciences often remains.

A study by African Population Health and Research Centre in Kenya, observed that performance of pupils in reading and mathematics was largely influenced by the socio-economic background of their parents, where they live, and whether or not they aspire to go to University, Aduda (2010).

Students who come from low-SES backgrounds enter school far behind their peers who come from higher-SES backgrounds and understand less mathematical topics including but not limited to counting, and number relations (Jordan, 2007). Although there has been much research about parental involvement effects on students' mathematics achievement, little attention has been placed on the reasons for the mathematics achievement gap between low-and middle-income students, and how to reduce this SES gap.

Cross, Woods, & Schweingruber, (2009) further added that there was a huge mathematics achievement gap between low-and middle- SES students even before they enrolled in elementary school, suggesting that low-SES parents can support their children's informal mathematical knowledge and skills by enhancing their readiness before they start school; thus reducing the gap between low-SES students and high-

SES. However, this support may be improved by providing information about early and later mathematical development, and its connection to parental support (Zadeh, 2010).

Children had smaller gains on the math and reading tests between their kindergarten and first-grade years with each additional marker of family economic disadvantage (especially the combination of low parent education, family poverty, and some third dimension of disadvantage) (Crosnoe & Cooper, 2010, p. 26).

Guo and Harris (2000) found that the economic status of parents has had significant effects on mathematics achievement during early childhood, but its effects have not been shown to be as noteworthy as during later childhood. The reason is because there is a vital period in a child's life when development of cognitive skills is greatest and that is during the time before formal schooling when involvement by parents is generally the highest. In other words, the worst effects of poverty on children can be explained by a lack of early cognitive development within the home (Guo & Harris, 2000). Unfortunately, low-SES students receive less support in their home environment to develop their mathematical skills than their middle and high-SES peers (Zadeh, 2010).

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Ogunbanjo (1998) opines that all over the world, science has been accepted as a vehicle of technology, social and economic development. Mathematics is not only basic to these, but is the language of science. Igbokwe (2003) highlights the intricate

link of Mathematics to science and technology, and contends that without Mathematics there will be no science and without science there will be no technology, and without technology there will be no modern society. For any student to acquire a good course at the University or tertiary levels institutions, their performance index in Mathematics is quite important. However, students who do not pass in Mathematics find themselves with limited chance at the post secondary levels of education.

Yara (2010) suggests that cultural capital transmission takes place via constant interactions among parents and children and among children and other adults, especially at situations where the main goal is the consumption of cultural goods. The amount of these interactions retained by a child is called the child's social capital. This include the amount of time spent by parents talking to children about books, movies, TV programs, listening to music with them, having family meals together, talking about school issues, helping them to do homework and giving incentives for children's high achievement. Beyond family background and family cultural resources, other family characteristics can affect students' achievement. The process of learning depends not only of family factors but also of students' personal characteristics that are naturally correlated with family characteristics but have an effect on their own.

Therefore, in order to analyze achievement, some students' personal characteristics must be taken into account. Okoye (1989) further states that the socio-economic status of the parents affects students' academic performance.

According to Danesty (2004), environmental and socio-economic factors such as Health, diet, sleeps, natural and social contacts all have their influence upon the students' mental development. If they are properly nourished with balanced diets they

will be healthy, their brain would develop properly and so they could have an excellent brainpower, which they need for good academic performance.

Shittu (2004) have also argued that marital relationship of the parents, socio-economic status of the family, authority pattern in the home, how warm or hostile the parents are all have their effect on the social learning and psychological experience of the child at home and at school.

The current population of Kenya is estimated at 36 million with an annual population growth rate of 2.3% of the total population, 60% are youth under 30 years (UNESCO, 2003; World Bank, 2007) coupled with the rise in the level of poverty in Kenya (the 2004 Economic Survey indicates that 46.8% of Kenyans live below the poverty line). Poverty is one of the major factors, which inhibit parents from investing in their children's education. Parents, and by extension, many communities, are not in a position to meet the ever-increasing cost of instructional materials or other socio-economic needs of the students in schools adequately.

Many African countries envision being industrialized by the year 2030 and Kenya is no exception. However, looking at the achievement in mathematics and science subjects at secondary education level in Kenya, the vision to be industrialized is in doubt because the achievement by the students in these subjects has been very poor. The importance of Mathematics transcends all definitions and the prosperity of any country depends on the volume and quality of Mathematics offered in its school system.

When FPE was introduced, the enrolment significantly rose from 5.9 to 7.2 million. However, most schools were not equipped to handle such large numbers in terms of number of teachers, physical classroom space, and learning resources. This scenario

replays itself in the Free Secondary Education program. Obviously, it jeopardizes student achievement in the selected secondary schools. Some socio-cultural practices and absolute poverty in many areas in the country affect full participation of learners in the school system. Although enrolment rates have improved, especially for girls, many communities still hold back their children either due to cultural reasons - like the presumed vanity of educating the girl-child, or economic reasons - like engaging the children into wage earning activities to supplement the family income (Kinuthia, 2009). It must be realized that for success in academics, a scholar needs to be calm, peaceful, coordinated and free in spirit so as to give room for effective concentration and satisfactory learning. It is in the light of these conflicting evidences that the present study investigated the relationship between the socio-economic background of students and their mathematics achievement in the selected secondary schools in Eldoret Municipality.

Moreover, in a situation where parents and children have negative attitudes towards education or do not see its immediate benefits, the consequence is a high drop-out rate or poor performance for those who are still in school. Social-cultural and religious factors, such as initiation ceremonies and gender socialization, are additional factors responsible for pupils' failure to compete effectively in schools with other children. In areas where traditional circumcision is still practiced, some pupils and students are pulled out of school to participate in initiation ceremonies.

Once initiated, some pupils develop negative attitudes towards teachers (Ogubanjo, 1998) and school, which might affect how they perform in schools. In this connection, some circumcised boys are not ready to be taught by women—whom they now consider inferior, even if these "inferior women teachers" are able to teach well in

subjects that are quite challenging to them. Similarly, some initiated students feel that they are now grownup women who should get married and not take a lot of time struggling to grasp concepts in education that will only stress them further. This is because, in some communities, girls or boys expected to get married immediately after they have been initiated. Pressure is therefore put on them to leave school and meet traditional expectations. Even if they don't bow to the intense pressure to satisfy the traditional demand for husbands or wives, they will be psychologically affected if they opt to stay in schools. The above authors have indicated that education is closely connected with factors of social well being, but they do not address the effect, if any, of socio economic status on education. Therefore, the study aimed at determining the influence of socio-economic status on mathematics achievement of secondary students.

2.3 Students' Socio-economic Status and academic achievement

A family's socioeconomic status is based on family income, parental education level, parental occupation, and social status in the community such as contacts within the community, group associations, and the community's academic performance of the family, Families with high socioeconomic status often have more success in preparing their young children for school because they typically have access to a wide range of resources to promote and support young children's development. They are able to provide their young children with high-quality child care, books, and toys to encourage children in various learning activities at home. Also, they have easy access to information regarding their children's health, as well as social, emotional, and cognitive development. In addition, families with high socioeconomic status often

seek out information to help them better prepare their young children for school social structure in society (Oakes and Rossi, 2003).

A variety of definitions of SES exist, such as " It's a differential access (realized and potential) to desired resources" (Oakes and Rossi, 2003), and "a shorthand expression for variables that characterize the placement of persons, families, households, census tracts, or other aggregates with respect to the capacity to create or consume valued goods in our society". In general, when SES is considered, there is a propensity to think of money and education.

Socioeconomic status is an economic and sociological combined total measure of a person's work experience and of an individual's or family's economic and social position relative to others, based on income, education, and occupation (Michael, 2004) indicates When analyzing a family's social economic status, the household income, earners' education and occupation are examined, as well as combined income, versus with an individual, when their own attributes are assessed (Michael, 2004)

Socio-economic status of a family is usually linked with the family's income, parents' educational level, parents' occupation and family size among the kith's and kin.

 Menheere & Edith (2012) followed this logic while examining parental influences on African American students' school achievement by focusing on specific socio-demographic factors, including parents' level of education, marital status, and family income. The researchers observed that children from high and middle socio-economic status, parents are better exposed to a learning environment at home because of provision and availability of extra learning facilities.

Akanle (2007) studied socio-economic factors influencing students' academic performance in Nigeria, he found that insufficient parental income, family type and

lack of funding by governments were factors influencing students' academic performance. The achievement of students was negatively correlated with the low socio-economic status level of parents because it hindered the individual in gaining Lareau, (2003) observes that Socioeconomic status is typically broken into three categories, high, middle, and low to describe the three areas a family or an individual may fall into when placing a family or individual into one of these categories any or all of the three variables income, education, and occupation can be assessed. Additionally, low income and little education have shown to be strong predictors of a range of physical and mental health problems due to environmental conditions may be the entire cause of that person's social predicament to begin with access to sources and resources of learning (Eamon, 2005).

There are several studies carried out regarding the effect of socio-economic status of students on their academic achievement. Banks and Banks (2001) showed that parent's level of education made a significant contribution to achievement. High Socio-Economic Status (SES) schools also scored better in the Higher School Certificate than medium or low SES schools.

Danesty (2004) found out that two variables with the highest correlation with educational attainment are parental encouragement and parental education. This may further explain why children from high Socio-Economic Status (SES) performed individually better than those from the middle and low socio-economic status.

Families belonging to high and middle socio-economic status provide better facilities such as good library, news papers, periodicals, better residential areas, etc. to their children, which lead to high achievement motivation. On the other hand, families belonging to the low socio-economic status are unable to provide such type of facilities and thus fail to facilitate high levels of achievement motivation.

Yan & Lin, (2005), in a longitudinal study, found that there was a positive association between children's grades and their parent's labour market. Stress and lack of social support to parents in poor families may negatively affect parental support for school success and intellectual development of their children. Bandura (1986) asserts that disadvantaged families lack means to provide their children with developmentally enriching experiences, unless the parents make considerable self sacrifice by dedicating a great deal of their time and effort and meagre resources for such purposes. The quality of home background of students goes a long way to predict the quality and regularity of satisfaction of a child's survival and academic needs (Ankale, 2007). Poor parental care combined with gross neglect of the socio-economic needs of a child usually lead to poor academic performance of the child.

Akanle, (2007) designed a study to examine the socio-economic factors influencing academic performance in Oyo state in Nigeria. His respondents consisted of 120 students. The results revealed that insufficient parental income, family type, and lack of funding by the government were the factors influencing academic performance in Oyo State.

Low income of parents has been found to hinder the children from getting good education, and thereby, improving the future prospects of their life (Zadeh, 2010). Parents of low socio-economic status have low involvement with school, provide little educational guidance for their children, and they also do not know how to help the children. Such parents are also intimidated by the school, which rarely initiates contacts with them (Hyde, Quest, Kalith & Romberg, 2006).

Children from poor families are likely to attend poor schools with fewer resources to offer to their students. Eamon (2005) observes that poor neighbourhoods often lack positive role models, adult supervision, and connections to good schools. This kind of

environment often prevents students from creating healthy social net works, which in turn leads to lack of motivation and low academic performance

Importantly, results from several studies, using students spanning from pre-school to college-age and of various ethnicities, suggest that family SES affects students' academic achievement (Brooks-Gunn, 2005; Walpole, 2003). According to Battle, (2002) students' performance on educational achievement test was higher for high SES students than low SES students. Battle, (2002) SES positively related to grade, educational achievement, test scores and a measure of the highest level of education received two years after high school for Hispanic students. Further, Oakland, (1994) found that SES explained the most variance in general and math achievement when controlling for other factors, such as family size while examining academic achievement in Brazilian children.

Mark, (2011) carried out a longitudinal study to find out if the socio-economic background of the students, especially, schooling from either public or private secondary schools, relate to their academic performance as under graduate. The results of the study indicated that students coming from socio-economically disadvantaged environment perform relatively better than those coming from higher socio-economic status and educational strata. Also, students who come from public schools had a better relative performance than those who studied in private schools. Mark, (2011), further discovered that youngsters who came from a general disadvantaged background and were admitted to the university had a higher untapped academic potential when compared to those belonging to higher socio-economic status and educational strata.

Additionally, Walker, (1994) in a longitudinal study examining the prediction of school outcomes from early language production and socioeconomic factors,

emphasized that low SES children are at a disadvantage when they begin school, which may have a negative impact on academic performance and achievement if preventive actions are not taken. Given findings from these studies, Battle, (2002) asserted that "if our society is interested in increasing academic achievement, policies that increase students' socioeconomic status are in expendable."

Notably, other researchers have investigated the type of relationship, direct versus indirect and found data that suggested only an indirect effect of SES on academic achievement. Research on early school success suggested that SES does not directly affect long term academic achievement; rather, mediator variables such as motivation and early academic achievement result in an indirect effect of SES on long term academic achievement (Stipek, 2001). Similarly, a study investigating the effects of family processes on high school students' science and math achievement suggested an indirect effect of SES on both boys' and girls' science and math achievement through the following variables: pressure, psychological support, attitudes towards school, and math and science self-concept (Koutsoulis and Campbell, 2001).

The research suggesting indirect effects of SES on achievement leads to the question of exactly which outcomes are related to SES. A variety of studies have uncovered that SES affects achievement-related variables such as cognitive readiness, academic skills, academic adjustment, ability, decisions of where to attend college, and decisions concerning college major (e.g., Anderson an Keith, 1997; Davies and Guppy, 1997; Stipek and Ryan, 1997). For example, longitudinal research has suggested that SES (particularly family income) is positively related to cognitive

readiness in preschool and kindergarten children and cognitive and academic skills in first graders (Stipek and Ryan, 1997; Stipek, 2001).

Other research has suggested relationships between SES and academic adjustment, such as psychological adaptation, in middle school students (Grusec, 1992). Furthermore, significant relationships between SES and self-esteem, perceived competence, depression, classroom behavior problems, parental rejection, and family social support have been found.

Undoubtedly, the association between SES and achievement and achievement-related variables emphasize the value of studying SES in an academic setting. These investigations assist educators in clarifying the variables that impact academic achievement and achievement-related variables. Although the connection between SES and various achievement-related variables have been investigated, one achievement-related construct has not been adequately investigated: achievement goal orientation. It is possible that a relationship between SES and achievement goal adoption exists, which would provide further insight into the role that SES plays in academic achievement.

Nzomo, Kariuki and Guantai (2001), for instance, established a positive correlation between the socio-economic status of Standard Six pupils and the level of their learning achievements in Kenya. The finding of their study showed that as the socio-economic status of the sampled pupils improved, the mean scores in the learning achievement also tended to increase. Families with higher socio-economic status had the ability to provide their children with necessary facilities and materials pertinent in improving performance.

The above authors have lamented that parents become poor due to harsh economic measures, such that they can no longer provide adequately for good education of their children. Also, they can no longer provide shelter, clothing and special needs of their children in school (such as provision of text books, school uniforms and good medical care and so on). Although it is true that harsh economic conditions affect parents (and consequently, their children) adversely, the author does not state the effect of harsh economic conditions on students' achievement. Therefore, this study set out to establish the relationship between student's socio-economic status and their achievement in mathematics in Eldoret Municipality.

2.4 The Relationship between Gender and Achievement in Mathematics

For full realization of the objective of Mathematics education, subject mastery and demonstrated achievement should be evenly distributed across gender. Unfortunately, gender inequality in education has remained a perennial problem of global scope (Fenema, 1996; Unesco, 2003).

Mathematics is a science subject and some gender-based science researchers have reported that what both the 'feminist empiricists' and the 'liberal feminist critics' seem to agree is that females in principle will produce exactly the same scientific knowledge as males provided that sufficient rigour is undertaken in scientific inquiry (Hanna, 2003). They also believe that initiatives that build on the assumption that females and males are equal in their approach to science, and that inequality in science and science education is caused by political, educational and social factors external to science, would be expected to focus on removing these external obstacles. There is need therefore to give boys and girls exactly the same opportunities and challenges.

In Nigeria, gender-achievement studies include Abiam and Odok (2006) who found no significant relationship between gender and achievement in number and numeration, algebraic processes and statistics. They however found the existence of a weak significant relationship in Geometry and Trigonometry. Though globally the issue of gender (Okojie, 2001), whereas others hold the view that there is no difference between rural and urban education (Huang & Howley, 1993).

Further, Mathematics is believed to be a male-dominated zone (Schwartz & Harrison 1992). In schools, often, female students are heard saying that Mathematics is for the boys. This low motivation may further widen the gender gap in mathematics achievement (Seegers & Boekaerts, 1996). Research has consistently demonstrated that educating girls has a positive effect on various aspects of development (stromquist, 2003) but its progress has often been marred by misplaced notions about the wisdom of providing high quality education to girls. For many girls in Africa who have chosen to pursue their educational ambitions, it has continued to be a lonely pursuit. Gender discrepancies in schooling have long been a contentious issue in other parts of the world. Mathematics and science disciplines are traditionally dominated by men. Even in the most progressive societies some maintain that girls are mathematically inferior to boys, with more pronounced differences expected during adolescence (Stipek, 2006). These studies have suggested that expectations for students play an important role in how girls and boys perform in mathematics. Highly competent students fail to attain their potential if they are conditioned to believe that it is beyond social norms. Often, at an early stage in a girl's academic career attitudes about mathematics are shaped.

Hanna, & Nyof- Young, J (2003) asserts that girls are traditionally disadvantaged in mathematics achievement especially in a region where the male advantage in the gender gap persists between pupils and between schools. If girls have more domestic chores at the beginning and the end of each day, then they will have less time to complete homework and may even be forced to miss days of school in order to focus on domestic tasks (FAWE, 2001). The social psychology literature on motivation has formalized the different gender-related attitudes toward mathematics that are transferred from parent and teacher to a student.

According to Hammouri, (2004), girls operate within an entity theory to mathematics. They believe that the ability to do mathematics is inherent and unchangeable and they are conditioned to think that they lack this innate aptitude. Boys, on the other hand, believe that skills in mathematics can be learned and improved through hard work. Treatment by teachers will reinforce these perceptions. If this reasoning is followed, student self-perceptions suggest that when boys under-perform it is because they are lazy or bored with their work, but when girls do the same it is because of limited ability. Therefore boys are encouraged to work harder whereas girls are advised to give up and face reality (Ethington, 1992).

In general, the students' achievement in Kenya Certificate in Secondary Education (KCSE) mathematics and science subjects, in Kenya as a whole in the year 2000 was below 50%. In Mathematics, for example, the national mean score was 34.5% overall, 42.3% for males and 26.8% for females; 46.1% in private schools and 25.1% in public schools. The mean differences between private and public schools were: Kiambu (4.7%), Bungoma (9%), Kisumu (15%) and Garissa (8.8%). The greatest gender point performance differential in mathematics occurred in Kisumu and Bungoma districts,

while the general performance in mathematics was worst in Garissa, with a mean score of 14.9% for boys and only 6.1% for girls (MOEST, 2003). Effectively, this means that on average 85.1% and 93.9% of boys and girls respectively, in Garissa district failed in mathematics. In physics, the national mean score was 45.8% for boys and 41.3% for girls, registering a gender percentage gap of 4.5%. In the study districts, the gender percentage gaps were as follows: Kiambu (5%), Bungoma (8%), and Kisumu district (8.7%). While the gender gap was higher in Bungoma and Kisumu, no girls registered for physics in Garissa district. The same trend was observed in chemistry and biology where no single girl sat for the subjects in Garissa district. This scenario should be taken with a lot of concern due to the centrality of the subjects in question.

There is high incidence of poverty in students' backgrounds, which inhibits participation of students by depleting household's achievement to meet schooling costs. The National Poverty Eradication Plan ranked Garissa as the poorest District in Kenya with 64% of the population below poverty line (MOEST, 2006). It is worthy noting that construction of schools in the country has been the collective responsibility of the community through Harambee initiative where the local people voluntarily contribute according to their will and ability. Consequently, due to poverty, communities lack resources to build schools unlike those in high potential areas. This is exacerbated by multiple problems, which include policy failure seen in decreased presence of government, rampant insecurity and poor policing of the region. This means only a small number of students are able to attend schools (FAWE, 2001).

Studies have also shown that good economic conditions where countries invest in infrastructure such as water supply and electricity, positively influences the performance of students in many schools. Easy water accessibility, especially by households in the rural areas ensures that students survive the harsh climatic conditions and get time to study rather than travel for long distances looking for water. If countries invest in the supply of these items, the rate of students attending school will swell (UNESCO, 2003) and thus register an improvement in their performance. When the students have less domestic work to do at home, then they are likely to provide more time to study thus boosting their performance at school. In Kenya, however, research into the performance as a function of the workload of students is quite scanty and fragmented.

Poverty plays a leading role in education deprivation. "Poverty means parents cannot afford the cost of sending their children to school or are unable to do without the labour provided by their children within the households" (Simmons, 2002). However, poverty has a more negative impact on girl's education than the boy's because of the widely practiced culture of boy preference (Tomasevski, 2001). For many households, the main value of education is first and foremost its perceived economic benefits and households will choose to educate their children or not basing on the prospects schooling has on ensuring employment (Oxfam, 2005). Just like other developing countries, the economy is unable to generate enough jobs for even university graduates; thus there is a threat to devalue education in the eyes of the public, thus making parents to see less need to educate their children.

Similarly, in the rural areas, job opportunities for school leavers are fewer compared to high potential areas and urban centres. A study by Oxfam (2004) showed that high level of unemployment has become a hindrance to enrolment in Eldoret Municipality as parents get increasingly disappointed after investing in their children's education. Gender inequality in the region make enrolment of female students more disadvantaged as their chances of getting employment are much lower. Additionally, there is adherence of norms and values among the people living in the area that clearly demarcate roles of men and women and a strong gendered division of labour that favours male students over female students in education (Oxfam, 2005). This disadvantaged position combined with discrimination in the labour market, makes their chances to access education minimal.

In Kalenjin community, like in most other Kenyan communities, the most burdensome day to day work cascades on several students mainly female. Studies done by Saito, (1994) have shown that women spend fifty percent more time working, than men. Among the Somalis, it is difficult for students to keep up with schoolwork and at the same time complete work at home. At home the students cook, fetch water, collect firewood, wash clothes and look after young ones. The female students have more domestic work to do than boys, thus suffer from fatigue and low concentration in their school work. Boys have time for play and school work thus ends up performing better than the female students. Some female students are expected by their parents to take their young siblings to school before reporting to their school, thus wasting a lot of time in the morning - something which is not encouraged by teachers. But teachers realize that forbidding the practice will increase students' drop out, so they allow it to happen (Elimu Yetu Coalition, 2005).

Consequently, child labour, both as a cultural practice and as an economic necessity has a big sway in the levels of students' participation in education. The above is corroborated by research literature, which identify domestic labour burden as one of the main reason for a high students' dropout and a poor performance in schools in sub-Sahara Africa (Okojie, 2001). Studies done in Zambia, Kenya, Mali, Cameroon and Uganda show that female students are more involved in domestic work than boys and that enrolment of female students is greatly affected by this burden.

Many societies in Sub-Sahara Africa have gender disparity between males and females, which has an ideological foundation in patriarchal structure (Okojie, 2001). Patriarchy is defined as "a set of social relations with material base that enables men to dominate women" (Shittu, 2004). Patriarchy gives material advantage to men while at the same time placing constraints on the role and activities of women (ibid). In more developed countries where the gender gap has been substantially bridged, the performance indices of both the boys and girls are not separable and both boys and girls have equal performance opportunities (Fennema, 1996).

Many Kenyan societies have a potential to have higher preference of boys education which they see as more prestigious than girl's education. In a study conducted by FAWE (2001) in arid areas of Kenya, it was found that many respondents held the view that girls have low achievement compared to boys and educating them is a waste of money. Further more they argued, that if given equal opportunities with boys, boys will out compete them because in school, they will be thinking about prospects of marriage rather than completing education. This negative attitude to women in general and to girl's education in particular has contributed to low performance of girls in schools, while, investing in boys' education is seen to be a feasible investment with

returns in the care of parents in old age. On the other hand, girls education is perceived as an unwise investment because the girl will get married and the venture benefit another family.

There are limits placed in girl's education after sexual maturity in many countries, which are aimed at securing girls marital prospects (Subramanian, 2002). These confines are based on the postulation that a very educated girl will have her chances of getting married reduced and the parent has a task to protect the girl's best interest. Sometimes girls are denied education due to misguided perceptions of the parents, that girls are vulnerable and could either get pregnant or get into bad company (Subramanian, 2002) thus diminish their chances to get married. Subrahmanian (2002) observes that in India, this fear makes parents withdraw girls soon as they attain puberty.

Similarly, in Eldoret, religious and cultural practices combine to constrain the students from attending school or losing interest in education (FAWE, 2001). Additionally, there is widespread use Islamic religious instruction to prepare students for marriage and parents are also increasingly offering their daughters to wealthy men at early age to attract dowry (ibid). This has negative effects on students who finding that their fate is in early marriage see no need to work hard at school.

Most of the above findings on students' achievement relative to socio-economic status do not account for the various types of schools available, for instance, parents of children in day schools and boarding schools face slightly different challenges. In addition, boarding schools can shield students from adverse socio-cultural circumstances to some extent. However an examination of the socio-cultural characteristics of boarding schools, while relevant, is beyond the scope of the current

study. It will suffice to say that the current study will focus on socio-economic status on students' mathematics achievement, without restricting itself to poverty only.

Gender and mathematics has been the focus of considerable research over the past years (Ethington, 1992; Fennema, 1996; Hanna, 2003). Gender related differences in mathematics achievement among students have been reported in many studies where boy were performing better in mathematics than girls (Seeger & Boekaerts, 1996). A summary of gender analysis conducted by the international association for the evaluation of educational achievements (IEA), namely the FIMS, the SIMS and the TIMSS is provided in Hanna (2003, p.10) showed gender disparity concerning in mathematics education around the world.

Gender equality and impact of socioeconomic differences in learning opportunities are some of the major concerns in education development in many developing countries. Of particular concern is unequal or the disadvantaged position of women as compared to men and by extension girls as compared to boys in education participation and performance, and impact of poverty on households' schooling choices and levels of learning achievements. According to the goals of Education for All (EFA) and Millennium Development Goals (MDGs), many countries are faced with challenges of eliminating gender disparities in primary and secondary education by 2010 and achieving gender equality in education by 2015, with specific focus on ensuring girls' full and equal access to, and achievement, in basic education (UNESCO, 2003). To achieve these targets, informed strategies to improve participation of both male and female citizens in various socioeconomic activities, including education are necessary. In most developing countries, particularly Kenya, gender differentials in education are more pronounced in terms of participation and

internal efficiency and in cognitive performance, with girls being the most affected. While enrolment rates to some extent do not differ greatly, more boys than girls complete schooling, especially at primary school (IMF, 2005). Kenya is committed to ensuring quality provision of Education for All by 2015 and Universal Primary Education by 2005.

Policy initiatives towards achieving this goal have included free primary and secondary education. The introduction of free primary and secondary education had led to gross enrolment. Despite the impressive gains in access to education, issues of gender equality in participation, progression and performance in all education levels require further analysis (USAID, 2002) Customs and circumstance lead to a range of cultural practices, which cause differences in schooling outcomes. Therefore, it is important to understand the underlying factors contributing to the differences related to gender and socio-economic factors, including schooling performance, in order to provide reliable data and empirical evidence for informed policy formulation. Boys have been perceived to perform better than girl's counterparts (Nzomo, Kariuki and Guantai, 2001). Boadu (2000) observes that boys from wealthier households had enrolment rates 34 percentage points higher than boys from poor households; the gap in favour of girls from rich background compared with girls from low-income background was 55.4 percentage points. Wealth gaps in enrolment greatly exceed gender gaps in enrolment. The allocation of scarce household resources affects girls more than boys (Boadu, 2000).

More elaborate techniques of data analysis are required to establish whether gender differences have any impact on education outcomes. Therefore, this study sought to

compare the differences in achievement in mathematics between female and male students from high, middle and low socio-economic status.

2.5 Summary

The issues discussed in the literature review are important in determining students' performance. The debate bring out pertinent issues which revolve around the family, school community and the labour market as institutions that play central role in shaping school entry and performance of the students. The chapter has endeavoured to review the related literature about education and student performance, which place the basis of the argument in the successive chapters and presentation of data on the barriers that bedevil performance of students in schools in Eldoret Municipality. One significant issue, which has emerged, is the need of a multidimensional approach as the limitation on education are speckled but interrelated.

This chapter on literature review leaves no doubt that all the factors affecting performance especially among secondary school students should be perceived as a unit within a system for successful educational achievement. What is quite apparent is that these factors are quite many and it is only by delineating them well can specific data be obtained and analyzed. In this chapter, it has been clearly indicated that there is a greater need for consultation among the various stakeholders and scholars in order to achieve need satisfaction and an educated nation. However, the determination of socio-economic factors without research as the foundation is deemed to fail. Thus the study provided a good basis for further researches on the determination of socio-economic factors that influences the performance of secondary school students in Mathematics.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter outlines the methodology and procedures used to obtain research data. It covers research design, population size, sampling procedure, sample size, the instruments of data collection, validity and reliability of the study and method of collecting data

3.1 Research Design

This study employed the causal-comparative study design, which was used because it enables establishing relationships between two or more sets of data from a group of subjects, hence was the best design for the study Oso & Onen (2005). It also identifies cause- effect relationships and allows investigation of subsequent relationship between variables. Student's socio-economic status served as the independent variables in this study, while achievement in Mathematics was regarded as a dependent variable which could not be directly controlled by the researcher because its manifestations had already occurred and therefore could not be manipulated (Cohen & Manion, 2003; Kerlinger, 2000). An independent variable is an antecedent and presumed to influence the dependent variable (Ary, 1972; Fraenkel & Wallen, 2000). A dependent variable is the outcome and believed to be influenced by the independent variable(s) (Ary, 1972), (Fraenkel & Wallen, 2000). In order to understand how each variable was used in this study, each variable was properly defined. This study sought to determine the relationship between independent variable (socio-economic status) and the dependent variable which was achievement in Mathematics. Given the above stated attributes, causal-comparative research design was adopted in this study in order to capture descriptive data from selected samples and generalize the findings to the populations from which the sample was selected.

3.2 Research Variables

The independent variable was socio-economic status and the dependent variable was achievement in mathematics in form of student's scores out of 100% in Mathematics. Therefore, the independent variable was investigated to check its influence on the students' achievement in Mathematics.

3.3 Study area

This study was carried out in secondary schools in Eldoret Municipality, in Uasin Gishu County. Eldoret Municipality is situated along the Rift Valley escarpment. The area is approximately 1,439.30 km2. It is found between latitude 0º to 52ºN and longitude 35º25' and 35º45' East (Central bureau of statistics, 2002). Eldoret is a town in western Kenya It is the capital and the largest town in Uasin Gishu County. Lying south of the Cheranganyi Hills, the local elevation varies from about 2100 metres above sea level at the airport to more than 2700 metres in nearby areas (7000-9000 feet) (Refer Appendix VIII). The population was 289380 in the 2009 census, (Government of Kenya, 2002) and it is currently the fastest growing town in Kenya. It is also the second largest urban centre in mid-western Kenya after Nakuru and the 5th largest urban centre in Kenya. (Population of local Authorities (with towns), Government of Kenya 2002.The name "Eldoret" was based on the Maasai word 'rock'. (The town of Eldoret, 2004) which meant the bed of the nearby Sosiani River, is very rocky. The white settlers decided to call it Eldoret to make it easier for them to pronounce it. At start of the colonial era, the area was occupied by the Nandi, before that by the Maasai and before that the Sirikwa. Eldoret is governed by a municipal council. The municipality is divided into thirteen wards. Six of them (Huruma, Kamukunji, Kapyemit, Kidiwa/Kapsuswa, and Stadium/Industrial, Market) are in Eldoret North Constituency, Three (Hospital, Kapsoya and Kimumu/Sergoit) are in Eldoret East Constituency, and the remaining four (Kipkenyo, Langas, Pioneer/Elgon

View and Race Course) are part of Eldoret South Constituency. All of these three constituencies have more wards within other local authorities than Eldoret municipality (Electoral Commission of Kenya, 2007). Eldoret has a number of estates. Almost each estate has it identity. Some of the estates include; Elgon View, Langas, Huruma, Kapsoya, Kahoya, West Indies, West, Kipkaren, Kimumu, Jerusalem, Pioneer among many others. There is a growing professional crowd emerging in Eldoret now, whose presence is being felt here in the town.

Eldoret Municipality is a rugged land where mostly subsistence farming is carried out, for example; cattle rearing and crop growing. The gently sloping areas support high population while the steep sloping land is sparsely populated. The district currently has 62 secondary schools, which have taken part in the Kenya Certificate of Secondary School (KCSE, 2008).

The study was done in Eldoret Municipality because Eldoret is a cosmopolitan town with people from different tribes, socioeconomic status, and religion. The area was chosen for study because Mathematics as a subject consistently registered a low performance in recent years. (Refer to Appendix IV).The researcher purposed to investigate the relationship between students socioeconomic status and achievement in mathematics. The study findings will help to answer the question; do we attribute the poor results in Mathematics in Eldoret Municipality to students' socio-economic factors or other factors?

3.4 Target Population

Leedy (1993) observed that nothing comes out at the end of a long and involving study that is any better than the care and the careful selection of the population. A

population refers to the group of people or study subjects who are similar in one or more ways and which forms the subject of the study in a particular research. The accessible population for this study comprised of all public and private mixed day secondary school students who sat for Western Zone joint Exam during second term 2008 in Eldoret Municipality. Both Public and Private schools were involved in the study to avoid bias and to confirm that all the students did the same exam, covered the same syllabus, were taught by trained teachers and used same reference books, holding the school physical characteristics constant. The list bearing all the public and private mixed day secondary schools within Eldoret Municipality that did the exam served as a sampling frame. There were 18 schools which fitted in this category; 10 Public mixed day secondary schools and 8 private mixed day secondary schools. The total number of Form three (3) students in these schools were 1267, 760 students from public mixed day secondary school and 507 students from private mixed day secondary school . This was the accessible population for the study (Appendix VI).

The Form 3 students were preferred because the form four students were busy preparing for their final exams and them being the next senior class, were in a better position to respond to questions concerning their Socio- Economic status. The Form three (3) students did a common mock exam called WEZOJE during second term of 2008. This exam was common for all students and was set centrally by a panel of experienced teachers (Some are KNEC Examiners) but marked internally by regular teachers in the schools.

3.5 Sampling Procedure and Sample Size
According to Saunders & Thorn hill, (2007) sampling techniques can be divided into two types: probability and non probability sampling: the chance or probability of each

case being selected from the population is known and is usually equal for all cases. It is most commonly associated with survey- based research where you need to make inferences from your sample about your population to answer your research questions or to meet your objectives.

 Frankel, (2000) argue that, the main factor considered in determining the sample size is the need to keep it manageable enough. This enabled the researcher to derive from it a detailed data at an affordable cost in terms of finances and human resource.

The target population was 1267 Form three (3) students. To get a sample size that was well representing, 30% of the target population was calculated i.e. (30% of 1267= 380). The sample size for the study was 380 students drawn from 18 schools, 10 public and 8 private mixed day schools. To get the number of students from each school, 30% of the total number of Form three students in each school was calculated and totalled. The total number of form 3 students from public mixed day schools was 760, where 30% of 760 = 228 students from public mixed day secondary schools. Out of 228, 133 were boys and 95 were girls. The total number of form 3 students from private mixed day schools was 507, where 30% of 507= 152 students from private mixed day secondary schools, Out of this 102 were boys and 50 were girls (Refer to appendix VI). The study adopted stratified random sampling technique to choose an equal number of Boys and Girls (respondents) in each school. This was achieved by preparing a list of Form three Girls and Boys in the school. Stratified random sampling is the process of selecting a sample in such a way that identified subgroups in the population are represented in the sample in the same proportion as they exist in the population (Frankel, 2000). Using the sample size needed, an equal number (where possible) of Boys and Girls were stratified by randomly picking them. This

was done by stratifying the students basing on their gender. They were selected from each Stratum according to gender through stratified random sampling. This was done to give all the students an equal chance to be picked.

3.6 Research instruments

This involves the techniques for data gathering phase of the work. In order to meet the objective of the study, the following instruments namely; questionnaires and document analysis guide were used to collect the data.

3.6.1 Questionnaires

Saunders (2007) notes that, the greatest use of questionnaires is made by the descriptive research. A written questionnaire has some advantages over other instruments because it is less expensive, particularly in terms of the time spent collecting the data. Questionnaire can be given to a large number of people simultaneously; they can also be sent by mail. Therefore, it is possible to cover a wide geographic area and to question large numbers of people relatively inexpensively.

Another advantage of questionnaire is that respondents are likely to feel that they can remain anonymous and thus may be more likely to express controversial opinions. Also the written question is standard from one subject to the next and is not susceptible to changes in emphasis as can be the case in oral questioning. There is always the possibility however, that the written question can be interpreted differently by different readers, which is the reason for the use of carefully pre-tested questionnaires. There are two types of research questions: open-ended and closed-ended. In open ended questionnaires, respondents create their own answers. Closed-

ended questionnaires limit what respondents can provide. They may include yes/no answers, categories of responses, rank ordered responses, or scales. With closed-ended questions, it is relatively easy to record and analyze, and not receive irrelevant or unintelligible responses.

Because of the reasons mentioned above the researcher used self-administered questionnaires for collecting data. Kerlinger (2000) argues that, to achieve as high responses as possible, one needs to explain clearly and concisely why the respondents must complete the survey on the first page. Regarding this issue a covering letter was provided for the first page. The questionnaires were designed to poll the opinions of the respondents with respect to research questions.

3.6.2 Scoring the Instrument

The Questionnaire used both closed and open ended questions. The Socio-Economic Status was determined by using the following indicators:

Parents'/ Guardians' Educational Level- In this study, it is assumed that students whose parents acquired the highest level of education came from high socio-economic status families and also achieved very high scores in mathematics.

Parents'/ Guardians' Occupational Status- In this study ,it is assumed that students whose parents had permanent jobs, both parents were working and also had an extra source of income, came from high socio-economic status families and also achieved very high scores in mathematics.

Students' Home Property- In this study, it is assumed that students who had items like radios, television, sofa sets, carpets, motorcycles, refrigerators, electric cookers, gas cookers in their homes e.t.c came from high socio-economic status families and also achieved very high scores in mathematics.

Students' Home environment- In this study, it is assumed that students who lived in a home environment characterized by good roads, playground, swimming pool, tapped water e.t.c came from high socio-economic status families and also achieved very high scores in mathematics.

A sample of the scoring the instrument was provided as appendix IV.

3.7 Reliability and Validity of research instrument

3.7.1 Reliability of the instrument

In order to reduce the risk of obtaining incorrect answers to research questions emphasis on reliability and validity was put (Saunders, 2007). Reliability is the extent to which research results would be stable or consistent if the same technique is repeatedly used. Moreover the way the measuring is conducted and how the information is processed affects the reliability (Fraenkel and Wallen, 2000).

To check on reliability of the instrument, the questionnaires were pre-tested through a pilot study that was done in four schools in Kapsaret Division which neighbours the study area. This was done to ascertain the effectiveness of the questionnaires in soliciting the information intended. Pilot study was carried out in order to determine the questionnaires' internal consistency and to detect any difficulties that the respondents were likely to face when responding to the items. Pilot study was carried out in 4 public and private mixed day secondary school in Uasin Gishu District. Two schools were from each category; 2 public mixed day secondary school and 2 private schools respectively. The questionnaires were administered to forty students drawn from the four schools and were categorized as 20 form three students from mixed public day school and 20 form three students from mixed private day school. Split half technique was used to test reliability of the instrument where the questions were divided into odd and even questions. The questions were scored where X and Y

scores were entered for both odd and even positioned items respectively. For each student the total score was recorded along with the sum of the scores for the even questions and the sum of the scores for the odd questions. This was done to determine whether the test was reliable. One problem with the split half reliability coefficient is that since only half the number of items is used, the reliability coefficient is reduced. To get a better estimate of reliability of the test, Spearman- Brown Correlation was used.

Spearman- Brown Correlation is the most common form of internal consistency reliability coefficient. By convention, a lenient cut-off of 0.60 is common in exploratory research; alpha should be at least 0.70 or higher to retain an item in an "adequate" scale; and many researchers require a cut-off of 0.70 and above for a "good scale." According to Fraenkel and Wallen (2000), for research purposes a useful rule of thumb is that reliability should be at least 0.70 and preferably higher. By considering these criteria, the obtained Spearman- Brown Correlation was above 0.70 and this was acceptable for this study. Based on the above explanation, in this research the researcher used Spearman- Brown Correlation in order to test the reliability of items at the pilot study .The calculated results were considered reliable since they yielded a coefficient of 0.70 and above.

3.7.2 Validity of Research Instruments

Validity of an instrument is the success of a scale in measuring what it sets out to measure so that differences in individual scores can be taken as representing true differences on the characteristics under study (Koul, 2002). Content validity refers to the subjective agreement among professionals that a scale logically appears to reflect accurately' what it purports to measure (Kothari, 2009).

The validity of the instrument was ensured in the following ways. First, the researcher discussed the items in the instrument with the supervisors, colleagues and other lecturers from the department of Educational Psychology and colleagues. In so doing, every item in the questionnaire was cross checked to ensure that it measured what it was supposed to measure. The advice which included suggestions, explanation and other inputs were used in making necessary changes. Secondly, the instrument was piloted where the responses of the subjects were checked against research objectives.

3.8 Data collection Procedures

The researcher collected data from the selected respondents after receiving clearance to conduct the research from the School of Education in the Department of Educational psychology Moi University. Permission to conduct research was obtained from the ministry of Education Science and technology (Refer to Appendix IX). The researcher reported to the District Education office to verify the number of secondary schools in Eldoret Municipality. Letters of authority to conduct research was requested from the provincial Education – Office, Rift valley province and District Education Office, Uasin Gishu District. Each school were visited and their participation in the study was confirmed. Then the teacher's manual and the student's manual were availed to researcher. The researcher then visited the study schools to collect the completed questionnaire.

3.9 Data Analysis

All the collected data were entered and managed by Excel for windows. The completed questionnaires were evaluated for errors before subjecting them to analysis. After the data entry, it was examined to facilitate answering the objectives of the study. Analysis of data was done statistically using SPSS 17.0 statistical package after data coding. Quantitative methods of data analysis employing descriptive

statistics were used to analyze the results to assess the varied responses. Responses to each variable were tabulated and grouped accordingly. Tables were used to summarize the data. This created vital statistics that were used to describe the data. The questionnaires also provided comments and experiences of what was practically happening in the field. The comments and experiences gathered were grouped, compared and reported in respective tables. The data collected were homogenized and discriminated by gender and age group. Percentage occurrence of attributes' responses was done using frequency distribution.

The descriptive analysis, including frequencies, percentages, was used to summarize and organize data and to describe the characteristics of the selected sample. Cross-tabulation of students' socio-economic status and achievement in mathematics among secondary school students was carried out. These included: the students' socio-economic status, male students' socio-economic status and female students' socio-economic status. One way analysis of variance (ANOVA) statistics were used in making deductions and generalizations about the whole population using sample data. Also, ANOVA was utilized to establish the association among the study variables. Also, to find out if there were significant differences in the mean responses as well to test the research hypotheses. The One way analysis of variance (ANOVA) was chosen because the researcher wished to analyze the variations both within and between each of the two groups (Fraenkel and Wallen 2000). Additionally, the sample was large enough enabling the assumptions of the central limit theorem to hold. Chi-square test of independence was performed to test significance of differences in female and male student's achievement in mathematics across socio-economic status.

3.10 Ethical considerations

Permission to carry out the study was sought from the School of education and Department of Educational psychology of Moi University, and from the respondents who participated in the study. This was done through letters which was written to the Ministry of Education, Uasin Gishu District Education Office and head teachers of the respondents' secondary schools. The nature and the purpose of the research was explained to the respondents by the researcher. The researcher respected the individuals' rights to safeguard their personal integrity. At any time during the course of the data collection, the respondents were free to withdraw from the study if they wish. The respondents were assured of anonymity and confidentiality. No names or personal identification numbers were reflected on the questionnaires except the numbering for questionnaires, which was for purposes of identification of data during data editing. The results of the study would be availed to the Uasin Gishu District Education Office and to those participants who are interested in knowing the results.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter deals with data analysis, presentation and interpretation of the research findings. The purpose of this study was to determine the influence of student's socio-economic status on their achievement in Mathematics in Eldoret municipality in Kenya.

Out of 380 questionnaires that were distributed to respondents, 350 were returned; generating a response rate of 92%. The hypotheses were tested to determine the relationship between the students' socio-economic status and their achievement in Mathematics.

4.1 Socio-economic indicators used in the study

The study sought to investigate the socio-economic status of the respondents. This was done by seeking information regarding the following background characteristics of the respondents: students' socio-economic status was operationalized as a composite of parents' educational level, parents' occupational status, students home property, and students home environment so that all values would fall within a 20 to 44 score where 10-22 would imply low status; 23- 33 middle status and 34-44 high status.

4.1.1 Parents level of Education

Socio economic status (SES) is often measured as a combination of education, income, and occupation. The researcher therefore sought to establish the levels of education of both the male parent/guardian and the female parent/guardian. The results are presented in Table 4.1.

Table 4.1 Parents Level of Education

	Primary Level Dropout	Secondary Level Graduate	Diploma/Higher Diploma graduate	University Graduate	Total
	N	N	N	N	N
Fathers/male guardians education status & %	121	135	56	38	350
	17%	19%	8%	5%	50%
Mothers/ female guardian educational level & %	190	82	60	18	350
	27%	12%	9%	3%	50%
Total	311	217	116	46	700
	45%	31%	17%	7%	100%

As indicated in Table 4.1, out of the 350 (50%) fathers/ male guardians, 121 (17%) were primary school dropouts or did not attend school; 135 (19%) were secondary school graduates, 56 (8%) were Diploma /Higher Diploma graduates; while only 38 (5%) were university graduates.

Out of the 350 (50%) mothers/ female guardians 190 (27%) were primary school dropouts or did not attend school; 82 (12%) were secondary school graduates; 60 (9%) were Diploma/ Higher Diploma graduates; while only 18 (3%) were university graduates. This means that more than half of the parents were secondary school graduates and Diploma/Higher Diploma graduates. However, more fathers/ male guardians have formal education than their female counterparts.

4.1.2 Parents Occupation Status

As observed from the literature, parental occupation may influence student performance in various ways. This is why the respondents were asked to state the

occupation of their parents. Table 4.2 presents the distribution of the occupation status of the respondent's parents/guardians.

Table 4.2: Parents Occupation Status

	Never employed	*Temporal employment*	*Permanent job + no other source of income*	*Permanent job+ part Time job/ doing Business/ farming*	*Total*
	N	N	N	N	N
parents occupation status &	64	130	66	90	350
%	18%	37%	19%	26%	100%

The findings shows that 64 respondents indicated their parents/guardians were never employed; 130 indicated that their parents had temporary employment; 66 indicated that the parents had permanent jobs and no other source of income; while 90 indicated that the parents/guardians were permanently employed and had part time jobs/ were doing business or were also farmers. The results implied that most parents/guardians were average income earners, with permanent jobs.

4.1.3 Students Home Property

The respondents were asked to indicate Yes/No on whether they owned a number of listed items. Table 4.3 shows the following: Accumulative total of 265 agreed to have a radio at home while a total of 58 indicated that they did not have. A cumulative total of 149 agreed to owning a TV while 200 indicated that they did not have; a total of 253 agreed to owning a sofa set while a total of 96 indicated that they did not have; a total of 124 agreed to owning a carpet while a total of 225 indicated that they did not have; a total of 257 agreed to owning a bicycle while a total of 92 indicated that they did not have; a total of 61 agreed to owning a motor cycle while a total of 287

indicated that they did not have ; a total of 75 agreed to owning an electric cooker while a total of 183 indicated that they did not have; a total of 72 agreed to owning a gas cooker while a total of 277 indicated that they did not have; finally, a total of 303 agreed to owning a charcoal stove while only 33 indicated that they did not have .

Table 4.3: Items possessed by the students parents

Material items	Yes	%	No	%
Radio	265	75.7	58	16.5
Television	149	42.6	200	57.1
Charcoal burner	303	86.5	33	09.4
Sofa set	253	72.3	96	27.4
Carpet	124	35.4	225	64.3
Bicycle	257	73.4	92	26.3
Motor cycle	61	17.4	287	82
Refrigerator	51	14.6	298	85.1
Electric cooker	75	21.4	183	52.3
Gas cooker	72	20.5	277	79.1

The findings in table 4.3 indicated that most of the students only owned charcoal burners, Bicycles, radios and sofa sets. The results suggest that a majority of the students were from low or middle socio- economic status.

4.1.4 Students Home Environment

 As observed from literature, apart from family background and family cultural resources, there were other family characteristics that could affect students' achievement. The researcher sought to establish the state of the students' home environment and how it could affect student's achievement. The results are indicated in table 4.4.

Table 4.4: Students' Home Environment

	Yes	%	No	%
Electricity	285	81.4	31	08.8
Good roads	183	52.2	108	30.8
Security	80	22.8	234	66.8
Playground	103	29.4	207	59.1
Swimming pool	45	12.8	250	71.4
Clean water	221	63.1	103	29.4

As shown in table 4.4, a cumulative of 285 respondents agreed that there was electricity at their home; a cumulative total of 31 indicated that they did not have . A cumulative total of 183 agreed that they had good roads while a total of 108 indicated that they did not have. A cumulative total of 80 respondents agreed that they enjoyed security round the clock while a total of 234 indicated that they did not have. A cumulative total of 103 agreed to have playgrounds while a total of 207 indicated that they did not have. A total of 45 agreed to have a swimming pool while a total of 250 indicated that they did not have. Finally, a cumulative total of 221 agreed to have clean water while 103 indicated that they did not have. The results implied that most of the student's hailed from environments with electricity, clean water and good roads. However some of the students didn't have proper security and playing ground.

4.1.5 Socio-Economic Status

The socio-economic composite which was made up of Parents' education, occupational status, students' home property and students' home environment yielded the results shown in Table 4.5 describing the students' socio-economic status.

Table 4.5: Students' Socio-Economic Status

Socio-economic Status		Low	Middle	High	Total
		N	N	N	N
Sex of Respondents	Male	48	115	48	211
	Female	35	77	27	139
Total		3	192	75	350

As shown from the Table 4.5, out of the 211 male respondents, 48 were from low Socio-economic status; 115 were from middle Socio-economic status; while 48 were from high Socio-economic status. Out of the 139 female respondents, 35 were from low Socio-economic status; 77 were from middle Socio-economic status; while 27 were from high Socio-economic status. These results clearly show that a majority of the students' who participated in the study were from middle Socio-economic status. The results showed that most of the student's hailed from environments without electricity.

4.1.6 Achievement in Mathematics

Table 4.6 presents the descriptive statistic showing students' achievements in the standardized test administered at the request of the researcher.

Table 4.6: Students' achievement in mathematics

As shown in the Table, the mean score in the test was approximately 54 marks with a standard deviation of 16 marks. The least score stood at 15 marks and the maximum score was 90 marks.

4.2 Students' Achievement in Mathematics from different socio-economic status

Table 4.7 shows the comparison of achievement in mathematics among students from different socio-economic status.

Table 4.7 Comparison of achievement in Mathematics among students from different socio-economic status.

Socio-economic levels		Score range <20	20-39	40-60	61-80	>80	Total
Low	Count	14	15	28	19	7	83
	%	4%	4.28%	8%	5.42%	2%	23.71%
Middle	Count	58	79	35	13	7	192
	%	16.57%	22.57%	10%	3.71%	2%	54.85%
High	Count	9	20	19	16	11	75
	%	2.57%	5.71%	5.42%	4.57%	3.14%	21.42%
Total	Count	81	114	82	48	25	350
	%	23.14%	35.57%	23.42%	13.71%	7.14%	100%

As shown in Table 4.7, 23.7% of the respondents were from low socio-economic status whereas 54.8% were from middle socio-economic status. However, 21.4% were from high socio-economic status. The means are presented in Table 4.8 as shown below.

Table 4.8 Means

SES	Low	Middle	High	TOTAL
FREQ	83	192	75	350
MN	33.21622	30.5154639	42.09146	100

Table 4.8 presents the results of students' achievement in mathematics from all socio-economic status where 75 students from High socio-economic status had the highest mean of 42.09146, 83 students from low socio-economic status had a mean of 33.21622 and 192 students from middle socio-economic status had a mean of 30.5154639.

To determine if there were significant differences in mathematics achievement among students' from different socio-economic status, a one way analysis of variances (ANOVA) was conducted.

The ANOVA test was chosen since there were three different groups implying that the 't' test could not be used to assess the mean differences between the groups.

Table 4.9: Results of ANOVA test

The effects of Socio economic status are significant since p value is .000. The results show that F $(2,347)$ = 30.441, p < 0.05. This implied that the means differ more than would be expected by chance alone. The researcher therefore concluded that there

were differences in mean achievement in mathematics between the three socio-economic status of low, middle and high.

To establish how the mean achievements actually differed among the three groups, the researcher conducted a Bonferroni Post Hoc test. This test was used because it allows many comparisons statement. Bonferroni was suitable because of its effects on the study sample size and also its statistical power. Results of this test are presented in Table 4.10.

Table 4.10. Achievement in Mathematics Bonferroni Post Hoc test

It is clear from the table that there was a significant difference in mean achievement of close to 9 marks between students from low socio-economic status and those from middle socio-economic status. Similarly, there was a significant mean difference of close to 20 marks between students from low status and those from high status. The

table also showed a significant mean difference of close to 11 marks between students from middle status with those from high status.

These results suggest that students from high socio-economic status are likely to achieve higher in mathematics than students from middle and low socio-economic status. Similarly, students from middle socio-economic status are on the other hand likely to achieve higher in mathematics than those from low socio-economic status.

4.3 Comparison of Achievement in Mathematics among Male Students' from different socio-economic status

The study also sought to compare the difference in achievement in mathematics among male students from different socio-economic status; the results are presented in Table 4.11.

Table 4.11: difference in achievement in mathematics among male students from different socio-economic status

Score range * Socio-economic levels of Male students Cross-tabulation							
Socio-economic levels		**Score range**					
		<20	**20-39**	**40-60**	**61-80**	**>80**	**Total**
Low	**Count**	3	8	18	12	7	48
	%	1.42%	3.79%	8.5%	5.6%	3.31%	22.7%
Middle	**Count**	30	44	26	10	5	115
	%	14.21%	20.85%	12.32%	4.73%	2.36%	54.5%
High	**Count**	8	12	11	13	4	48
	%	3.79%	5.68%	5.21%	6.16%	1.89%	22.7%
Total	**Count**	41	64	55	35	16	211
	% total	19.43%	30.33%	26.06%	16.58%	7.58%	100%

Table 4.11 presents results of male students from different socio-economic status where 48 male students were from Low socio-economic status 7 students scored 80% and above, 12 students scored between 61% and 80%, 18 students scored between 40% and 60%, 8 students scored between 20% and 39%, and 3 students scored below 20%. From middle socio-economic status there were 115 male students who scored as follows; 5 students scored above 80%, 10 scored between 61% and 80%, 26 students scored between 40% and 60%, 44 students scored between 20% and 39% and 30 students scored below 20%. There were 48 students from high socio-economic status where 4 students scored 80% and above, 13 students scored between 61% and 80%, 11 scored between 40% and 60%, 12 students scored between 20% and 39%, and 8 students scored below 20%.

Table 4.12 Mean males

SES	*Low*	*Middle*	*High*
Mean	38.1875	32.6087	36.90625
Total	48	115	48

Table 4.12 presents the results of male students' achievement in mathematics where 48 male students from low socio-economic status scored the highest mean of 38.1875, 48 male students from high socio-economic status scored 36.90625 and115 male students from middle socio-economic status scored a mean of 32.6087.

To determine if there were mean differences in achievement in Mathematics among male students from high, middle and low socio-economic status (objective 2), a one way ANOVA was again used. Table 4.13 presents the results of ANOVA test.

Table 4.13 ANOVA Results.

These results implied that the effects were significant since the p value is .000. From the Table, F (2,208) = 17.239, p<0.05. Therefore the researcher rejected the null

hypothesis and concluded that the mean achievement in mathematics for the male students from the three groups differed more than would be expected by chance alone.

The Bonferroni post hoc test was done to show where the differences occurred. The results are shown in Table 4.14.

Table 4.14 Male students' achievement in mathematics Bonferroni Post Hoc test

The results showed that the mean difference of close to 4 marks between male students from low and middle socio-economic status was not significant (p= 0.728) and was due to sampling errors. However, the mean difference of close to 16 marks between male students from low and high socio-economic status was significant. Further, the mean difference of close to 12 marks between male students from middle and high socio-economic status was also significant.

These results showed that differences in achievement in mathematics between male students from low socio-economic status and middle socio-economic status was not as a result of socio-economic status but was due to chance and possibly due to bias resulting from data collection and handling. However, the mean difference in achievement in mathematics between male students from high socio-economic status and those from middle and low socio-economic status were significant.

4.4 Comparison of Female students' Achievement in Mathematics in different socio-economic status

The study sought to establish the difference in achievement among female students from different socio-economic status. The results are presented in Table 4.15.

Table 4.15 Achievement in Mathematics among Female Students from different socio-economic status

* Score range * Socio-economic levels for Female students Cross-tabulation							
Socio-economic levels		**Score range**					
		<20	**20-39**	**40-60**	**61-80**	**>80**	**Total**
Low	**Count**	11	7	10	7	0	35
	%	7.91%	5.03%	7.19%	5.03%	0%	25.17%
Middle	**Count**	28	35	9	3	2	77
	%	20.14%	25.17%	6.47%	2.15%	1.43%	55.39%
High	**Count**	1	8	8	3	7	27
	%	0.71%	5.75%	5.75%	2.15%	5.03%	19.4%
Total	**Count**	40	50	27	13	9	139
	%	28.77%	35.97%	19.42%	9.35%	6.47%	100%

Table 4.15 presents results of female students from different socio-economic status. From the low socio-economic status there were 35 students who scored as follows; none scored above 80%, 7 students scored between 61% and 80%, 10 students scored between 40% and 60%, 7 students scored between 20% and 39%, and 11 students scored below 20%. The middle socio-economic status had 77 female students who

scored the following marks; 2 students scored 80% and above, 3 students scored between 61% and 80%, 9 students scored between 40% and 60%, 35 students scored between 20% and 39% and 28 students scored below 20%. The high socio-economic status there was a total 27 students who had the following scores; 7 students scored above 80%, 3 students scored between61% and 80%,8 students scored between 40% and 60%,8 students scored between 20% and 39% and 1 student scored below 20%.

Table 4.16 Means for female students

SES	Low	Middle	High
Mean	24.03846	27.46835	49.41176
Total	35	77	27

Table 4.16 presents the results of female students' achievement in mathematics where 27 female students from high socio-economic scored the highest mean of 49.41176 while 77 female students from middle socio-economic status scored a mean of 27.46835 and 35 female students from low socio-economic status scored a mean of 24.03846.

To determine the differences in achievement in Mathematics among female students from high, middle and low socio-economic status, a one way ANOVA was again used and its results are presented in Table 4.17.

Table 4.17: ANOVA Results.

These results indicate that the effects resulting from socio-economic status were significant p value is .000. From the table, F (2, 136) = 14.841, p<0.05. The researcher therefore rejected the null hypothesis and concluded that the mean achievement in mathematics for the female students' in the three groups differed more than would be expected by chance alone.

The Bonferroni Post Hoc test results in table 4.18 further showed that the mean difference of close to 15 marks between female students from low socio-economic status and those from middle socio-economic status is significant. This too was the case with the mean difference of close to 24 marks between female students from low socio-economic status and those from high socio-economic status. The results also showed a significant mean difference of close to 9 marks between female students from middle socio-economic status and those from high socio-economic status.

Table 4.18: The Bonferroni Post Hoc test results

The results showed that there was a big disparity in mathematics achievement between female students from the three groups. This is particularly true for female students from low socio-economic status when compared to those from high socio-economic status.

4.5 Comparison of Achievement in Mathematics among male and female students across different socio-economic status

The study sought to determine the difference in achievement in mathematics among male and female students across different socio-economic status. The results are as shown in table 4.19.

Table 4.19 Difference in achievement in mathematics among male and female students across different socio-economic status

* Score range * Socio-economic levels form Male and Female students Cross-tabulation

Socio-economic levels		Score range										Total	
		<20		20-39		40-60		61-80		>80			
		M	F	M	F	M	F	M	F	M	F	M	F
Low	Count	3	11	8	7	18	10	12	7	7	0	48	35
	(%)	(1.42)	(7.91)	(3,79)	(5.03)	(8.5)	(7.19)	(5.6)	(5.03)	(3.31)	(0)	(22.7)	(25.1)
Middle	Count	30	28	44	35	26	9	10	3	5	2	115	77
	(%)	(14.2)	(20.1)	(20.8)	(25.2)	(12.3)	(6.47)	(4.73)	(2.15)	(2.36)	(1.43)	(54.5)	(55.3)

High	Count	8	1	12	8	11	8	13	3	4	7	48	27
	(%)	(3.79)	(0.71)	(5.68)	(5.75)	(5.21)	(5.75)	(6.16)	(2.15)	(1.89)	(5.03)	(22.7)	(19.4)
Total	Count	41	40	64	50	55	27	35	13	16	9	211	139
	(%)	(19.4	(28.7)	(30.3)	(35.9)	(26.0)	(19.4)	(16.5)	(9.35)	(7.58)	(6.47)	(100)	(100)

Table 4.19 presents a comparison of achievement in mathematics between male and female students from different socio-economic status. From the low socio-economic status there were 48 male students and 35 female students who scored as follows; 7 male students and no female student scored 80% and above, 12 male students and 7 female students scored between 61% and 80%, 18 male students and 10 female students scored between 40% and 60%, 8 male students and 7 female students scored between 20% and 39% and 3 male students and 11 female students scored below 20%.

The middle socio-economic status had 115 male students and 77 female students who scored the following marks; 5 male students and 2 female students scored 80% and above, 10 male students and 3 female students scored between 61% and 80%, 26 male students and 9 female students scored between 40% and 60%, 44 male students and 35 female students scored between 20% and 39% and 30 male students and 28 female students scored below 20%.

The high socio-economic status had 48 male students and 27 female students who scored the following scores; 4 male students and 7 female students got 80% and above, 13 male students and 3 female student scored between 61% and 80%, 11 male students and 8 female students scored between 40% and 60%, 12 male students and 8 female students scored between 20% and 39% and 8 male students and 1 female student scored below 20%.

Table 4.20 male and female means

Gender	*Low*	*Middle*	*High*

Male	38.1875	32.6087	36.90625
Female	24.03846	27.46835	49.41176
Total	**83**	**192**	**75**

Table 4.20 compares male and female students' achievement in mathematics mean scores where female students from high socio-economic status (49.41176) performed better than the male students from high socio-economic status (36.90625). Male students from middle socio-economic status (32.6087) performed better than the female students from middle socio-economic status (27.46835).

Male students from the low socio-economic status performed better (38.1875) than the female students from low socio-economic status (24.03846).

To determine the difference in Mathematics achievement among male and female students from different socio-economic status, students' sex was cross tabulated against socio-economic status across mathematics achievement. The results are as shown in Table 4.21.

Table 4.21: Achievement in Mathematics between female and male students

Achievement in Mathematics				socio-economic status			Total
				low	middle	high	
low	Sex of respondents	Male	Count	11	17	20	48
			% within SES	13.25%	20.48%	24.09%	57.83%
		Female	Count	20	10	5	35
			% within SES	24.09%	12.040%	6.02%	42.16%
	Total		Count	31	27	25	**83**
			% within SES	37.34%	32.53%	30.12%	100.0%
Middle	Sex of respondents	Male	Count	9	81	28	118
			% within SES	4.68%	42.1%	14.58%	61.45%
		Female	Count	6	53	15	74
			% within SES	3.12%	27.60%	7.81%	38.54%
	Total		Count	15	134	43	**192**
			% within SES	7.81%	69.79%	22.39%	100.0%
high	Sex of respondents	Male	Count	23	14	3	40
			% within SES	30.66%	18.66%	4%	53.33%

Female	Count	6	9	20	35
	% within SES	8%	12.0%	26.66%	46.66%
Total	Count	29	23	23	**75**
	% within SES	38.66%	30.66%	30.66%	100.0%

The results as presented in Table 4.21 indicated the following: Out of the 83 students whose achievement in mathematics was low, 11 males and 20 females were from low economic status, 17 males and 10 females were from middle socio-economic status and, 20 males and 5 females were from high socio-economic status.

Similarly, 192 achieved averagely in mathematics out of whom, 9 males and 6 females were from low socio-economic status; 81 males and 53 females were from middle socio-economic status; and 28 males and 15 females were from high socio-economic status. From a total of 75 students who achieved highly in mathematics, 23 males and 6 were from low socio-economic status; 14 males and 9 females were from middle socio-economic status; while 3 males and 20 females were from high socio-economic status.

The tests of hypothesis further indicated that, the difference in achievement in mathematics between female students and male students across social economic status was not significant (see Table 4.22).

Table 4.22: Significance tests of differences in female and male students

Achievement		Value	df	Asymp. Sig. (2-sided)
Low	Pearson Chi-Square	2.206[a]	2	.332
	Likelihood Ratio	2.197	2	.333
	Linear-by-Linear Association	1.861	1	.172
	N of Valid Cases	92		
Middle	Pearson Chi-Square		2	.804
	Likelihood Ratio	.442	2	.802
	Linear-by-Linear Association	.346	1	.556
	N of Valid Cases	193		

High	Pearson Chi-Square		2	.202
	Likelihood Ratio	4.219	2	.121
	Linear-by-Linear Association	.018	1	.894
	N of Valid Cases	65		

Table 4.22 presents results of chi-square significance test of difference in achievement in mathematics between male and female students across socio-economic status. The p value in the low socio-economic status was greater than 0.05 (p > 0.05) i.e. 0.332. The results indicate that there was no significant difference between male and female students. For the middle socio-economic status the p value was greater than 0.05 (p >0.050) i.e 0.804. The results indicate that there was no significant difference between male and female students. For the high socio-economic status the p value was also greater than 0.05, (p > 0.05) i.e 0.202. The results indicate that there was no significant difference between male and female students.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This section provides a systematic discussion of the findings of the study in light of the theoretical, empirical literature and in relation to the research objectives. In addition, the researcher then provides study recommendations and suggestions for further research derived from the findings on what to be done to improve effective teaching and learning of mathematics Kenya secondary schools. The following findings were made.

5.1 Discussion of the findings

The purpose of this study was to establish the influence of student's socio-economic status on achievement in Mathematics among secondary students in Eldoret Municipality. The study has indicated a variety of background characteristics of the students' parents that define the socio-economic status of the students. Key among these characteristics include: Parents level of education, Parents' occupational status, Students' Home Property and Home Environment which were used to form the SES composite. In addition, three thematic issues were analyzed. These included: the parents socio-economic status, boys socio-economic status and girls socio-economic status.

5.1.1 Differences in achievement in Mathematics among students from high, middle and low socio-economic status

The first objective sought to determine the differences in achievement in Mathematics among students from high, middle and low socio-economic status. The current study established that there was a significant relationship between socio-economic status and students' achievement in mathematics. The results indicated that students from

high socio-economic status achieved higher than those from lower socio-economic status. These tend to suggest that a majority of students from low socio-economic status achieved averagely or below average in mathematics while most from high socio-economic status achieved above average or highly in mathematics. The results of one way ANOVA test results show that $F (2,347) = 30.441$, $p < 0.05$. Since $p < 0.05$, it means that the effects as a result of Socio economic status were significant. This implies that the mathematics, achievement means differed more than would be expected by chance alone. These results imply that there exists a relationship between socio-economic status and students' achievement in mathematics. Consequently, there was a significant difference in achievement in mathematics among students from low, middle and high socio-economic status.

These views echoed the findings of other authors (White, , 1993; White, 1980 and1982 and Yara, 2010) that students who attended schools usually had diversity in their background and this affected their performance.

Guo and Harris (2000) found that the economic status of parents had significant effects on mathematics achievement during early childhood, but its effects have not been shown to be as noteworthy as during later childhood. The reason is because there is a vital period in a child's life when development of cognitive skills is greatest and that is during the time before formal schooling when involvement by parents is generally the highest. In other words, the worst effects of poverty on children can be explained by a lack of early cognitive development within the home (Guo & Harris, 2000). Unfortunately, low-SES students receive less support in their home environment to develop their mathematical skills than their middle and high-SES peers (Zadeh, Farnia Ungerleider, 2010).

Cross ,(2009) further added that there was a huge mathematics achievement gap between low-and middle- SES students even before they enrolled in elementary school, suggesting that low-SES parents can support their children's informal mathematical knowledge and skills by enhancing their readiness before they start school; thus reducing the gap between low-SES students and high-SES. However, this support may be improved by providing information about early and later mathematical development, and its connection to parental support (Cross, 2009). In Kenya, it is a fact that unemployment, underemployment and consequent poverty continued to account for the high incidence of poverty. Abject poverty in the country is the norm. In 1996, the average Gross National Product per capita for industrialized nations was $27,086.00. Kenya had a gross national income per capita of US$1,010, which was below the averages for low-income ($2,110) and sub-Saharan African ($1,700) countries. This would indicate a 27-fold disparity in wealth. In Kenya, where the richest 20 percent of the population controls the wealth, resulting to extreme cases of poverty. However, education is usually affected by a number of other independent factors that may preclude socio-economic condition.

These findings were consistent with (Shittu, 2004; Battle and Lewis, 2002; and Ryan, 1997) that a substantial proportion of students' achievement stems from recognition that students from high socio-economic households usually had most of the reading materials, literature and were exposed to a number of things that would render educational concepts much easier to grasp. Therefore it was possible that when students from low and middle income groups were grappling to buy reading materials like books, those from high income groups already had these items. The perceived differences in performance between students from high socio-economic class as

compared to those from low socio-economic class could also be traced to the ability of their parents to hire private tutors and be able to provide these students extra tuition, which could not be afforded by parents from low socio-economic status. The study attempted to obtain information from students whose parents had diversity in their socio-economic backgrounds. In this study, majority of students came from middle and low socio-economic status.

5.1.2 Differences in Achievement in Mathematics among male students from high, middle and low socio-economic status

Research objective 2 sought to determine the differences in achievement in Mathematics among male students from high, middle and low socio-economic status. The results of one way ANOVA test results show that, $F_{(2,208)} = 17.239$, $p<0.05$. These results implied that the effects were significant therefore the researcher rejected the null hypothesis and concluded that the mean achievement in mathematics for the male students from the three groups differed more than would be expected by chance alone. These results seemed to suggest that the mean difference in achievement in mathematics between male students from high socio-economic status and those from middle and low socio-economic status were significant.

Bandura (1986) asserts that disadvantaged families lack means to provide their children with developmentally enriching experiences, unless the parents make considerable self sacrifice by dedicating a great deal of their time and effort and meagre resources for such purposes

The relationship between poverty and achievement among the males had been widely discussed in the literature. The findings that male students from low socio-economic status achieved higher than those from middle and high socio-economic status

supported the findings of other studies (e.g. Cohen, 2004; Jaggai and Kell-Hawke, 1994; Brembeeks, 1994; Tomasevski, 2001; Shittu, 2004). The relationship between poverty and achievement among the males had been widely discussed by the above authors. These views echoed the findings of Shittu, (2004) that there existed an inverse relationship between HDI scores and socio-economic status of male children. Most countries in sub-Saharan Africa ranked low on this measurement scale. The most severe economic impact was at the level of households. Affected families often became impoverished thus accounted for labour mobility (migratory labour) and most of the male children were found in this bracket. The unexpected high performance in Mathematics among students from low socio-economic status indicated that most of the male students from low socio-economic status had to work hard to escape from poverty and help their parents to escape the same. This therefore provided the impetus for the male children who put more efforts in their work and achieved better grades.

Students coming from families with the lowest monthly income had higher mean score as compared to students coming from families with the highest monthly income. The findings of the study is consistent to Smith, Schneider, and Ruck, (2005) that found that socio-demographic variables do not fully account for the academic successes or failure of minority students.

It is believed that low socio-economic status (SES) negatively affects academic achievement because it prevents access to vital resources and creates additional stress at home (Eamon, 2005). These economic hardships, in turn, lead to disruption in parenting, an increasing amount of family conflict and an increased like hood of depression in parents.

Mark, (2011) carried out a longitudinal study to find out if the socio-economic background of the students, especially, schooling from either public or private

secondary schools, relate to their academic performance as under graduate. The results of the study indicated that students coming from socio-economically disadvantaged environment perform relatively better than those coming from higher socio-economic status and educational strata. Also, students who come from public schools had a better relative performance than those who studied in private schools. Mark, (2011) further discovered that youngsters who came from a general disadvantaged background and were admitted to the university had a higher untapped academic potential when compared to those belonging to higher socio-economic status and educational strata.

Low income of parents has been found to hinder the children from getting good education, and thereby, improving the future prospects of their life (Zadeh, 2010). Parents of low socio-economic status have low involvement with school, provide little educational guidance for their children, and they also do not know how to help the children. Such parents are also intimidated by the school, which rarely initiates contacts with them (Hyde, 2006).

(Eamon, 2005) has also noted that income of the parents along with education and occupation are important factors of socio-economic status of the family. Families belonging to high and middle socio-economic status provide better facilities such as good library, news papers, periodicals, better residential areas, etc. to their children, which lead to high achievement motivation. On the other hand, families belonging to the low socio-economic status are unable to provide such type of facilities and thus fail to facilitate high levels of achievement motivation.

5.1.3 Differences in achievement in Mathematics among female students from different socio-economic status

Research objective 3 sought to determine the differences in achievement in Mathematics among female students from high, middle and low socio-economic

status. The study revealed that female students from middle socio-economic status achieved higher in mathematics than their counterparts from low and high socio-economic status.

The results of one way ANOVA test results showed that, F (2, 136) = 14.841, p<0.05. The results indicated that the effects resulting from socio-economic status were significant. The researcher therefore rejected the null hypothesis and concluded that the mean achievement in mathematics for the female students' in the three groups differed more than would be expected by chance alone. The results showed that there was a big disparity in mathematics achievement between female students from the three groups. This is particularly true for female students from low socio-economic status when compared to those form high socio-economic status.

These findings suggested that female students from middle socio-economic status tended to achieve higher than female students from low and high socio-economic status. These results concurred with the views of (Okojie, 2001) that most of the girls were usually educated in Africa because their parents wanted the best from them but not because it was a priority. As such, many bright female students were usually prioritized in educational echelons. Further, the provision of education for all sexes was important for both intrinsic and instrumental reasons. It affected social harmony and society's wellbeing in various dimensions. Education for All, involved policy dimensions in all areas including; education, poverty, labour, financial markets, political and economic empowerment, institutions and overall economic development. Gender equality enhanced prospects of achieving both international and national commitments such as Millennium Development Goals, Education for All, Convention on the Education of All Forms of Discrimination against Women (CEDAW), Vision

2030, 2003-2007 Economic Recovery and Employment Creation Strategy, poverty reduction and sustainable development either directly and or indirectly.

Besides, as observed by Okoye, (1989) and Betts , (2003) female students from middle socio-economic status performed better in Mathematics than their counterparts from low and high socio-economic status. Several social, economic, political and other factors accounted for African women's dependence on men and their consequent vulnerability to poor performance. Among the females, performance was also a strong function of the parents' socio-economic status. There was an explanation why students from middle socio-economic backgrounds were performing better than those from low socio-economic status. This was because parents from low socio-economic backgrounds preferred to marry off their daughters immediately they reached the child bearing age (including the bright ones) and therefore, they rarely got chance to perform in schools. In contrast, high academic achievers found school meaningful, enjoyed school and believed that what they did in school produced beneficial outcomes for them even if they were from a poor socio-economic background (Hammouri, 2004). These results concur with research done by

Garzon, (2006) and Kirkup, (2008), who observed that students with high level of Socio-economic Status perform better than the middle class students and the middle class students, perform better than the students with low level of Socio-Economic Status. However, the achievement of students was negatively correlated with the low Socio-Economic Status level of parents because it hindered the individual in gaining access to sources and resources of learning (Eamon, 2005).

Socio-economic status is closely tied to home environment and thus it dictates the quality of life for children, Joan (2009) also noted that income of the parents along with education and occupation are important factors of socio-economic status of the

family. Families belonging to high and middle socio-economic status provide better facilities such as good library, news papers, periodicals, better residential areas, etc. to their children, which lead to high achievement motivation. On the other hand, families belonging to the low socio-economic status are unable to provide such type of facilities and thus fail to facilitate high levels of achievement motivation.

 In another study, Mark, (2011) found that students from higher income families more often end up in the most competitive careers like medicine and engineering which are associated with higher professional status and salaries. Laurea, (2003) in their longitudinal study, found that before even entering the kindergarten, the higher socio-economic status children had cognitive scores that were on the average 60% above the scores of low socio-economic status children.

Joan, (2009) also suggests that level of education influences parents' knowledge, beliefs, values, and goals about childrearing, so that a variety of parental behaviours are indirectly related to children's school performance. For example, higher socio economic status and high levels of education may enhance parents' facility at becoming involved in their children's education, and also enable parents to acquire and model social skills and problem-solving strategies conducive to children's school success. Thus, students whose parents have higher socio-economic status and higher levels of education may have an enhanced regard for learning, more positive ability beliefs, a stronger work orientation, and they may use more effective learning strategies than children of parents with lower socio-economic status and lower levels of education (Joan, 2009).

5.1.4 Differences in Achievement in Mathematics between female and male students from different socio-economic status.

Research objective 4 sought to compare the differences in achievement in mathematic between female and male students from high, middle and low socio-economic status.

The tests of hypothesis further indicated that differences in achievement in mathematics between female students and male students across social economic status were not significant. These finding concurred with the views of (Abiam and Odok, 2006) who found no significant relationship between gender and performance in number and numeration, algebraic processes and statistics. They however found the existence of a weak significant relationship in Geometry and Trigonometry. Though globally the issue of gender inequality in Science, Technology and Mathematics Education (STME) had produced inconclusive results, one meta-analysis covering the period 1974 – 1987 on Mathematics and gender led to two conclusions: the average gender gap was very small (statistically insignificant), and the fact that the differences tended to decline with time (Friedman, 1989). A number of studies conducted afterwards showed that in many countries, academic achievement had decreased and now quite small (Elwood, 1999; Fennema, 1996; Friedman, 1989 and Hanna, 2003).

5.2 Conclusion

The study sought to establish the influence of students' socio-economic status on their achievement in mathematics among secondary schools students in Eldoret Municipality, Kenya. From the findings of the study, it can be concluded that there was a significant relationship between socio-economic status and students' achievement in mathematics. The findings indicated that students from high socio-economic status achieved higher than those from lower socio-economic status. Therefore, students' socio-economic status was among the determinant factors that influenced academic achievement and development of the students. Further, the findings of the study revealed through one way ANOVA test that the mean difference in achievement in mathematics between male students from high socio-

economic status and those from middle and low socio-economic status were significant. Therefore, the findings indicated that boys from low socio-economic status achieved higher than those from middle and high socio-economic status. The study also concluded that female students from middle socio-economic status achieved higher in mathematics than their counterparts from low and high socio-economic status. The one way ANOVA test further indicated that there was a significant relationship between socio-economic status and female students' achievement in mathematics. However, the study established that there were no significant differences in female and male students' achievement in mathematics across socio-economic status.

5.3 Recommendations

Based on the foregoing discussion of the findings and conclusion, this study recommends that;

i) The government should increase Free Secondary Education allocation to schools to enable the principals to buy enough learning resources for the students to help students who come from low socioeconomic status get basic resources for learning.

ii) A comprehensive counselling program to be put in place to cater for students hailing from low socio-economic status so that they can accept their situation and overcome the challenges that they could be experiencing. The program should aim at cushioning such students from the harsh economic environment at home.

iii) School Principals to advice parents on the importance of getting more involved in their children's' academic work at school.

iv) The government should increase allocation of CDF funds to schools so that majority of students with school fees challenges can be assisted so as to reduce the number of student who will eventually dropout because of lack of school fees.

v) Parents should re-examine their financial support to students since such support

is viewed as the main contributor towards the students' academic performance and also overcome personal and economic challenges so as to support their children's academic pursuits.

vi) Government and society should focus on how to alleviate some of the stress in the lives of parents from low socioeconomic status and how to help students of all backgrounds thrive in school through establishing workshops to develop the relationships between parents and their children. These workshops could help parents of lower-incomes and of less privileged educational backgrounds to learn how to help their children succeed in school.

vii) Educators and policy makers need to ensure that educationally disadvantaged parents and children are a learning unit and that family and intergenerational literacy programs are a promising approach to supporting parents in their role as first teachers." Programs, such as these, not only help parents learn how to teach their children, but they also put an emphasis on the importance of parental involvement in the public school system. Parents would be learning how to be good teachers, and additionally they would discover the hardships of being a teacher and perhaps become more willing to work with their children‟s teachers, instead of against them.

viii) Parents need to go back to the basics of "providing a warm, supportive home environment that supports exploration and self-directed, autonomous behaviour, and that will greatly increase the chances of having an academically successful child."

5.4 Recommendations for Further Research

The following areas were suggested for further research:

i.   A similar study involving other institutional factors other than students' socio-economic factors should be undertaken.

ii.   In addition, although socio-economic status is an important variable to gauge the extent of social equality and its relationship with educational achievement outcomes, it is important to consider other factors such as, school environment and teacher qualifications e.t.c

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APPENDICES

APPENDIX I: Introductory Letter

Dear Respondent,

I am a student at Moi University pursuing a Masters Degree in Guidance and Counselling and carrying out a research on "Influence of Parents Socio Economic Status on Eldoret Municipal Secondary School's student's achievement in Mathematics.

I am requesting for your assistance by filling in the questionnaire provided. The information will help me accomplish the research objectives and will be treated with total confidentiality.

Thank you

Yours faithfully,

ANNAH MGONGO

APPENDIX II: Student's Socio-Economic Status Questionnaire

This questionnaire is to collect data for purely academic purposes. The study seeks to investigate the influence of parent's socio-economic status on Eldoret Municipal Secondary School students' achievement in mathematics. All information will be treated with strict confidence. Do not put any name or identification on this questionnaire.

Answer all questions as indicated by either filling in the blank or ticking the option that applies.

SECTION A: GENERAL INFORMATION

STUDENT'S DEMOGRAPHIC DATA.

1. Indicate your sex

    Male   ☐

    Female   ☐

2. What is your age?..

3. Are your parents alive?

Both Alive   ☐

One Alive   ☐

None Alive   ☐

4. How many siblings do you have?

1-4   ☐   5-9   ☐   10-14   ☐   15-20   ☐

SECTION B: PARENT'S/ GUARDIAN EDUCATIONAL LEVEL

Please read the following options and tick against the option that best or closely defines the level of education that your parents or guardian achieved.

FATHERS'/ MALE GUARDIAN EDUCATIONAL BACKGROUND.

1. What was the highest educational level of each of the following persons?

If you are not sure, please give your best guess. Tick one number in each column

   i. University Degree. ☐

   ii. Diploma / Higher Diploma. ☐

   iii. Finished High School/ secondary school. ☐

   iv. Did not complete primary school/ Did not attend school. ☐

Others (specify)……………………………………………………………………

MOTHERS/ FEMALE GUARDIAN EDUCATIONAL BACKGROUND

2. What was the highest educational level each of the following persons completed?

If you are not sure, please give your best guess. (Tick one number in each column).

   i. University Degree ☐

   ii. Diploma / Higher Diploma. ☐

   iii. Finished High School/ secondary school. ☐

   iv. Did not complete primary school/ Did not attend school. ☐

Others (specify)……………………………………………………………………

SECTION C: PARENTS' / GUARDIAN OCCUPATIONAL STATUS

3. Are your Parents' employed?

i. Father / male Guardian   Yes ☐   No ☐

ii. Mother / Female Guardian   Yes ☐   No ☐

4. Please read the following options and tick against the option that best or closely defines what your parents or guardian does. If both parents are working, the parent perceived to have a higher occupational status will be chosen. Please tick against the items.

i.   Permanent Job + Part Time Job/Doing business/Farming ☐

ii. Permanent Job + No other source of income.   ☐

iii. Temporary employment   ☐ ☐

iv. Never Employed   ☐

Others (specify)………………………………………………………………………

SECTION D: STUDENTS' HOME PROPERTY

5. How much land do your parents have?

i.   None   ☐

ii.   0-1   ☐

iii.   2-5   ☐

iv.   5-10   ☐

                  ☐

v.   Over 10 acres

Others (specify)……………………………………………………………

6. Please indicate whether you Strongly Disagree (SD), Disagree (D), Not Sure (NS), Agree (A), or Strongly Agree (SA) with the following statements about the items, which your family owns.

Statement	SD	D	NS	A	SA
Radio Ownership					
Television					
Sofa set					
Carpet					
Bicycle					
Motorcycle					
Refrigerator					
Electric Cooker					
Gas Cooker					
Charcoal Burner					

7. What type of house do you live in?

Permanent (Stones and Bricks)   ▭

Semi-permanent (Wood, mud plaster)   ▭

Temporary (Mud walled, iron sheets)   ▭

Please show using a tick if the house is   ▭

Own house   ▭

Rental house   ▭

Others (specify)……………………………………………………………

SECTION E: STUDENTS' HOME ENVIRONMENT

8. Please choose the best choice that describes the social amenities that are available in your home Please indicate whether you Strongly Disagree (SD), Disagree (D), Not Sure (NS), Agree (A), or Strongly Agree (SA) with the following statements about the social amenities which your family owns;

Statement	SD	D	NS	A	SA
Electricity					
Good roads					
Security round the clock					
Playing ground					
Swimming pool					
Clean water					

Thanks for taking your time to fill this questionnaire

APPENDIX III Eldoret Municipality Schools Maths Performance-2008 KCSE

	serial	Entry	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Moi Girls	1	170	19	4	16	9	21	24	19	20	19	12	6	1
Mother of Apostles	2	83	5	4	12	9	10	10	10	9	9	9	0	0
Chebisaas	3	131	16	4	12	13	8	16	11	9	10	14	14	4
Uasin Gishu	4	157	12	6	5	14	8	10	15	16	17	27	21	6
Wareng	5	133	5	3	4	6	5	3	5	6	12	22	31	31
Testimony	6	43	1	0	1	1	1	0	3	3	5	8	13	5
Hill School	7	96	0	0	0	2	1	4	4	3	6	28	31	17
Immaculate Juniorate	8	71	0	0	0	2	1	1	4	4	2	17	24	16
Umoja	9	71	0	0	0	1	0	0	4	3	6	10	28	19
Eldoret Harambee	10	101	0	0	0	2	3	2	3	3	4	18	24	42
Elgon View	11	48	0	0	1	0	1	0	3	2	3	5	12	21
SOS	12	28	0	0	0	0	2	0	0	1	1	2	6	16
Kapsoya	13	71	0	0	0	0	0	0	2	1	2	12	11	43
Eldoret Magereza	14	79	0	0	0	0	3	0	0	1	3	3	12	57
Eldoret Secondary	15	79	0	0	0	0	0	1	2	0	2	5	13	56
64 Secondary	16	85	0	0	0	0	0	0	1	0	2	7	18	57
Sage Academy	17	43	0	0	0	0	0	0	0	1	3	2	3	34
Sirikwa Academy	18	94	0	0	1	0	1	0	0	0	0	5	13	74
TOTAL		**1583**	**58**	**21**	**52**	**59**	**65**	**71**	**86**	**82**	**106**	**206**	**288**	**499**
PERCENTAGE PER GRADE		**3.79**	**1.3**	**3.3**	**3.7**	**4.1**	**4.5**	**5.4**	**5.2**	**6.7**	**13**	**17.7**	**31.5**	

Source: DEO's office (Uasin Gishu District)

APPENDIX IV:Uasin Gishu Districts K.C.S.E Mean Grades in Mathematics(2005 – 2008)

Year	Code	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	Entry
2008	121	83	41	33	108	131	163	193	223	328	789	1260	1918	5320
2007	121	104	50	100	103	140	196	199	229	288	705	1059	1463	4636
2006	121	80	44	66	121	132	195	202	238	266	649	985	1269	4247
2005	121	129	60	76	96	138	182	158	181	206	489	784	1289	3788

Source: DEO's office (Uasin Gishu District)

APPENDIX V: Mean Grades

Year	2005	2006	2007	2008
Means Score	3.488	3.359	3.323	2.569
Mean Grade	D	D	D	D-

Source: DEO's office (Uasin Gishu District)

APPENDIX VI: List of Public and Private mixed day schools in Eldoret Municipality,

Mixed schools

Public schools	No. of form 3 students	sample size (30%)
1. GK Magereza	60	18
2. Moi University, Chepkoilel.	50	15
3. Mwiruti	70	21
4. Uasin Gishu high school	120	36
5. Umoja Sec Sch.	90	27
6. Wareng Sec. Sch.	120	36
7. Hill school Sec	80	24
8. Kapsoya	70	21
9. Kimumu Sec	60	18
10. Central Sec	40	12
Total	**760**	**228**

Private schools	No. Of form 3 students	sample size (30%)
1. Eldoret Secondary	80	24
2. Gullab Lochab	60	18
3. H.G. SOS	57	17
4. PGC	60	18
5. Sage Academy	50	15
6. Sirikwa Sec Sch.	80	24
7. 64 Secondary	70	21
8. Testimony	50	15
Total	**507**	**152**

Source: DEO's office (Uasin Gishu District 2008)

Public mixed day secondary school

Boys	Girls
133	95

Private mixed day secondary school

Boys	Girls
102	50

APPENDIX VII: Scoring the Instrument

Parents'/ Guardians' educational level indicated the various levels of education attained by the parents or Guardians of the students (respondents). This information is derived through the use of one question in the Questionnaire (instrument); what was the highest educational level each of the following persons attained? (Students who had parents/ Father or Male guardian / and Mother/ Female Guardian) gave their responses.

Parents/ Guardian Occupational status captured the occupational status of the parents. The respondents chose what best described what their parents did. If both parents were working, the parents perceived to have a higher occupational status was chosen. This is because it was assumed that parents use their income jointly to benefit their family (children).

Students' Home Property captured the physical resources available at home. This was summarised by asking three questions. The first question targeted the amount of land owned by the parents. In the second question, students were asked to choose what they had out of the ten (10) items listed.. The third question captured the type of houses the students lived in and whether it was their own house or rental house.

Students Home Environment aimed at gauging the environment at home/ standard of living of the students. The students were asked to choose the social amenities available in their home. They were to choose between Agree (A), and Disagree (D),

 SCORING OF INSTRUMENTS

In this study Socio-Economic Status was determined as follows:

The highest level of education scored 5 points and the lowest level scored 1 point.

PARENTS' EDUCATIONAL LEVEL was scored as follows:

FATHERS'/ MALE GUARDIAN EDUCATIONAL LEVEL

i.	University Degree	5 points
ii.	Diploma/ Higher Diploma	4 points
iii.	Finished High School	3 points
iv.	Completed Primary	2 points
v.	Did not complete Primary/ Did not attend school	1 point

MOTHERS'/ FEMALE GUARDIAN EDUCATIONAL LEVEL

i.	University Degree	5 points
ii.	Diploma / Higher Diploma	4 points
iii.	Finished High School	3 points
iv.	Completed Primary	2 points
v.	Did not complete Primary/ Did not attend school	1 point.

The highest level of education for both sections scored **10** points while the lowest level of education scored **2** points.

b) **PARENTS/ GUARDIAN OCCUPATIONAL STATUS** were scored as follows;

The first question was; Are your parents employed?

For Father/ Male Guardian, YES response scored **2** points and NO scored **1** point.

For Mother/ Female Guardian, YES response scored 2 points and NO scored 1 point.

In the second question, respondents were asked to indicate their parents' occupational status.

Permanent Job + part time Job/ Doing Business/ Farming scored **4** points.

Permanent Job + No other source of income scored 3 points.

Temporary Employment scored 2 points.

Never Employed scored **1** point.

The highest score in this section was 2+2+4= **8**

The Lowest score was 1+1+1= **3**

c) **STUDENTS' HOME PROPERTY** was scored as follows;

Three questions were used in this section; the first question gathered information on the size of land owned by the parents of the students.

None response scored 1 point.

0 – 1 scored 2 points.

2 – 5 scored 3 points.

5 – 10 scored 4 points.

Over 10 acres scored 5 points.

The highest score was **5** points and the lowest score was **1** point.

The second question targeted the number of listed items that existed in their homes. The students who had all the 10 items scored 10 points. Students scored according to the number of items they owned i.e. the higher the number of items the higher the scores.

The highest scores in this section were **10** points.

The lowest score was **1** point.

The third question asked the students to state the type of house they lived in and if they owned the house or rented it. The students were given three choices, Permanent

(stones and Bricks), Semi-permanent (wood, mud plaster) and Temporary (mud walled, iron sheets). The Permanent house scored 3 points, Semi-permanent scored 2 points and the Temporary house scored 1 point. Students who owned the house scored **2** points and those who rented the house scored **1** point

The highest score was 3+2= **5** points.

The lowest score was 1+1=**2** points.

STUDENTS' HOME ENVIRONMENT

In this section, the students were asked to choose the type of social amenities available in their homes. Students who chose all the six choices scored 6 points. The higher the number of types of social amenities a student chose, the higher the scores.

The highest points scored were **6** points.

The lowest point scored was **1** point.

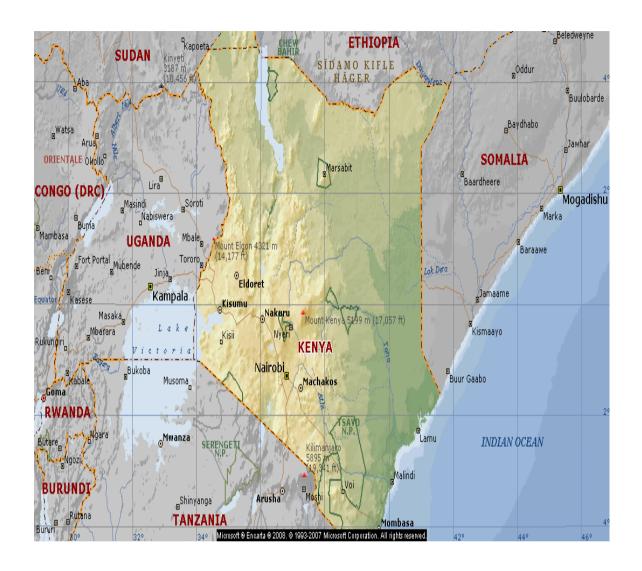|	Highest points	Lowest points
Parents' Educational Level	10	2
Parents'/ Guardians' Occupational Status	08	3
Students' Home Property (5+10+5=20)	20	
(1+1+1+2=5) Students' Home Environment		6
		10
GRAND TOTAL	44	20

The total highest points scored were 94 and the lowest total points were 20. Socio-Economic Status is a composite made up of the four indicators above. In this study, the above points were used to indicate the Socio-Economic Status of the students.

Socio-Economic Status was divided into three groups; Low Socio-Economic Status which was indicated by 10-22 points, Middle Socio Economic Status which was indicated by 23-33 points and High Socio- Economic Status which was indicated by 34-44   points. The scores each student got were used to put them in any of the three groups, meaning students who got 10-22 points were considered to have Low Socio-Economic Status, those who scored between 23-33points had Moderate Socio-Economic Status and those who scored between 34-44 had High Socio- Economic Status.

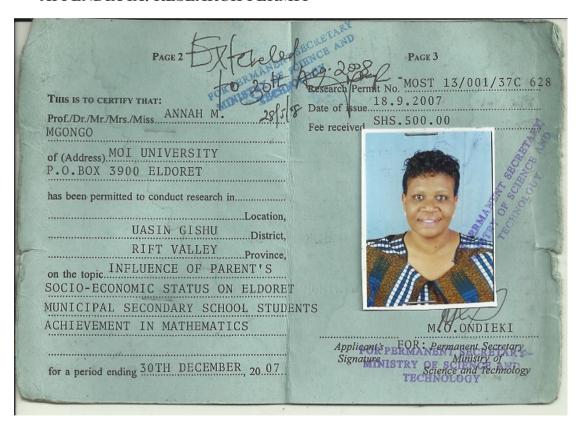**SCORING OF ACHIEVEMENT IN MATHEMATICS**

Form Three (3) Students' Mathematics scores for a common exam known as WEZOJE (Western Zone Joint Examination) which was done in second term 2008 were used. This is a common exam done by schools in Eldoret Municipality, Uasin Gishu District. This exam is set in a central place by a panel of experienced teachers (some who are KNEC examiners). The results were graded using the WEZOJE grading system. The aim of using these results was to help the researcher to compare the Socio- Economic Status of students and their achievement in Mathematics so as to investigate if there were any relationship between Socio- Economic Status and student's achievement in Mathematics from High, Middle and Low Socio- Economic Status. The researcher wanted to know if achievement in Mathematics was influenced by the students' level of Socio- Economic Status and gender.
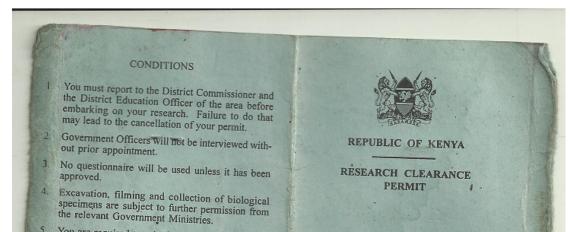
APPENDIX VIII: Map of Kenya Showing the Location of the Study Area

Source: Microsoft Encarta (2008).

APPENDIX IX: RESEARCH PERMIT