# FACTORS AFFECTING PERFORMANCE OF PHYSICS SUBJECT AMONG SECONDARY SCHOOLS IN SIAKAGO DIVISION, MBEERE DISTRICT, KENYA.

A RESEARCH PROJECT PRESENTED TO THE INSTITUTE OF CONTINUING AND DISTANCE STUDIES KAMPALA INTERNATIONAL UNIVERSITY

IN PARTIAL FILFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF EDUCATION IN SCIENCE.

BY:
NDWIGA MOSES MURITHI
REG: NO. B.E.D/ 9992/52/DF

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## DECLARATION

This is my original work and has not been presented for any of the study programme in any university.

Ndwiga

25/04/08

**NDWIGA MOSES MURITHI** **DATE**

This research has been submitted for examination with my approval as the university supervisor.

FRED SEMUGENYI Date----------

---------- 2007 ----------

# DEDICATION

This research is dedicated to **GOD** Almighty who gave me sound mind and physical strength to undertake and accomplish this project in the prescribed period of time.

## ACKNOWLEDGEMENT

First and foremost, gratitude goes to Fred Semugenyi who devoted his time and patience to this study. I am grateful for the advice and guidance he offered. Secondly, to all the heads of secondary schools in Siakago Division who gave me permission to undertake the study and spared time to take part in it. Also thanks to the students and teachers of Physics who answered questions willingly. Fourthly I thank the quality assurance officers of Siakago division for their co-operation they gave to me. Lastly, thanks to my wife Mary Njoki and dear son Brian Murimi, for the patience and understanding during the period of this research was undertaken.

## ABSTRACT

The main objectives of this study were to investigate into effectiveness of teaching Physics and factors which influence educational aspirations of secondary schools in Siakago Division. The objectives guiding the study were that, students` social background, personal and social factors influence their education and occupational aspirations. These factors were considered to be important since they have not been investigated in Siakago Division .The subjects for this study will100 in number. 100 students from five schools will be interviewed. The data for the study was collected from April to August 2007. The questionnaires will be administered to the subjects from respective schools. The result of the study indicates how several factors influence students` academic performance in Physics. The factors are as follows: social background factors such as (students` residence, marriage type of students, fathers family size, fathers` education and occupation, parents` education and occupational aspirations. Besides, a significant relationship was found between students` perceived academic ability and their educational aspirations. Significant relationship was found between the three variables Marriage type of the parents, students` perceived academic ability and the student`s occupational aspirations. On the basis of the findings conclusions and recommendations will be made and proper guidance and counseling services be offered to students in adjusting their aspirations so that they don't get frustrated when their aspirations are not achieved.

Studies be undertaken at inter distinct, provincial or national level on the factors influencing educational and occupational aspirations of secondary schools students.

Studies be conducted to examine other factors such as peer influence, parental income, parents` interest in students schooling which may influence educational and occupational aspirations of secondary school students

.

A follow-up study should be conducted when the present Form 2 and Form will compete Form 4. This should be done to find out whether their aspirations will change or whether they will be more rational as they become older in age

.

A follow-up study should be made to establish the career which students who participate in they study will join in relation to their secondary school aspiration. More research should be done to investigate how aspirations are formed and how students can be helped in the formation of their aspirations. Parents, students and teachers should also be interviewed.

Schools in Siakago Division should strive to get relevant teaching and learning resources for effective teaching. These resources include text books, topographical maps, outline sketch maps, teachers` text books and lesson notes.

Stake holders and school administration in Siakago Division should provide adequate equipment and learning facilities for effective teaching.

Physics should be taught practically and therefore appreciable methods should be applied when teaching the subject. These methods include: instruction method, questionnaire and answer, discussion, Practical lessons and tours.

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# CHAPTER ONE

## 1.0 INTRODUCTION

This chapter deals with a belief of historical background and the statement that led the researcher to launch the study. Also includes the situations that interested the researcher and what different people have done before.

## 1.1 RATIONALE OF THE STUDY

In modern world education is perceived to be the backbone to life that enables one to acquire knowledge, skills and positive altitude towards life in order for one to fit in the community. Education is a process of cultural transmission through which the young generation is imparted with important aspects of cultural heritage. It is through this process that an individual undergoes behavior modification geared towards making him or her well-adjusted member of the society. This process initiates an individual to life hence along life process of learning.

Education aims at achieving social integration. It holds that an individual has a specific role in ensuring the continuity of culture in a systematic process through which ideas, believes and values of people are unified and directed. Culture can be summed up as total of people way of life. For example, land, dress, art, housing, diet and language. Education targets helping individuals to achieve self-reliance. Self reliance is promoted by the liberal tradition in education and emphasizes on personal freedom responsibility and autonomy

Self-reliance promotes competition such that for one to succeed, one must have strength to be at advantage. Education promotes acceptable ideology and it is the theory on how the society operates. It is the general principal accepted by the society and determines the type of social, economical, and political institutions to be set up in the society. Other aims of education include;

Understanding teaching interface for finding and assessing research concerned with education.

Promotion of basis for efficient and effective formulation and implementation of curricular

Kenya is a developed country and it requires educated people for its 7idevelopment. Education is the only liberator from under development to development. Consequently, the government spends 96.6 billion of its annual income towards quality free primary education, secondary and university education.

[Budget of Kenya 2005]

The expenditure raises the concern if the efforts by the government are commensurate to the returns from the field of education sector or not. The study aims to find out the factors affecting Physics in Siakago division, by looking at performance of the subject over a period of seven years [1992-2006]

Physics has been compared to other science subjects, i.e. biology and chemistry. Looking at the performance of physics in relation to chemistry and biology, Physics seems to be taking the lower position for the for the years 1999-2006 in Siakago Division, whereas biology and Chemistry stand at an average mean score of 5.5. Physics has a lower average mean score of 4.5 out of 12 points on a 12 points point score. The table below shows performance in Physics to change in Mbeere district in relation to other science subject (Biology and Chemistry).

**Table 1.0**

Sources: Ministry of Education Mbeere district

| **SUBJECT** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** |
|---|---|---|---|---|---|---|---|---|
| BIOLOGY | 5.996 | 6.500 | 6.912 | 5.825 | 6.095 | 5.574 | 5.909 | 6.00 |
| CHEMISRTY | 6.457 | 7.253 | 8.049 | 7.493 | 7.571 | 7.478 | 8.162 | 8.235 |
| PHYSICS | 5.5889 | 5.360 | 4.931 | 5.093 | 5.531 | 4.892 | 5.195 | 5.234 |

From table 1.0 in all the schools in Siakago division, Physics is poorly performed compared to biology and chemistry yet; students are usually expected to choose two subjects among the three. With some schools making one a compulsory subject and the students to choose any one of other two. In such cases a school that takes Physics as a compulsory subject for its students may have a lower

performance than that of a school whose students pick biology and Chemistry mandatory subjects. Since physics seems to be poorly performed, it is expected that students who take Physics and say chemistry would do worse than students who take Biology.

**PERFORMANCE OF PHYSISC COMPARED TO CHEMISRTY AND BIOLOGY**

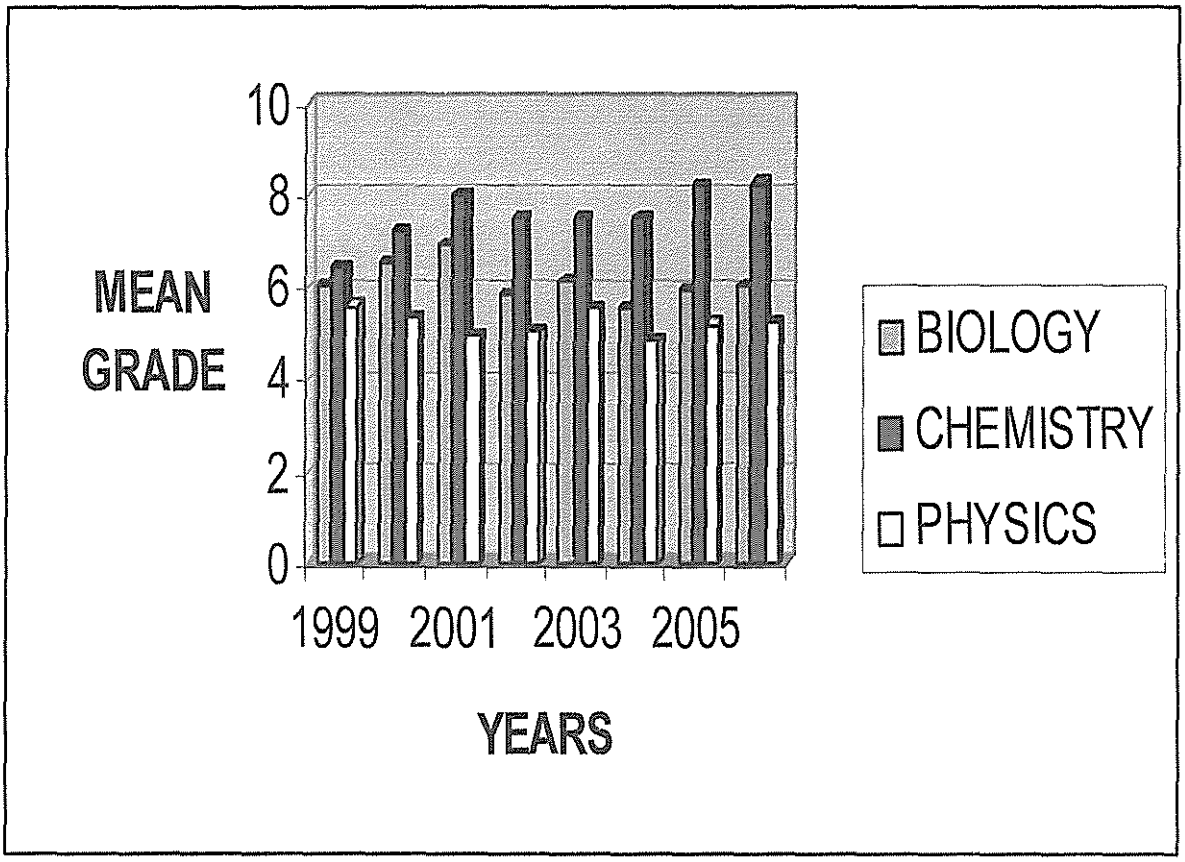


**Figure 1.0**

**Sources: Ministry of Education, Mbeere District**

Other researchers have studied performance of students in education and have pointed out that the unemployment problem cannot be solved by emphasizing practical skills in the school curriculum only. [See Eklan 1973:22, Yambo: 1986] it is in this light of 8-4-4-education system that this duty is set out to study the factors influencing education aspirations of secondary school student. Republic of Kenya [1984 –88:147] observers;

The attitude of both parents and students to formal education as a route to modern employment needs t is changed since many school leavers will be forced to look for employment in the informal sector, non-urban activities especially small and rural non farm activities. Assuming that the career guidance is offered to secondary schools student and because of the fact that form 2 and 3, 2006 student are under 8-4-4 education systems it is important to investigate factors influencing their education performance. The study was aimed at seeking answers to this question and the education system in Kenya was viewed not an end in itself, but as a means to end the end being the improved economic opportunities. [See Odumbe 1982:18]

Assuming that secondary school student's aspirations are formed when they are in school, students are expected to aspire for the highest levels in education in order to attain these ends.

However, Eshiwani [1985:6] states that

The structure of education in Kenya is likely a pyramid with a high attrition rates.

At the end of the seventh year of primary education, fourth and sixth years respectively of secondary education.

Therefore given a steep education pyramid and the high standard of advancement set by the ministry of education through examinations, not all those who enter the education system will continue to the final stage.

If aspirations of those students who cannot continue with their education are not properly adjusted to the realities, problems and frustrations will follow. The studies that have been conducted in Kenya on educational and

occupational aspirations support this. [Somerset: 1970, Kariuki, 1976, Rono 1982].

A number of factors which may influence students' educational and occupational aspirations appear to have been investigated. These factors are student's father marriage type [polygamous or monogamous], students' residence [urban or rural], the school attended by a student [mixed or single sex] and students' perceived academic ability. **This study is expected to fill this gap. It's aimed at investigating whether these factors that have not been given attention and others influence the educational and aspiration of secondary school student in Siakago Division, Mbeere district**

## 2 STATEMENT OF THE PROBLEM

e purpose of teaching physics in secondary school according to secondary school syllabus by :.E 2005 is to enable students to acquire knowledge and skills for the purpose of passing C.S.E. examination for personal and national development.

ysics is an examinable subject at KCSE and requires excellent performance for a student to ve excellent mean grade. In other words for a student to qualify for university entry/admission /she requires to have generally performed well in the entire taken subject.

Siakago Division, Physics is ranked third compared to biology and Chemistry. Based on this :t, there is need to investigate into factors affecting performance in physics at KCSE.

## 3 GENERAL OBJECTIVES OF THE STUDY.

e study will determine the factors affecting performance of Physics subject among secondary ıools in Siakago division, Mbeere District, Kenya.

## ł SPECIFIC OBJECTIVES OF THE STUDY.

the end of the study, the researcher will be able to establish the extent to which ·formance of Physics is influenced by :

- 
- Parents social status
- Students occupational aspiration
- Education attainments of parents
- Marriage type of the family(monogamous or polygamous)
- Students educational aspiration and ability

## 5. RESEARCH QUESTIONS.

)oes the Parental Status affect the performance of physics?

ii) Does the students occupational aspiration affect their performance in physics?

iii) Does the education attainments of parents affect the performance of physics?

iv) Does the marriage type of the family affect their performance in physics?

)oes the students educational aspiration affect their performance in Physics?

## ; SIGNIFICANCE OF THE STUDY

Results of the study will assist in:

Finding solutions to the decimal performance in physics among secondary schools in Siakago Division by providing information on what should be done to raise the standards of physics, which will be useful to teachers of Physics administration, managers of secondary school in the division.

Exposing researcher to various methods of collecting and analyzing data

Unearthing some of the factors that can affect performance in teaching and learning physics.

Facilitate the award of the bachelor's degree to the researcher.

Providing knowledge for practical utility for the sake of being able to do something better or in sufficient manner for example, teaching of physics.

To literate men and women in Siakago division, this research may yield to the development of new styles and attitude towards education and creative work.

## 1.7 SCOPE AND LIMATION OF THE STUDY

The following are the scope and delimitation of the study

The time available for this study was only four months. This means that the researcher could not cover as many schools as possible. This in turn was prohibitive, hence generated the results to be done with caution.

The study covered only five (5) schools out ten (10) in Siakago division.

For more conclusive results all secondary schools should have been covered. However, this was not possible due to financial and other logistic constraints such as time and inaccessibility.

The study was conducted during a school term so pertaining to time availability, it was short, and for both researcher who was a teacher (not on leave) and respondents (students and teachers).

Unwillingness of some respondents. Some respondents showed no willingness to co-operate and where such respondents filled the questionnaire, they left some gaps unfilled.

A little has been researched on this topic in Physics so this topic was challenging during review of literature.

The researcher being self-sponsored had to meet all costs, traveling, buying materials, and secretarial services among others. The resources therefore were meager.

It's generally acknowledged that questionnaire as a source of data collection tools suffer from various internal weaknesses in the course of data collection. Questionnaires do not generate frankness as they limit information.

## 1.8 THEORETICAL FRAME WORK

The study is based on the theory of **expectancy theory** which states that motivation is a force or drive within a person and that this force varies according to three factors, i.e. Valence, Expectancy and instrumentality. For an individual to be motivated to perform a certain task he/she must expect that on completion, the task will lead to achievement of his/ her goal; this can be expressed algebraically as follows

**Motivation=Valence * Expectancy * instrumentality**

The main constructs in the expectancy are:

- Motivation is the force to perform an act or engage in action. It is the internal energy or arousal that has direction and intensity.
- Valence is the degree of perceived attractiveness or repulsiveness of an object. It's the degree of which objects are described or rejected by individual.

- Expectancy is a momentary belief concerning the probability that a particular outcome or sets of outcomes will follow a particular action that rages from strength of certainty that action will not result in the outcome to the action will not result in the outcome.
- Instrumentality is the expected utility or usefulness of a direct outcomes and indirect outcomes.

The motivation process is therefore a complex process which can best be understood by analyzing the possible outcomes, the valence of this outcomes and their perceived instrumentality of producing the second level of outcomes with high valence as shown

**THEORETICAL FRAME WORK**

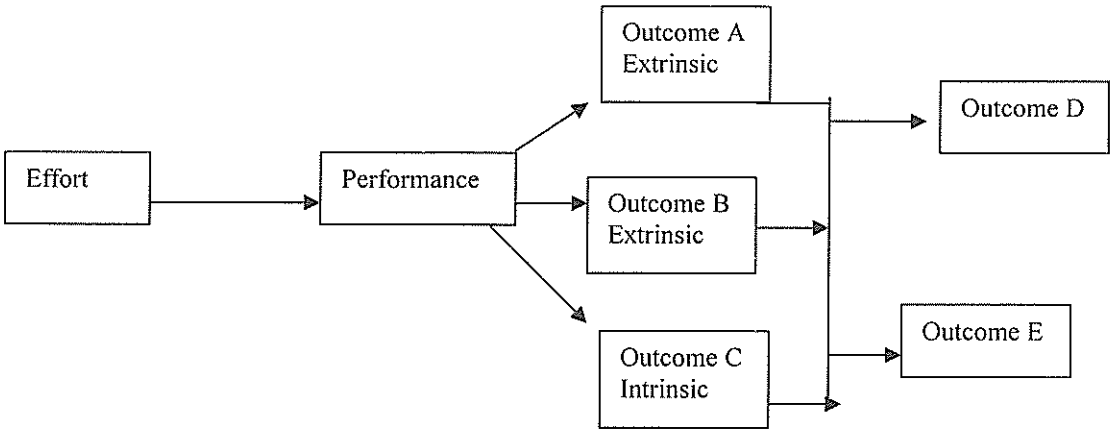


**Fig 1.2**

**Source Harkman (1997) in Perspectives of behavior Organization**

**KEY**

E-P Expectancy-perceived probability of successful performance gives effect.

P.O Expectancy –perceived of successful performance gives effect

Instrumentality – Perceived level of first outcome leading to second level outcome.

The study therefore sought to investigate the results of motivation among students and teachers towards academic aspiration.

For individual to act towards a certain direction, he needs to have made a decision or choice to do so.

A stimulus will pull or push an individual towards or teach of physics to work hard or with little efforts, certain forces must have taken place. Where an individual is motivated, he makes intense efforts in order to maintain the pursuit for the expected reward. A student or teacher, who is given incentives, recognition for working hard, conducive working atmosphere and so on, will strive to excel in order not to let down the provider of such rewards on incentives.

On the other hand a de motivated individual will put a little effort because after all there is no reward or incentives given. Thus this would lead to poor performance.

## 1.9CONCEPTUAL FRAME WORK

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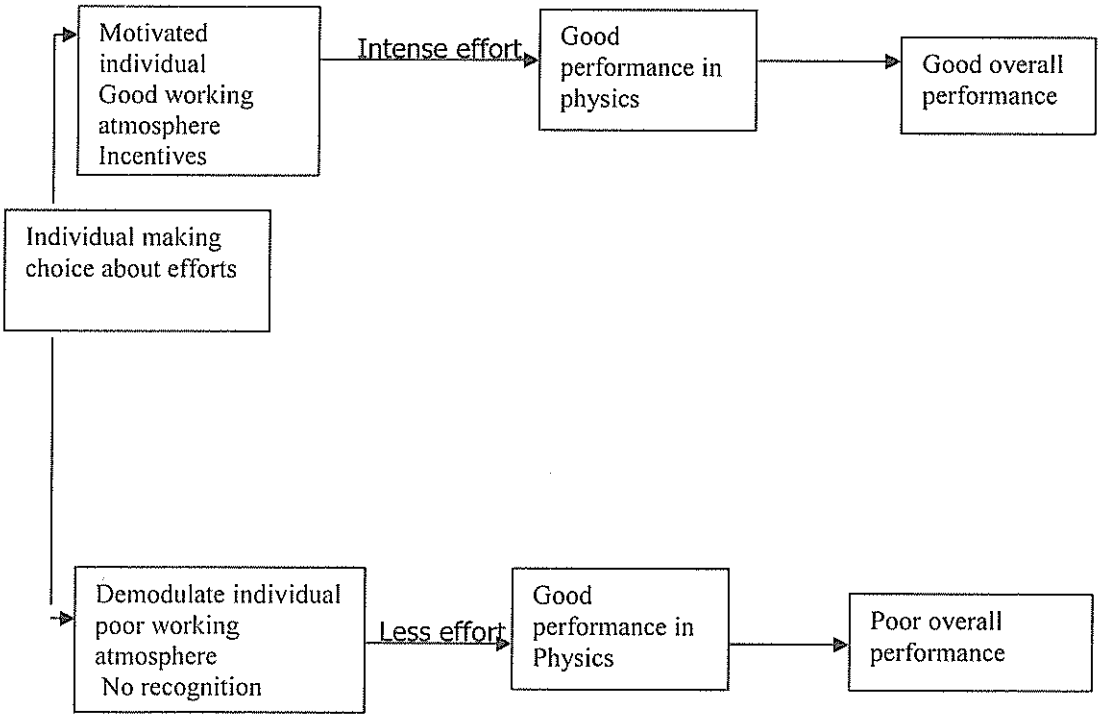



Fig 1.1

**Source Harman (1997) in Perspectives of behavior Organization**

## 1.10 ORGANIZATION OF THE STUDY

The study will be organized into three chapters.

Chapter on will deal with introduction, statement of the problem, its objectives, significance of the study and definition of terms.

This chapter also looks at the conceptual and theoretical framework of the study.

Chapter two will deal with review of related literature and therefore sheds the light on the other researchers who have researched and written on the topic of study.

Chapter three deals with research methodology, research design, target population, sampling and sampling procedures. It also deals with data collection instruments and data analysis.

Chapter four will deal with data analysis. This involves proceedings which imply editing, coding, classification and tabulation of collected data. The analysis refers to the computing of certain measures along with searching for patterns of relationship that exist among data groups.

Chapter five will deal with summary findings, conclusion and recommendation of the study.

## CHAPTER TWO

## 2.0 INTRODUCTION

This chapter deals with the review of the literature that is related to the study of the performance of physics in Siakago division, Mbeere district. It looks into the work of other researchers and what they commented on the save and connects it to the work being done in this research as per the objectives

.

## 2.1 REVIEW OF RELATED LITERATURE

### Parental Social Status

According to a study by Sewell and Shah (1969) investigated the 416 high schools students to establish whether their educational aspiration, could be influenced by their parents social status.

The results of the study indicated for both male and female student, their aspirations were both related to social status of their families. The study showed nitynine percent (99%) of the respondent from high status of families planned to attend college while 30% of these from low status families planned to do likewise. The author concluded that:

The correlation, casual the cross tabular analysis in this study substantiate on the whole, the claim made by other investigators using less vigorous methods and less representative samples that parental encouragement is powerful intervening variable between social economic class background and intelligence of their child and his educational aspiration (Sewell and Shah 1968:572)

The finding of Sewell's study was supported by the earlier study of porter. Porter (1954) conducted his study using 100 white senior boys from the Penny van: Syburn high school through interview. The purpose of the study was to investigate the dependence of vocational planned and preferences upon other variables, social class, origin, measured by the prestige level of father's

occupation. The study revealed those fathers' occupations was significant related to vocational plan.

**Student occupation aspiration**

A study of Powers (1974) also came to came to the same conclusions Powers' study investigated occupation aspiration and expectations of 205 ninth grade students in Eastern Kentucky (United State).

The research further investigated the degree of relationship of these aspirations selected personal, family and school related factors.

The result of this study showed that there was a significant relationship between

i. Students' self-esteem and education aspiration
ii. Educational attainment of parent and educational aspiration of students.
iii. Students' perception of parental interest in the student and occupational aspirations

The findings in the study of Sewell et al [1957], Porter [1974] were however contradicted by a study to determine the career aspirations of Secondary School student in Jamaica. The research investigated whether the career aspirations was significantly influenced by school variable as sex, social economic status, school type and parental occupations. The study further sought to relate students' career aspirations to manpower needs of the country. The subjects of the study were 607 final year Secondary School Students. The results reviewed that majority of the secondary school students were aspired to take professional career. Students aspirations were however found to be independent of sex, social-economical status and occupational of their parents. Richard indicated that the type of school student attended and the educational program they were pursuing significantly influenced their aspirations. Krauss [1964] did the investigation on sources of educational aspirations among working class youth in America. He found that one of the possible sources of educational aspirations is experience that lead to present status and interest in ones well-being.

**Education attainment of parents**

According to Krauss, when the working class father has not completed high school, the mothers' educational achievements did not influence the students post high school plans. On the other hand, when the father had completed high school, the mother's education strongly affected the student's interest in college, where both parents had completed high school the majority of respondents indicated that they had plans for higher education. Therefore the high school experience of the parents influences the student's aspirations.

Other studies (Stubbin 1950;Mulligan 1957)

Using either father's education, fathers' occupation, mother education or a family income as a measure of social status have concluded that the students from higher classes have higher educational and career aspirations. Richard's study which indicated that the

student's social economic status and occupations may be as a result of cultural differences between Jamaica and United States of America.

In many polygamous families, the co-wife relationship is expected to be the first source of conflict or rivalry.

**Marriage type of the family(monogamous or polygamous)**

The altitude of co-wives to each other affects their children's behavior. No empirical research studies seen to investigate the effect of co-wives rivalry on half sibling's aspiration and achievements. However, a study of Nakuya [1969] on Kinship and marriage among the Ano Ewe of Ghana revealed that co-wives relationship is an "explosive one" and noted that "in many polygamous household the co-wives are never in speaking terms with Nakuya [1969; 160]. The husband however is expected to be fair to all his wives in all aspects of home management.

In education the father should provide equal opportunities to the children of all his wives. In practice the financial supporter of a father to children from primary, secondary through college education depends on two factors. These are the fathers' financial ability and children good performance at examination in any level of education ladder. As a result children from a polygamous home complete

not only to reach higher level of education but also see their half sibling are real object of competition. Successful competition of the child would mean victory for her mother ones her co-wives may therefore put all kinds of pressure on their children to perform well in examinations and consequently continue to higher education levels. It would therefore be expected that children from polygamous homes would have higher aspirations than those from monogamous homes.
A study that investigated the effects of family structures {that is whether a family is monogamous or polygamous} on primary school student aspiration was done by Ametewee [1979] in Ghana. The purpose of the study was to explore selected aspects of the subject educational and occupational aspirations. The specific family background variables investigated include father's level of education, status of fathers' occupation family lifestyles and family structure. The data of the study was collected from the four elementary schools in Ghana 1975. The sample was made up of 149 pupils all of whom were enrolled in classes which were a year prior to the grades in which they would take a Common Enforcement Examination [C.E.E.]. Results from this study reveled that there was no significant relationship between marriage type of students fathers, their educational and occupational aspirations.
However an inverses association was found. Even after the control for father's education, family lifestyle and father's occupation, all simultaneously, the negative association remained significant. On the basis of the results, Ametewee concluded

The atmosphere of rivalry and jealously which reportedly exists in polygamous families may be a contributory factors in depressing children's' aspirations rather than translating the influences of the conflict prone families milieu into positive traits of healthy competition and therefore, the plains ability of setting high occupational goals towards which to struggle [Ametewee, 1979;82]
Although the results of this study revealed no significant relationship between the family structure and the educational aspiration of the pupils, the findings of the study should be interpreted with occupation, as the subject was very young.

At the primary school level the aspirations are still in the early stages of formation and are therefore subject to change as would be expected that student aspirations have stabilized to some extent. It would therefore be of interest to investigate whether marriage types affect secondary schools students' education and occupational aspirations in Mbeere district Kenya.

**Students' education aspiration and ability**

Students who perceive academic ability appear to influence their educational and occupational aspiration. A study by Blay of Ghana [1973] revealed that the students rating him in term of academic ability was significantly related to his education aspirations. Students' hope of continuing their education was therefore influenced by how they performed academically. No significant relationship was however found in the study between perceived academic ability and occupational expectations.

A study was conducted in Ivory Coast by Clignet and Foster [1966] also supported the findings of bay. Clignet and Foster 's study revealed that academic standing is measured by students own ranking of his academic ability played a modest role in influencing educational aspirations.
Over 80% of the students who had not repeated any class expected to continue their education as against only 69%of those who had repeated done or more classes.

The study also found that, perceived academic ability to have some influence on occupational aspirations of students. The study found that it was it was academically challenges as well as those from limited social backgrounds who choose teaching as a career. Police and military careers were chosen by the weakest students.

However, those who related themselves high in academic ability and those from high social background tend to reinforce each other with respect to the choice of administrative and executive occupations. The study further showed that two thirds of the students who ranked themselves in the top-quarter of their class had high occupational aspiration as compared to 44% of those who had placed themselves in the bottom quarter.

A study done in Korea by Kunzu [1982] based on the social mobility theory, that the parent's position in stratification influences the level o aspirations of adolescent. The study attempted to also investigate the impact of urbanicity social economic status, mental ability, academic performance academic self-concept and significant others to on higher education and occupational aspirations of Korean women. The study further sought to find out how this impact differs between men and women. Data for the study was derived from responses to the questionnaire of multiple choices administered to 1,828 junior boys and girls in 13 high schools randomly selected from all academic and vocational high schools in region of Korea. Data analysis indicated that all the six hypothesized factors (significant other influence, academic performance, sex, urbanicity, social economic status and mental ability that influence occupational and higher educational aspirations of Koreans were significant except " academic self concept" variable). However, this study together with others mentioned above, were conducted in other countries and not in Kenya. This study will therefore investigate whether students perceived academic ability, influences their educational and occupational aspirations in Mbeere district, Kenya.
Somerset [1970] studied the educational aspirations of fourth form secondary students. The date for this study came from all over Kenya, stratified by province. Seven of the schools, only two were girl's schools and the others were co-educational.
In order to cover a complete range of types of secondary schools found in Kenya additional data is obtained from other three schools that were outside the main sample.

Complete questionnaire were obtained from 1253 pupils in the 24 schools in the random and supplementary samples. Nine hundred and ninety three (993) respondents were boys and two hundred and sixty [260] were girls.
Somerset study had one main question concerning students' aspirations. Other questions included background factors, educational and background occupation. Results from the analyzed data shows that 80% of the sample did not aspire for higher education. The type of school that a student attended was strongly associated with his or her education aspirations. More than 2/3 of students from national schools wanted to continue their education to higher certificate and about three fifth hoped to go to university. On the other hand more than three quarters of students were not aiming at anything more than a pass in the school certificate examinations. Students from provincial schools were intermediate in their aspiration but more closely to those of Harambee School than national schools.

Kariuki [1976] conducted a study in three secondary schools in Kiambu district. The study focused mainly on parental influence upon education aspirations of secondary school students.
The particular variables that were investigated on whether they influence education and aspiration of secondary school students were age, sex, religious affliction, birth orders and education levels of parents. Results from the analyzed data revealed that there was significant relationship between students' sex. Education level, fathers, education and occupation and aspiration.
Kariuki concluded the study by observing that:-

The roles of interpersonal relationship between the parents and the students' discussions on education matters too, play a crucial part in information of aspirations. In other words the kind of motivation that a student gets from the parents need to be emphasized in school and home.[Kariuki 1976: 90]
The finding of the study by Kariuki [1976] were supported by those of the study by Arap Rono [1982]

Arap Rono [1982] set out to study the education aspiration and expectations of senior boys and girls in Kericho District. The objectives of survey were to identify characteristics, which related to expressed educational and occupational aspirations of secondary school student in Kericho district. The data used in the descriptive survey revealed that certain aspects of home and school environment did influence the student on their education aspirations. It was noted that parents without formal schooling could not help their children in occupational choices. Parental considerations of continuing education. Further analysis indicated that parents' land ownership may indicate that parents were able to get enough income from the farm to enable them to send their children to unaided schools or private or educational colleges. Previous academic performances in trial examinations were the best indicators of educational aspirations and expectations.

The ILO report Kenya (1972) dealt with employment income and inequality. The report assessed education from the employment generating point of view. As regards employment, the report pointed out it causes were two imbalances, first, there was imbalance in two ways. First of all education and availing provider by the system was found to be of the wrong kind in the view of the needs of the economy. Secondly, the attitude aspiration and expectations generated and stimulated by the education system [namely a preparation for and expectation of formal non-rural employment] create a miss-match between jobs expectation and opportunities.

## 3.0 RESEARCH METHODOLOGY

### 3.1 INTRODUCTION

This chapter gives the details of methodology, which will used in the study such as the design of the study, sample and sampling procedure, and target population, description of research instruments, validity and reliability of research instruments, piloting data collection and data analysis methods

### 3.2 RESEARCH DESIGN

This study will employ the descriptive survey method to determine the factors that affects the performance of Physics subject among secondary schools in Siakago Division. Descriptive research is that which describes and interprets what it concerns with conditions that exist, practices that prevail, beliefs and attitudes that held, process that are going on, and trends that are developing, and uses instruments such as questionnaire and interviews. Mbeere district has for the K.C.S.E.

For the purpose of this study five schools were arrived as shown in the demographic figure below

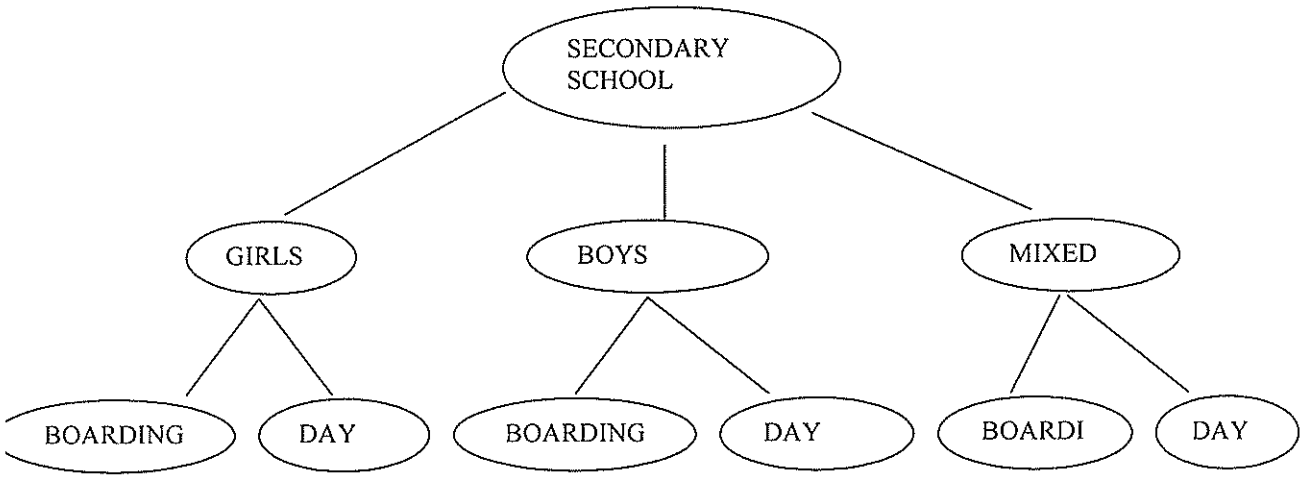



Fig 3.0 demographic information

**Source: Harkman (1997)**

## 3.3 RESEARCH ENVIRONMENT

This research will be conducted in Siakago division, which is in Mbeere district which is found in the Eastern Province of Kenya. This location was chosen after the researcher noted poor performance of physics in Kenya Certificate of Secondary Education for the last seven years in the District ranking.

## 3.4 THE RESPONDENT

The respondent will be 100 students from selected secondary schools in Siakago division, Mbeere district which was selected using the sampling procedure shown below.

**The five schools are:**

- Siakago Boys (Boarding)
- Siakago Girls (Boarding)
- Gangara (Mixed Boarding)
- Riandu Mixed day School
- Gitiburi Mixed day School

## 3.5 SAMPLING AND SAMPLING PROCEDURE

**Schools**

According to Mugera (2003), there are certain times when 50 % of the population is included in the sample. Fisher also completed Mugera and advocated for the use 50% of the total population as the sample size. Based on this information therefore, sampling of schools and teachers is as follows;-

**Schools**

The sample size is 5 schools. The target population is 10 schools

$$\mathbf{sf} = \frac{5}{10} = 0.5 = 50\%$$

$$\mathbf{N} = \frac{50}{100} \times 10 = 5$$

Where sf = sample fraction
N = sample size or the number of schools sampled.

**Students**

According to Gay (1976) a sample of 10% of the population is considered minimum in descriptive research. Based on this information, the use systematic sampling was employed. 10 % of the target students population was used as shown below.

$$\mathbf{sf} = \frac{100}{1000} = 0.1 = 10\%$$

$$\mathbf{N} = \frac{10}{100} \times 100 = 100$$

Where sf = sample fraction

N = sample size or the number of students sampled.

In the five school to be used in the sample twenty students of each school were interviewed i.e. ten form two students and ten form three student from each school. The sample size [N] will be 100 .i.e. N=20*5.

The sample comprise of 5 secondary schools, which were selected as follows:

***Boys boarding***

- Siakago boys

***Girls boarding***

- Siakago Girls

***Mixed Boarding***

- Gangara

***Mixed day Schools***

- Riandu
- Gitiburi

Orodho defines purposive sampling as that which involves selecting sample using set criteria such as type of
Schools i.e. National, Provincial, Public boarding status, mixed day or mixed board, or whether there is boys, girls mixed school. (Orodho, 2004:38).
Level (1970) says that in purposive sampling, he researched and judged what elements should be included as sampling in his research to serve the researchers purpose.
The researcher is convinced that by using this technique, all types of schools with different status in the district were represented in the study in order to yield conclusive results.
The simple random sampling method was used, in which came a raffle or folding of papers to select school in the mixed category.
Orodho (2004) says that this type of sampling is known as chance or probability, when each and every item in the population is given an equal chance of being included in the sample or chance of being excluded in the sample. The researcher aimed at giving each school in the category of mixed day a chance of being included in the sample and therefore this technique was seen as the most appropriate for this research. The other category had two schools each. So there was no need of sampling. The selection of student in every school was determined by systematic random sampling. Systematic random sampling involves selecting members at equal intervals. It assumes the existence of a list of members (Orodho 2004) the list in form 2 and form 3 class for student were used to enable sampling.

### 3.6 DATA COLLECTION INSTRUMENTS

The researcher will developed two questionnaires as tools for data collection. The student's questionnaire will open ended or closed. They will personally be administered to 100 students. The questionnaire will be meant to explore various issues related to the

### 3.6 DATA COLLECTION PROCEDURES

A letter will be sent to all head teachers asking a permission to carry out research study in his school. This would allow both students and teachers to fill the questionnaires without fear or favors. After collecting the data, the researcher will combine all the information and analyze them in a research format

### 3.7 STATISTICAL TREATMENT OF DATA.

Data from the questionnaire will be analyzed using the percentages and frequencytables.

Inferential statistics using the Chi-square technique will used to determine the significance of the relationship between the various variables dependent and independent.

Other than non-parametric inferential statistics utilized to determine how independent variables related with dependent variables.

It will be noted that the data collected will be mainly inform of frequencies hence allowing the use of Chi-square tests.

The Chi-square method is most appropriate because it could be utilized with two or more groups in order to test the association or differences. All the relationships will be done at 0.05 level of significance.

# CHAPTER FOUR

## 4.0 INTRODUCTION

The purpose of this chapter is to present the findings of the current study on the investigation into effectiveness of teaching Physics among secondary schools in Siakago Division, Mbeere District, Kenya. As explained in the methodology section data were collected using a set of questionnaires for students .The following were the main themes involved in the analysis;

1. Parents social status
2. Student's occupational aspirition.
3. Education attainments of parents.
4. Marriage type of the family(Monogamous or Polygamous)
5. Student educational aspiration and ability.

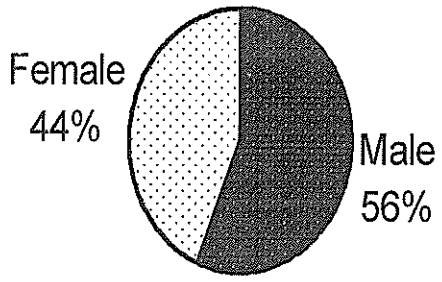
## 4.1SUMMARY OF CONTEXTUAL DATA OF STUDENTS

**Table 4.1.0: Students' Sex**

| Male | % | Female | % |
|---|---|---|---|
| 56 | 56 | 44 | 44 |

**Source: Field survey.**

**Figure 4.1.0 students sex**




**Soure:Field survey**

Respondents were given equal chance for selection but male respondents were more than female respondents by 12%. However, during admission, equal number of boys and girls was admitted to form one. In this case therefore, many girls had dropped out of school

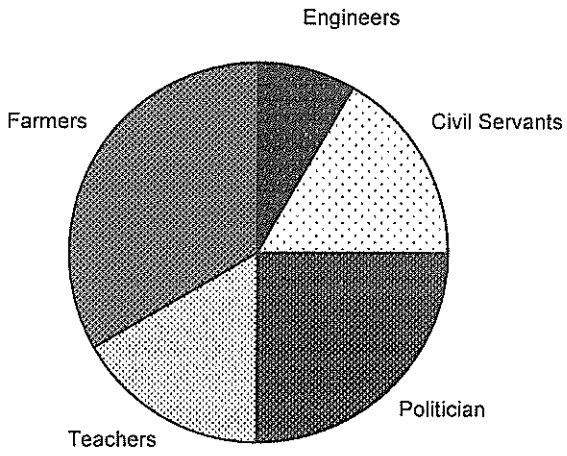
**Table 4.1.1: Parents social status**

| Engineers | Civil servants | Teachers | Politicians | Farmers |
|---|---|---|---|---|
| 2 | 4 | 6 | 4 | 8 |

**Soure: Field Survey**

**Figure 4.1.1: Parents Social Status**

***Soure: Field Survey***




The study revealed that only 8% of the Parents are Engineers 17% are Teachers and Civil sevants, 25% are Politicians and the majority 33% are peasant farmers.

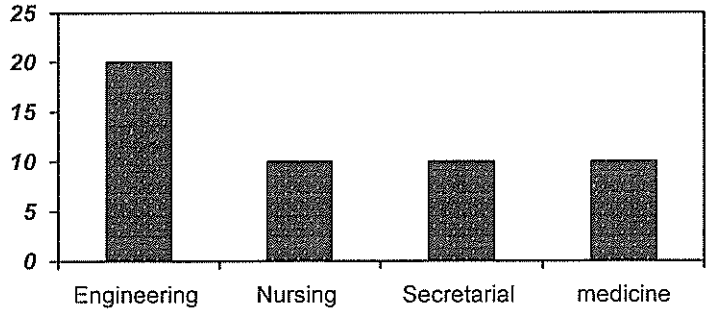
And thus poor performance in Physics subjects. This means that majority of students have no good role models at home to ape from.

**Table 4.1.2: Kind of Job One Would Like to Have More Than the Other.**

| Engineering | Nursing | Secretarial | medicine |
|---|---|---|---|
| 40 | 20 | 20 | 20 |

**Soure: Field Survey**

**Figure 4.1.2: Kind of Job One Would Like to Have More Than the Other.**




**Soure: Field Survey**

80% of the boys choose engineering and medicine courses while only 20% of girls choose nursing and secretarial courses. This study revealed that female students shied off from challenging courses such as engineering and medicine and therefore there was need to guide and council students to take to courses that mattered. This way, they would take better positions in the community.

**Table 4.1.3: Parents/Guardian Education Training**

| With educational training | Without educational training |
|---|---|
| 80 | 20 |

**Soure:Field Survey**

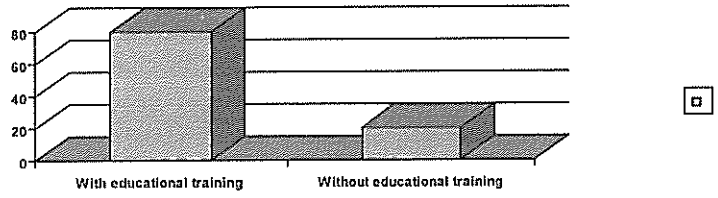



**Figure 4.1.3: Parents/Guardian Education Training**

**Source: Field Survey**

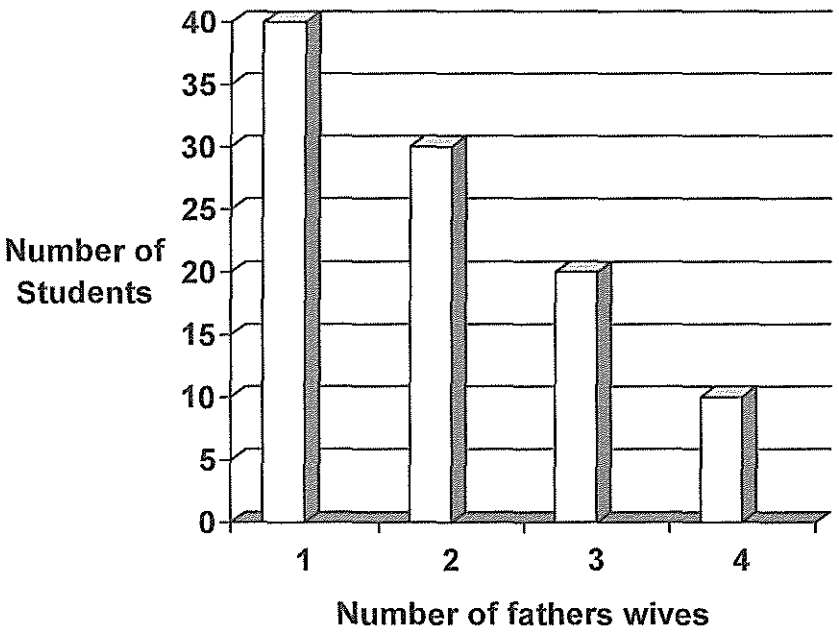
Majority of parents had acquired educational training while 20% had not. Educated parents advised their children on what course to take. Similarly, students emulated their parents.

**Table 4.1.4: Number of wives of the father.**

| One | Two | Three | Four |
|---|---|---|---|
| 40 | 30 | 20 | 10 |

**Source: Field Survey**

**Figure 4.1.4: Number of wives of the father**




**Source: Field Survey**

Many students(60%) comes from polygamous families in Siakago division and this affects their performance in Physics and other subjects so much due to the fact that this co-wives are ever fighting or quarreling most of the times. Only

40% of the students comes from monogamous families and are the ones who perform well in their school work.

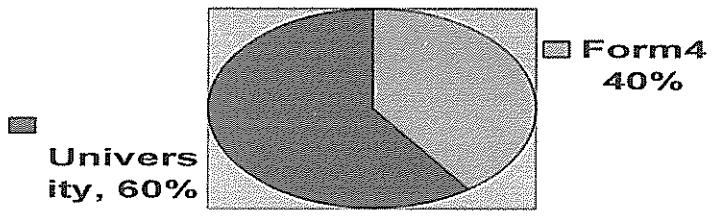
**Table 4.1.5: Highest Academic Level One would Wish to Attain**

| Form 4 | University |
|---|---|
| 60 | 40 |

**Soure:Field Survey**

**Figure 4. 1.5: Highest Academic Level One would Wish to Attain**

**Soure: Field Survey**




60% of the respondents did not aspire to join university for higher learning while only 40% wished to continue with higher education. This aspiration was propelled by moral support students got from guardians, teachers and community as a whole.

# CHAPTER FIVE

# SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

## 5.0 INTRODUCTION

In this chapter, the discussion, conclusion and recommendations from the study are presented in general themes as used in the previous chapter.

### 5.1 Summary of the findings on Parents social Status.

The researcher found out that many parents is of low social class or status ie most f them are farmers while a few are of high social status as teachers, civil servants and Engineers. This shown that students have fewer if any role models to ape from at homes which leads to poor performance in Physics.

### 5.2 Summary of the findings on the student's occupational aspiration.

This research shown that majority of students had occupational aspiration of less demanding or challenging jobs. This means that they fear jobs like Engineering which demands that they perform well in Physics and this shows why Physics is performed poorly as many students choose carriers which do not require good performance in Physics.

### 5.3 Summary of the findings on Educational attainments of Parents.

This research shown that majority of the Parents had no education training. This means that their students at home lack good role models to copy from and this leads to performance in Physics.

### 5.4 Summary of the finding on number of wives of the Father.

This research found out that majority of the families are polygamous i.e. the Father has more than one wife. The research also found out that rampant conflicts between this co-wives ment that students had no peace at home and have little time for study if any especially those in day schools. this leads to poor performance in Physics.

### 5.5 Summary of the findings on the students Educational aspirations Poor.

This research found out that many students did not aspire to go anywhere beyond form four in their academics. this means that they do not want any thing that is challenging to them n future and that's why they opts to drop school after their fourth form. This leads to poor performance in Physics since they only do it without wishing to pursue it in higher institutions of learning.

### 5.6 CONCLUSION

Analysis of the data from the study revealed that there was significant relationship between student's perceived academic ability and their educational aspirations. This finding can be explained by the fact that if a students who performed well academically stood a better chance of getting an opportunity to continue his education. However, if a student perceived his academic ability as low, he would consider his chance of continuing education as low. This would be reflected in his educational aspirations. This observation tended to explain the

significant relationship between perceived academic ability and educational aspirations of students. Those who perceived themselves as academically able showed higher levels of educational aspirations than the less academically able. Probably symbolic interaction among students and their teachers had helped in shaping students educational aspirations. Because of these findings, it was concluded that students' perceived academic ability also influenced their educational aspirations.

At form two levels, student's knowledge of entry requirement for various occupations was limited and therefore there was a possibility that students, who perceive themselves as average or above average in academic ability, would have indicated that they aspired to join occupation that did not require university education. This view was supported by the data that indicated that...of all students who participated in the study had low occupational aspirations. Based on these findings, it was concluded that students who perceived academic ability as low had no significant relationship to their occupational aspirations.

An overview of the study showed that sex of a student as an important determinant of educational aspirations of secondary school students. This was seen in their different career choices. For example, male students chose engineering and medicine, while female students chose nursing and secretarial.

The study revealed that female respondents were fewer than male respondents by 12% at Form 2 and Form 3. On admission, both sexes were given equal

chance to join Form 1.The results there- fore showed that female students dropped out of school at a rate that necessitated investigation.

## RECOMMENDATIONS

**The following are the recommendations of the study:**

1. Schools in Siakago Division should strive to sensitize the parents of their students so that they create a positive image to theirs sons and daughters irrespective of their social status. This would help in the improving of the performance of Physics and other science subjects.
2. Stakeholders and school administration in Siakago Division should provide adequate equipment and learning facilities for effective teaching. Equipment and learning facilities include; classrooms, overhead projectors. This would help in motivating the students thus improving their occupational aspirations.
3. Students should build positive attitude to education knowing that we go to school to acquire knowledge and not riches irrespective of their parents educational attainments. They should be made to know that Knowledge is vital to enable them manage all they would acquire in future. It was important to acknowledge that knowledge is power.
4. Schools in Siakago Division should take part in educating polygamous parents so that their marriage type does not affect the performance of their students. Teachers should always try to guide students who come

from this type of families so that they are able to fits in school well and learn just like others do.

5. Head teachers of schools in Siakago Division should collaborate with stake holders to ensure that physical facilities such as classrooms, desks and chalkboards are available for effective learning. This would help to boost the morale of the students in learning and also their educational aspiration and ability improves automaticallya.

6. Head teachers should always lead bearing in mind that:

- They are educational leaders who promote success of all students by facilitating the development and stewardship of a vision of learning that is shared and supported by the school community.
- They are educational leaders who promote success of all students by advocating, nurturing and institutional programme conducive to students learning and staff professional growth.
- That they are educational leaders who promote success of all students by ensuring management of the organization, operations and resources for a safe efficient and effective learning environment.
- That they are educational leaders who promote success of all students by collaborating with families and community members, responding to diverse community interests and needs and mobilizing community results.

- That they are leaders who should promote success of all students by acting with integrity, fairness and in an ethical manner.

7. Physics should be taught practically and therefore appropriate methods be applied when teaching the subjects. The methods include; Instruction giving question and answer, discussion, practical lessons, field work and tours.

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## APPENDIXA: DEFINITION OF TERMS

### Harambee

Refers to collective efforts towards an attainment of a goal. A good example of this can be observed when the Government fails to provide enough secondary schools for all primary school leavers who have done their final examinations in a certain district. The local community may start a secondary with minimum assistance from the government in terms of teaching staff.

### Harambee schools / District schools

Refers to those schools built by local self-help initiative in response to the shortage of places in government maintained schools. Their intake is largely nonselective and staff is rather poor compared with other types of schools.

### K.A.C.E

Refers to Kenya Advanced Certificate of Education

It replaced the East Africa Advanced Certificate of Education (E.A.A.C.E). This was used as a selection device for university admission. However, this examination was done for the last time in 1989. After that there were no more form five and form six in Kenya. The 7-4 -2-3 system of education had completely been phased out of secondary level.

### K.C.E

Refers to Kenya certificate of Education prepared and validated by the Kenya Examination Council. It replaced the former East Africa certificate of Education.(E.A.C.E)

### E.A.C.E

This examination was taken after seven years of Primary and secondary education. However under the 8-4-4-education system the K.C.S.E. Examination.

**K.C.P.E**

Refers to Kenya Certificate of Primary of Education. This examination is taken at least after eight years of primary education.

**K.C.S.E**

Refers to Kenya Certificate of secondary Education. It replaced the K.C.E. in 1989 when it was done for the first time in Kenya. This examination was taken after 8 years of Primary and 4 years of secondary Education.

**NATIONAL SCHOOLS**

Refers to the secondary school that recruits their student from all over the country. The schools make selections of intake before other secondary school and attract teachers oh high caliber.

They have physical equipments of high standard. [See Somerset 1970].

**PROVINCIAL SCHOOL**

Refers to those schools that draw most of their students intake from a small area compared with the national schools. They charge relatively and are aided by the government.

**SECONDARY SCHOOL**

Refers to an educational institute attended after primary school (eight years of formal education) in Kenya for a minimum of four or six years.

**THE 8-4-4 EDUCATION SYSTEM**

Refers to new education system in Kenya whereby there are eight years of primary, four years secondary and for years in the university. The new educational system replaced the former system in January 1985.

In former system of education there were seven years of primary, four years of secondary and two years in advanced secondary education and three years in university of education there were seven years of primary, four years of

secondary and two years in advanced secondary education and three years in university (7-4-2-3).hb m

The 8-4-4 education system emphasis is on acquiring of technical and vocational skills as compared to the former education system (7-4-2-3)

Which emphasized academic achievement.

**ILO**

Refers to International Labour Organization

**APPENDIX B: ACKNOWLEDGEMENT LETTER**

NDWIGA M.MURITHI
P.O. BOX 98,
**SIAKAGO.**
**DATE----------**

The Principal,

Dear Sir/Madam,

**RE: ACKNOWLEDGEMENT LETTER.**

I wish to acknowledge the support you gave me during my research work by either filling questionnaire, answering questions, allowing your students and members of staff to fill questionnaires and answer questions as requested.

Thanks in advance.

Yours faithfully,

Sign

---

**NDWIGA MOSES MURITHI.**

**NOTEDBY**

---

**FRED SEMUGENYI**
**SUPERVISOR**

---

**MR.GEOGREY KASOZI**
**ASSISTANT DIRECTOR ACADEMICS (ICDS)**

**APPENDIX C: STUDENTS QUESTIONNAIRE.**

***Precautionary statement***

This questionnaire is strictly for learning purpose and SHALL NOT be used for any other purpose. The information obtained shall be treated with total confidentiality.

1. Sex Male ☐ Female ☐
2. Which class are you in...
3. Which subjects are you taking among the following?

Physics ☐

Biology ☐

Chemistry ☐

4. Do you take Physics?

Yes ☐ No ☐

a) If yes how did you decide to do it?

i. Choose it yourself ☐

ii. The teacher choose it for you ☐

iii. Your parents choose it for you ☐

iv. Your classmate(s) influenced you ☐

5. What time have you located for studying Physics per week?

3Hrs ☐ ☐

1Hr ☐ ☐

6. State how you allocated study time to the following subjects in order of importance English, Math's, Chemistry, History, C.R.E., Physics. and Biology

a).....

b).....

c).....

d).....

e).....

f).....

7. What factors do you think hinders you from excelling in Physics?

.....

.....

.....

8. What is the social status of you parents(either one or both)

Engineer ☐ Civil Servant ☐

Teacher ☐ Farmer ☐

9. How many wives does your father have?

One ☐ Three ☐

Two ☐ Four ☐

10. Did your parents (guardians) have any kind of educational training?

Yes ☐ No ☐

11.What is the highest academic level of education you would wish to attain?

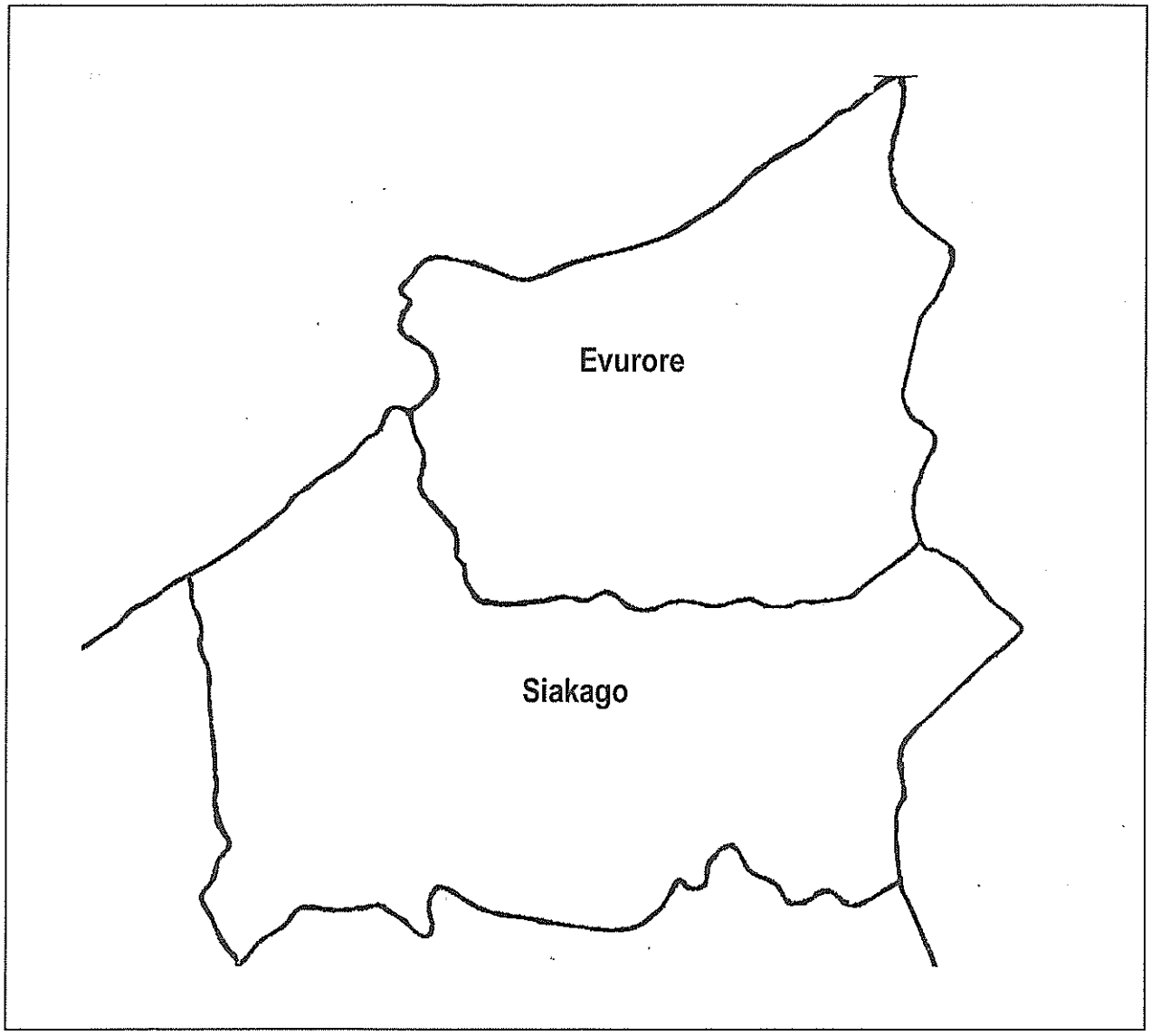
Form 4 ☐ University ☐

12. If you are free to choose a job you wished, what kind of job would you like to have more than the other?

Engineering ☐ Nursing ☐

Secretarial ☐ Medicine ☐

## APPENDIX D: SIAKAGO DIVISION MAP




**SOURCE: MBEERE DISTRICT DEVELOPMENT PLAN (2004)**

## APPENDIX E: TIME PLAN

## MONTH OF THE YEAR 2007-2008

| NO | ACTIVITY | APRR | MAY | JUNE | JULY | AUG | SEPT | OCT | NOV | DEC | NOV |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Identification of research topic | | | | | | | | | | |
| 2 | Literature review | | | | | | | | | | |
| 3 | Drafting Research proposal | | | | | | | | | | |
| 4 | Developing research instruments | | | | | | | | | | |
| 5 | Proposal writing | | | | | | | | | | |
| 6 | Proposal Defense | | | | | | | | | | |
| 7 | Data collection | | | | | | | | | | |
| 8 | Data analysis and report writing | | | | | | | | | | |
| 9 | Submission of report | | | | | | | | | | |
| 10 | Graduation | | | | | | | | | | |

## APPENDIX F: RESEARCH BUDGET.

**RESEARCH BUDGET IN (KSH)**

| ITEM | QUANTITY | UNIT COST | TOTAL |
|---|---|---|---|
| STATIONARY | LM | - | 20,000.00 |
| TYPING AND PRINTING | 5,000.00 | 30 | 15,000.00 |
| FIELD VISITS | 5 | 4,000 | 20,000.00 |
| ASSISTANTS | 2 | 2,000 | 4,000.00 |
| TRANSPORT | LM | - | 5,000.00 |
| CONTINGENCY 10% | - | - | 6,400.00 |
| TOTAL | - | - | 70,400.00 |