

**AN ASSESSMENT OF THE FACTORS INFLUENCING THE CHOICE OF SCIENCE  
SUBJECTS IN KIPTOBON SECONDARY SCHOOL IN KERICHO COUNTY KENYA**

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## DECLARATION

This project is my original work and has not been presented for award of a degree or for any similar purpose in any other institution.

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### Supervisor s Declaration

This project has been submitted with my approval as university supervisor.

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## **DEDICATION**

I dedicate this project to my entire family

## **ACKNOWLEDGEMENT**

I would like to acknowledge the assistance and moral support accorded to me to come up with this work. This project required serious thought and many people contributed. I would like to thank Almighty God for the strength till I completed my project. I thank my family members, my supervisor and my friends for the support and encouragement.

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## **ABBREVIATION AND ACRONYM**

|      |  |
|------|--|
| KCSE | Kenya certificate secondary school       |
| NAEP | National Assessment of education         |
| SMET | Science maths engineering and technology |

## **OPERATIONAL TERMS**

**Choice:** Refers to the students' preference over one science subject as compared to the other science subjects the study focused on identifying the critical factors that influenced students'

**Choice on the subjects.** The choice of subject can either be to great extent or to low extent.

**Secondary schools:** This is an education level in Kenya that precedes primary education in the Kenya's curriculum system which follows 8.4.4 systems where students sit for the KCSE to signify transition to the next level after four years.

**KCSE:** Refers to the Kenya Certificate Of Secondary Education. This is the summative evaluation exam given to the students at the end of form four.

## **ABSTRACT**

Science subjects on secondary level are compulsory but it become a challenge when the students have to choose them. In most cases male students always prefer science subjects than the female students. The research attempts to identify the problems affecting the choice of science subjects among the students. At this era where the country is aiming at attaining vision 2030 the technology should be at the top which calls for need for students to focus more on science subjects at secondary level. To carry out this study the following objectives was be followed. The effects of the value of science subjects on students choices of the subject in kiptobon secondary school, The influence of the subject teacher on students choices of science subjects in kiptobon secondary school, The influence of gender difference on students choices of science subjects in kiptobon secondary school, The role of parents and teachers in students choices of science subjects in kiptobon secondary school. The study adopted descriptive survey design. The study was guided by four research questions. The target participants was 40 drawn from 1 school in Bureti district .The instrument for data collection was questionnaire. The results was based on teachers teaching approach the behavior and student interest in the subjects and lessons.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the Study**

Science subject is important in high school since it is taken to be compulsory subject in many schools, which helps us when we are faced with problems based on Technology e.g global warming or explosive. Data collected has shown that many male students prefer science subjects than the female students. In our country Kenya our students are allowed to choose three science subjects that's Chemistry, Biology and physics but different schools have the way of choosing them basing my study on one specific school the science subjects chosen are that chemistry and biology are compulsory. Even though the students have been free from the burden of taking all the three science subjects the students still don't perform well which brings a problem to us all as a country since we are aiming at attaining the vision 2030. Which calls for students to develop positive attitude towards science subjects.

### **1.2 Statement of the Problem**

Students have not been performing quite well in science subjects and it has a question that we must ask ourselves both as students, parents and teachers. Since it's a problem that has been facing us for a long time and the problem needs to be looked into and more emphasis should be shown for the better of our country. In our country, Kenya Secondary education ends with Kenya Certificate of Secondary Education (KCSE). And every student has to calculate the cluster points and in this it has to have two science subjects. If the student does not perform well in science subjects it lowers his or her cluster points and since the career of a student is determined by the cluster points the student may fail to pursue the career of his or her choice.

### **1.3 Purpose of study**

The aim of the research was to get to understand possible challenges that the student are facing when they are choosing the science subjects and in my case it's Kiptobon Secondary School in Kericho County. The main objective of the study were to get to know the perception of science subjects on students.

### **1.4 Specific Objectives of the Study.**

- i) Effects of science subjects on the student.
  
- ii) Role of parents and teachers on student choices of science subject.
  
- iii) Gender influence of the student.

### **1.5 Research Questions**

The researcher questions were

- i)How does science subjects affects the student performance.
  
- ii)How can the role of parents and teachers affects the student choice of science subject.
  
- iii)How does gender influence the science subjects.

### **1.6 Significance of the Study**

The study sought to help both the management of the school and also the authorizes to get to know the reason why the student performance in science subjects is poor.

### **1.7 Delimitation or Scope of the Study**

The study was aimed to established the possible challenges facing our students when it comes to choosing of science subjects.

### **1.8 Limitation of the Study**

The study was faced with a number of challenges which hinders positively and negatively.The main problem was that the respondents may had created suspicion and fail to answer the questionnaire.

### **1.9 Assumptions of the Study**

The study included the following .The method used for collecting and measuring data and the number of respondents choose.

### **1.10 Definition of tremendous phrases**

**Choice:** It refers to preference over one subject as compared to the other science subjects.

**Choice on the subjects.** The choice depends on the positive way or negative of a student

**Secondary schools:** It is an O level of education in Kenya where student proceed from primary to secondary school.

**KCSE:** It's refers to the Kenya Certificate of Secondary education.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

In this chapter it tell us how the student value the science subjects, how the teachers and parents influence the student choice of science subjects and the gender influence.

#### **2.2 .1 Value of science subjects**

The attitude of the student towards the choice of science subjects plays a lot because it can bring out the positive effect and negative effects. According to Baumert ,Trautwein,killer and Garrett(2006) all students in high school choice the subjects to take depending on the careers they want to pursue in future. Therefore students in secondary school enroll on the valuable subjects that will help them build their future careers( Ackerman Gross2006). Research has shown that the student interaction inside and outside the classroom plays a big role in selection of science subject and it's achievement(Fraser etc all 1999 ) Every student perceive different the subjects they select in school depending on the specific subjects and the lesson they take also the value depends on the job markets

#### **2.2.2The Influence Of Subject Teacher**

The style of every teacher in lecturing will either impact the student performance positively or negatively so it's important for every teacher to look for a better way that will help his class perform well in their subjects (Taybe 2003) And if the teacher is not flexible in his or her lecturing the more difficult the student will get to understand his or her subjects (Smith et al 2006).And that is why you can hear some students say that this teacher is good at teaching this subject while that teacher is not good at all.

#### **2.2.3The Influence of Gender- difference**

Gender has also affected the choice of science subjects since male and female students will enrolled differently in their classes depending on how they value science subjects.it can be explained that

many males put more effort in learning science subjects than females who often engaged on education ( Grebennikon skanes ,2009)

#### **2.2.4 The Role of Parents**

Parents are found of advising their children on what choice should their children take when it comes to choosing of science subjects which has influence the student and also the performance of science subjects in our schools. According to malgwi et Al(2005) Parents encourages their students to take classes they will think their children can perform well in hence it will influence that student since maybe the student does not have positive attitude towards that subject.

#### **2.3 Summary and Gaps**

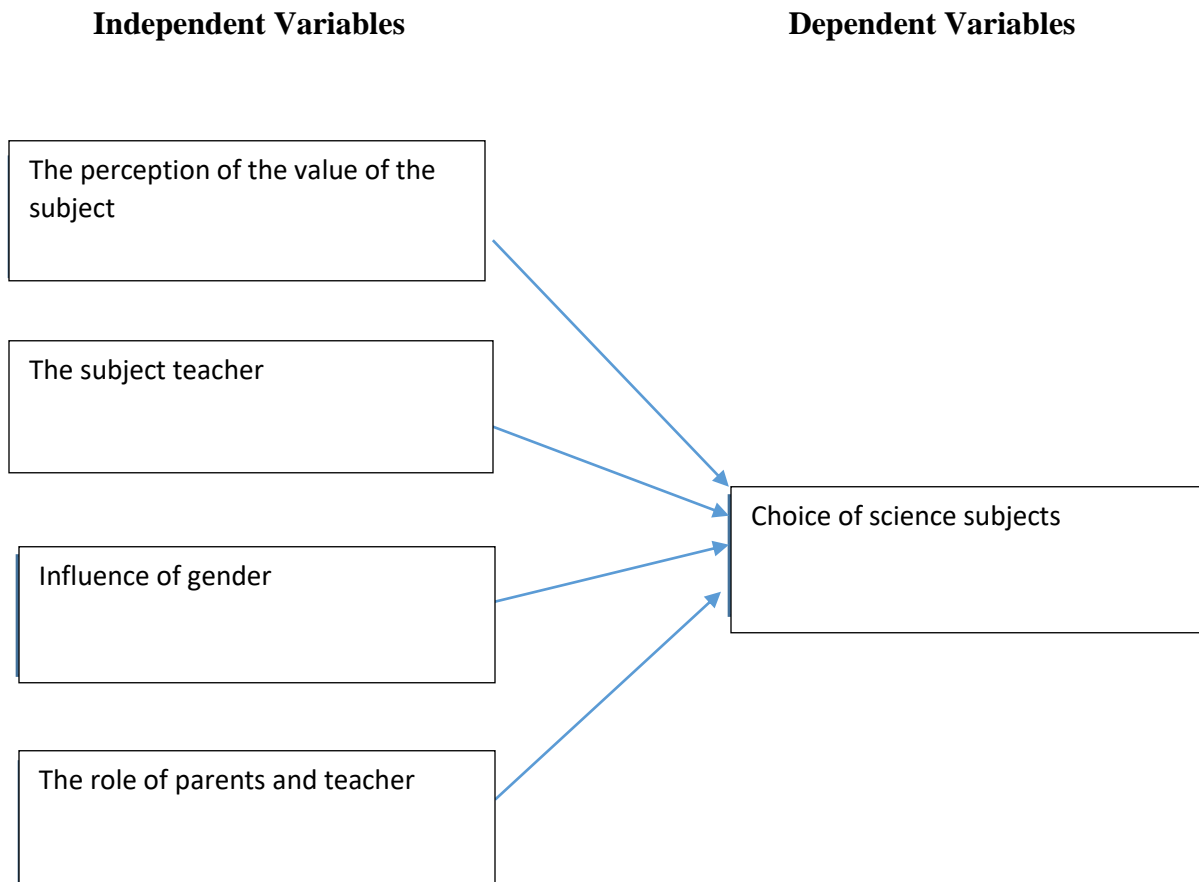
At this era there is much competition at job markets, which makes every institution to compete healthfully in order to make their student secure the job markets. And for this to happen it depends on the combination of science subjects that their student choose to take before graduating to higher levels of learning .Hence there is need to do a deep analysis in order to obtain the root cause of disparity in choosing subjects in secondary school. And this is not solved until the problem of choosing science subjects can be brought on board to be discussed on the way forward on how this can be done.

#### **2.4 Conceptual framework**

A conceptual is defined as an element of the scientific research process in which a specific concept is defined as a measurable occurrence in measurable terms that basically gives a clear meaning of the concept



Figure 1.1 Perceived factors that influence the choice of science subjects by students in secondary schools.



## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The chapter present the methods used to carry out the study .It describes the source of data the target population and the technique used.

### **3.2 Research Design**

The research uses descriptive survey .The design aid in the collection of information on different choices of science subjects.Tge design provided required information which were analyzed using descriptive statistics.

### **3.3 Target Population**

A population is defined as a group of people being investigated.The population of the study was all the study choosing science subjects in a specify institution.Target population in our research were the students who are choosing science subjects.

### **3.4 Sampling Design and Procedure**

The sampling design describe how sampling were being selected.Our research sample size was 10 teachers and 40 students .Out of 50 respondents an equal percentage of samples were considered using both random saming technique.

### **3.5 Data Collection Technique**

The study uses primary data which were collected using questionnaire.And the questionnaire uses both open and close-ended questions.

### **3.6 Data Analysis and Presentation.**

The study employed both quantitative and qualitative

The quantitative data were analyzed using descriptive statistics while qualitative data were analyzed based on the content of the responses.

### **3.7 Reliability and Validity**

According to Mugenda (1999) observed that reliability is a measure of degree to which a research yield results

Validity is a degree to which results are obtained from the analysed data and our study used pre-testing.

### **3.8 Data collection and techniques**

The researcher had seek permission from administration before carry out the questionnaire .The data collected were taken for analysis.

### **3.9 Data analysis**

The data collected were analysed and presented using tables and graphs

### **3.10 Logistical and Ethical consideration**

All information that were given must be treated with confidentiality

## **CHAPTER FOUR : DATA ANALYSIS**

### **4.1 Introduction**

This chapter present to us the analysis of the study on the factors influencing that choice of science subjects in Kiptobon Secondary School in Kericho County Kenya. The findings look at the value of science subjects, the influence of the subject teacher on student choices of science subjects, role of parent and teachers. Target population consist of 40 students and 10 teachers. All the respondent's response fully and it was 100% turn up. This was done in tables and bar graphs

### **4.2 Questionnaire Response Rate**

Basically, response rate entails the total number of respondents that the research approached. A total of 40 students filled the questionnaire that was distributed to form 2,3 and 4 and the response was quite impressive because it recorded a 100% feedback for both teachers and students. The teachers who took part in filling the questionnaire were 10 teachers teaching chemistry , biology and physics.

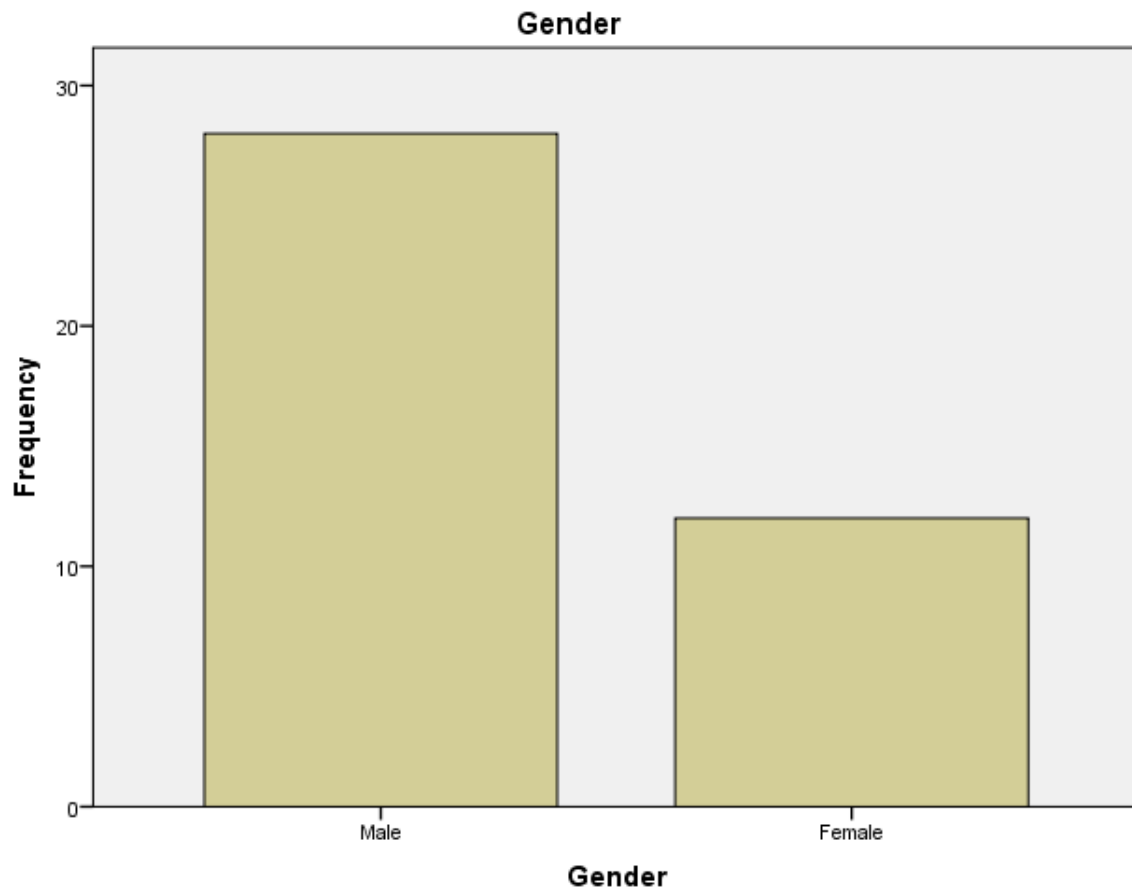
### **4.3 Background statistics/ Demographic data**

Demographic information sought to come up with the background information of respondents. The general information consist of Age, gender, attitude ,subject ,parent and teachers level of education.

#### **4.3.1 Gender distribution of the respondents**

The study sought to establish information on the students and teachers gender distribution. The gender information of students were presented in figure 4.1

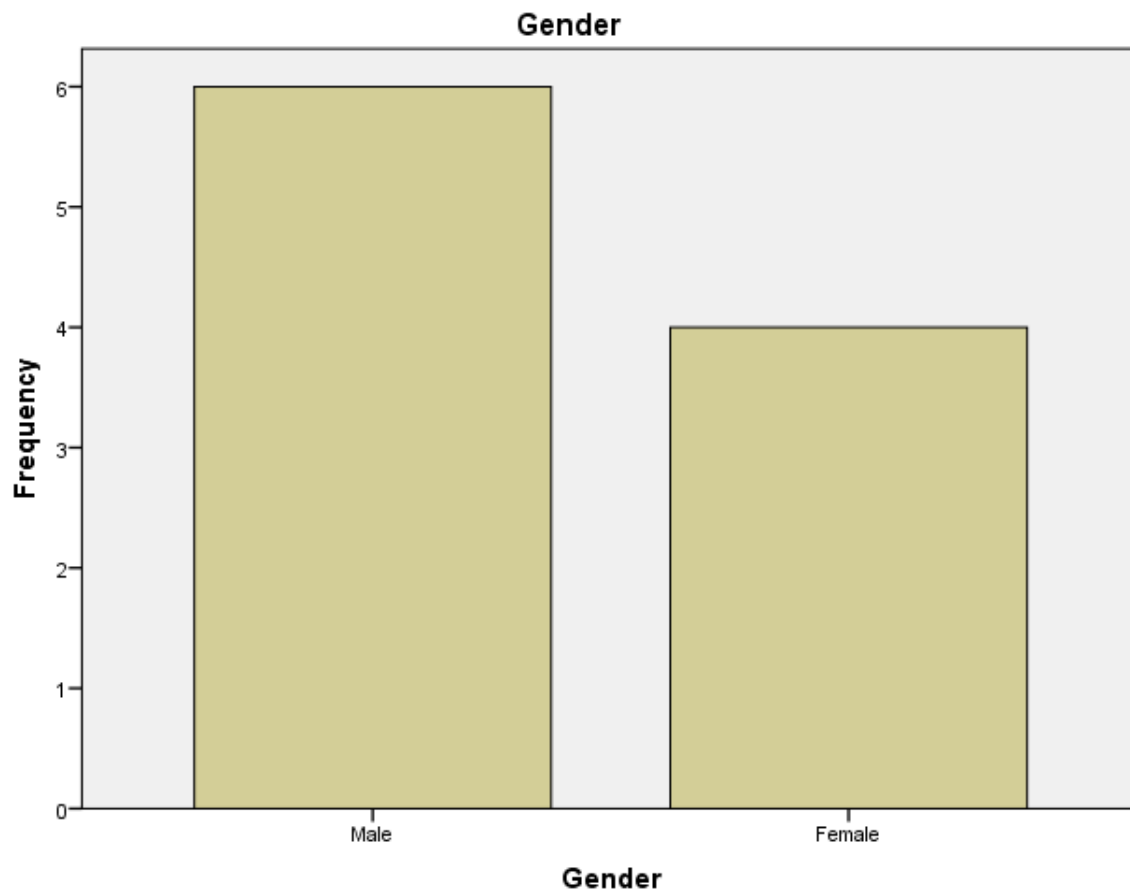
**Figure 4.1 Gender distribution of students**



In the above figure, It shows that 70% of the respondents were the males and 30 % of the respondents were females.

The teachers gender distribution is presented in figure 4.2

Figure 4.2 Teachers gender distribution



In this figure 4.2 ,It indicates that 60% of the respondents were the male teachers and 40 % were the female teachers.

### 4.3.2 Age of the student

The distribution of the ages of the students presented in table 4.1

Table 4.1 Age distribution of the students

| <b>Age</b> |          |           |         |               |                    |
|------------|----------|-----------|---------|---------------|--------------------|
|            |          | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid      | 14-18    | 31        | 77.5    | 77.5          | 77.5               |
|            | Above 18 | 9         | 22.5    | 22.5          | 100.0              |
|            | Total    | 40        | 100.0   | 100.0         |                    |

Table 4.1 indicates that 77.5 % of the respondents were of age 14-18 years while the other 22.5% of the respondents were above 18 years.

### 4.3.3 Religious background of students

The religious background of the students is shown in table 4.1

Table 4.2 Religious background of the students

| <b>Religion</b> |            |           |         |               |                    |
|-----------------|------------|-----------|---------|---------------|--------------------|
|                 |            | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid           | Catholic   | 29        | 72.5    | 72.5          | 72.5               |
|                 | Protestant | 11        | 27.5    | 27.5          | 100.0              |
|                 | Total      | 40        | 100.0   | 100.0         |                    |

Table 4.2, Shows that the Catholic association recorded the highest population of the respondents shown in percentage of 72.5 % and Protestant 27.5%

#### 4.3.4 Students Class

The student's class is shown in table 4.3

Table 4.3 Students Class

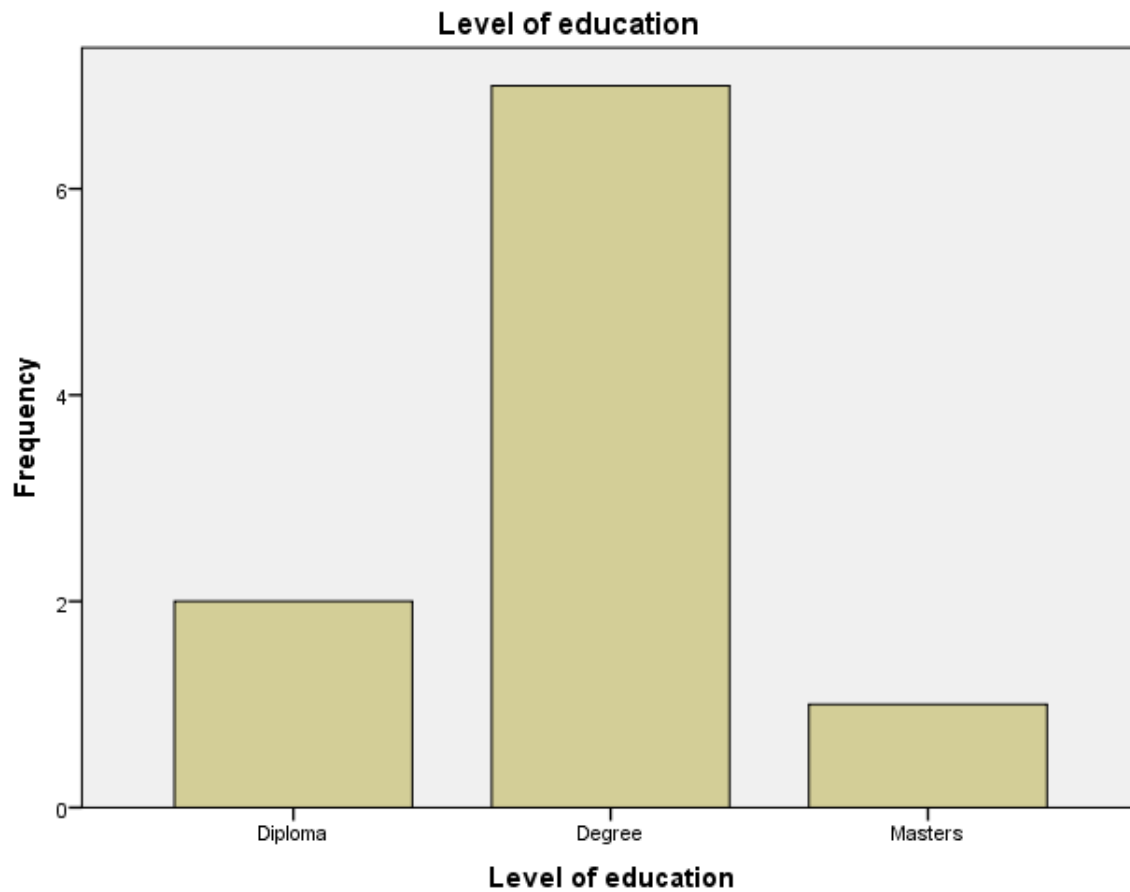
| Class |        |           |         |               |                    |
|-------|--------|-----------|---------|---------------|--------------------|
|       |        | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Form 2 | 18        | 45.0    | 45.0          | 45.0               |
|       | Form 3 | 12        | 30.0    | 30.0          | 75.0               |
|       | Form 4 | 10        | 25.0    | 25.0          | 100.0              |
|       | Total  | 40        | 100.0   | 100.0         |                    |

In this table the response rate of form 2 was the highest with 45% followed by the form 3 with the percentage of 30 % and lastly form 4 with the percentage of 25% .This indicates that student as they proceed to another class some drop out of school .

The teacher's level of education is shown in figure 4.3



Figure 4.3 Teachers level of education

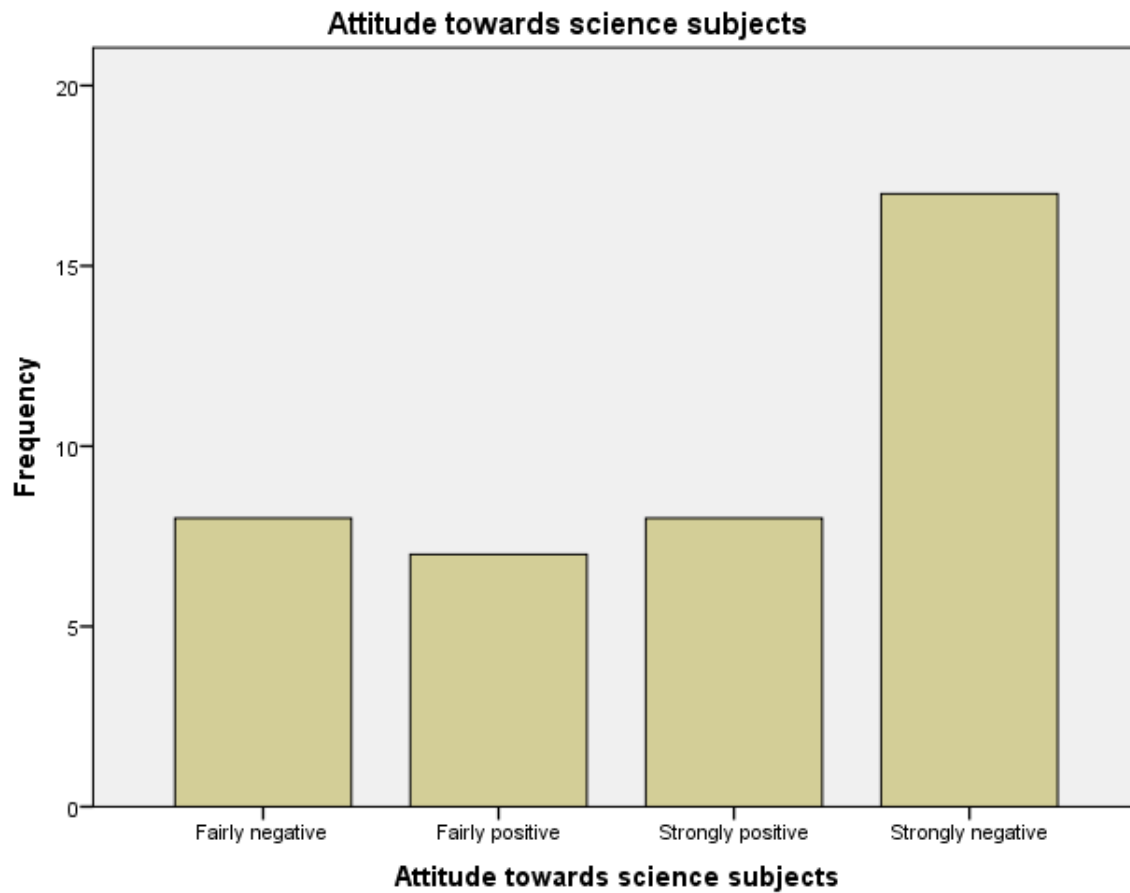


From the findings 70 % of the science subjects teachers have done their degree 20% of the teachers have their diploma certificates and one teacher has done masters

#### 4.4.4 Attitude of students towards science subjects

The attitude of students towards science subjects is shown in figure 4.4

Figure 4.4 Attitude of students towards science subjects



From above figure 4.4, Shows that students have strongly negative attitude towards the science science and a percentage of them have a strongly positive attitude.

The teacher's attitude towards science subjects is shown in table 4.4

Table 4.4 Teachers attitude towards teaching science subjects

| <b>Teachers attitude towards teaching science subjects</b> |                   |           |         |               |                    |
|--|-------------------|-----------|---------|---------------|--------------------|
|  |                   | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid  | Fairly negative   | 3         | 30.0    | 30.0          | 30.0               |
|  | Fairly positive   | 3         | 30.0    | 30.0          | 60.0               |
|  | Strongly negative | 4         | 40.0    | 40.0          | 100.0              |
|  | Total             | 10        | 100.0   | 100.0         |                    |

In the above table 4.4 ,It indicates that the highest percentage of teachers have negative attitude towards teaching science subject that's 40% of them followed by fairly positive and fairly negative each with 30 %.

## **CHAPTER FIVE: DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents the summary of the study and also gives conclusion and recommendation basing on the objectives of the study. The findings also show the conclusions on how or what can be done to improve the student choices of science subjects.

### **5.2 Summary of the findings**

The study was aimed at investigating the factors influencing the choice of science subjects a case study of Kiptobon Secondary School in Kericho County Kenya. And from the findings shows that the Objectives stated earlier are found to be influencing the choice of science subjects by the student. Out of the objectives stated it's found that students' attitude towards Science subjects influence the most. The role of parents and teachers also has contributed negatively to the choice of the science subjects.

#### **5.2.1 Influence of the concern teacher on students desire of science concern**

From the findings it's suggested that the physics teacher have influence the highest percentage of the students dependent on the response from the questionnaire findings with the total number of 16 students. Out of the 40 respondents which is the 40% followed by the chemistry teachers who has the total number of 14 students and lastly the biology teacher with 10 students out of the 40 respondents. It indicates that many students do physics.

#### **5.2.2 Perception of technological know-how topics via students**

The study confirms that 42.5% of the students do not like the science subjects. Simply because of the fact that students' effort on science subjects because the hardest topics in secondary level unlike other subjects which makes them to have negative attitude towards these subjects which will later affect their results when they are moving to the next level of education.

### **5.2.3 Gender influence**

From the study it shows that male students record the highest percentage of 70% while the female students have percentage of 30% which indicates that male students value positively the science subjects than the females, which confirms that gender also influences the choice of the subjects to a certain percentage. Also looking at the gender of teachers we have many male teachers than female.

### **5.2.4 The position of mother and father and teachers**

The study confirms that parents and teachers also play a major role in the choice of the subjects since from the findings we find that the attitude of the teacher to the study of the subjects plays a role in student choices of the subjects. Parents also play a role of advising their children.

### **5.3 Conclusion**

From the research findings the study confirms that the choice of science subjects affects the student performance. The negative attitude the student develops towards the teacher or the subjects leads to poor performance of that student.

### **5.4 Recommendations**

Based on the observations made the researcher recommends the following

1. The school should bring a motivation speaker twice every term.
2. The school should educate the student's parents on their involvement in choices of science subjects.
3. The school should also be teaching the students the importance of science subjects to their careers in life.

### **5.5 Suggestion regions of further research**

Due to limited scope of the study it has sought to recommend that more extensive study should be conducted. Which will assist in boosting the performance of the school and will also will help the student to develop positive attitude to the science subjects hence become better person which will also play a role in our country Kenya now we're aiming version 2030

The researcher endorse the subsequent areas

1. Similar research should be performed to other schools to confirms if their could be the identical findings

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## APPENDICES

### Appendix 1 Student questionnaire

#### Section A General question

- 1) Gender Male  Female
- 2) Age 14-18 years  Below 14 years  above 18 years
- 3) What is your religion/ denomination?

Catholic

Protestant

#### 4) Indicate your class

Form two

Form three

Form four

#### Section B Student's perception on science subjects

1. which science subject are done in your school?

1) Biology

2) physics

3) Chemistry



2. What is your attitude towards the science subjects rate you feeling by use of ticks

| Subject.  | Fairly negative | Fairly positive | strongly positive | Strongly negative |
|-----------|-----------------|-----------------|-------------------|-------------------|
| Biology   |                 |                 |                   |                   |
| Physics   |                 |                 |                   |                   |
| Chemistry |                 |                 |                   |                   |

**Section D Influence of the subject teacher**

How do the students perform in science subject

| Subject.  | very poor | Poor | Fairly good | Very good |
|-----------|-----------|------|-------------|-----------|
| Biology   |           |      |             |           |
| Physics   |           |      |             |           |
| Chemistry |           |      |             |           |

**Section E Influence of gender differences**

1. Does your gender influence student's choice of subject?

Yes  No

## **Appendix 2 Teachers questionnaire**

### Section A : General question

1. Indicate the science subject you teach

Chemistry

Biology

Physics

2. Indicate your level of education

Diploma

Degree

Masters

**Section B : student's perception on science subject**

1.What is the students attitude towards science subjects in your school

| Subject.  | Very bad | Bad | Fairly good | Very good |
|-----------|----------|-----|-------------|-----------|
| Biology   |          |     |             |           |
| Physics   |          |     |             |           |
| Chemistry |          |     |             |           |

Section c: Role parents and teachers

1. Do parents influence student's choice of science subjects?

Yes       No

2. Do teachers influence student's choice of science subjects?

Yes       No