SOCIO-ECONOMIC STATUS OF PARENTS AND ACADEMIC PERFORMANCE OF STUDENTS IN BIOLOGY SUBJECT OF KOIMBE SECONDARY SCHOOL IN MURANGA DISTRICT KENYA

BY:

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DECLARATION

I declare that the material in this book has not been presented elsewhere for any academic qualification.

Signed.....

SAMWEL KIMAIYO

Date.....28.08.09

APPROVAL

This research is submitted for examination with my approval as the supervisor.

Signed.....

MR. SSEMUGENYI FRED

Date.....

DEDICATION

This work is dedicated to mu lovely mum, and my wonderful father for their support and sacrifice to make me a success.

ACKNOWLEDGEMENT

In doing any research, a lot of cooperation is highly required, that is why the researcher highly acknowledges the support and guidance from the Supervisor Mr, Fred Ssemugenyi.

May the Lord God bless them

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ABSTRACT

This is a case study of Kiombe Secondary school located in Mulanga in the Central province of Kenya. It attempted to find out the factors that contribute to the poor performance among students of Kiombe secondary school in K.C.S.E Biology examinations.

Some of the issues investigated included the attitude of students towards biology, attitude of teachers towards biology, use and availability of resources (books, teachers, laboratories, library etc) the teachers' qualification and experience and the role of school administration.

Orientation of biology as a subject for future careers, and the students participation in the science congress.

The researcher did a case study of Kiombe secondary school with form 3 and form 4 boys and girls and teachers in the school. The research instruments used in the study composed of teachers and students questionnaires and interview schedules conducted on the principal. Deputy Principal and the Head of science department as well as observation schedule around the school.
Sampling was done to select eight (80) students of both form 3 and 4 in which 40 boys and 40 girls were selected at random and they formed a student sample. The two biology teachers formed the teachers' sample. The administrative sample was composed of the principal, Deputy principal and the Head of Science Department.

The data was then collected and analyzed through descriptive analysis method using percentages in tabulated manner. The following observations were made:

- The teachers have a positive attitude towards the subject while students have a negative attitude towards the same.
- Students do not make use of the textbooks available

- Teachers are qualified with long teaching experience
- Students do not do private studies; they do not utilize their time well, they misunderstand instructions and also do not have memory tools
- Teachers rarely mark students work and the syllabus is never completed
- English as the medium of communication is a big problem.

These factors are the major causes of poor performance. The study recommends that the students be well guided on study habits, how to use their time properly and productively. They should also be taught some memory tools. The curriculum implementers, teachers and inspectors should strengthen their efforts in providing guidance to enable students participate fully in biology activities for example biology day, science congress etc. Students should be given some orientation on the subject so that they develop a personal vision, know why they should study biology, what is their future career prospect and also know the hazards of studying biology.

More research should be carried out to find out other factors that could lead to poor performance apart from the ones studied while using a larger sample so that findings can be generalized to other schools as well.

CHAPTER ONE

THE PROBLEM AND ITS SCOPE

1.0 Introduction

1.1 Rationale of the study

With industrialization playing a significant role in the economies of most countries in the world students' good performance in science subjects has been greatly emphasized especially in Biology. This is due to the fact that knowledge in this subject is widely applied in such scientific professions like Medicine, Pharmacy, and Agriculture.

Knowledge of medicine has enabled doctors to eradicate some of diseases which used to pose a big threat to the human existence. Man has therefore been able to remain healthy and productive in terms of manpower output.

The invention of computers and their applications in many sectors has been a great step forward in technological development, yet knowledge of physics is very crucial to the operations of the computer.

Biology has also been applied in the development of biological weapons thus enabling him develop some of the lethal weapons of war e.g. use of anthrax bacteria as a weapon during the war between USA and Taliban in Afghanistan.

The current education system in Kenya is designed to achieve specific National goods. The recommendations of September 1981, which saw the introduction of the 8-4-4 system of education Kenya is aiming to be fully industrialized by the year 2020 and if this goal is to be achieved, it means better performance in sciences, of which biology form a part.

Even though biology and its application is so important in life, and especially in the field of medicine, its performance in the Kenya Certificate of Secondary Education continues to be very poor. It is a matter of concern to both the government and the general public that fewer students select biology as the subject and those who do, perform poorly. Many people have done research in their valid of performance and have come up with different possibilities that could be leading to poor performance. They have come up with suggestions and recommendations on how to overcome the problems and it is not clear why up to now the situation has not changed.

Though Biology is performed poorly in most other schools, students manage an average performance of C and above. In Koimbe Secondary School, about 90% of the students gets D plain and below. The other 10% really get anything better than C- (minus). Poor performance in biology is evident in all the tests there are given and end of term Exams in all classes.

1.2 Theory

This study is based on Thorndike views of Modern learning and conditioning experiment (Thorndike, 1996), which states that responses which are closely followed by satisfaction to organism, other things being equal and are more likely to re occur while those that are accompanied or closely followed by discomfort to the organizing will other things being equal are less likely to re occur.

Thorndike in his law of exercise states that the connection between stimulus and response is strengthened through use and weakened through disuse. This law put emphases on the importance of practice and its importance in leaning process rewards and gets more improvement in performance. Repeating the tasks help in binding response together.

Thorndike's theory will help to guide the researcher to establish whether use or disuse of rewards have any significant effect on academic performance in biology

subjects. It helps to establish if attitude towards biology subject affects its performance.

Professor Eshiwani (1982) notes that "In Kenya the weakness in scientific and technological development is evident from the fact that there are no qualified people to fill positions required scientific and technological training".

The above statement support the fact that the very few students have been excelling well in science especially biology.

On 30th June 1996, the former Kenyan President Daniel Arap Moi while addressing university student at Maseno University announced a shortage of 1000 teachers of biology and physics. He stressed that there was a shortage of teachers in the two subjects adding that the government would consider absorbing the graduate teachers higher salary scale. This implies that very few students' pursue biology and physics at university level and this can be attributed to the students' poor performance in science in KCSE Examination.
The major concern of this study therefore is to find an answer to the question: -

What are the factor influencing students poor performance in Biology subject in Secondary schools?

1.3 Objectives

1.3.1 General

This study determined the students' academic performance In Biology subject in Koimbe secondary school of Murang'a District, Kenya.

1.3.2 Specific: This study seeks to:

1 To find out the performance of students in biology.

2 To establish the financial implications of biology teaching.

3 To establish whether there is a relationship between socio-economic status of parents to students performance in biology

1.4 Significance of the Study

This study will benefit in the following disciplines:

The Ministry of Education will be able to understand the causes of poor academic performance in Biology subjects in schools and devise ways to train more competent teachers.

The teachers will understand what causes students to perform poorly in the subject and devise ways to improve on the performance.

The students will learn and understand the value of not only Biology but also other science subjects.

The future researchers will be able to find material concerning their area of study and be able to supplement on their material.

1.5 Statement of Null Hypothesis (Ho)

There is no significant relationship between socio-economic status of parents and students' performance in biology.

CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

According to Sauna (1988), students' performance in biology subject is determined by **teachers' qualifications, students' attitudes** towards science and especially biology and the availability of **appropriate biology facilities** for students' performance in biology. These factors affect the students' performance in science at national level in K.C.P.E which drives them to perform better in the secondary level exams, K.C.S.E.

According to Triadis (1971), Attitudes comprises of three aspects. These are affects e.g. like and dislike, cognitive e.g. easy and difficult etc and behaviors e.g. performance in a given test.

Gardner (1984), in his book report on the resolution a Recommendation of sixth U.P.A.C intervention conference on science education stated that "Attitudes to science are largely formed before the age of 14 and the influence at home, local community and primary school are important". This means that positive attitudes in students must be uncalculated right from teen ages.

According to Fensham (1984) all over the world, recurring question for teachers in many countries are, "how can I make learning of biology more attractive, enjoyable, and relevant to many students". Many teachers still do find their students see biology as difficult, dull and boring. Fensham insist that the need for more effective biology teaching is steady growing on all part of the world. Gardner supports him by saying that, " the key to high quality biological education is the biology teacher in secondary school. It is in these settings that the students becomes interested or lose interest in biology."

Orodho (1984) says that there is an issue of **negative attitudes towards science** and technical subject amongst teachers and students.

Kepha Okari (1985) on his research on attitude of teacher trainees at Migori Teachers Training College quoted **Johnson and rising (1972)** having said that attitudes are fundamental to the dynamics of behavior. They largely determine what students learn" it's therefore clear that attitude, positive or negative will have a lot of influence on student achievement and all stakeholders in education must pray significant roles in molding the attitudes of Kenyan students toward sciences.

Gardner (1984) asserts that "all students must be made aware of the link between biology, society and the environment". Concerning the influence of teachers qualifications on the performance of sciences and more specifically biology, several studies have been done and there is positive relationship between teachers qualification and students performance. According to B.M.Ranju (1973), most rural schools lack properly trained teachers and have to accept unqualified teachers who might not be aware of modern trends in teaching methods and curriculum.

The question of lack of enough qualified teachers in most rural schools has in many of cushions been mentioned as one of the causes of poor performance in National exams. The untrained teacher undertakes teaching as a stepping store to better employment or as they wait for admission into the university. Such teachers cannot put forward the necessary effort that would enable the learner master the content of a subject.

Eshiwani (1975) quotes science tutors at the university blaming science teachers at the school level as the cause of poor science performance. He also says that teachers' qualification methods of teaching and teacher pupils' ratio contribute a lot to performance. Kathuri (1986) observes that there is a relationship between quality of staff in a particular school and the performance of that school. Sifura (1989) observes that a high employment of untrained teachers after independence in Kenya was believed to have lowered the quality of education in Kenya.

According to professor Eshiwani the problem of poor performance is attributed to **poor teachers' students' ratio.** He says that in 1963 the ratio was 1:5 and in 1980 it was 1:20 well today it stands at 1:30. This shows that the number of pupils have been increasing without a corresponding increase in the number of teachers. At secondary school level an acute shortage of qualified science teachers is experienced. Teaching is not a popular career among university graduate. Graduates competent to teach science find it easy to get "good" jobs elsewhere. Non graduate teachers who trained to teach at lower levels often lack motivation and follow the cause for lack of better alternatives.

Students achievements at secondary school level have also been found to correlate positively with their achievement at primary school level. Libase (1983) quotes Brownstone and O'Conner expressing their views that primary education as it is preserved to pupils in Kenya is unsatisfactory as teachers take the form of drill and memorization of facts to pass competitive examination. Similar views are given by Eshiwani (1983) and Mawandu (1988). According to Eshiwani the problem begins at primary school level where pupils are grouped according to academic ability. The effect of achievement is that the gap between the highest and lowest achievers increases.

According to Ward worth (1978) the low achievers who fail in Math's and science subjects remain passive and often blocked in school situation. They remain confused in their inadequacy and give up inwardly convincing themselves as defeated.
Mawandu (1988) says that there was a general concern among the school heads and teachers that Primary school qualifications are important determinant of students' achievement in secondary school. This is supported by Ayot and Patel (1987) who observed that one will have to check the learner's entry behaviours. The method of disposal of any teacher includes lecture methods, teachers' experiments (demonstration), students' experiments and group discussions.

According to Kimaru's research (1985) which was conducted in Baringo District, most biology teachers complained of a few facilities and large number of students which forces them (teachers) results to classroom demonstration. Hence during final practical exams candidates are not familiar with experiments and ends up performing poorly. Bartojo (1995) quoting Matraux states that there should be less perceive watching of repeated experiment and demonstration in classroom.
Gardner (1984) derived the point home when he said that but the effective Biology teachers take the students frequently into the laboratory and to the field to learn through doing.

According to Hillgald (1962), the act of forgetting which occurs varies enormously with the materials used and with circumstances under which normalization occurs. This is supported by Word worth (1978) who says " as with all knowledge children's science knowledge is build up from their actions on objects".
Ajayi (1984) quotes a Chinese proverb which says "a thousand hearings are not as good as one seeing". She quotes John Amos Cornelius as saying "he who has once seen a Rhino (even in picture) can remember it more easily that it has been described to him six hundred times.

Mowandu (1988) says that teaching / learning and resources correlate are highly with school success. Hallack (1990) concurs with all this sentiment and observations when he asserts that if science is to be taught special facilities, the level of sophistication of which will vary with level of pupils and the use which they intend to make of it are required.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter deals with the methodology part of research. It specifies the research design, research environment, Respondents instruments, Data collection procedures and statistical treatment of data.

3.2 Design

This study employed the descriptive survey method to determine the performance of form three and four students. Both qualitative and quantitative designs will be applied to acquire a deep analysis on the subject matter.

3.3 Environment

This study was conducted in Koimbe secondary school in Murang'a District, Kenya.

3.4 Respondents

Since Koimbe secondary school is a single streamed mixed school, girls and boys were selected randomly in equal number. In each class i.e. form one to four, fifty students were selected. These fifty students were form the students' sample.

3.5 Instruments

3.5.1 Questionnaires

This study utilized a researcher devised instruments which were:

- The gender
- Age
- Access to Laboratory
- Availability of teachers and teaching facilities.

3.6 Data Collection procedures.

A letter was sent to the head teacher seeking permission to carry out the research. Appointment with the head teacher was sought and casual discussion held at agreed time to conduct the exercise. The sampled candidates were selected randomly by taking demission numbers of all form four and three students, writing them in pieces of papers, folding them, put them in a basket and randomly picking the folded papers.

3.7 Treatment of the data.

The frequency and percentage was used to determine the statistics involving making analysis and tabulation. To facilitate presentations and analysis of the data, tabulate layout and descriptive statistics was used. This involves calculating percentages and through tabulation methods the data is easily analyzed. This would enable only desired figure to be located more quickly and it would also help in comparison between two different categories to be made more easily.

Formula:

$$\bar{x} = \frac{x_1 + x_2 \ldots\ldots x_n}{\Sigma N \Sigma n}$$

Where

$\bar{x}$ = the mean score

Σ = summation

n = sample size

x1 = sample

3.8 Definition of the Terms

For the purposes of this study, the following terms are defined operationally:

Performance:	Students achievement under Biology test condition.
Attitude:	Degree of students' interest in Biology
Students:	Individuals studying Biology at Koimbe secondary school
IUPAC:	International Union of Pure and Applied Chemistry
8.4.4. System:	System of education with eight years in primary school, four years in secondary education and four years of education in the university.
Form:	A level of learning in Koimbe secondary school
KCSE:	Kenya Certificate of Secondary Education
KCPE:	Kenya Certificate of Primary Education

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

To facilitate presentation and analysis of data, tabular layouts are used (descriptive analysis methods) than calculating percentages and through tabulation method and pictorials the data was analyzed. The additional information appears under the relevant sub-section below the tables followed by the conclusion.

The results have been presented as per identified factor and those the researcher intended to discuss. The information which was obtained from the principal or the physical facilities will also be included.

4.1 Attitude of students towards biology

Students were requested to indicate their attitude towards biology and their response was as indicated in table below;

Table 1: Attitude of students towards Biology

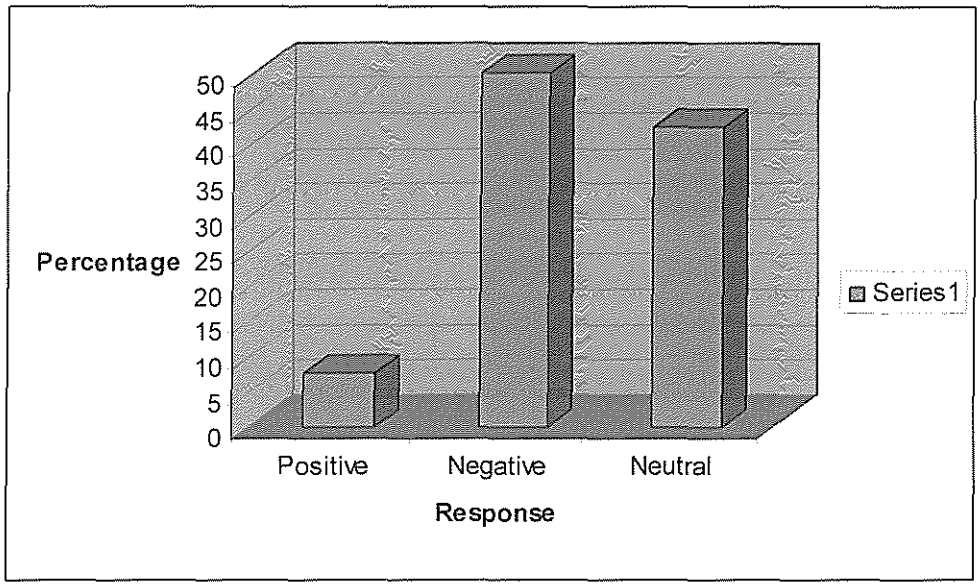
Attitude towards Biology	Number of students	Percentage
Positive	6	7.5
Negative	40	50.0
Neutral	34	42.5
Total	**80**	**100**

Source: Primary source

The table indicate that majority of student consisting 50% indicate that they had a negative attitude 42.2% had a neutral or a general attitude and did not want to be specific and only 7.5% had a positive attitude towards biology.

It is further shown in the figure as below;

Figure 1: Attitude of students towards Biology



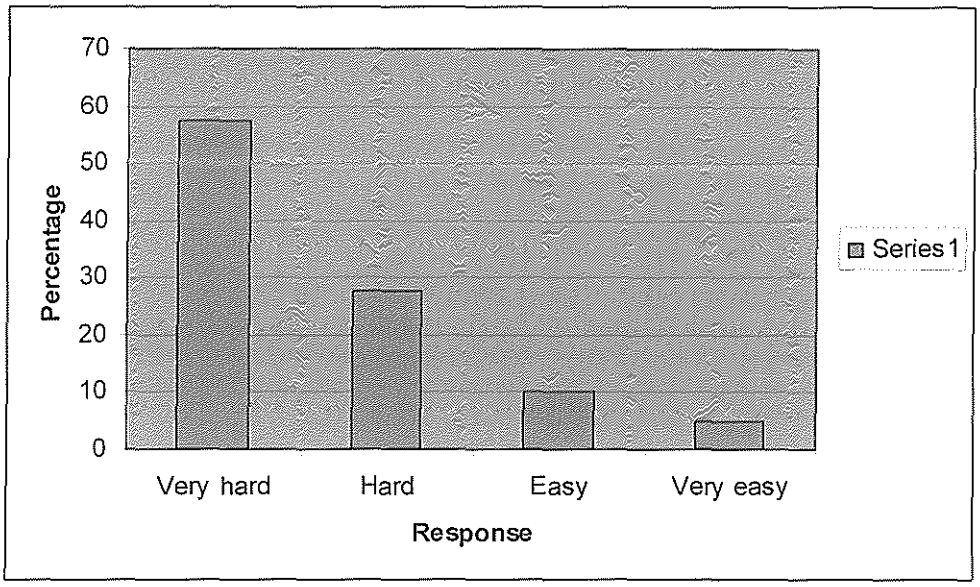
Further manipulation of the figures contained in the table shows that more than half of the students have a negative attitude towards Biology. Most of the students who were non committal on their attitude fall more on the negative than on the positive attitude.

Table 2: Rating of Biology

Rating Biology	Number of students	Percentage
Very hard	46	57.5
Hard	22	27.5
Easy	8	10.0
Very easy	4	5.0
Total	**80**	**100**

Source: Primary source

Figure 2: Rating of Biology



Students were requested to indicate their rating on Biology. On rating 85% of the students indicated that biology is hard while 15% indicated that biology is easy. Since majority of the students indicated that biology is hard, then the problem may be that methods of teaching may be complicated such that the students do not understand. The orientation given to the students may not be good and so they don't have good study habits or they don't make use of memory tools. The teacher should understand that when the language of instructions is not in the mother tongue, particular attention should be given to the language demands of the learner.

Table 3: Practicing numerical questions

Attitude towards Biology	Number of students	Percentage
Never	0	0
Rarely	31	38.75
Often	29	36.25
Always	20	25.0
Total	80	100

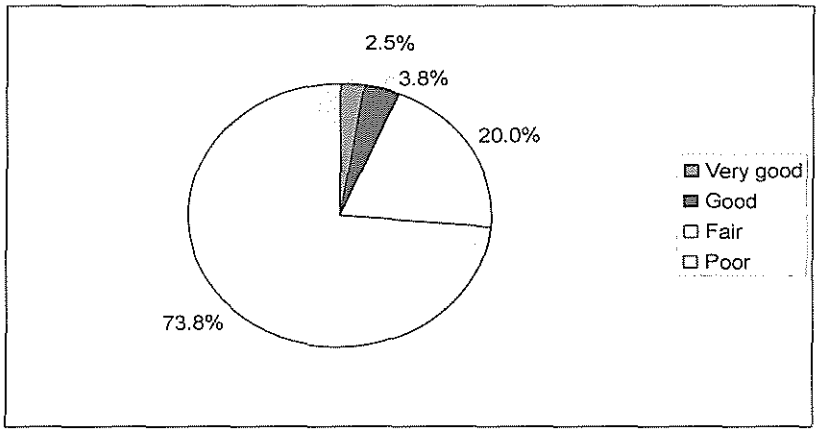
In the table above it was indicated that 38.75% rarely practice numerical questions while 61.25% do practice numerical questions on their own. The teacher should try to give numerical questions as an organized class assignment. Further findings indicate that out of the 61.25% that do practice half of them copy from others and only a very small fraction do their original work.

Table 4: Performance in Biology

Performance in Biology	Number of students	Percentage
Very good	2	2.5
Good	3	3.75
Fair	16	20.0
Poor	59	73.75
Total	80	100

From the table above on performance indicate that almost ¾ of the students perform poorly and only 1/16 of the students had good performance. The remaining 1/5 of the students can only get a D plain grade.

Figure 3: Performance in Biology



Further, the figure above shows that only a quarter of the students perform better in biology. The majority are very poor in biology. The teacher should try to conduct an action plan and find out why some perform so badly while they are in the same

class. He should also try to consider their entering behavior before any new topic. He/she should also form some study groups with the best students as the group leaders and try to monitor the progress.

Table 5: Practical lessons in biology

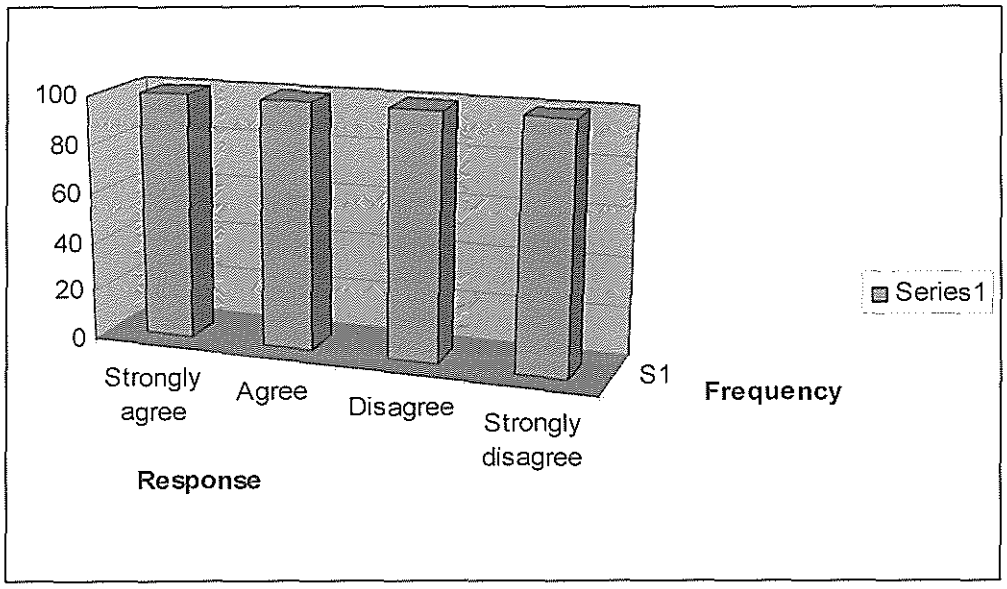
Practical lessons in biology	Number of students	Percentage
Once a week	10	12.5
Twice a week	22	27.5
Three times a week	43	53.75
Never	5	6.25
Total	80	100

Students were requested to indicate the number of time they would like to have practical lessons in biology. More that ½ wanted to be in the laboratory for practical always, which constituted 53.75% more than ¼ of the students wanted to be in for practical two times in a week and only 1/16 did not like the practical. This is an indication that the students enjoy practical lessons and teachers should make a habit of taking students to the laboratory. The students get involved in the lesson and learn more: this would also create interest and the attitude might change.

Table 6: Practical lessons in biology

Attitude towards biology	SA 1	A2	D3	SD4	U5
I feel good when going to teach biology	100%	0%	0%	0%	0%
Feels uncomfortable when teaching Biology	0%	0%	0%	100%	0%
My mind goes blank and Iam unable to think clearly when solving numerical questions	0%	0%	0%	100%	0%
Loved biology since form one and enjoyed studying it	50%	0%	0%	0%	0%
Biology makes one feel good and confident	0%	100%	0%	0%	0%
Interest in biology grew stronger in higher forms	100%	0%	0%	0%	0%
I feel a definite positive reaction to biology and enjoy teaching it	100%	0%	0%	0%	0%

Figure 4: Attitude of teachers towards biology



Teachers were requested to indicate their feelings towards Biology. Table six contains the information given regarding their feelings towards biology right from when they were in secondary school. The figure also indicates that teachers feel good when teaching biology and have a lot of confidence in themselves. Their attitude towards biology grew right from the form one or grew on as they continued

in the higher forms. Further manipulation of the figures contained in the table shows that teachers love the subject and feel that it is easy and enjoy teaching it. A student can build interest in biology after form one and they excel. The teacher's further comments were that students take numerical questions as mathematics and don't attempt them.

Table 7: Category of students

Category of students	No. of teachers	Percentage
Boys	1	50%
Girls	1	50%

Teachers were requested to indicate the category of students who perform better in the national examinations. The two male teachers were divided as to who does better between boys and girls and were 50-50, the figures in the table indicate 50% in the teachers opinion. This may be concluded to means that one year the boys may do better the other year the girls may excel. Further research on the ground shows that the number of boys and girls at any particular year are never equal and hence it is hard to indicate which category would do better.

Table 8: Analysis of data related to experience and qualification of biology teachers

Academic / Professional qualifications	No. of teachers	Percentage
Diploma	0	0.0
Untrained graduate	2	100
Graduates	0	0
Post Graduate	0	0
Total	2	100

Source: Primary source

The school has two (2) untrained graduate male teachers. These teachers have academic but no professional qualifications, they may have mastered the subject but their method and speed of delivery may not be good. They may not be having the best teaching methods and this could contribute to poor performance in biology in the schools besides other factors.

Table 9: Teachers experience

Years of experience	No. of teachers	Percentage
1 - 2	0	0
3 – 4	0	0
5-6	0	0
7 and above	2	100
Total	**2**	**100**

Source: Field data

The two teachers have experience of more than 7 years. They have mastered the concept in biology principles for effective teaching. They may have learnt and acquired various techniques required to assist students to perform better in their examinations.

The conclusion is that the teachers are experienced and experience of teachers may not be a factor that contributes to poor performance in biology.

Table 10: In-service courses attendance

In-service/seminars	No. of times attend	Percentage
Teacher A	6	75
Teacher B	2	25
Total	8	100

Source: Field data

The teachers were requested to indicate the number of times they have attended seminars or in service course in their career. The figures in the table indicate that, the two biology teachers, have attended seminar and in-service course, where they get updated on appropriate biology programmes. Further interview with the teachers reviewed that in some of the workshops they have been taught on resource materials and how to make teaching aids. The teachers are updated and so this is not a factor that causes the poor performance in biology

Table 11: students view on syllabus coverage

Completion of syllabus	No. of students	Percentage
Yes	10	12.5
No	70	87.5
Total	80	100

Source: field data

Students were requested to indicate whether they try to cover the remaining part of the syllabus on their own. The table above contain the information regarding students own initiative to cover the syllabus. The figures in the table indicates that majority of students constituting 87.5% do not bother or they do not know whether the syllabus is complete or not. Further manipulation of the figures in the table shows that 12.5% know the syllabus and make sure they complete it on their own. This is an indication that lack of syllabus coverage is one of the factors that contribute towards poor performance in biology in this school. It also shows that the students are teacher dependent and is a challenge to the teachers to see that they cover the syllabus in good time so that revision can be done well to ensure that students are the properly prepared for the examination. Teachers should guide and train students to work on their own.

Table 12: Learning resources

Number of students sharing one textbook	No. of students responded	Percentag
1	0	0
2	65	81.25
3	15	18.25
4 and above	0	0
	80	100.0

Source: Field data

Students were requested to indicate the number of students who share one textbook in biology. The table above indicates majority of students constituting 81.25% of the students share one textbook between two. This is an indication that there are enough biology books in the school and textbooks is not a factor that contribute to the poor performance in biology in this school. Further interviews with the teachers revealed that the students are lax and do not read on their own, so they don't make use of the textbooks.

Table 13: Teachers view on the readiness and willingness of the school administration to support the biology department

Administration ready to help on		No. of teachers	Percentage
Buying textbooks	Yes	2	100
	No	0	0
Buying apparatus	Yes	2	100
	No	0	0
Sponsoring seminar	Yes	2	100
	No	0	0
Sponsoring science congress	Yes	2	100
	No	0	0

Source: Field data

Teachers were requested to indicate the areas where the administration does not support them in the biology department. The data indicates that the department gets maximum financial support. The administration is always willing to help in the department in terms of buying books, apparatus, teaching aids etc and sponsoring seminars. Teaching aids and teaching resources is not one of the factors that contribute to poor performance in biology in the school.

Table SEQ Table * ARABIC 14 : Physical facilities

Physical facilities in the school	Number
Classrooms	8
Laboratories	2
Library	1
School hall	1
Kitchen	1
Home science rooms	2
Administration block	1
Head of department offices	6
Stores	2
Toilets	10
Urinals	1

Source: Field data

The principal was requested to give information on the facilities available in the school. The data indicates that there are enough physical facilities available in the school for the students use. The administration also provides good and comfortable desks and chairs; the staff room is well furnished with good reading chairs and a common room for relaxation. This leads to the conclusion that lack of physical facilities is not one of the factors that contribute towards the poor performance in biology in the school.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter consists of a summary and general conclusion based on research findings of the study. It highlights some factors which contribute to the poor performance in biology in Koimbe secondary school. The chapter also points out some of the possible areas that calls for further study that may be investigated on the strengths of findings in this study. The chapter will also give some recommendations which if implemented, may improve the performance in the school.

5.1 Summary

This study sought to establish some of the factors leading to poor performance in K.C.S.E biology in Koimbe secondary school.

From the findings it was found out that students have negative attitude towards biology. This may be caused by poor orientation in the subject right from form one. The teacher may not be using a language which can be understood by the students, that is there is a language barrier. The fact that they keep failing in biology most of them conclude biology is a hard subject.

Teachers rarely mark the students' assignments which could be one of the major causes of poor performance in biology. The mistakes made by students are never corrected and so they keep on repeating them in examinations. This could also have lowered the students' morale in doing assignments causing them to neglect practicing numerical questions since nobody will mark extra work.

There are two male teachers in the subject and therefore girls have no excuse over poor performance as compared to boys. The two teachers are graduates with long experience in handling the subject.

The teachers have a positive attitude towards the subject and they enjoy teaching it. They even attend in-service courses to be enlightened on the new syllabus changes so that they can be fully acquainted with the content required to be taught. They have the knowledge of how to make their own teaching aids.

The teachers are well qualified, with enough experience and therefore should be able t assist the student to get better results.

Lack of syllabus coverage is another factor that contributes to poor performance in biology.

The school has enough textbooks for students and if well utilized can lead to better performance.

The school administration provides a lot of support to the biology department by providing the necessary materials such as teaching aids, apparatus reference books etc.

The school has very good physical facilities which, if well utilized can lead to better performance.

The to teachers in the school are not trained and their teaching methods and their speed of delivery could contribute towards the poor performance in the subject.

Most of the students were of the opinion that they should do more practical's. This way, students will be fully involved and it might help to change their negative attitude towards the subject.
Students should be more involved in activities which are biology oriented and be encouraged to participate in science congress and other areas. This could create interest in the subject and may lead to improved performance.

Language instructions Copying from others (hard subject)	- Teachers should be trained - Teachers to seminars

Action plan find why (from study groups) More practical lessons Treat Girls and boys equally	- Complete syllabus - Administration support - Physical facilities

5.2 Conclusions

Coverage of the syllabus is a major factor that contributes towards the poor performance in the subject in the school. The syllabus is long in that the teacher finds it difficult to finish up the syllabus in the shortest time and also pumping the matter to students may lead to their not understanding which also results into their poor performance.

In addition, students have a negative attitude towards biology, a factor that also contributed to their poor performance in the subject.

Mote still, some biology teachers are not qualified teachers who at times do not know much about the subject but because they can stand infront of students and teach, headmasters employ them to teach when they are not qualified and they end up misinforming the students.

5.3 Recommendations

The teachers should train the students to work on their own as so far, they are teachers' dependant. They should be given a copy of the syllabus so that they can know what they have covered and what they have not. They can be given a topic and write notes on, then the teacher follow by highlighting the key points and then give a test to establish the depth of their understanding.

I also recommend that the teacher should use simple language that can be understood by all the students. Teachers should also give the students some orientation in form one where they should be made aware of the following before biology introduced to them as a subject.

The headmasters should be encouraged to employ teachers who are qualified and also encourage some other teachers to go for further studies so that they can polish on their education.

Schools should have facilities necessary for good performance and therefore this is not a contributory factor in poor performance. There are adequate physical facilities and the teaching resources are adequate.

The teachers should carry out an action plan to find out the reason for poor performance. They should be more vigilant on the students on the practicing of numerical questions. Thirty percent (30%) of the biology paper is composed of numerical questions and the practical paper also requires a mathematical mind. They should also insist on the drawing and the interpretation.

The students would line to be more involved in practical lessons. The teacher should try to give them as many practical lessons as possible. The students will be more involved in performing experiments, making observations, writing the results and making conclusions. This might create a lot of interest in them and may help to change their negative attitude towards biology thus improve the performance.

The experience and qualification may not be one of the factors that contribute to poor performance in biology. But since the two teachers are not trained they may be using the wrong teaching methods and their speed of delivery may not be efficient. The teachers must join the P.G.D.E programme.

The class sizes used to be very big and the practical lessons were not easy to manage but with the new curriculum we hope that teachers will be able to manage them, as biology is now an optional subject and the classes are smaller.

There are adequate physical facilities in the school which, if well used, could improve the performance in the subject. I recommend that the teachers should guide the students on how to manage their time and how to use the empty room in the school for private study.

The guidance and counseling department is not well established. It should get enough reference books so that the teachers' in charge are aware of the course expectations in all subjects. They should be able to make students create vision in life and know their career prospects.

The participation in science Congress and other meetings where physics is discussed should be encouraged. The more they participate, the more confidence they are going to build. This will change their attitude towards the subject and is likely to make them perform better.

The interrelationship among subjects should be emphasized. Students should be made aware of the relation among all subjects they study in school. This way the teacher will stop referring to some subjects as hard and others as simple. The study will change their attitude towards the so called 'hard subjejct'.

The language used by the teacher in class should be polite. Never abuse students or call them names otherwise they will hate the subject.

Lastly, I would like to recommend further research on biology performance using a bigger student and teacher samples. Parents and the community should look for other factors that could contribute to the poor performance in biology in the school.

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APPENDICES

Appendix A: Transmittal Letter

TRANSMITTAL LETTER FOR THE HEAD TEACHER

The Principal
Koimbe Secondary school

Dear Sir / Madam:

I am a graduating student at Kampala International University pursuing a Bachelor of Education degree SNE. I hereby write to request you to allow me carry out a research in your institution. I am conducting a study on Academic Performance of students in Biology subject of Koimbe Secondary school Weithaga zone, Murang'a District, Kenya.

I will be grateful for your permission and assistance in conducting the study.
Thank you in advance.

Appendix B: Questionnaire

This questionnaire is purely for an undergraduate research. Confidentially will be observed. Your cooperation will be highly appreciated.

PROFILE

Fill or select by ticking the correct option.

▯ ▯ Gender

Male	☐	Female	☐

▯ ▯ Age

10-15	☐	21-25	☐
▯ ▯			
16-20	☐	26-30	☐

SET A

Please use the code number which is indicated for each possible opinion to fill the gap provided at the beginning of each question below. Each opinion is well explained for the sake of accuracy when selecting and filling the respective code in the gap.

١. strongly agree (agree with no doubts)
٢. agree (you agree with some doubts)
٣. disagree (you disagree with some doubt)
٤. strongly disagree (strongly disagree with no doubts at all)

Laboratory Access

___There is access to laboratory facilities

___There are enough biology textbooks

___Locally available materials used

___Teachers competent in using teaching aids

___Problems are experienced when using teaching aids

___Laboratory facilities are fast enough and efficient

___Teaching and learning aids are interesting to use when teaching

___The school has library materials

___ Electricity bills are high to pay

___ Teaching aids are source of important updated teaching materials.

Cost / Financial Factor

___Books are costly

___Maintenance of laboratory is costly

___Laboratory facilities are costly

___Building laboratory is expensive

___It is expensive to be trained in handling teaching aids e.g. projectors.

___Electricity connection / installation is expensive

___Paying electricity bills is very costly

___External devices for example projectors are costly

___Hiring lab technician is expensive

___It is expensive to repair broken down apparatus.

AVAILABILITY OF TEACHING PERSONNEL AND FACILITIES

___Teachers are easily available

___Schools have enough teachers to handle projectors

___Teachers have personal computers to use with the projectors

___There are enough number of laboratory technicians

___Computers are available in laboratories for use as teaching aids

___Quality teaching is provided in schools

___Internet is easily available

___Biological charts are readily available

___There are enough biological models in the lab

___NGOs and other donors have led to availability of computers in school.

Appendix C: Plan for Data Presentation

Table 1

Profile of Respondents

Category	Frequency	Percentage
Age		
10-15	20	40
16-20	15	30
21-25	10	20
26 - Above	5	10
Total	50	100
Gender		
Male	25	50
Female	25	50
Total	50	100
Academic Level		
Form one	10	20
Form two	10	20
Form three	15	30
Form four	15	30
Total	50	100

Appendix D: Curriculum Vitae

PERSONAL INFORMATION:

NAME	:	KAHARE SAMSON GITHINJI
REG. NO.	:	BED/10621/61/DF
AGE	:	33 YEARS
GENDER	:	MALE
CIVIL STATUS	:	TEACHER
ADDRESS	:	P.O. BOX 204, KANGEMA
DATE OF BIRTH	:	JANUARY 10, 1975

EDUCATION BACKGROUND:

COLLEGE	:	KAGUMO TEACHERS COLLEGE 1997 – 1999
SECONDARY	:	KIRURI SECONDARY SCHOOL 1990 – 1993
PRIMARY	:	KARURUMO PRIMARY SCHOOL 1981 – 1989

RESEARCH EXPERIENCE:

COURSE	:	BACHELOR OF EDUCATION SCIENCE
RESEARCH TITLE	:	SOCIO-ECONOMIC STATUS OF PARENTS AND ACADEMIC PERFORMANCE OF STUDENTS IN BIOLOGY SUBJECT OF KOIMBE SECONDARY SCHOOL IN MURANGA DISTRICT KENYA