

**FACTORS INFLUENCING GIRLS' PERFORMANCE IN SCIENCE SUBJECTS AT  
SECONDARY SCHOOL LEVEL; A CASE STUDY OF NGARA FALLS  
SECONDARY SCHOOL, WARENG DISTRICT  
KENYA**

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**BY  
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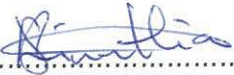
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**A RESEARCH REPORT SUBMITTED TO THE INSTITUTE OF OPEN  
AND DISTANCE LEARNING IN PARTIAL FULFILMENT  
OF THE REQUIREMENTS FOR THE AWARD OF  
THE BACHELORS DEGREE IN EDUCATION  
(ARTS) OF KAMPALA INTERNATIONAL  
UNIVERSITY**

**SEPTEMBER, 2009**

## DECLARATION

I kinuthia Lilian Njeri, DO declare that this research report is my own work and that it has not been presented to any other university for a similar award.

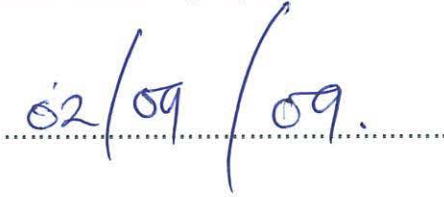
Signed.....

Student

Date.....02/09/2009

APPROVAL

I certify that Kinuthia Lilian Njeri carried out this research under my supervision.

A handwritten signature in blue ink, appearing to read 'Tindi Seje', written over a horizontal dotted line.A handwritten date '02/09/09' in blue ink, written over a horizontal dotted line.

MR. TINDI SEJE

DATE

## **DEDICATION**

To my loving and caring bishop S. K Nduati for his unwavering support in prayer and ministry.

To my loving and understanding brothers T. M Kinuthia and G. K Kinuthia for their support and  
counsel.

To my nephews Ronnie, Willie and Niece Joan For Filling my life with joy and laughter

May God bless you all.

## ACKNOWLEDGEMENT

I am sincerely grateful to all those who sacrificed their valuable time out of their kindness to assist me in all ways possible during the study. I extend my special thanks to all my lecturers and mostly my Supervisor Mr. Tindi seje who willingly devoted a lot of time to give me the best guidance and concentration, which has enabled me to complete this work successfully.

May God richly bless in you.

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## LIST OF ABBREVIATIONS

FAWE	:	African Women Education
DES	:	Department for Education and Skills



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## CHAPTER ONE

### 1.1 INTRODUCTION AND BACKGROUND OF THE STUDY

The World Bank (1980) observed that education is means of increasing skilled workers and raising the number of skilled manpower. This helps the c country to develop economically and hence reduce the poverty.

The level of skills possessed by an individual and hence ability to participate in economic activities is dependent on the level of national education achieved. Science subjects are one of the subjects taught at secondary school level It is compulsory to pursue at least one science subject. Those science subjects include biology, physics and chemistry.

The budgetary allocation of the education sector in Kenya constitutes more than 30% of the entire national budget. This amount is considered to be substantially high by all standards.

The rationale of such allocation to the education sector, all the expenses of other sectors of the economy is that education plays a great role on manpower and industrial development and hence national development.

Science subjects are considered in enrolment into certain courses such as engineering, medicine, veterinary and architecture.

The performance science subject at KCSE determines whether the student will join the university or not. This ultimately determines the profession one will join after university education. Performance of girls in science at K.C.S.E has been persistently poor as shown annual K.C.S.E

analysis conducted by the Kenya National examination council. For instance the 2003 analysis for the number of students who attained grade B and above and below D and below revealed the following information.

The gender disparity in performance has persisted in successive education the importance of disparity was that though approximately equal number of boys and girls enroll in primary schools only 30% of the university students are female (ENESCO, 1998)

The economy survey in of 1992 revealed that women occupy a decimal 10% of the lucrative professions such as medicine, engineering and pharmacy since these professions require a good credit pass in science subjects , yet performance of girls in sciences is poor.

The effect of this is that most women do not acquire these skills necessary for their optimum participation in economic development. This leads to the marginalization of large percentage of the population. Therefore to make continuous investment in girls' education meaningful, the cause leading to KCSE poor performance in science subjects should be identified and solved.

Thus all the money spent on the education of women by the government and parents can be considered wasted, yet education should justify the claims to scarce national resources in competition with other socio services such as health and transport.

## 1.2 STATEMENT OF THE PROBLEM

Science subjects are very important subjects at secondary school level, since it is compulsory to do at least one science subject at Kenya certificate of secondary education and core subjects in courses leading to lucrative professions.

The performance of girls in such subjects has been persistently poor, leading to fewer girls joining universities and lucrative careers, which means that participation of women in nation development is impeded.

Researchers have identified some of the causes of the problem and made recommendations that have been implemented yet the problem remains unsolved.

This suggests that there is more important than those already identified. Therefore there is need for further investigation. This study attempted to establish gender is one of the causes of girls' poor performance at K.C.S.E.

## 1.3 PURPOSE OF THE STUDY

Based on the problem stated, the purpose of this study was to investigate the factors influencing poor performance of girls in science subjects at secondary school level in Wareng district.

## 1.4 OBJECTIVES OF THE STUDY

The study focused on the following objectives:

- To analyze the performance of girls in KCSE in the study district.
- To assess the availability of resources in enhancing effective learning of science subjects in the study school.

- To assess the suitability of teaching method employed by the science teacher in enhancing effective teaching of the subject.
- To assess the attitudes of science teachers towards girls in solving the persistent problem of poor performance of girls in science subjects at KCSE and therefore enable women to gain entry into professions considered preserved for men.

### 1.5 RESEARCH QUESTIONS

- How is the performance of girls in science subjects in KCSE in the study district?
- Are the resources available suitable for the teaching of sciences. ?
- Do the attitudes teachers have towards girls have any effect towards girls in secondary schools?
- How does the teaching method employed by the teacher affect the performance of girls in science subjects?

### 1.6 SIGNIFICANCE OF THE STUDY

Successful completion of this study is of great importance to the government, girl child, society, parents and researchers. The findings of this study will help the government in formulation of sound policy in regards to education of girls. Girls will therefore attain higher academic qualification and hence pursue courses leading to higher lucrative profession. This will guarantee them higher standards of living.

Due to greater participation of women in economic activities, the national income will increase and this will lead to raise in tax revenue available to the government which can be utilized in the provision of social goods and services.

There will be an increase in manpower since the number of trained women will increase therefore country will have adequate science teachers, doctors, pharmacists, among others. The availability of enough manpower and an increase in government revenue ensures that the delivery of social goods increases. Parents will benefit from the study. This is so because able to realize that girls and boys have the same potential towards sciences researchable problems can be formulated in regards to the specific aspects of gender that affect girls negatively.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

In this chapter, a review of some literature about the factors influencing girls' performance in science subjects at secondary school level in Kenya and else where in the world was made. Specific interest areas on the philosophy and thoughtful of education and its processes were given. The chapter reviews the works of other scholars who have written about the topic of the study or those who have addressed similar issues as those of the variable that was available in the study.

#### 2.1 GENDER DIFFERENCE IN RATING OF GIRLS

Study by Sifuna 1999 found that gender differences exist in regards to rating of science subjects. Primary school children rated academic subjects such as sciences, mathematics and humanities higher above vocational subjects such as art and craft, and agriculture ostensibly because they promise better career rewards the study also found out that boys showed a greater inclination towards mathematics and science than girls. About 51.7% of the boys interviewed said that they liked science compared to the 38.7% of the girls 78% of the boys also said they liked science as opposed to 58% of the girls.

## **2.2 PORTRAYAL OF GIRLS IN TEXT BOOKS**

Obura 1995 noted that mathematics, sciences, and technical text books had considerably fewer images of female than those of males. The study also found out that images of females in those text books were negative in relation to the image of males. This inculcated in the girls belief that sciences are for boys since they are portrayed in the text books as incapable.

A study by Okwach and Olweya 1997 found out that school text books are gender sensitive and are written from the point of view than in patriarchal system. They concluded that the traditional norms and values where men were considered to be the bread winners and superior and women as back banners and inferior, dominate text books.

## **2.3 GIRLS' ATITUDES AND PERFORMANCE IN SCIENCE**

Girls' poor performance in sciences is due to bad attitude but not because of their inferiority and defective brain structure. Leder 1980 found that most bright girls display fear of success in relation to science to greater number than boys. This is because they consider sciences as masculine field of study. Thus if followed, fewer of such girls are more likely to take science in fast places.

Parson 1983 however suggested that sex differences are neither as consistent nor as strong as has been postulated. Boys and girls attribute their success or failure in mathematics and sciences to different reasons. The boys tend to attribute their success to internal stable causes and their failure to external unstable causes whereas girls tend to reduce this pattern taking personal responsibility for their failures but not favor their success. Studies focusing on mathematics and science have shown that girls rate lack of ability as slightly more important cause of their sciences



and mathematics failure than boys. It also said that boys have confidence and high expectations of and consequently perform well than females.

Over the succeeding years, though, interest in science generally wanes, especially in chemistry and physics (Lindah, 1999; Osborne, Driver, & Simon, 1998; Parkinson, Hendley, Tanner, & Stables, 1998; Ramsden, 1998), although, at least to some extent, this is a tendency across subjects in general rather than specific to science (Sutcliffe, 1998).

In this study, a different approach to the use of Lickert-type scales was employed. Students' attitudes towards science and their experiences of their school science education were described qualitatively, principally by means of their responses to those interview questions which asked them about their attitudes or feelings towards science or their science lessons. These allowed us to track the ways in which their attitudes about science developed (or remained constant) over the course of the study. This approach allowed for richer data and interpretation than was possible with larger-scale approaches, such as those using questionnaires, however well designed.

Education systems differ in a number of important ways including their history, governance and funding. There are also more subtle but no less profound differences in, for example, the role(s) ascribed to teachers and the assumptions made about what is thought to be good teaching. One result is that what is seen as progressive teaching within one culture can be regarded as regressive when viewed from the perspective of another.

## **2.4 ATTITUDES OF SOCIALIZING AGENTS**

Several researchers suggested that sex differences in science achievement and course selection can be explained by attitudes of socializing agent that to say, teachers, parents , and counselors who may reflect cultural stereotype regarding boys and girls science ability.

### **2.4.1 TEACHER**

Becker 1976 explained classroom contexts found out that the quality and type of teaching varies according to the sex of the students and subjects taught. This is because they believe that girls have the ability to study sciences in general teachers tending to interact with boys than girls especially in science subjects. Dweck Davidson Nelson and ENNA 1978 found that teachers direct more negative comments at girls for the conduct than boys for their conduct rather than for their academic content of their work. In contrast girls are more likely to be criticized than boys and this will demoralize them.

Alken 1970 cites data indicating female teachers have low estimates of their science competence, and openly admit they are less comfortable teaching science than male peers.

### **2.4.2 PARENTS**

Many studies suggest that parents have higher education expectations for boys than girls, though this bias emerges only at high school level (cooper, 1979).

A study by Forum of African Women Education (FAWE) (1979), found out that many parents consider girls excelling on sciences is not good material for marriage since they associate the subject with toughness seen in males.

The Department for Education and Skills (DES) commissioned the National Foundation for Educational Research to conduct research into deployment in mathematics and science departments in one in four maintained secondary schools in England during the academic year 2004-2005. The study was established against the background of Professor Adrian Smith's Inquiry into Post-14 Physics Education, Making Mathematics Count (Smith, 2004) and the Government's 10-year investment framework for science and innovation (HM Treasury et al., 2004). The aim of the research was to investigate how teachers and support staff are deployed within school to deliver the curriculum in sciences.

Precious Blood Riruta, Loreto High School Limuru and Limuru Girls School emerged on top in the examinations. Morris Muchiri from Starehe was the top student with a performance index of 86.9 out of the possible 100. Brian Mutuma (Mang'u) came second while Timothy Maina (Starehe) was third. To ensure high education standards are maintained, at a time when transition in secondary schools is expected to hit an all time high of 70 per cent, up from around 60 per cent last year, the government is hiring 449 quality assurance officers this year.

A performance evaluation report by the Kenya National Examination Council, the body which administers national exams in the country released last year reveals that even after years in school, most students cannot apply what they have learnt. In the examination, 82,134 candidates scored an average mean grade of credits (Plus) the minimum university entry grade -up from 62,926 students in 2006. But only 16,000, according to Prof Ongeru are likely to be admitted in public secondary schools.

The rest will fight out for places in private universities, tertiary colleges and youth polytechnics. This comes amid a crisis that has hit most public secondary schools following the delay in releasing funds for the subsidized secondary education plan.

## CHAPTER THREE

### STUDY METHODOLOGY

#### 3.1 Introduction

In this chapter, the researcher emphasized on the research design, research area, population size, and research instruments, data collection methods that will be used, how the collected data was analyzed, validity and reliability of data plus the limitations to the study.

#### 3.2 Study design

The study used a quantitative and qualitative research design for the purpose of making valid conclusions. Quantitative design which is classified in two broad categories, that is; experimental and general survey design examined factors influencing girls' performance in science subjects at secondary school level as an independent variable where as qualitative design involved the use of questions to obtain views from the respondents.

#### 3.3 Area of the study

The study was conducted in of Miguta secondary school in Kiambu district, central province-Kenya and will analyze the factors influencing girls' performance in science subjects at secondary school level. The specific attention was made on science teachers and how science subjects are taught in relation to performance in the selected school. An assessment of the relationship between science teachers and the performance will be another area of interest during the study.

### **3.4 study population**

The study population ranged from science teachers from the selected school and the students within the respective school. Most of the respondents comprised of students. And the study used 50 respondents that is; 30 students and 20 teachers basically teaching science subjects.

### **3.5 Sampling techniques**

The study both used random sampling and purposive sampling procedures. Purposive was used to select different activities in the area of investigation in order to get the required data and information. Random sampling was used because respondents have equal chances of being selected.

#### **3.5.1 Sample size**

The respondents were randomly selected and categorized. They comprised of both sexes but of different marital statuses and age groups and the study used 50 respondents.

This was intended get a variety of views and unbiased response which made the study a reality. Also this sample size was selected since, Sutton and David, (2004), state that a sample size should not be less than 30. Beyond basic description it would be difficult for the researcher to under take more complex statistical analysis, as most of these analyses require a minimum sample of 30.

### **3.6 methods of Data collection**

Data was collected from both primary and secondary sources. Secondary data was got by extracting information regarding the factors influencing girls' performance in science subjects at secondary school level by reading reports, journals, text books plus the already existing work on internet and magazines. Primary data was got from the field by use of the following methods;

### 3.6.1 Interviewing

This involved face to face interaction between the researcher and the participant through discussion. The interviews were in two ways, namely:

Structured interview in which the responses by the participants will be brief and specific.

Unstructured interviews, where the responses were long, elaborated and not specific, the interviews were conducted in group, individual.

The researcher carried out interviews with teachers and head teachers, using the interview guide because it is the most appropriate method which can be used to study the attitudes, values, beliefs and motives of people. It also has an element of flexibility. These persons were interviewed individually so as to get independent answers.

### 3.6.2 Observation

This involved the use of personal intuition based on different body senses, for example seeing (eye) hearing (ear) touching (hand) smelling (nose). Observation can be used in three main ways, namely;

*Naturalistic observation.* Here, the presence of the researcher is not known. He will hide himself

*Passive observation.* The presence of the researcher will be known but his role in the activity will be hidden. He will not participate at all.

*An active observation.* The presence of the researcher will be known to the participants. The observer play a leading role to bring out information.

### 3.6.3 Questionnaires

This was a discussion in written form whereby the responses of the participants are put on paper provided by the researcher, the questionnaire will also be in two forms, namely:

Open-ended questionnaire in which the responses by the participants are free according to their understanding.

The close-ended questionnaires in which responses are provided by the researcher and the participants one of them accordingly, for example strongly agree, agree or strongly disagree.

The researcher left out questionnaires to mainly the literate group. These included; staff members and some pupils. These had guiding questionnaires which the researcher gave to individual respondents to fill. The researcher will give some two days to respondents to study and fill the questionnaires. She requested the respondents to ask for clarification where they did not understand.

### **3.7 Reliability and validity**

In order to ensure and maintain a high level of reliability and validity in this study, the researcher did the following:

Questionnaires were pre-tested. Ambiguous questions will be made clear and irrelevant questions deleted.

The researcher used accurate questions which are open ended in nature by use of questionnaires from the science staff members, and head teachers. The questions set had enough space to give appropriate responses. Close ended questions were also used.

#### **3.7.1 Editing and spot checking**

The researcher edited and spot checked during and after each interview with the respondents. This ensured that information given is logical, accurate and consistent.



Obvious errors and omissions were corrected to ensure accuracy, uniformity and completeness so as to facilitate coding.

### **3.8 Procedure for data collection**

After the approval of the proposal by the responsible authority at the school of education, the researcher got an introductory letter from the institute of open and distance learning KIU to progress to the field for data collection. The researcher presented the letter to the L.Cs of Kiambu district, central province-Kenya, who later introduced him to different L.CI officials who assisted her to make sampling frames with the help of other relevant respondents. The researcher made appointments with respondents on when to meet them. The interviews were conducted in staff rooms and in compounds of the schools. The structured interviews were of about 30 minutes. The in-depth interviews were for about an hour.

### **3.9 Data processing**

#### **3.9.1 Coding**

This ensured that all answers obtained from various respondents are given codes and classified into meaningful forms for better analysis.

#### **3.10 Data analysis**

The data filled in the questionnaires were copied and analyzed by tallying it and tabling it in frequency tables identifying how often certain responses occurred and later evaluation was done.

The information was later be recorded in terms of percentages.

The recorded data was later edited and interpreted which ensure uniformity, legibility and consistence. Also, interview results were coded on frequency tables and be calculated in terms of percentages and presented in this study.

### 3.11 Limitations and solutions encountered during the study

In the study the following limitations were met:

The major limitation of the research was inadequacy of financial resources. Visiting the school for data collection several times turned out to be expensive in terms of transport; however this was solved by the obtaining extra funds from family members, colleagues and good friends.

There was mounting pressure from the administration for students to complete the research on schedule which affected the quality of research.

The study required a lot of time to be dedicated to collecting substantial data from one respondent to another making observations, continuous review of literature, data analysis and report writing and this was worked out by devoting more time on the research work by reducing on the leisure time at her disposal.

Some of the targeted respondents were not willing to set aside time to respond to the investigator's questions thus some how end up frustrating the researcher's efforts to collect substantial data. The researcher is also faced a problem of some rude and hostile respondents, this was as well solved by both seeking prior permission and remaining calm.

## CHAPTER FOUR

### PRESENTATION OF FINDINGS AND ANALYSIS

#### 4.1 Introduction

This chapter shows how the collected data from the previous chapter was analyzed and interpreted.

#### 4.2 Procedures

The data filled in the questionnaires was copied and analyzed by tallying it and tabling it in frequency tables identifying how often certain responses occurred and later evaluation was done.

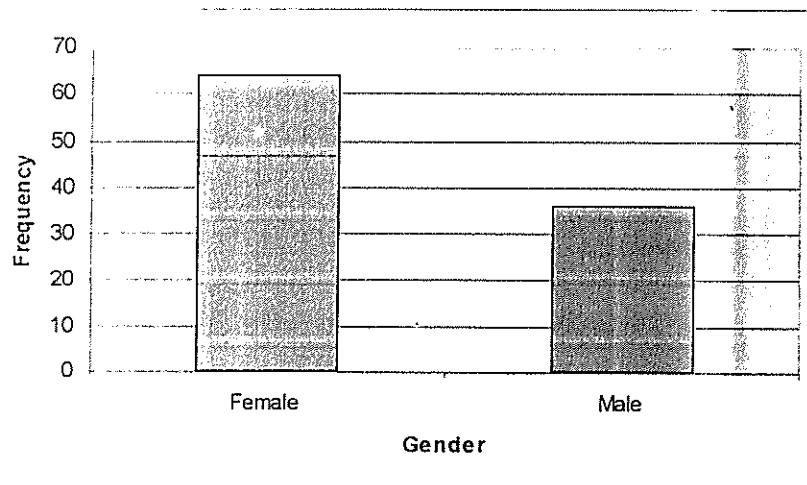
The information was later recorded in terms of percentages.

The recorded data was later edited and interpreted which ensured uniformity, legibility and consistence. Also, interview results were coded on frequency tables which was calculated in terms of percentages and presented in this study as illustrated below.

#### 4.2 Background information

Respondents were asked to state their sex and the results are shown table 1.

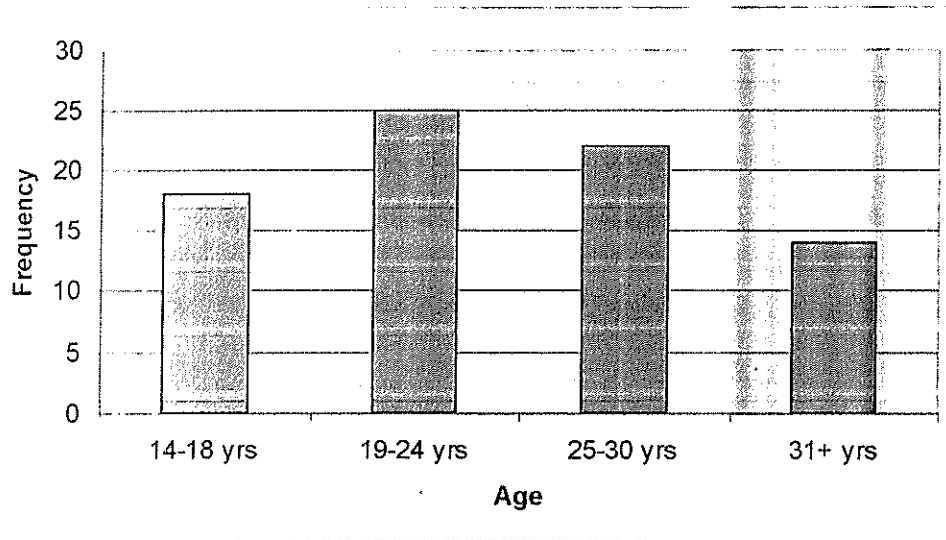
Figure 1; Classification of respondents by sex



Source: primary data

During the field study, it was witnessed out that, the biggest numbers of respondents from Miguta secondary school were females as it was represented by 64% and 36% of the respondents were males, implying that, females to a greater extent took part in the study.

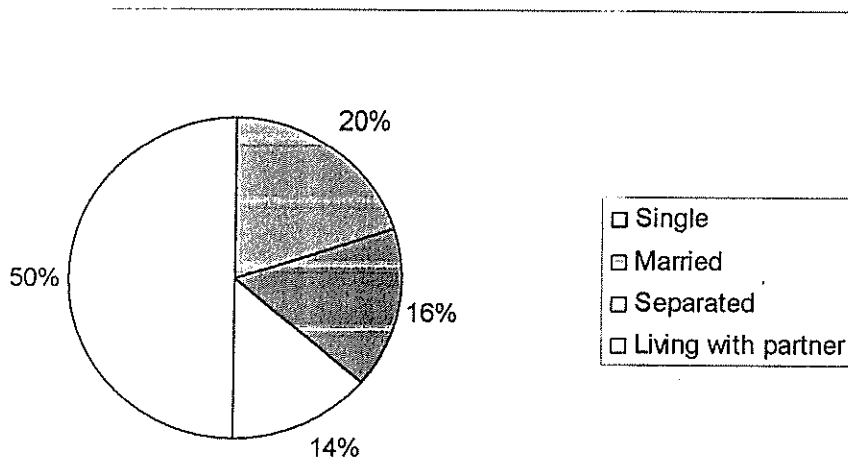
Figure 2: Classification of respondents by age



Source: primary data

Figure 1 shows that the biggest percentage of the respondents were in age bracket of 19-24 years, where as 18% represents interviewees who were in the age bracket of 14-18 years, then 17% of the respondents (teachers) were 31 years and above.

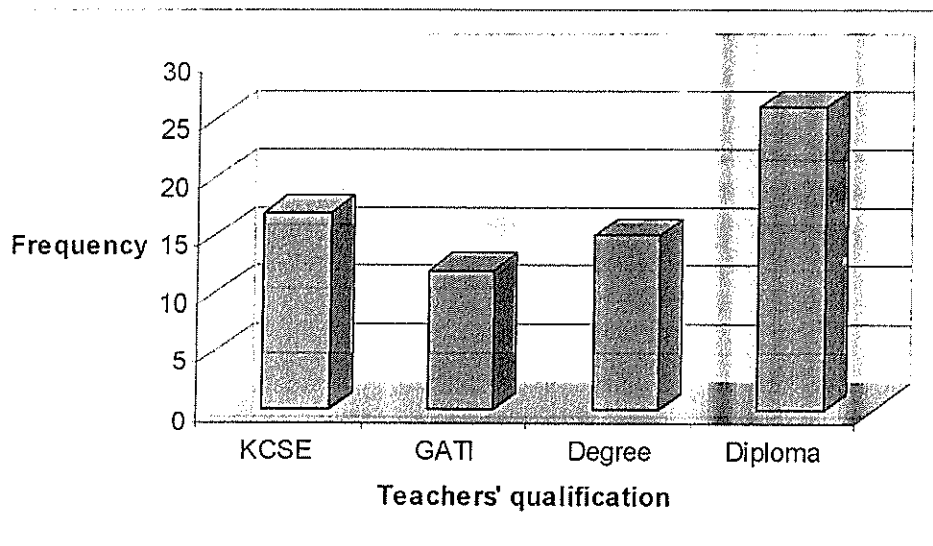
Figure 3; Respondents' marital status



*Source: primary data*

An assessment of the respondents' marital status was as follows; the biggest percentage of the respondents were found to be living with their partners as shown by 50% where as 20% of the interviewees attributed to be single, 16% of them said that they are married, implying that they have their own problems, then 14% of the respondents in the school where the interviews were held from attributed that they separated, implying that, they are to a greater extent have their own problems by relationships as illustrated in Figure 2 above.

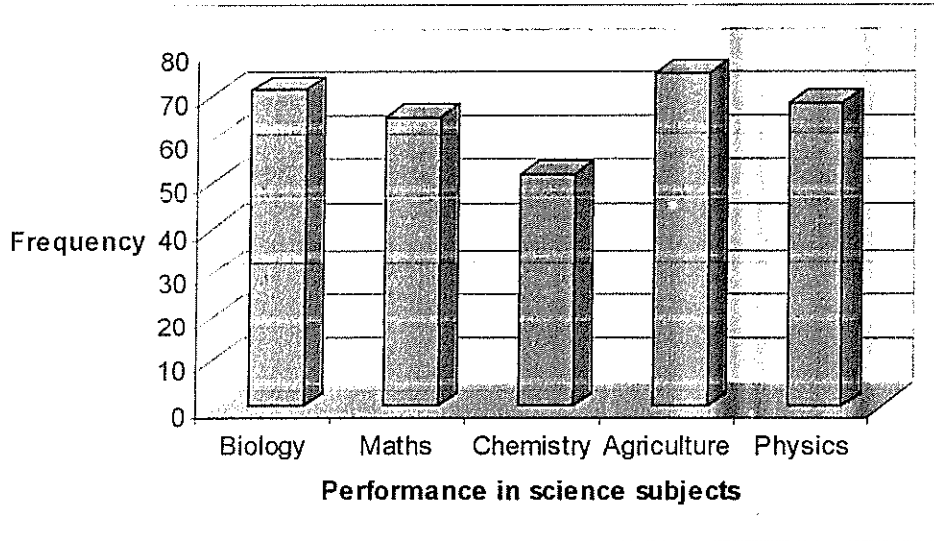
**Figure 4; Qualifications attained by teachers at Wareng district**



*Source: primary data*

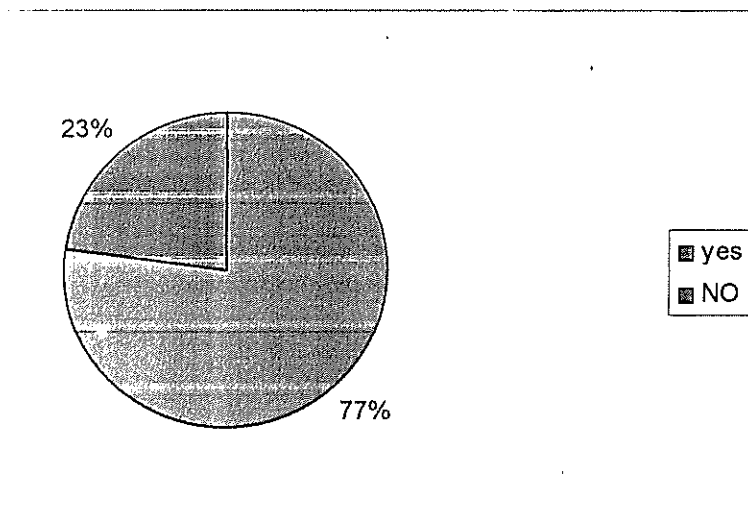
An assessment of the teachers' qualifications were as follows; the researcher found out that, 26% teachers had attained Diploma in education and 30% of them had attended Advanced level certificate in education where as 17% of the interviewed respondents attributed to have attained KCSE, implying that teachers at Wareng district had attained qualifications in different fields.

Figure 5; Performance at Kaimbu secondary school in science subjects



During the study in the field, it was found out that the performance at Miguta secondary school in science subjects was not bad in the following subjects: biology represented by 68% of the respondents and maths also noted with 62% where as it was found out however that chemistry was the only subject which was poorly done at the school shown with 59%, with agriculture being the best done subject at the school represented with 73% of the respondents and accompanied with physics being one of those best done subjects at the school shown with 67% in the figure above.

Figure 6; Do you like teaching sciences in girl's schools?



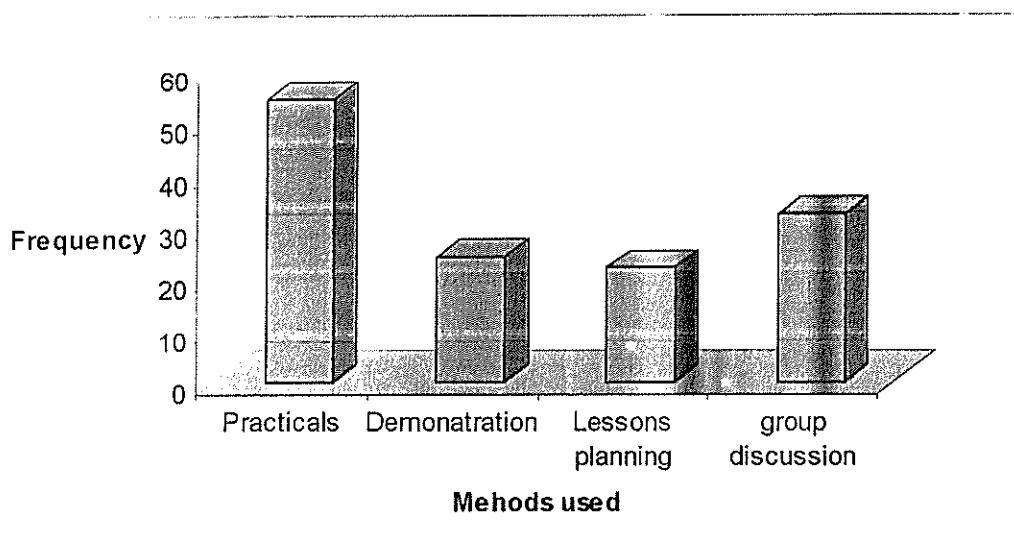
It was found out in the above figure that, the biggest percentage of the respondents (teachers) liked teaching sciences in girl's schools as it is represented with 77% implying that girl's in had a very high chance of passing science subject where as it was noted that only a small portion of percentage represented by 23% did not like teaching sciences in girl's schools as clearly shown above.

Figure 7; Availability and adequacy of resources in both teaching and physical resources

Resource availability	Frequency	Percentage
Well equipped Laboratory	18	30
Stocked Library	15	25
Qualified science teachers	13	21.7
Others	14	23.3
Total	60	100

Numerous responses were put forward during the field study by the respondents, on the availability and adequacy of resources were as follows: well equipped laboratory as one of the leading resources noted with 30% of the respondent also among the resources available were well stocked library and qualified science teachers which were represented with a percentage of 25% and 21.3% respectively it was also noted that there were other available resources which included doing regular practical, constant revision and consultations from teachers as shown with 23.3%.

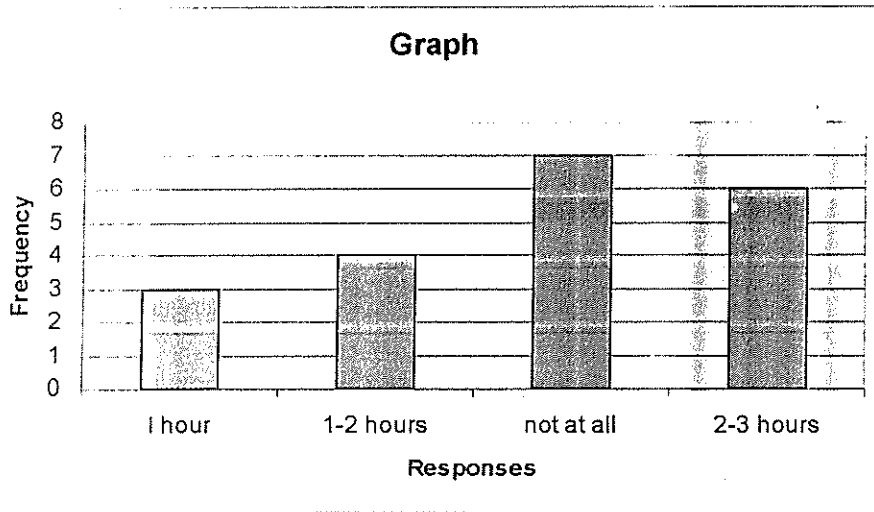
Figure 8; Various methods used for teaching science and how frequently each method is used



Close to 60% of the respondents noted that, practicals were one of the leading method used for teaching science and frequently is used, followed by group discussion represented with 37% implying that if those methods are to be concentrated on the performance of students can be improved where as demonstration and lesson planning were the methods which were seen to have less impact on sciences as shown with 20% 19% respectively.

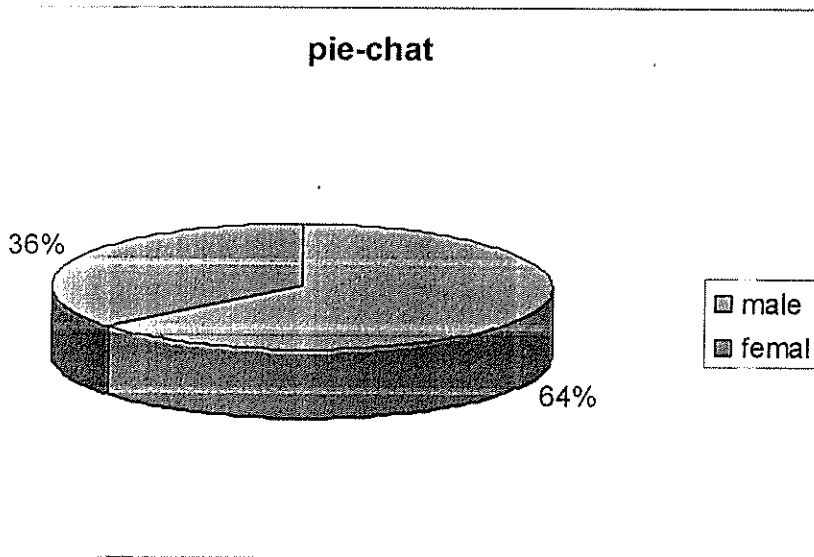


Figure 9; Influence of domestic work on the performance of girls in science subjects



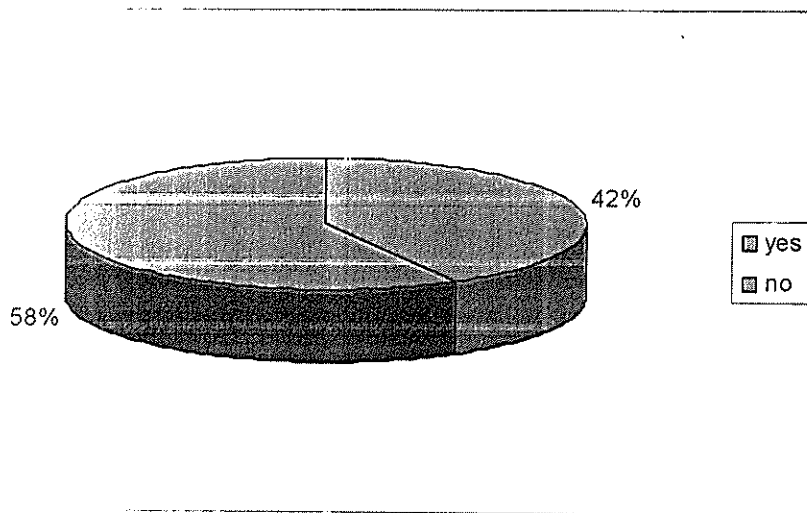
During the study in the field, it was found out from the respondents that there was not time at all which was spent on the domestic work which affected the performance of girl's in science subjects as shown with 70% where as other interviews 1 hour was spent on domestic work noted with 8% also other interviews said that a difference of 1-2 hours and 2-3 hours were spent on the domestic work as shown in the above figure with 7% and 15% respectively.

Figure 11; Number of male and female teachers teaching sciences in studied school



From field study, it was found out from the interviews that the biggest number of teachers teaching sciences in the studied school were male shown with 64% where as only 36% percent were teachers according to the interviews which implied that girls in the studied school lacked role modals hence low performance.

Figure 12; Different opinions from teachers about teaching sciences in girl's schools



An assessment of the teachers' about teaching sciences in girl's schools were as follows; the researcher found out that, 58% percent of the said that they did not want to teach sciences implies schools girl's performed poorly in science subjects where as it was only 42% of the teachers according to the researcher who wanted to teach sciences in girl's schools.

## CHAPTER FIVE

### DISCUSSIONS, CONCLUSIONS AND POLICY RECOMMENDATIONS

#### 5.0 Introduction

This chapter presents discussions, conclusions and policy recommendations and areas for further research.

#### 5.1 Summary of the findings

The results of the study indicated that some schools don't have resource and this has affected their performance in science. For example Ngara fall S.S did not have well equipped laboratory and this have led t o poor performance in science. The result of the study revealed that only 25% of the schools had adequate student teacher ratio 75% of the school had inadequate student teacher ratio.

The result also showed that most teachers spent about 42% of the teaching time lecturing more than 30% of the time allocated time demonstrating and spent very little time in practical group work.

#### 5.2 Conclusion

Based on the findings of the study, a lot of information was revealed concerning factors influencing performance of girls in science. The predominant factors influencing poor performance of girls in science are lack of adequate resources, (laboratory and laboratory apparatus, library Books and teachers. Also teachers don't use effective methods when teaching science: teachers also don't encourage girls to put more efforts in science. Also some students are overburdened by household chores leaving little time to study science.

### 5.3 Recommendations

Based on the findings, the following recommendations can be made in an attempt to improve performance of girls in science.

- Ministry of Education science and Technology should urgently employ more teachers and private schools to employ more qualified teachers. Increased teacher would mean small and sizeable classes, which are easily managed. This reduces student teacher ratio.
- School community should be mobilized to support school in buying Books laboratory equipments building of libraries and laboratories.
- Teachers should be sponsored for in service courses in order to improve science teaching methodology and change attitude of teacher toward girls in science.
- More research should be done on other factors which could affect of girls in sciences.
- There is a need for the country to develop a policy to promote science subjects in the country especially in secondary schools as well as regulating and directing ICT development. One of the factors to which the current low levels of usage can be blamed as a result of lack to a supportive environment apart from liberalizing the science and technology sector and establishing of the Kenya's skilled man power and enacting the communications act 1997.

#### 5.4 Suggestion for further research

The research was not without limitations. With the resources and time available, it was impossible to make a more detailed study and this limited research is to only four schools in Kiambu District.

There is need for a research which covers more schools than those studied.

## REFERENCES:

Donnelly, J.F., & Jenkins, E.W. (2001). *Science education: Policy, professionalism and change*, London: Paul Chapman.

Donnelly, J., Buchan, A., Jenkins, E., Laws, P., & Wellford, G. (1996), *Investigations by order: Policy, curriculum and science teachers' work under the Education Reform Act*.

Hamilton (Eds.): *Philosophy of science, cognitive science, and educational theory and practice* (147–175). Albany, NY: SUNY Press.

Helldén, G. (2001). *Personal context and continuity of human thought: Recurrent themes in a longitudinal study of pupils' understanding of scientific phenomena*.

R. Duit, W. Gräber, M. Komorek, A. Kross, & P. Reiska (Eds.), *Research in Science Education: Past, Present, and Future* (107–112).

Jarman, R. (1993). 'Real experiments with Bunsen burners': Pupils' perceptions of the similarities and differences between primary science and secondary science. *School Science Review*

Lindahl, B. (1999, August-September). How does schoolwork contribute to pupils' understanding and attitudes to science? What do 13-year-old pupils say about science?

Osborne, J., Driver, R., & Simon, S. (1998). Attitudes to science: Issues and concerns. *School Science Review*, 79 (288), 27–33.

Parkinson, J., Hendley, D., Tanner, H., & Stables, A. (1998). Pupils' attitudes to science in key stage 3 of the National Curriculum: A study of pupils in South Wales. *Research in Science & Technological Education*.

Ramsden, J. (1998). Mission impossible? Can anything be done about attitudes to science? International Journal of Science Education.

Reiss, M.J. (2000); Understanding science lessons: Five years of science teaching. Buckingham: Open University Press.

Shapiro, B. (1994). What children bring to light: A constructivist perspective on children's learning in science.

Sutcliffe, J. (1998, May 22). Age weakens thirst for knowledge. Times Educational Supplement,

Weinburgh, M. (1995). Gender differences in student attitudes toward science: A meta-analysis of the literature from 1970 to 1991.

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Proposed expenditure

Item	Costs (Ug.Shs)
Transport to the field	150,000/=
Printing	100,000/=
Typesetting the work	50,000/=
Accommodation	100,000/=
Airtime	40,000/=
<b>Grand Total</b>	<b>380,000/=</b>

Work plan

Activity	Duration (days)
Questionnaire design	3
Collecting data	6
Data analysis	4
Report writing	5



## QUESTIONNAIRE TO TEACHERS AND STUDENTS AND TEACHERS

### *Introduction*

Dear respondent,

I am a student of KIU conducting a research study as a requirement for the award of a bachelors degree in Education. The purpose of the study is to find out the factors influencing girls' performance in science subjects at secondary school level *I kindly request you to spare some time and fill this questionnaire. The information given will be used for academic purposes only and will be treated with utmost confidentiality. Your cooperation will be highly appreciated.*

### QUESTIONS

1) Gender?

a) Female

Male

b) Age?

16-20years

21-26years

27-34years

35 and above

c) Level of education?

Secondary level

University level

KCSE

GATI

2) Marital status

1) Single

2) Married

3) Divorced/separated

4) Window

3. Occupation

5) Students

6) Civil servant

7) Self employed.

4a) Could you please state for me the students your offering?

Mathematics

Physics

Biology

Chemistry

Geography

Agriculture

History

English

Others.....

b) What is your attitude towards offering science subjects?

Positive

Negative

5) Comment about science subject sin this school?

They are Popular

Not popular

Very popular

Fairly popular

6) Basing on your comment in (5), give reasons to support in answer?

.....  
.....  
.....

7) Do you have well equipped laboratories in this school?

Yes

No

8) If yes, how often do you visit them for practical?

.....

9) Do you have compulsory subjects in this school?

Yes

No

10) Among sciences and arts, which subjects are given special attention?

Arts

Sciences

11) What are some of the factors that hinder students from offering science subject in this school?

.....

.....

.....

12) Do you think students by not offering sciences subject makes it unpopular in this school?

Arts

Sciences

13) Are there other factors which can be attributed to the unpopularity of science subjects in this school?

.....

.....

.....

14) What are some of the effects of the above on the future outcome of the students?

.....

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.....

15) Is there any relationship between the unpopularity of science subject and students' performance in this school? If yes, give reasons for your answer?

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*Thank you very much for your cooperation*