THE INFLUENCE OF HOME AND SCHOOL-BASED FACTORS ON PERFORMANCE OF GIRLS IN SCIENCE SUBJECTS IN K.C.S.E IN KILUNGU DISTRICT, MAKUENI COUNTY

BY

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DECLARATION

This research project is my original work and has not been presented for a degree in any other University.

……. ……..

Kivuli E. Ndunge Date

E56/61722/2011

DECLARATION BY THE SUPERVISOR

This research project has been submitted for examination with my approval as University supervisor.

……. ……..

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DEDICATION

This project is dedicated to my family members, Paul Kiiti and Mutina Musyoka for showing me the essence of education.

ACKNOWLEDGEMENTS

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To Triza who patiently and carefully typed my work, her support saw me through the whole journey. I really appreciate you. To the principals and Form Four students in Kilungu District for willingly participating in this study, thank you and God bless you all abundantly. To all whom I was not able to mention, receive my gratitude wherever you are. I really appreciate your support. To my mum Margaret Mutheu and dad Danson Kivuli who keep telling me that the sky is the limit for me, God bless you big.

ABSTRACT

The purpose of the study was to investigate the influence of school and home based factors on performance of girls in science subjects at K.C.S.E level in Kilungu District, Kenya. The study intended to achieve the following objectives: to find out the general condition of students' performance in science subjects in Kenya; to acess whether there is any relationship between parents level of education and students performance in science subjects; to find out whether there is any relationship between parents' socio-economic status and students' performance in science subjects; to examine whether there is any relationship between curriculum implementation and students performance in science subjects. The researcher adopted the Ex-Post facto design and targeted head teachers and Form Four students in secondary schools in Kilungu District, Makueni County. The main research instrument was the questionnaires. Data was analyzed using Statistical Package for Social Sciences software programme. The study established that girls were disadvantaged in science related discipline because some were made to believe that it was a male dominated subject. In this context, the study recommends that the Ministry of Education (MOE) should encourage schools to provide rewards to girls who excel in schools.

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LIST OF ACRONYMS AND ABBREVIATIONS

BOG	:	Board of Governors
FAWE	:	Forum for African Women Educationalists *(*FAWE*)*
GCSE	:	General Certificate of Secondary Education
KCPE	:	Kenya Certificate for Primary Examination
KCSE	:	Kenya Certificate for Secondary Education
NGOS	:	Non Governmental Organizations
UNESCO	:	United Nations Educational, Scientific and Cultural Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Investing in education is one of the fundamental ways in which nation states and their citizens can work together to achieve long-term development goals and improve both social and economic standards of living. This is born out by numerous research studies which indicate that high levels of education and development are positively correlated (Herz and Sperling, 2004).

The education of women in particular provides the key to securing intergenerational transfer of knowledge and log-term gender equality and social change. Gender equity in access to education now occupies a central place in the global policy discourse on human and social development. Gains made in female education as a result of global advocacy and donor pressure have been significant in some cases; however, in others they are fragile and vulnerable to changes in economic and social environments, and girls and women still struggle to catch up with boys and men in their enrollment rates achievements. There has been progress particularly in primary education; but in the secondary and tertiary sectors there are still huge gaps, especially in the countries of South Asia and sub-Saharan Africa. Thus the 'gender gap' persists, despite a well-developed and accepted body of scholarship on the factors that constrain female educational achievement relative to that of men, and despite the prediction of high rates of return on state and house hold investment in education.

In spite of the interventions by various governments, international organizations, non-governmental organizations (NGOs), religious bodies to achieve gender equity in education, girls' education has continued to fall short of boys' at all levels of

schooling and more so at secondary level (Baraza 1999). Therefore specific research remains to be done region by region to establish the extend to which these policies and programs have been implemented so as to reduce the gender gap in education

Girl child education is an issue because women are poorly represented in high ranks and power. For example, in policy and decision making women take less than five percent of the worlds' heads of state, heads of major corporations and top positions in international organizations (UNESCO 1985). Women are found in large numbers in low level positions of public administration, political parties, trade unions and business. Furthermore women as a group enjoy fewer advantages and work longer hours than men and their opinions are undervalued. Thus secondary school level of education is crucial as it determines the future career of the girl child.

As boys and girls grow up they are socialized differently with girls being told one set of personal values and boys another. From early age boys and girls are taught skills and assigned duties in accordance with traditional gender specific division of labor. Male supremacy is advocated in many cultures in terms of inheritance of homestead, property and control of family sources. A girl child is given a lower ranking than a boy child and is generally denied opportunities for higher achievement in leadership and for control over productive resources. Early domestic responsibilities among young girls conflict with their pursuits for education. This gender division of labour within house hold makes a girl child attend school irregularly (Waweru,1994). Retrogressive cultural practices such as women genital mutilation and thereafter engagement for marriage results in low education attainment by girls. Also, parents' level of education and their social economic background influence the girl child's performance in school subjects (Davis 1997).

School related factors such as teaching methods have a significant implication for girls' retention in schools (Waweru 1994). The teachers' attitude towards their female students is a reflection of the broader social biases about the role of women in the society and the academic capacity of girls (Brock and Cammish, 1991). Distribution of female teachers has an important impact on school quality for female pupils. Their presence provides girls with role models, guidance and counseling especially on issues related to puberty (Adam 1993). Other school related factors such as distance from school, teachers pedagogy, head teachers leadership styles and curriculum implementation have also been cited as some of the factors contributing to girls low participation in schooling, and especially in science subjects (Adhiambo and Ward, 1995).

Therefore removing the obstacles that hinder the active participation of girls in education should be a matter of priority if the government is to provide equal education opportunity (Gachukia, 1992). Improving girls' participation in science subjects is a crucial development challenge. Any step that would address the highlighted challenges must start by addressing the root cause of the problem. The concept of gender parity is theoretical because gender biases are still being seen in some communities. Gender sensitization campaign has not changed the attitudes about male supremacy. In Kenya for example, the primary curriculum is one such that all pupils take one subject. But immediately after that they become free to choose and preferences immediately become apparent. This study therefore sets to find out the influence of home and school based factors on the performance of girls in science subjects in Kilungu district, Kenya.

1.2 Statement of the problem

Girls face unique problems in their learning environments, which may go along way in determining how they perform academically. Although low selection grades at the time of enrollment is a significant factor contributing to poor academic performance, research has shown that schools can draw from a similar group of students in terms of performance but end up a big difference in the next national examinations. It is evident that a majority of female students who sit for K.C.S.E examination do not manage to proceed for further studies or even get good jobs due to poor K.C.S.E marks (Ndiritu, 1999). There is a lot of variation in performance in schools that select students with similar scores in K.C.P.E e.g. within the mixed schools, girls seem to perform poorly academically compared to boys despite the two groups having similar facilities.

Although studies done on secondary school reveal that such factors like inadequate and relevant textbooks, teacher qualification and student background affect performance in examinations, few research has been done on the influence of home and school based factors on girls performance in science subjects. This study therefore attempted to investigate the influence of home and school based factors on performance of girls in science subjects in KCSE in Kilungu district, Makueni County.

1.3 Purpose of the study

The purpose of the study was to investigate the influence of school and home based factors on performance of girls in science subjects at K.C.S.E level in Kilungu District, Kenya.

1.4 Research objectives

The study intended to achieve the following objectives:

i. To find out the current conditions of students performance in science subjects in Kenya.

ii. To access whether there is any relationship between parents level of education and students performance in science subjects.

iii. To find out whether there is any relationship between parents' socio-economic status and students' performance in science subjects.

iv. To examine whether there is any relationship between curriculum implementation and students performance in science subjects.

1.5 Research questions

2. What are the current conditions of students' performance in science subjects in Kenya?

3. Is there a relationship between parents level of educations and students performance in science subjects?

4. Is there a relationship between parents' socio-economic status and student performance in science subjects?

5. Is there a relationship between curriculum implementation process and students performance in science subjects?

1.6 Significance of the study

The study may be of great value to school principals, teachers, students, Boards of Governors (BOG), Ministry of Education (MoE) and other educational researchers because it would help them to identify the home and school related factors that influence girls' performance in science subjects.

1.7 Assumption of the study

The study was based on the following assumptions:

1. That all public secondary schools in Kilungu District teach Sciences and Mathematics.
2. That the respondents gave true and reliable information about home and school based factors that influence girls' performance in sciences.
3. That all teachers are professionally qualified.
4. That all principals are familiar with the concept of styles of leadership and therefore would make correct responses to items in the questionnaires.

1.8 Limitations of the study

The study adopted the Ex post facto design. This is because the researcher did not have any control of independent variables for their manifestations had already occurred and were inherently not manipulatable. The performance being considered was for students who had already left schools where the study carried out. The research was also limited to home and school based factors that influence student performance although it may be influenced by other factors.

1 .9 Delimitations of the study

The research was conducted only in public secondary schools in Kilungu District that is in a rural setting. This may not reflect the social structure and situation of the entire country unless prevalent circumstances do exist. Private schools were not considered because they operate under different setting.

1.9.1 Definition of operational terms

The following terms were used in this study.

Academic performance: This refers to grades representing the sample of a student's achievement with respect to attained academic skills or knowledge.

Home-based factors: This refers to aspects that relate to the home and affect a learner's academic performance.

School-based factors: This refers to aspects that relate to the school and affect a learner's academic performance.

Leadership styles: It refers to a particular method applied by a leader to motivate his/ her subordinates to achieve objective(s) of the organization.

Principal/head teacher: This refers to refers to the person in charge of the day-to-day overseeing of the school activities.

Mean score: This refers to coverage points showing individual or group achievement in examinations.

Motivation: This refers to the arousal of the tendency to act to produce one or more effects.

1.9.2 Organization of the study

The study is organized in to five chapters. Chapter One deals with the general introduction of the research which include background of the study, statement of the problem, objectives of the study, research questions, significance of the study, limitations of the study, delimitations of the study, basic assumptions of the study, definition of terms and the organization of the study. Chapter Two deals with literature review. The literature review includes home related factors, school related factors, theoretical and conceptual frame work. Chapter Three is research methodology which is divided into research design, target population, sampling method, research instrument, reliability of the instruments, data collection procedures and data analysis. Chapter Four contains the data analysis and interpretation while Chapter Five contains summary, conclusion, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter comprises of an overview of science education in Kenya as well as home and school based factors influencing academic performance.

2.1 Science Education in Kenya from a historical perspective

With the coming of the Europeans to Kenya in the 18th and 19th centuries, the idea of formal schooling in Kenya got its roots. This carried with it the teaching of science in the light of educational needs of the people. In Kenya the Koech Commission (1999) emphasized that for the country to be industrialized by year 2020, much of its population must have scientific knowledge. It is in the light of this that the school curriculum in Kenya emphasizes Science subjects especially Physics, Biology and chemistry. However, despite the emphasis placed on the value of science in Kenya, there are indications that all is not well with students' performance because poor results continue to be witnessed.

According to Ruto (2000), the state of science education in Kenya is not satisfactory. This claim concerns its goals, purposes and results about which various factors may be cited to substantiate. This may include evidence of poor performance, the observed poor cognitive dispositions of the learners, the poor attitude and commitment levels of teachers and learners and the absence of explicit emphasis on content objectives in the syllabuses of science subjects. Okumbe (1998) reported that during lessons, learners are unable to discern the logical patterns which link scientific statements together while displaying little readiness for logical scrutiny of scientific problems. Kipyegon

(2002) attributes this trend to be the course of poor performance in sciences, particularly for girls.

Rutto (2000) argued that the poor performance of students in science has led to a scientific community in Kenya, which has made little impact in technological innovations through scientific research. Their contribution towards development has remained marginal particularly in the formal sector. Although there seems to be innovation work and product diversification in manufacturing from the informal sector, it is difficult to attribute this to formal scientific background or research overall, it may rightly be said that Kenya's Science Education has not made a significant impact in the development of productive scientists. The general level of scientific study is literally low and the development of appropriate skills is still far from being satisfactory (Rutto 2000).

In the view of the above, girls are the most affected when it comes to innovation, creativity and productive science. This defines the need to improve performance in girls' schools. One such strategy is to find out what determines the performance and participation of girls in such subjects, recommend the strong factors, and discourage those that hinder. Overall, a frame work should be built that should enhance innovation, creativity and participation of girls in technological development.

According to Betts (1986), the general performance of girls in Science subjects in Kenya is dismal and is far much less compared to that of boys. The effect is that Kenya tends to have more males taking up courses related to science than female. This situation disempowers women in determining their own destiny and remaining depended on what men can do in the world of science. This observation emanates

from the fact that most of the admissions into post-secondary science institutions in Kenya such as universities and tertiary colleges have more men compared to women.

2.2 Home based factors contributing to students' performance in science subjects

Education is regarded as a means for change in every family, community, society and the nation (Griffins, 1996). Education targets the youth more as they become the future for the nation. Therefore the quality of education is paramount rather than access because education produces people with the ability to rejuvenate the economic growth and uplift standards of living. Most parents in Kenya believe that education will make their children have a better life as well as uplift the standard of the family. The following home based factors influence girls performance in science subjects.

2.2.1 Parents' level of education and performance of girls in science subjects.

Taylor (1973) on "good home theory" maintained that parents who are educated tend to provide a conducive environment to stimulate demand for education. On the other hand, if the parents are not educated they do not get involved in education and as such one out of every four years is lost by the learner. The girl child therefore lacks a role model, for example a low educated parent will view investment for girls as a waste of money and time, and thus prefer to educate boys than girls because boys are seen to bare more responsibility in the future of the household and the community at large. Girls on the other hand are regarded as people to be married off and therefore transfer any benefit to their marital home (FAWE, 2000).

The benefits of motivating girls to take up science oriented subjects are immense to any natural society, family and the individual girls. Female participation in science subjects has multiplier effects because it empowers women to bring about other

necessary changes and help break the vicious cycle of poverty (Summer, 1992). Science Education is positively correlated with overall economic growth. Countries where schooling and enrolment among girls and women in sciences is high have enjoyed comparatively higher economic productivity than countries where school female enrolment is low (Gathu, 1988).

2.2.2 Parent's social-economic status and performance of girls in science subjects.

Studies that have been carried out in developed countries have shown that performance of boys and girls was significantly related to the social economic background of their parents (Dale 1969). According to her findings, family social economic background affected school achievement through the type of school attended. Children from deprived homes despite their mental potential tended to go to cheaper low performing schools, whereas their counterparts whose ability could be average, could go to well performing schools because their parents could afford.

The type of school a pupil attends affects his or her aspirations in two ways; first, directly through its effects on his or her self perceptions, and secondly through its effects on educational performance (Somerset, 1971). Classroom environment is thought to have certain demand characteristics, which influence student growth and development. From the earliest years, girls and boys in the same classrooms have been observed to create quite different educational experiences for themselves (Weiner, 1985).

Despite the increased awareness of the need to afford pupils equal opportunities and equal access to the curriculum, the wealth of accumulated evidence demonstrate the persistence of differences in the opportunities afforded to the sexes by contemporary

schooling (Acker, 1994). Women are possessors of multiple subjectivities based on race, class, age, sexual orientation and religion and clearly certain groups of girls are at a greater disadvantage than others and are more likely to accept traditional stereotyping female roles and be resistant to feminist ideas and notions of equality (Acker, 1994).

2.2.3 Family level of income and girls performance in science subjects in secondary schools.

Avalos (2003) in his study on teaching children of the poor explained that income among lower class families restrict provision of tuition fees, school books and other resources necessary to ensure good performance. Ndiritu (1999) found no correlation between social-economic background and performance but found out that poor children are regularly send home from school because of non-payment of levies. A reason for the better performance is that children want to imitate their parents. The literate parents have interest and supervise their children's outdoor academic assignments. Griffins (1996) shares the same opinion that parental participation is of great importance as a factor determining the pupils' performance.

Sending girls to school entails direct costs which are prohibitive particularly to poor and rural families. A study on "the missing gender in Ghananian Primary Schools", (UNICEF, 1998), pointed out that increasing prohibitive cost of schooling is the major reason parents offer for not educating or for removing children particularly girls from school. Most of the other studies done in sub-Saharan Africa region specify this as a constraint to female education. Parents whose daughters do not get government aid (bursaries) become reluctant to send their children back to school. Low income

earning parents may also default in fees payment and hence their daughters are send home (UNICEF, 1998).

2.3 Influence of school based factors and performance in science subjects

2.3.1 Curriculum implementation and school performance

Sensitizing teachers and alerting them to the implications of gender differentiation in the classroom is unlikely to make a significant difference if the curriculum remains gender biased. Getting the curriculum 'right' is important, although extremely challenging. In some countries, parents will not send their daughters to school if they feel that the curriculum is teaching them ideas that do not conform to prevailing social norms. In Guinea, parents perceived subjects such as home economics, child care, sewing, gardening and handicrafts as important for girls and criticized their absence from the curriculum (Colough, 2003). This phenomenon is not restricted to 'traditional societies'. In France, a report published in 1997 by two Parliamentarians noted the under-representation of women in teaching materials and where they were present, their roles were reduced to the social roles of mothers and wives with implications for the kinds of role models that young girls were being offered, despite two decades of policy concern about gender bias in textbooks (Baudino, 2003).

Sexism in textbooks therefore needs fundamental attention, but the issue is not merely about changing gender stereotypes in the nature of examples used, although that is a first step towards removing gender bias. Attention must also be paid to the silences in the curriculum about gender in equality, or what is termed by researchers in the US as 'the evaded curriculum' (American Association of University Women, 2002).

The experience of 'transitional' countries in Central/South Eastern Europe is statuary. These countries are facing reversals in their overall educational situation and are

struggling with falls in gender parity. While women made rapid gains under socialist governments, particularly in respect of employment equity, less attention was paid to gender equity within the family, with underlying ideologies of gender differences remaining relatively untouched. There were very few examples of men involved in domestic activity in textbooks (Magno, 2002). The result is that domestic work, including the care of children, is presented as woman's work and inappropriate for men. Ideas of what constitute appropriate gender roles extend into the depictions of career choices for girls and boys. In most countries of the region, textbooks present boys and girls with an artificially limited selection of occupations regarded as appropriate to their gender.

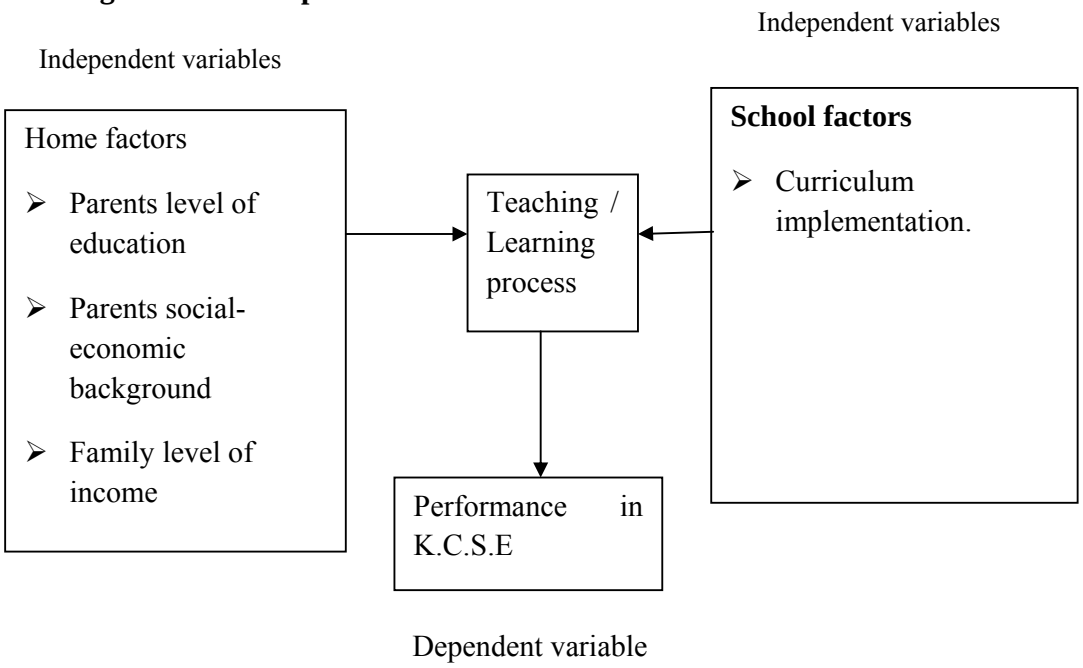
Both boys and girls suffer if they only consider these occupations rather than basing their choices on their needs, preferences and aptitudes. However, the impact is much more serious for girls because they are usually associated with low-paid and low-prestige occupations. For example, primary school textbooks in Romania depict women as 'school teachers, villagers, fruit or flower sellers, while men are viewed as astronauts, policemen, physicians, actors, conductors and masons… 'Thus, girls are pushed towards 'easy and clean' professions from an early age, with well defined responsibilities that facilitate and allow a 'normal' family life. Boys however, are guided to technical and profitable careers that will enable them to support a family in the future (Magno, 2002).

2.4 Conceptual Framework

The conceptual model (Figure 2.0) provides an understanding of the interplay of school and home based factors influencing students' performance at KCSE level. The school based factors include curriculum implementation while home based factors factor are parents level of education, parents socio-economic background and family

level of income. This model demonstrates that academic performances of students arise out of a greater number of interrelated causal factors.

Figure 2.0: Conceptual framework



CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

This chapter describes the research design and spells out the study location, target population, sample and sampling techniques, data collection, instruments, administration of the instrument and data analysis techniques.

3.1 Research design

The researcher adopted the Ex-Post facto design which involves studies that investigate possible course and effect by observing an existing condition and searching back in time for possible causal factors. It involved testing out possible antecedents of events that have happened and cannot be engineered or manipulated by the investigator (Cohen and Manion, 1994). The research design was relevant for this study because the study was not only concerned with collection and description of data, but it also seeks to investigate and establish the existence of certain relationship among variables under investigation. The major limitations of this design are the inability to manipulate independent variables, the lack of power to randomize and the risks of improper interpretation.

3.2 Location of the study.

According to Singleton (1993), an ideal setting for any study is one that is directly related to the research's interest. The study was carried out in Kilungu district, Makueni County. The District is newly created and has 15 secondary schools. The major economic activity in this area is farming. The choice of the district was motivated by persistent poor performance by girls in the region, and in particular in

Science subjects investigating the influence of home and school based factors on performance of girls and suggest possible ways that could be taken to encourage girls.

3.3 Target population

The target population for the study comprised head teachers and Form Four students of public secondary schools in Kilungu District, Makueni County. The head teachers were useful for this study because they are the educational managers and as such have responsibility of promoting a reading culture in schools. Form four students on the other hand were useful for this study because they are candidates and able to respond to pertinent issues raised.

3.4 Sample and sampling procedures.

Kilungu district has three divisions with a total of 15 secondary schools. In sampling, 6 secondary schools were randomly chosen from a list of registered secondary schools in the district. Two secondary schools were chosen from each division. The school registers were used to randomly select girls in sampled schools to participate in the study. The study selected 120 girls as the sample size, 20 from each secondary school. All the Six (6) principals were purposively selected to participate in the study. The total number of respondents for this study was 120 girls and 6 head teachers.

3.5 Research instruments

This study mainly utilized questionnaires and interview schedule.

3.5.1 Questionnaires

Questionnaires were designed using both open and closed ended questions and; were distributed to all the participants except the principals of secondary school. The instrument was useful in obtaining data where respondents gave information at their

discretion without much physical influence from the researcher. The advantage of using questionnaires was that they stimulate free thought and also where choices are provided, each is a graduation of a single dimension of some thoughts or behaviour. The respondents were therefore tasked to find the most appropriate place or an implied continuum for his or her response. Two disadvantages of using a questionnaire is that it is time consuming and illegible handwriting makes it more disadvantageous.

3.5.2 Interview schedule

Interviewing is an appropriate instrument in any study because it helps the interviewer to cover all the dimensions of the investigations through probing of the participants. Interviews were used to collect data mainly from the 6 principals. The information gathered from interviews was tape recorded for further content analysis.

3.6 Piloting of the research instruments

Two of the secondary schools in the district were selected for piloting the research instrument. The purpose was to test whether the questionnaires were valid and whether they produced the estimated results if applied in other schools. They also ensured the clarity and suitability of the language and questions used. Adjustments of these instruments were made accordingly.

3.7 Validity of the instruments.

According to Kombo and Tromp (2006), validity is measure of how well a test measures what it is supposed to measure. To enhance content validity, the supervisor first appraised the instrument (Orodho, 2004). To ensure content validity the questionnaires were given to experts from the department of Educational Foundations

of College of Education and External Studies of the University of Nairobi to examine the items critically and pass on their comment to the researcher. The researcher then modified the items using the suggestions forwarded by the respondents. Equally a sample of questionnaires was given to some students outside the sample schools to answer them. From their scores of items the researcher was able to know whether the content in the questionnaire was valid.

3.8 Reliability of the instrument

Reliability is defined as the level of internal consistency or stability overtime, of the measuring research instrument (Borg, 1998). A preliminary survey was used to test the reliability of the instrument. Quantitative research was used where all aspects of the study were carefully designed before data was collected. The researcher used a questionnaire to collect numerical data. In order to determine reliability of the questionnaire, a test re-test method was used to establish whether the responses given first corresponded to those of the second time.

3.9 Data analysis techniques

Primary data from the field was edited to minimize errors made by respondents. Coding was done to translate question responses into specific categories. The coded items were analysed with the aid of Statistical Package for Social Sciences (SPSS) software programme. In this research, generated data was used to describe, explain, tabulate and interpret findings in relation to research objectives.

CHAPTER FOUR

DATA ANALYSIS, DISCUSSION AND INTERPRETATION

4.1. Introduction

The study was carried out in Kilungu District, Makueni County and was aimed at investigating the influence of home and school-based factors on performance of girls in science subjects in K.C.S.E. The study was guided by the following objectives.

i. To find out the general condition of students performance in science subjects in Kenya.

ii. To establish whether there is any relationship between parents level of education and students performance in science subjects.

iii. To find out whether there is any relationship between parents' social-economic background and students' performance in science subjects.

iv. To examine whether there is any relationship between curriculum implementation and students performance in science subjects.

4.2 Questionnaire Return Rate

Completion rate is the proportion of the sample that participated as intended in all the research procedures.

Table 4.1: Questionnaire Return Rate

Respondents	Sample	Responded	Percent
Students	120	110	91.7

Table 4.1, shows that 91.7% of the students filled the questionnaires. Mulusa (1990) stated that 50 percent return rate was adequate, 60 percent good and 70 percent very good. The return rate was hence considered good to provide required information for the purpose of data analysis. The rate of return was perhaps affected by several factors namely, attitude of the head teachers, age and length of the questionnaire among other factors.

4.3 Demographic Data

The students were asked to indicate their age and the number of children in their families.

4.3.1 Age of students

Table 4.2 Students' age

Age of students	Frequency	Percent
Below 15 years	2	1.8
16-20 years	101	91.8
Above 20 years	7	6.4
Total	**110**	**100.0**

According to Table 4.2, majority of the students (91.8%) age ranged from 16-20 years, while 6.4% were above 20 years with 1.8% aged below 15 years. This implies that most students were teens hence could not make decisions easily without the help of parents and teachers especially when it came to the way they studied at home. Those over 20 years were mature students and perhaps beneficiaries of Free Secondary Education.

4.3.2 Number of children in a family

Table 4.3: Number of children in the family

Number of children	Frequency	Percent
Less than 2	1	0.9
2-5	71	64.5
6-10	38	34.5
Total	**110**	**100.0**

Table 4.3 shows that majority of the students (64.5%) were 2-5 children in the family, 34.5% were 6-10 children with 0.9% with less than 2 children. This shows that majority of the families were below 5 in number. Such families are more likely to be supportive in making home environment conducive for children education. The respondents were asked to indicate the number of brothers they have. The results are shown in Table 4.4

Table 4.4: Students' respondents on Number of brothers they had

Number of brothers	Frequency	Percent
1	32	29.1
2	32	29.1
3	28	25.5
4	4	3.6
5	3	2.7
None	11	10.0
Total	**110**	**100.0**

Most of the respondents (29.1%) had one and two brothers respectively while 25.5% had three brothers 10% had no brothers. The study shows that most respondents had brothers.

The researcher then sought from the students whether they were boarders or day scholars. The results are as shown in Table 4.5.

Table 4.5: Students' responses on whether they are boarders or day scholars

Category	**Frequency**	**Percent**
Boarder	68	61.8
Day scholar	42	38.2
Total	**110**	**100.0**

Majority of the respondents (61.8%) were boarders while 38.2% were day scholars. This implies that most parents preferred boarding schools over day schools. The researcher wanted to enquire about the religious background of the respondents. The results are as shown in Table 4.6.

Table 4.6: Religious background

Religious background	**Frequency**	**Percent**
Protestant	66	60.0
Catholic	38	34.5
Seventh Day Adventist	3	2.7
Salvation army	3	2.7
Total	**110**	**100.0**

Majority of the respondents (60.0%) were Protestants, 34.5% were Catholics and 2.7% seventh day Adventists and Salvation Army respectively. This implies that the

respondents who answered the questionnaires were Christians from different denominations and therefore shared the same religious background.

4.4 Relationship between parents level of education and students performance in science subjects

The level of education for parents tends to influence students learning habits. Taylor (1973) on "good home theory" maintained that students whose parents are educated tend to provide a conducive environment to stimulate demand for education. On the other hand, if the parents are not educated then they do not get involved in education and as such one out of every four years is lost by the learner (Chewoyet 2004). The respondents were asked to indicate the level of education of the parents– fathers and mothers. The results are as shown in Table 4.7.

Table 4.7: Parent's level of education – father and mother

Level of education	Father		Mother	
	Frequency	**Percent**	**Frequency**	**Percent**
Primary level	31	28.2	49	44.5
Secondary level	48	43.6	44	40
College	13	11.8	13	11.8
University	9	8.2	4	3.6
No Response	12	10.9	0	0
Total	**110**	**100.0**	**110**	**100.0**

A general observation was that respondents indicated that 44.5% of their mothers had attained primary level of education while 43.6% of fathers had attained secondary level of education with 28.2% attaining primary level of education. 11.8% reported

that both parents were college graduates with 8.2% reporting that their fathers were University graduates. From these results the researcher observes that majority of the parents had achieved primary and secondary level of education. This is likely to have an impact on how the students perform in school. The findings seem to agree with a study by Onzurumba et. al. (2007) who investigated the influence of parents' educational level on students' performance in education statistics in all levels of education institutions at the Federal Capital Territory, Abuja Metropolis. The results indicated that the educational level of the parents have a positive influence on academic performance of the children. This observation is in consonance with Hawkes (1975) who confirmed that better educated parents are often interested in the educational progress of their children and their academic achievement. To achieve these objectives, facilities are provided at home and parents pay extra fees to teachers to teach them at home. Also, parents who are educated endeavour to offer unreserved assistance to their children in solving their education problems. Those who do not go beyond primary school in certain cases might not be able to render adequate help to their children educationally. Other researchers have confirmed that students academic performance in most cases do not necessarily depend on parental enlightenment or professional occupation nor educational attainment. Watson (1986) as quoted Ozurumba et. al. (2011) in this study of parents' educational achievement concluded that parents' level of education does not affect students' academic performance. However, responses by head teachers during interviews showed that there was a strong relationship between parents level of education and students performance in science discipline. This agrees with the findings from interviews with the principals who reported that parents level of education was significant in determining girls performance in science and other disciplines as well.

4.5 Relationship between parents' social-economic background and students' performance in science subjects

There are different factors that influence the social and economic status of households or society. They include income, or expenditure per household. These factors determine the decision by parents and families on which child to invest in. The factors that affect a girl child's participation in secondary education are discussed as follows: direct cost of schooling and fees as a factor. Parents whose daughters do not get Government aid (bursaries) become reluctant to send their children back to school (Hassan, 2010). The researcher asked the respondents to indicate the sources of income in the family. The results are as shown in Table 4.8.

Table 4.8: Source of income in the family

Source of income	Frequency	Percent
Business	30	27.3
Formal Employment	30	27.3
Farming	50	45.5
No Response	7	6.4

The main source of income as indicated by 45.5% was farming, 27.3% business and formal employment respectively. The researcher observes that the main source of income in a family may have an impact on the students' performance, since with little income in the family it may influence how parents comply with fee requirements. This may lead to the students being sent home for schools fees. This prompted the researcher to ask the respondents to indicate whether they had been sent away from school. The results are as shown in Table 4.9.

Table 4.9: Ever sent away from school

Ever sent home	Frequency	Percent
Yes	95	86.4
No	15	13.6
Total	**110**	**100.0**

Majority of the respondents (86.4%) had been sent home for school fees while 13.6% had never been sent home. The reasons for being sent home for the students are presented in Table 4.10.

Table 4.10: Reason for being sent away from school

Reasons for being sent home	Frequency	Percent
School fees	92	83.6
Indiscipline	2	2.7
Buy books	1	0.9
No Response	15	13.6
Total	**110**	**100.0**

Majority of the respondents (83.6%) indicate they had been sent home for school fees. Only 2.7% were send home on disciplinary ground cases with 0.9% being sent to buy books. The major reason the respondents gave was that their parents were poor and lacked finances to pay for school fees. Low income earning parents may also default in fee payment and hence daughters are sent home (UNICEF, 1998). It is common knowledge that a child reporting to Form one in a district secondary school ends up paying kshs.25, 000 in tuition and other requirements (Hussein, 2010). This is likely

to make the girl child to stay out of school. This agrees with the findings from the interviews.

4.6 Relationship between curriculum implementation and students performance in science subjects

Sensitizing teachers and alerting them to the implications of gender differentiation in the classroom is unlikely to make a significant difference if the curriculum remains gender biased. Getting the curriculum 'right' is important, although extremely challenging. This made the researcher to enquire from the students of their favorite subjects in school. The results are as shown in Table 4.11.

Table 4.11: Favorite subjects in school

Favourite subject	Frequency	Percent
Sciences	57	51.8
Art subjects	27	24.5
Maths	41	37.3
None	3	2.7
Total	**110**	**100.0**

Slightly above half (51.8%) of the respondents indicated that their favorite subjects in schools were sciences while 37.3% reported Mathematics 24.5% reported arts subjects. This shows that majority of girls have interest in science related disciplines contrary to the common believe that science subjects were dominated by boys. The head teachers supported this view by suggesting that girls could perform equally well like boys if proper role modeling and motivation was done.

4.7 Ways in which performances in science subjects can be improved

Table 4.12: Ways in which performance in science subjects can be improved

	Frequency	Percent
Employing trained science teachers	35	31.8
Emphasizing on practicals	32	29.0
Availing enough science materials	51	46.4
Enough practice by students and consultations	11	10
None of the above	2	1.8
Total	**110**	**100.0**

According to Table 4.12 most of the respondents (46.4%) indicated that schools should avail enough Science materials, with 31.8% indicating that the school should employ trained science teachers while 29.0% indicated more emphasize on practical sessions. This agrees to some degree with the principals who emphasized more on recruiting trained Science teachers, motivating both the students and the teachers, provision of learning and teaching resources, training, seminars and workshops for science teachers, bursaries for weak students, organizing talks by examiners and inviting parents to discuss students performance during academic days. The findings point out the need to have more staff in school if good results were to be realized.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter comprises summary of the study, conclusions, recommendations and suggestions for further study.

5.2 Summary of the study

The purpose of the study was to investigate the influence of school and home based factors on performance of girls in science subjects at K.C.S.E level in Kilungu District, Kenya. The study was guided by the following objectives: To find out the general condition of students performance in science subjects in Kenya; to establish whether there is any relationship between parents level of education and students performance in science subjects; to find out whether there is any relationship between parents' socio-economic status and students' performance in science subjects, to examine whether there is any relationship between curriculum implementation and students performance in science subjects, to identify whether there is any relationship between head teachers administrative styles and girls performance in sciences and to establish whether there is any relationship between student perception of science disciplines and performance in sciences. The study was guided by the social learning theory. The researcher adopted the Ex-Post facto design which involved studies that investigate possible cause and effect by observing an existing condition and searching back in time for possible causal factors. The study targeted head teachers and girls in secondary schools in Kilungu district. In sampling, 6 secondary schools were randomly chosen from a list of all registered secondary public schools obtained from district education office. Two secondary schools were chosen from each division. The

study mainly utilized questionnaires and interviews. The study established that girls were not performing well compared to their male counter parts at secondary level of education.

5.3 Summary of the major findings

5.3.1 On the relationship between parents level of education and students performance in science subject

The study revealed that parent level of education influence student performance in science subject. Most students whose parents had attained a form four level of education and above performed well in examinations.

5.3.2 On the relationship between parents' social-economic background and students' performance in science subjects

The study revealed that there was background influence students' performance in science subjects. The parents who were well to do in the society were able to provide the necessary support to children and paid fees on time.

5.3.3 On the relationship between curriculum implementation and students performance in science subjects

The study established that there was a relationship between curriculum implementation and students performance in science subjects. It was established that schools that covered syllabus on time performed well in examinations.

5.4 Conclusions

Employment of more science subjects implementation of the curriculum, role modeling and availability of practical sessions are important components that can help students to attain excellent results in Science related discipline. Good leadership in schools that comprises of building vision, managing the teaching and learning

resources as well as human resource is central in influencing students attitudes towards Science related subjects.

5.5 Recommendations

The following recommendations can be drawn from the study

i. The Ministry of Education should encourage schools to provide special rewards to girls who excel in schools. This can be done through prompt allocation of bursaries to the needy, bright and disciplined students in order to help them stay in school.

ii. In-service training should be provided to Science teachers in order to help them sharpen their pedagogical skills. The Ministry of Education (MOE) should collaborate with Non-Governmental Organizations in developing materials for science teachers on a way of boosting public image and encouraging girl child to pursue encouraging girl child to pursue Science related discipline.

iii. The Ministry of Education should adopt measures to increase the numbers of women serving in science related discipline. This will motivate the girls to work harder because of presence of role models.

5.6. Suggestions for Further Research

This study was confined in Kilungu district in Makueni County and therefore cannot be used to make generalizations to the whole country. Therefore a study which would include a large sample in required in order understanding clearly the phenomenology under investigation.

A further study is required to investigate the effects of cultural factors on performance in science subject. This is because it has been established that there is a strong relationship between cultural status of a student's and academic performance. The allegation needs to be confirmed through a related investigative study.

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APPENDIX 1

LETTER OF INTRODUCTION TO RESPONDENTS

Emily E Ndunge
University of Nairobi
Department of
Educational
Foundations
P.O. Box 30197
NAIROBI

Dear respondent

RE: RESEARCH ON THE INFLUENCE OF HOME AND SCHOOL BASED FACTORS ON PERFORMANCE OF GIRLS IN SCIENCE SUBJECTS AT K.C.S.E IN KILUNGU DISTRICT, MAKUENI COUNTY-KENYA.

I am a Masters student at the school of Education, Nairobi University. I am carrying out a research on the influence of home and school based factors on performance of girls in sciences at K.C.S.E in Kilungu District, Makueni county-Kenya. I shall appreciate if you kindly answer the attached questions as truthful as possible. The information you will give is confidential and will be used solely for the purpose of this study.

Yours faithfully

Kivuli E. Ndunge

APPENDIX 2

QUESTIONNAIRE FOR FORM 4 STUDENTS

Dear respondent,

My name is Kivuli Emily Ndunge and I am a Masters student at the University of Nairobi. Currently am doing research on the influence of home and school based factors on performance of girls in science subjects at KCSE in Kilungu District, Makueni County – Kenya.

I kindly request you to spare some of your precious time and answer all the questions filling in the blank spaces OR by putting a tick (√) in the brackets against your choice. All your responses will be treated with utmost confidentiality. Do not write your name.

Section A

1. How old are you now?

   15years and Below [ ] 16-20 years [ ] Above 20 years [ ]

2. How many children are there in your family including yourself?

   Less than 2 ( ) 2-5 ( ) 6-10 ( )

3. What is your parents level of education?

   Father …… Mother……..

4. What is the family's main source of income?

   …….

5. How many brothers do you have?

   1 { } 2 { } 3 { } Above 3 { }

6. Are you are boarder or a day scholar?

   Boarder [ ] Day scholar [ ]

7. What is your religious background?

Protestant [ ] Catholic [ ]

Any other please indicate……

8. Have you ever been sent away from school? Yes [ ] No [ ]

9. What was the reason for you being sent away from school?

Lack of school fees [ ] Indiscipline [ ]

Poor performance in science related subject [ ]

10. Which are your favourite subjects in school?

Sciences [ ] Art Subjects [ ]

Maths [ ]

11. Show the most frequent reason why parents made you miss school.

Choose from the choices given below.

Lack of role models [ ] Poor teaching methods [ ]

Untrained teachers [ ] Negative attitude towards science subjects [ ]

Any other reason? ……

12. Suggest ways in which performance in science subject can be improved.

Choose from alternatives given below

Employing trained science teachers [ ] Emphasizing on practical [ ]

Availing enough science materials [ ]

Any other, please state _____

Thank you for your cooperation

APPENDIX 3

INTERVIEW SCHEDULE FOR THE PRINCIPALS

Dear principal,

My name is Kivuli Emily Ndunge and I am a Masters student at the University of Nairobi. Currently am doing research on the influence of home and school based factors on performance of girls in science subjects at KCSE in Kilungu District, Makueni County – Kenya.

I kindly request you to spare some of your precious time and answer all the questions by either filling in the blank spaces or by putting a tick in the brackets against your choice. All your responses will be treated with utmost confidentiality. Do not write your name.

1. What is the category of your school?
2. Why do you thin students and more specifically girls perform poorly in science subject?
3. Are there policies in place to address the issue of girl child in the performance of science subjects? Yes [ ] No [ ]

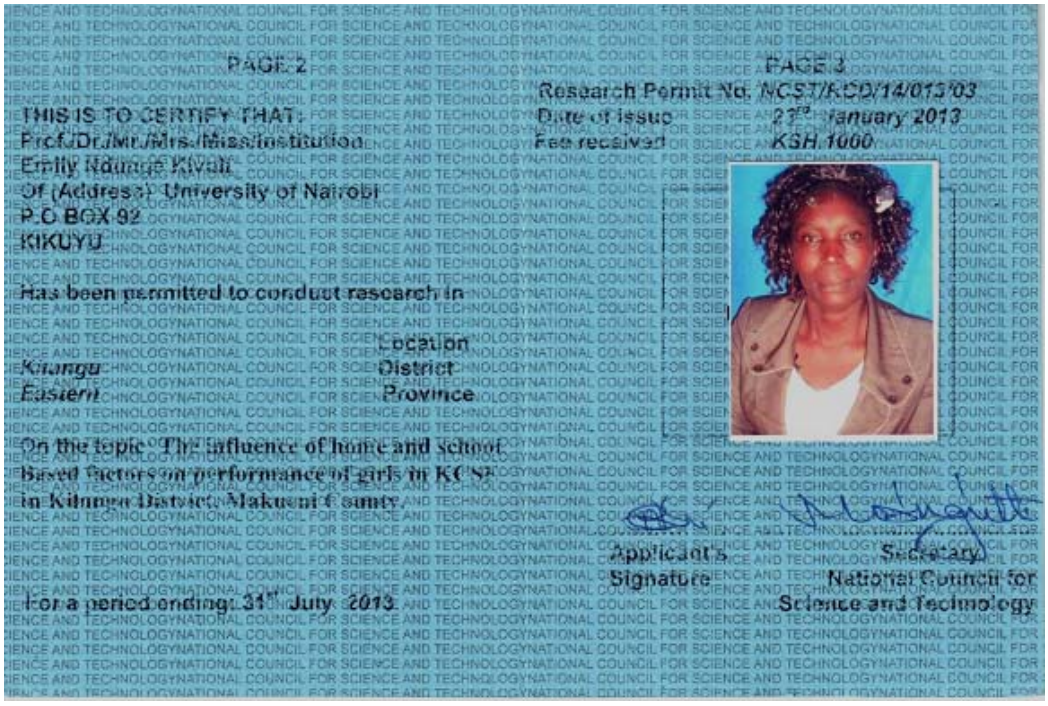
   If yes, please explain?
4. What is the effect and impact of girls' performance in science subjects?
5. Justify your response in question 5 above
6. What strategies do you think can be put in place to improve girls' performance in science subjects.

……..

Thank you for cooperation

APPENDIX 4

RESEARCH PERMIT



PAGE 2

THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Emily Nduruge Kivuti
Of (Address) University of Nairobi
P.O BOX 92
KIKUYU
Has been permitted to conduct research in
Kirungu
Eastern
Location
District
Province
On the topic The influence of home and school based factors on performance of girls in KCSE in Kilungu District, Makueni County
for a period ending: 31st July 2013

PAGE 3

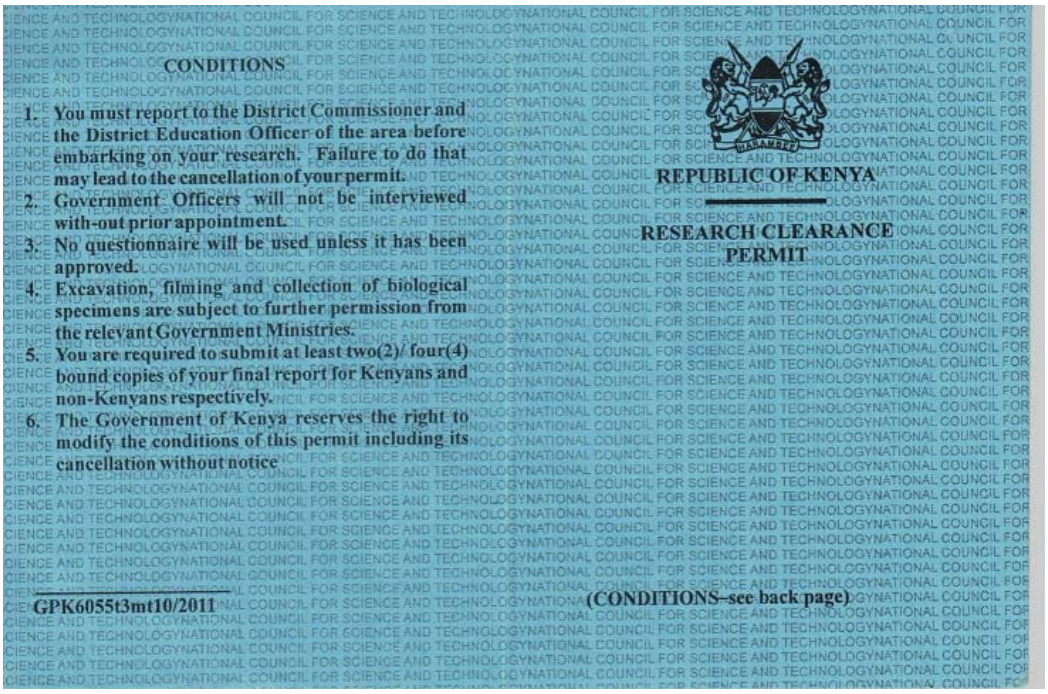
Research Permit No. NCST/RCD/14/013/03
Date of issue 23rd January 2013
Fee received KSH.1000

Applicant's Signature

Secretary
National Council for Science and Technology

APPENDIX 5

CONDITIONS FOR CARRYING OUT THE RESEARCH



CONDITIONS

1. You must report to the District Commissioner and the District Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officers will not be interviewed with-out prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2)/ four(4) bound copies of your final report for Kenyans and non-Kenyans respectively.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

GPK6055t3mt10/2011

REPUBLIC OF KENYA

RESEARCH CLEARANCE PERMIT

(CONDITIONS–see back page)

APPENDIX 6

RESEARCH AUTHORIZATION

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349, 254-020-2673550
Mobile: 0713 788 787 , 0735 404 245
Fax: 254-020-2213215
When replying please quote
secretary@ncst.go.ke

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: **NCST/RCD/14/013/03**

Date: **23rd January, 2013**

Emily Ndunge Kivuli
University of Nairobi
P.O.Box 92
Kikuyu.

RE: RESEARCH AUTHORIZATION

Following your application dated ***3rd January, 2013*** for authority to carry out research on "***The influence of home and school based factors on performance of girls in science subjects in KCSE in Kilungu District, Makueni County,***" I am pleased to inform you that you have been authorized to undertake research in **Kilungu District** for a period ending **31st July, *2013*.**

You are advised to report to **the District Commissioner and the District Education Officer, Kilungu District** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR M.K. RUGUTT, PhD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:

The District Commissioner
The District Education Officer
Kilungu District.

"The National Council for Science and Technology is Committed to the Promotion of Science and Technology for National Development".