

**THE IMPACT OF TEACHING METHODS ON STUDENTS PERFORMANCE
IN SCIENCE IN RARAKWA SECONDARY SCHOOL
MURANG'A DISTRICT
KENYA**

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UNIVERSITY**

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DECLARATION

I MURIITHI MARTIN CHEGE, declare that this research project is my original work and has never been submitted for any academic award. Where the works of others have been cited acknowledgment has been made.

Signature 

Date 27/04/09

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APPROVAL

I certify that the work submitted by this candidate was under my supervision. His work is ready for submission, to be evaluated for the award of a Bachelor of Education (Science) at Kampala International University.

Supervisor.....

Date 27/04/2029.....

Mr. kiweewa

DEDICATION

I dedicate this research project to my wife Ann Njeri Chege and my daughter Susan Chege for their unrelenting love and support as I undertook the course.

ACKNOWLEDGMENTS

I would like to acknowledge my supervisor Mr. kiwewa for his guidance and advice as I undertook the research project.

My parents for the inspiration and motivation through continued support and prayers.

I also acknowledge my class mates, friends and Simon and Ngatia for typesetting the work to ensure that it was up to stand.

To all of you thanks very much.

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ABSTRACT

Considering the contributions of science, and technology to today's world, one would have expected mounting interest in these disciplines, but the reverse seems to be the case. Indeed, there is declining enrolment in science subjects among the youth, and poor performance in examinations, such as those taken in high school science courses (especially physics) by the brave few who enroll.

It is ironical that in our pro-science and technologically oriented world, the youth who would take charge of global affairs in the future - the running of industries and the means of production, research laboratories, space technology, and international politics - are shying away from the very subjects that should adequately prepare them for such roles.

The study adopted a Descriptive research design. This enhanced the researcher to obtain a better understanding of the causes, problems and factors influencing performance of students in science subjects. It also allowed a collection of comprehensive and intensive data and provided an in-depth understanding of the topic under study.

Data collected was analyzed and edited to create consistency and completeness. After collecting the questionnaires they were edited for completeness and consistency across the respondents and to locate omissions. Data obtained from the research study was presented and analyzed using bar charts, narratives, and statistical figures.

The study concluded that teaching methods did impact on the performance of students in biology therefore they should be selected with care to ensure that they bring the best in the subject.

The recommendation of the study was that the schools should ensure that their teachers are well versed with different teaching methods and know where to apply each of them.

This report provides suggestions for more effective practice in the field of science teaching. It is designed for policy makers, planners and stakeholders who have responsibilities in the area of science education in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The intention of the study is to shed light on some of the issues that may be important for an informed discussion of priorities in science education that is sensitive towards the background of children, with emphasis on culture and gender.

1.1.1 Historical background

Kenya Educational system has expanded significantly since independence, secondary education has played a significant role in supplying man power needed for economic growth and development in Kenya by creating a class of educated leaders, planners expect secondary schools and instructions of higher learning to produce the critically needed middle and higher level man for enhancement of socio – economic development (Herbison and Myers 1964).

This explains why Kenya spends substantial amount of money in education. The Government continues to increase resources allocated to education thus in 2004/2005 financial year gross expenditure for Ministry of Education estimated to be Kshs 86,123.14 Million representing an increase of 12.2% from Kshs 76,724.78 million. Higher education accounted for 12% of the total expenditure recurrent expenditure for higher education increased by 30.3% (Republic of Kenya 2005).

However, developments cannot be achieved without addressing the issue of quality teaching. According to Sifuna (1973) there was an attempt to tackle the problem of the quality of Kenyan teachers as early as 1938 when the Christian Missionaries made a proposal for re-organization of teachers training. He further noted that a committee headed by hock hart reported on a design to expand the teacher training. The general feeling was that unless the expansion of the teacher education kept pace with the overall rapid growth in the educational system, there was bound to be a problem with educational standards. Abidha (1983) and Ochanda (1983) also shows the fact that the quality of the teacher determine the success of any educational system and the level of educational performance and achievements in examinations. This view is also upheld by the national committee on Educational objectives and polices (Republic of Kenya, 1976, 109), which states “the qualitative attributes of the teachers are of paramount

importance in determining the quality of education in which intellectual developments of the child is based”.

1.1.2 Theoretical Background

The Education office noted that while performance in other subjects was above average, that of mathematics and sciences was much below the average. The quality of the teaching force, alongside the completion rates and transition rates, are some of the key determinants of efficiency and effectiveness at any level of Education (MOEST 2000). According to UNESCO (1964), whatever the pattern of teaching may be, the teachers' part in it is the most important single factor. Given these views, the researcher intends to examine whether there exists a relationship between teacher factors such as experience, qualification, motivations attitudes and contact hours with the students performance in mathematics at KCSE level in Rarakwa in Murang'a District in Central province.

The issue of the possible universality and culture-independence of science as an *academic* discipline per se is an important philosophical debate, and the views differ. However, there seems to be a much greater consensus in the debate about *school* science. Regardless of philosophical positions, most educators would agree that school science cannot be "deduced" from the science in research and universities (whether this is labelled "western", "modern", "academic" or "real" science). Among educators there is broad agreement that each society has to construct their own science curricula to fit their own needs and their own purposes for schooling. Academic science is only one of the possible inputs in this process of selection and construction.

There is also broad agreement that all teaching should "build on" the *interests* and *experiences* of the child. In particular, everybody who subscribes to (some version of) educational constructivism will take such a stance for granted. For the educational contents to be meaningful for the learner, it must have some sort of relevance, and it must fit into the personal or societal context of the child.

But the simple and obvious fact is that *children are different*. They do not have the same experiences when they meet school science, nor do they have the same interests. There are differences between pupils in the same class, in the same school or the same nation. And there may be systematic differences between girls and boys. And there are certainly large differences between children in different countries. Growing up in

rural Africa is different from growing up in London. And growing up in Tokyo is different from growing up in New York.

Not only do experiences and interests among the learners vary. It is also evident that there are similar variations in what can be said to be "relevant" and useful knowledge for children coming from such different life situations. Learning to cope with the daily challenges and preparing for a meaningful life varies according to the different backgrounds of the children.

In the light of such obvious facts, the great similarity of science curricula becomes doubtful, whatever stance one may have on the more philosophical questions about the possible universality of scientific theories per se.

1.1.3 Conceptual background

Children's ideas about the nature of science, the personalities of scientists and the purpose and meaning of their activities may have different sources. They may emerge from the media and out-of-school influence, or they may arise from their encounter with school science and the science teachers. Some ideas may arise from their own culture and its prevailing world-views, ideologies, religious or other sorts of beliefs. These factors are of a more affective nature; they are related to feelings, ideals and values. They may influence the pupil's eagerness, motivation or interest to learn science. Maybe they are even more important than the "pure" cognitive factors.

Considerations like these are part of the rationale behind the study that is presented here. Debates over curricular contents and of curriculum emphasis (Roberts 1988) are important. However, they often take place on a general or theoretical level, based on generalisations and assumptions about different cultures. The discussion may be facilitated if one could refer to more concrete data and evidence. This is the basis for our research.

It's upon such a background that this study was undertaken given the competence of the researcher in teaching mathematics having witnessed the problem of poor performance of mathematics in his school of study.

1.2 Statement of the Problem

According to the Ministry of Education, science and technology (MOEST) report of the third Teacher Education Conference in Njoro (1995), the teacher's performance

heavily depends on a number of factors including professional training, attitude, academic background and the education infrastructure of the institution as well as staff development programmes that are in place at a given time. According to data obtained from Murang'a District Education Office (District Education Office) teaching of sciences is likely to be wanting as reflected in the poor performance of students in KCSE results of 2008. It's upon such a background that this study seeks to explore teacher factors responsible for the poor academic performance of students in science subjects in Rarakwa.

1.3 Objectives of the Study

1.1.1 **General:** The objective of this study was to investigate the impact of teaching methods on students performance in science in Rarakwa secondary school, Murang'a district Kenya.

1.1.2 **Specific :** this study sought to

1. Examine the different teaching methods used in teaching science
2. Investigate the impact of teaching methods on student's performance.
3. Investigate the characteristics of a good teaching method.

1.4 Research questions

- 1 What are the different teaching methods used in teaching science?
2. What is the impact of teaching methods on student's performance?
3. What are the characteristics of a good teaching method?

1.5 Significance of the Study

The findings of the study:-

Provided information to be used by Ministry of Education policy makers to identify the teaching methods that can be associated more with high performance in science among students

Enabled policy makers make provision for improving teacher quality with increased knowledge on the relationship between teacher factor and achievement in sciences among students in KCSE.

Increased awareness of the head teachers, board of governors and PTA and teachers on teacher factors associated with high performance in sciences.

Provided an objective evaluation of the teacher quality necessary for high achievement and provide a meaningful basis for training, retraining and or in servicing of the teachers for improvement in achievement so as to reduce wastage through repetition and to increase enrolment in the mathematics and science course which will increase efficiencies, promote industrialization and increase productivity of the country.

1.6 Scope of the Study

The research was conducted within Murang'a District where Rarakwa secondary school was targeted and a satisfactory sample collected. The research process took four months for completion that is from December 2008 to April 2009.

1.6 Limitations of the study

In conducting this study, a number of challenges were encountered, including:

- Attitudes Towards the Exercise – Some respondents were unwilling to freely share the information (especially negative information). This was mainly true at the local level because of fear of not knowing whether the information could go to their superiors with repercussions.

CHAPTER TWO REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter gave reference to what other scholars have written about science as a subject and the problems encountered by students in studying it. The literature review in the study concerned the factors influencing the performance of students in sciences. The literature review helped the researcher with data compilation, statistics analysis as well as in understanding the problem. The materials used in the review included magazines and journals on teaching methods, newspapers articles and education related websites over the internet.

2.2 Teacher length of experience and performance of students in sciences

According to Parmay (1979) that there is an efficiency “freeze” by teacher after fifteen years of teaching experience, a study done by Thias and Carnoy (1972) in Kenya show that teacher experience matters concerning examination performance than is the formal qualification of the teaching staff. They however hasten to add that this may not be due to the accumulated years of experience but probably due to the respect accorded to the older from the young generation in African societies and the fact that senior staffs are rarely transferred compared to the younger staffs.

Bridges (1986) Eshiwani (1986) and Ojwang (1995) from their studies confirmed that students with experienced teacher do better than those with less experienced teacher. Can the government then reserve to training on job and cut training costs to make education more cost effective.

But Alexander and Simmon (1980) say experience is more associated with achievement of students only at the secondary level and further research is necessitated. Conducting this production function with teacher variables will enable me to discover the best combination of teacher characteristics (input) that can be functionally associated with performance (output). In the case of Kenya, the literature review shows that no study has examined the input output relationship at the school level with particular attention to teacher variables. This study tends to fill this gap as well as provision of a rationale for re-training and professional re-orientations services for serving mathematics teachers for the educational planners and ensure cost effectiveness in the education system.

2.3 Teacher qualification and achievement of students in sciences

Teachers should have high mastery of subject content by going through formal education, which is beyond the level of his students (Psacharopoulos 1985) this is supported by Caillods (1989) who found teachers with more post secondary education to achieve more with their students than teachers with less post secondary education.

The economist is much more interested in the relationship between input and output of the school systems as a measure of its productivity and efficiency (Beeby, 1966) school quality can be seen at the level of materials inputs allocated per each school pupil and the level efficiency with which material inputs are organized to raise pupils performance (Eshwan 1993).

The teacher is therefore a central input in the school system whose role on determining achievement needs investigation. Teacher certification and academic qualification are particularly important at upper secondary level (Alexander & Simmon, 1980).

This view is supported by Husen (1978) who says that there is a positive association between teacher training variables and standard learning. They are convinced that training teachers do make a difference and that teachers qualifications, experience and amount of Education and knowledge are truly to students achievements.

Maundu (1986), Twoli (1986) Sifuna (1989) and Ojwang (1995) found significant effect of teacher qualification on achievement of students. But Thias and Corney (1972) on the other hand revealed zero correlation between teacher qualification and student examination scores in Kenya, Egypt and Paraguay. Psacharopoulos (1985) also points out that students do almost as well when studying under untrained teacher as they do when studying under trained graduate from university.

Jones (1997) studied the effect of trained and untrained teacher in classroom performance in Barbadoes and established that trained teachers do not have advantage over untrained teachers in classrooms performance. Therefore the need to confirm the effect of training on student's achievement which will help the government to justify the huge expenditure on teachers training. The past studies stress education on qualification but even after achieving almost 100% teacher training for secondary level, the achievement in mathematics has remained low deteriorated to the detriments of girls.

2.4 Teacher's motivation and performance of students in sciences

Teachers who spend time preparing lessons and marking homework and class work tend to achieve better result than those who don't (Colloids 1989).

Government need lift the teachers morale though most cannot afford monetary incentives, but by improving in rewards, career opportunities, initiatives and in service preparations, status and prestige by attracting high quality recruits and retaining talented practitioners in teaching and leadership posts (UNESCO 1994).

But teachers hardly spend any time preparing their lessons, they often don't use schemes of work nor do they keep records of work covered by pupils. Discipline relies too heavily on punishment. (CASTME International Forum of Education Development 2001; 361- 374)

Otieno (1997) studying the role overload among secondary school teachers in Nairobi found a significant relationship between role overload and achievements of students. He says that job stress is a major factor in low teacher morale, poor performance, absenteeism and high job turnover. Teachers experiencing job stress have low morale and are not in a position to provide quality teaching. Both female and male workers in human service fields may experience same amount of stress but do cope differently, Malach and Jackson 1978 cited in Otieno (1997).

This call for the investigation on how many the teachers of science is motivated to participate in subject panels, external examination marking, co-curriculum activities, regular teaching, frequent testing lesson preparation and remedial teaching which facilitate high achievement in examination and consequently quality outputs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter explains the methods that the researcher used to select the geographical areas, from which research was carried out and methods of selection of respondents. It also explained the methods that were used to collect process and analyze data.

3.2 Research Design

Given the duration of the study, the researcher felt that there was a deeper penetration of the problem if a case study was used. This was because the case study examined one school that is Rarakwa secondary school, which represented others in Kenya.

3.3 Study Population

The study was carried out in Rarakwa secondary school in Murang'a district in Kenya. The population of study comprised of science teachers and students.

3.4 Sample Size and Selection

The respondents were drawn from the staff and students of Rarakwa secondary school. The respondents to the study were teachers and students from the school. They were six teachers and 120 students who were selected using simple random sample.

3.5 Research Instruments

This study used both primary and secondary data. Primary data was collected using questionnaires, which were given to teachers and students. These were self administered since all the respondents were literate.

3.6 data collection procedure

In carrying out research the researcher first got a release letter from the course administrators which he took to the school under study. He was then given permission by the authorities to access information from the school.

3.7 Data Processing and Analysis

This involved three sets of activities which included editing, coding and frequency tabulations. Editing was done by looking through each of the field questionnaire ascertaining that every applicable question had an answer and all errors eliminated for the completeness accuracy and uniformity.

The researcher then proceeded and coded various responses given to particular questions that lacked coding frames, the researcher then established how many times each alternative response category was given an answer using tally marks which were later added up. Data was then presented in frequency tabulations rendering it ready for interpretation. Quotations and field notes made from interviews were also included.

CHAPTER FOUR
DATA ANALYSIS AND PRESENTATION

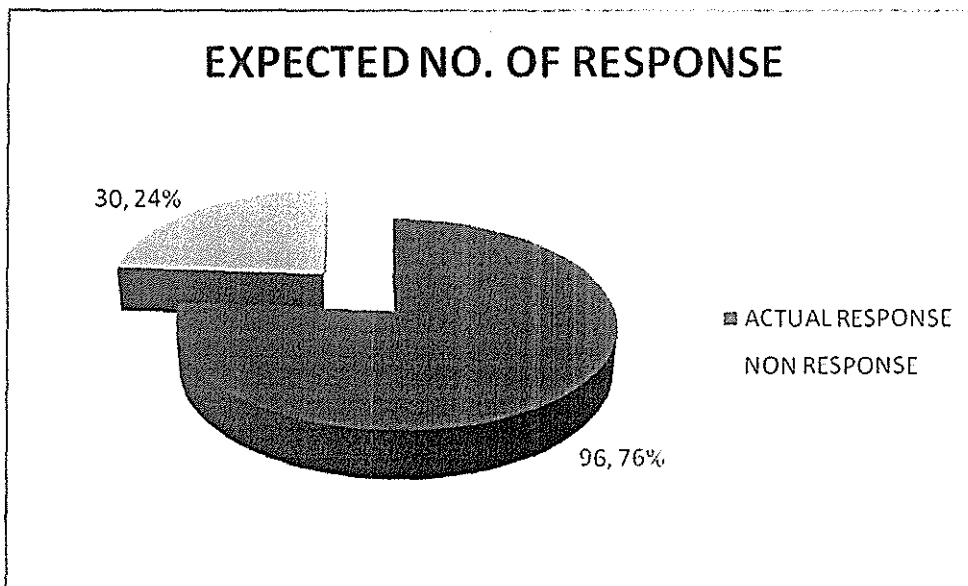
4.0 Introduction

In this chapter an attempt is made to interpret and explain the findings. Also key information enables to relate to the specific objectives and give a clear picture of the results.

4.1 Data analysis and processing

$$\text{Response Rate} = \frac{\text{Actual response}}{\text{Planned No of response}} \times 100$$
$$96/126 \times 100 = 76 \%$$

Figure 4.1 No of responses



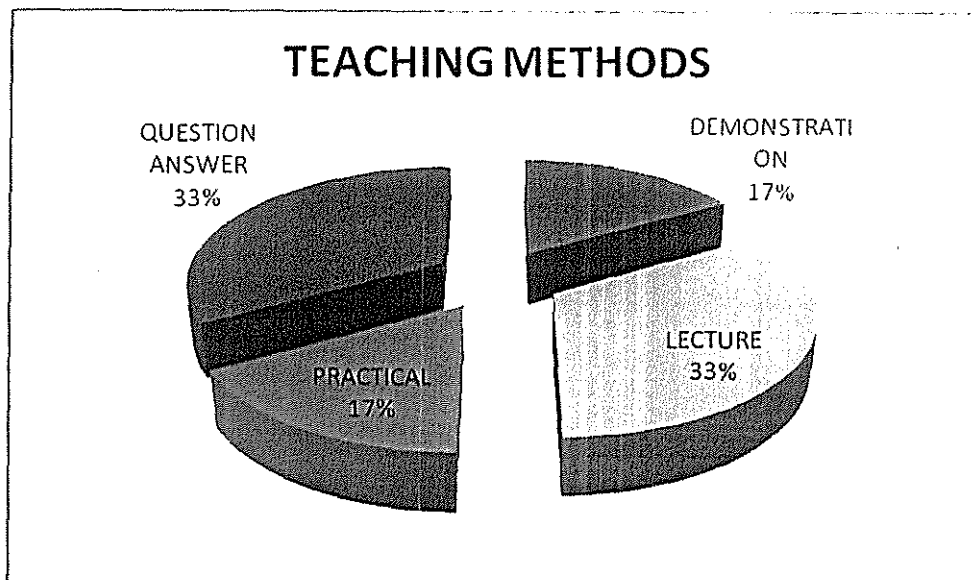
Source: primary data (2009)

Figure 4.1 shows the expected number of respondents was 50 from the school. However 96 respondents representing 76% responded as this was reflected by figure 4.1 this was considered an adequate size of the sample suffice and the researcher continued and carried out the research.

RESPONDENTS ANALYSIS

Research question one on response as to what teaching methods are widely used by science teachers.

4.2.1 Response as to what are the teaching methods used in teaching science



Source: primary data (2009)

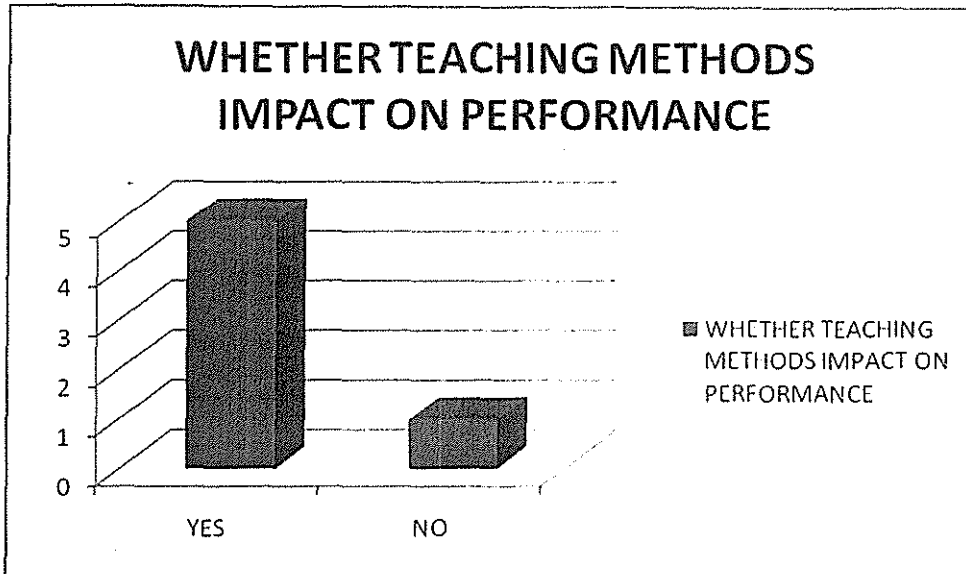
Figure 4.2.1 shows that 33% of all the respondents said that the most widely used teaching method in biology was the lecture method; however this same percentage also said that question answer method was also widely used. 17% of the respondents said that practical and demonstration were also used.

4.3 Research question two investigate the impact of teaching methods on students performance in sciences

4.3.1 Teachers response

Bar showing teacher's response on the impact of teaching methods on student's performance.

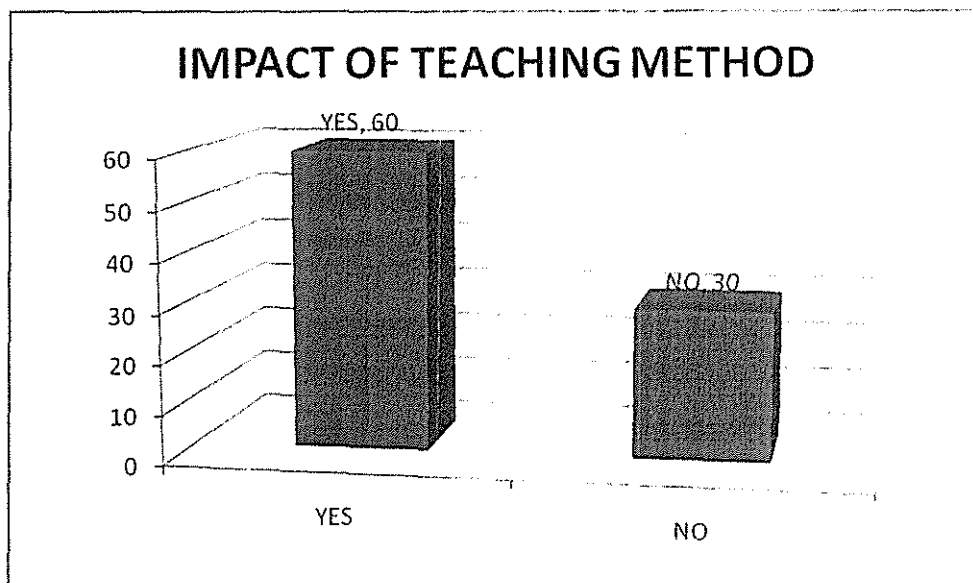
Figure 4.2.2 showing response on the impact of teaching method.



Source: primary data (2009)

Majority of the respondent represented by 66% said that the teaching methods impact on students performance in sciences, while 34% said that teaching methods did not impact on students performance.

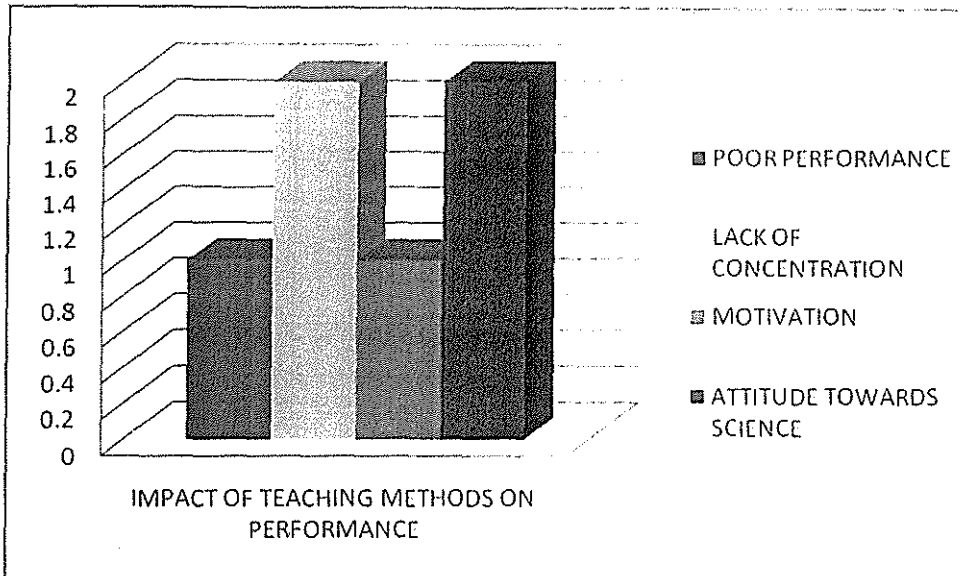
Figure 4.2.3 Students response as to whether teaching methods impact on students performance in science.



Source: primary data (2009)

Figure 4.2.3 shows that 60 respondents representing 67% said that teaching methods did impact on their performance in science while 33% said that teaching methods did not impact on the performance.

Figure 4.3.3 showing the Actual impact of teaching methods



Source: primary data (2009)

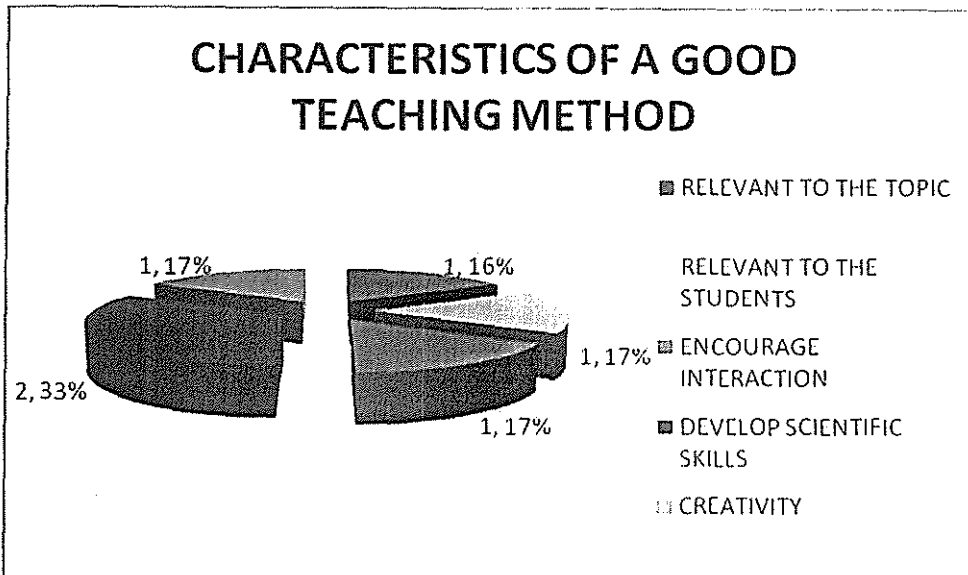
Figure 4.3.3 shows that out of the six respondents 2 respondents representing 33% said that teaching methods which include practical and observation lead to students performing poorly. Lack of concentration was cited. Attitude towards science was cited by 57% of the respondents said that the teaching methods were very effective towards student’s perception of sciences, while 43% of the respondents said that the teaching methods used by the teachers were not effective to change the student’s perception of sciences as difficult subject.

Out of the 18 respondents 56 percent of the students said that the teaching methods were not effective to change their perception of science subjects while, 44percent said that the teaching methods were very effective and played a vital role in changing their perception towards sciences.

4.4 Research question three on what are the characteristics of a good teaching method.

4.4.1 Teachers response

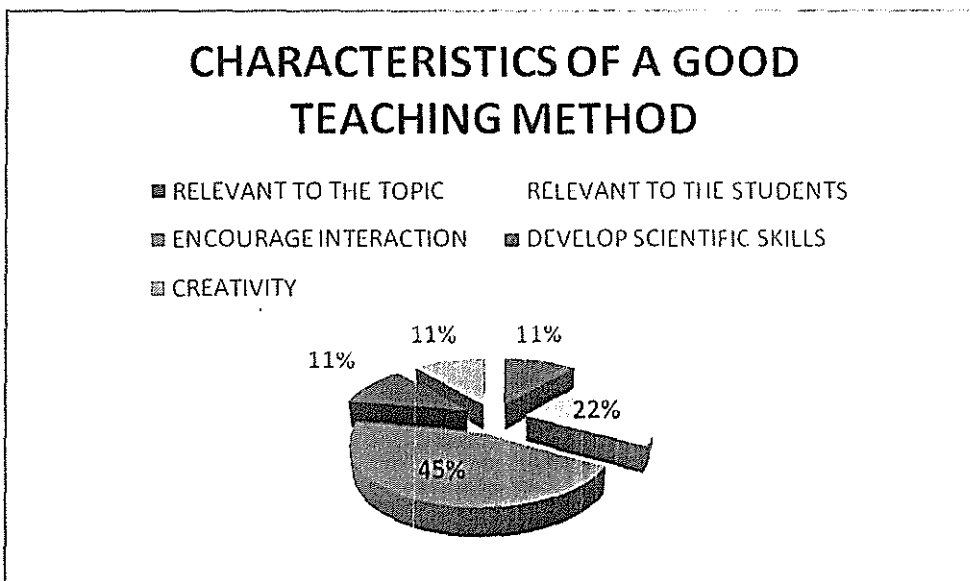
Figure 4.4.1 showing response as to the characteristics of a good teaching method.



Source: primary data (2009)

Figure 4.4.1 shows that 17 % of the respondents said that the characteristics of a good teaching method was that it was relevant to the students, this percentage was also cited by respondents who said that it should develop scientific skills and encourage interaction. Relevant to the topic was cited by 33% of the respondents who said that it should be relevant to the topic of discussion

Figure 4.4.2 showing student's response as to the characteristics of a good teaching method



Source: primary data (2009)

Figure 4.4 2 shows that 45% percent of the respondent said the good characteristics of the respondents said that a good teaching method should be relevant to the topic. 22% percent said that it should encourage interaction while 11% said that it should develop scientific skill.

This was also cited by respondents who said that it should be relevant to the topic.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In this chapter an attempt is made to discuss the findings and come up with conclusions and the recommendations there to.

5.2 Discussion

Different teaching methods used in teaching science.

One of the main outcomes of the study is the confirmation that various teaching methods are used in instructing science in secondary schools in Kenya. These findings that different teaching methods are used in teaching sciences at secondary level agree with those of Githua and Mwangi (2003) in Kenya, Afrassa(2002) in Ethiopia and other parts of Africa (Kogolla, Kisaka, & Waititu, 2004) similar findings were also reported in other studies (Koller, Baumert, & Schnabel, 2001). Therefore writers have established them as lecture method, question and answer, demonstration and practicals . these are in line with what Hanna(2003), Boaler (1997) and Vale, Forgasz, & Horne(2004) observed as the most widely applied teaching methods in most African secondary schools.

Examine the impact of teaching methods on student's performance.

They maintain that teaching methods are not important in determining the performance of students and once the concepts are understood the students automatically perform better. One of the findings of the present study relates to the method of teaching normally employed in the sciences classrooms at secondary level in Kenya. The method was teacher-centered, and student's were passive and on the receiving end. This phenomenon reflected the lessons described by Nunes and Bryant (Nunes & Bryant, 1997), and the descriptions of secondary classes in Mauritius (Griffiths, 1998, 2000, 2002).

It seems that insufficient opportunities are provided to be involved in their own learning, and emphasizes the procedures used for solving science problems. It seems that the examination-driven curriculum in Kenya leads to a more teacher-centered curriculum.

Characteristics of a good teaching method

the study found out that a good teaching method should be relevant to the topic. This was in agreement with findings of Hanna & Nyhof-young (1995). Therefore the student should be able to identify with the topic of instruction.

A teaching method that encourages interaction was also found to be favored and students understood better when they interacted with the teachers. This was in agreement with the findings of Aldridge, Fraser and Huang (Aldridge, Fraser, & Huang, 1999).

A teaching method that fosters creativity was found to be a good characteristic of a good teaching method as described by Elwood (Elwood, 1999), therefore students could be creative and thus easily identify with the subject.

Relevant to the students they were in agreement with those of Tiedemann (2000). Cases where negative messages were sent to girls about their performance in sciences by teachers were noted in the present study.

Finally a good teaching method should develop scientific skills in the students and they are able to identify with the subject and deduce biological concept that will help them later in life. Raty et al. (2002).

A correlation coefficient of 0.336 between attitude towards mathematics and performance in the science test was noted in this study. However no gender difference in attitude towards science was observed. A positive attitude towards sciences and interest in the subject tends to motivate students into putting more effort into the subject, and consequently enhanced their science.

Achievements, concerning success or failure in science, it was found that students attributed success primarily to efforts-evidence coming from the transcripts of students interviews as discussed. These findings agreed with the findings of Mooney and Thornton (1999) but no apparent gender differences were noted – contracting the outcomes reports by Ernest (1994) and leder, forgasz and swolar (1996).it can be deduced that Kenya girls are different to Australian and English girls in this respect.

Prior ability in sciences was found to play an important in the mathematics achievements of students as claimed by O'Connor and Miranda (2002).This is so because of the hierarchical nature of the subject-science concepts build on prior ones. This finding proved to be important as the way science is being taught at upper and lower secondary levels should be taken into account. There are cases of schools in Kenya where inexperienced teachers are being sent to lower secondary classes and the more qualified and experienced ones deal only with upper classes. The science concepts have to be learnt properly right from lower classes to ensure a solid base for the students to assist them in their learning of science subjects at each successive level.

5.3 Conclusion

In conclusion, the type of teaching method used by teachers determines their performance. The use of a teaching method that does not ensure passing of substance from the teacher to the students greatly impacts on how well they will understand the concepts and their application when it comes to do the exams.

Teachers should therefore be vigilant in choosing a particular teaching method to teach a topic. Different topics are better understood when taught by different teaching methods. Thus the best teaching method should always be used.

5.4 Recommendation

Implications of the findings for research and theory

The most direct impact of this study will hopefully be in the classroom and will help teachers to use the findings, in particular;

1. Using student-centered teaching approaches thus the teachers should use teaching methods that enhances more grasping of the scientific skill in the student than methods that only aim at ensuring that the teacher has done his part.
2. Using meaningful activities in their classrooms, this can be divided in parts which will include discussions, practical, demonstrations. They will ensure that the student grasps the concept better and perform better in sciences.
3. Promoting conceptual understanding in sciences, this can be achieved by minute and detailed elaborating of the topic of instruction and therefore having students develop sharper analytical skills that are relevant not only to the subject but also in day to day life.

5.4 Suggestions for further research

Due to funding and logistic limitations, this project was conducted as a pilot study that utilized a small sample size, relatively short time duration, and a convenience sampling technique. It is suggested that a follow-up study should be carried out over a longer time span (about 15 weeks of instruction), and that the study should use a much larger sample size, and if possible, adopt randomization procedures in sample composition. A sufficiently large sample would make it possible to include a sizeable number of male

and female participants in the study such that more hypotheses could be built into the research design. For example, it would be interesting to investigate both the possible effect of gender on science performance, and a possible interaction effect between treatment (curriculum type) and gender.

Further studies on gender and sciences at secondary level should be conducted in relation to single sex and co-educational schools. An investigation of the attitudes towards sciences and the performance of boys and girls in single sex schools, as compared to those in co-education schools, could prove to be important.

This study has just touched upon relationship between culture and performance in sciences. Kenya is a multicultural country with a blend of different cultures and an in-depth study wherein the issue of gender and science in relation to ethnicity would be valued

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APPENDIX I

QUESTIONNAIRE FOR TEACHERS

My name is MURIITHI MARTIN CHEGE, a student from Kampala International University, Institute of Open and Distance Learning.

I am collecting data in relation to factors influencing performance of students in sciences in Kenya, I request for your cooperation and I promise not to take much of your time.

Please note that we do not mention people's names to ensure privacy and confidentiality.

Personal details

PART ONE; BIO-DATA FOR RESPONDENTS

A) Sex:

Male

Female

B) Age

Age bracket	Tick where appropriate
20-23 years	
24-25 years	
26-30 years	
31-35 years	
36-40 years	
41-45 years	
46 years and above	

C) Education level

Please indicate your educational level

Educational/professional level	Tick where appropriate
Primary education	
Secondary education	
Tertiary/college level	
University level	

TICK WHERE APPROPRIATE

i) Do you teach science?

Yes

No

ii) Do you enjoy teaching the subject?

Yes

iii) Which methods do you apply in teaching science?

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

iv) Do you think the teaching methods used affect the performance of the student?

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

v) Which teaching method best suites science teaching ?

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

vi) What are the characteristics of a good teaching method?

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

THANKS

APPENDIX IV

QUESTIONNAIRE FOR STUDENTS

My name is MURIITHI MARTIN CHEGE, a student from Kampala International University, Institute of Open and Distance Learning.

I am collecting data in relation to factors influencing performance of students in sciences in Kenya, I request for your cooperation and I promise not to take much of your time.

Please note that we do not mention people's names to ensure privacy and confidentiality.

Personal details

PART ONE; BIO-DATA FOR RESPONDENTS

A) Sex:

Male

Female

B) Age

Age bracket	Tick where appropriate
13 years	
14 years	
15 years	
16 years	
17 years	
18 years	
19 years and above	

C) Education level

Please indicate your class level

Class level	Tick where appropriate
Form one	
Form two	
Form three	
Form four	

TICK WHERE APPROPRIATE

iii) Do you like Sciences?

Yes

No

iv) Do you enjoy learning the subject?

Yes No

iii) Which methods do you enjoy being taught?

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

iv) Do you think the teaching methods used affect your performance of the student?

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

v) Which teaching method best suites science learning?

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

vi) What are the characteristics of a good teaching method?

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

THANKS