

**FACTORS AFFECTING K.C.S.E PERFORMANCE IN CHEMISTRY IN PUBLIC
SECONDARY SCHOOLS : A CASE OF SELECTED PUBLIC SECONDARY
SCHOOLS IN LUGARI SUB COUNTY, KAKAMEGA COUNTY, KENYA.**

BY

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DECLARATION

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

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DEDICATION

This project is dedicated to my mother Mrs. Mary Tsisiga Gudi for her tireless support and encouragement, and to my father Mr. Kidiga Gidarity for being there whenever I needed insights on how to carry out research.

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LIST OF ABBREVIATIONS

BA:	Bachelor of Arts
BSC:	Bachelor of Science
KCSE:	Kenya Certificate of Secondary Education
KESI:	Kenya Institute of Special Education
PGDE:	Postgraduate Diploma in Education
SMASSE:	Strengthening of Mathematics and Sciences in Education
S/NO:	School Number

ABSTRACT

Chemistry is an important science subject. It is core in determining overall mean grade of the students and entry into various tertiary colleges. Good performance in Chemistry is key in determining the career prospects of secondary school students as it is a prerequisite of courses such as medicine, pharmacology, engineering and dentistry just to mention a few. Its impact therefore cannot be ignored as a huge percentage of students opt to sit for K.C.S.E in the subject. The purpose of this study was to investigate the factors contributing to the poor performance in the subject in Lugari Sub County currently .The study was guided by the following objectives- to establish the extent to which: teaching methods as the teacher characteristics, adequacy of school facilities, teacher motivation and student's attitude towards Chemistry influence performance in K.C.S.E Chemistry in Public Secondary schools in Lugari Sub County. The study design was a descriptive survey research design. Questionnaires were used as a means of data collection from head teachers, Chemistry teachers and students. The sampling techniques that were used were non probability quota sampling. The sample population consisted of 4 public secondary schools in the Sub County, 4 head teachers, 4 teachers of Chemistry, and 40 form four students who take Chemistry in those schools. Data, both qualitative and quantitative data was analyzed by use of Microsoft Excel. Quantitative and descriptive data was analyzed in order to come up with means, modes, and percentages. The findings of the study were as follows. On attitude of the learners towards the subject, the students have a negative attitude towards Chemistry despite the fact that they are interested in careers that need the knowledge of Chemistry; this has affected the performance in the subject. Secondly. Motivation of the teacher did not seem to affect performance in the Sub County. However a small percentage of teachers noted that

availability of instructional resources was a motivating factor for them. The instructional resources however were not adequate. The teachers responded that factors that affected the performance of Chemistry in their schools, apart from availability of instructional materials, were learners' academic ability and student attitude towards the subject. On instructional resources, all the schools have a library which is not well equipped, with Chemistry books. Most schools had only one type of textbook for reference while a few had only two types. The laboratories were underutilized due to the preference of teacher demonstration over practical activities during learning of the subject by Chemistry teachers. Poor performance in Chemistry in Lugari Sub County can therefore be attributed to, negative attitude of the students towards the subject especially towards the practicals, inadequate resources, and underutilization of resources. The school management should provide more instructional resources in form of a variety of Chemistry textbooks for the students in the library. Teachers of Chemistry should organize motivation talks that would help alleviate the negative attitude towards Chemistry. They should also expose their students to more individualized or group based practicals, adopt a practical approach while teaching and in conjunction with the school management, they should organize educational trips to chemistry based industries to motivate their students. A research should be done to investigate why teachers prefer demonstration over individual practicals in schools with equipped laboratories and also to investigate impact of teachers' intrinsic motivation on performance of Chemistry.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Performance is the academic level of achievement in K.C.S.E (Ayoo, 2012). Poor performance in Chemistry is attributed to factors such as lack of teacher motivation, discipline negative attitude towards the subject by students and parents, socioeconomic background of the students, inadequate instructional resources such as books and facilities like equipped libraries and ineffective teaching methodologies according to a June 1999 paper by SMASSE. Performance in Lugari district is poor with only one school being able to achieve a mean above 5.0, C+ the average. The overall mean score of Chemistry in the district is 3.9573, D. For a student to be admitted to the university for a science course in the University, they need to have at least a C+ and above in Chemistry. The breakdown of performance of Chemistry in 2012 and 2013 K.C.S.E is as shown below.

2012 and 2013 Chemistry Performance in Lugari District.

Table 1.1: K.C.S.E Chemistry 2012 and 2013 Lugari District performance (Ministry of Education)

K.C.S.E. 2013- CHEMISTRY 233					
S/NO	SCHOOL	ENTRY	MEAN SCORES		DEVIATION
			2013	2012	
1	ARCH BISHOP NJENGA	186	6.473	7.108	-0.635
2	ST. CECILIA GIRLS	74	4.608	5.055	-0.447
3	ST. PAUL'S LUGARI BOYS	87	4.253	4.703	-0.45
4	ST. CHARLES LWANGA	35	4.229	2.864	1.365
5	FRIENDS SCHOOL MUGUNGA	84	4.107	4.597	-0.49
6	FORESTAL S.A	105	4.0329	4.469	-0.4361
7	HOLY FAMILY MUSEMBE	37	3.84	4	-0.16
8	MAUTUMA SECONDARY	156	3.8205	4.3597	-0.5392
9	ST. AUGUSTINE'S MLIMANI	100	3.78	4.1274	-0.3474
10	ST. LUKES' LUMAKANDA	108	3.73	4.31	-0.58
11	BISHOP SULUMETI GIRLS	105	3.714	4.0165	-0.3025
12	LUNYITO SEC SCHOOL	40	3.675	3.625	0.05
13	CHEKALINI SECONDARY	48	3.553	4.122	-0.569
14	MUKUYU GIRLS SEC SCHOOL	69	3.39	2.781	0.609
15	MUNYUKI MIXED	100	3.19	3.0625	0.1275
16	HANDOW SECONDARY SCHOOL	162	3.0802	3.528	-0.4478
17	MUFUTU SEC SCHOOL	17	2.94	3.06	-0.12
18	FRIENDS SCHOOL ANGAYU	17	2.47	-	-
19	ST. GABRIEL ACADEMY	46	2.3953	1.5384	0.8569
20	LUMAMA MIXED	42	2.049	2.3	-0.251
	TOTAL	1618	73.2999	73.6265	-0.3266
	MEAN SCORE		3.9573	4.2973	-0.34

Source : Ministry of Education (2014)

Furthermore a comparison with the other subjects in 2013 and 2014 ranks it as number 14 and 13 respectively .It is the worst performed science in the Sub County. Tabular and graphical representation is as below.

SUBJECT MEANScores- LUGARI DISTRICT

Table 1.2: Ranking of performance of different subjects in 2013 and 2014 K.C.S.E.

2013 K.C.S.E			2014 K.C.S.E		
POSITION	SUBJECT	MEAN	POSITION	SUBJECT	MEAN
1	HOMESCIENCE	9.05735	1	HOMESCIENCE	8.0949
2	ARTS AND DESIGN	8	2	FRENCH	7.8099
3	FRENCH	7.3667	3	C.R.E	6.7615
4	COMPUTER	6.9482	4	COMPUTER	6.575
5	KISWAHILI	6.61714	5	GEOGRAPHY	6.3815
6	BUSINESS STUDIES	6.3956	6	BUSINESS STUDIES	6.3052
7	C.R.E	6.1911	7	AGRICULTURE	6.3051
8	AGRICULTURE	6.06504	8	ENGLISH	6.0261
9	HISTORY AND GOVERNMENT	5.958	9	PHYSICS	5.6033
10	GEOGRAPHY	5.5495	10	KISWAHILI	5.44975
11	PHYSICS	5.1833	11	HISTORY AND GOVERNMENT	5.4241
12	BIOLOGY	5.031	12	BIOLOGY	4.64421
13	ENGLISH	4.9662	13	CHEMISTRY	4.2973
14	CHEMISTRY	3.9573	14	MATHEMATICS	3.6884
15	MATHEMATICS	3.8484	15	MUSIC	3
16	MUSIC	3			

Source : Ministry of Education (2014)

Figure 1: Graphical representation of ranking of 2013 K.C.S.E

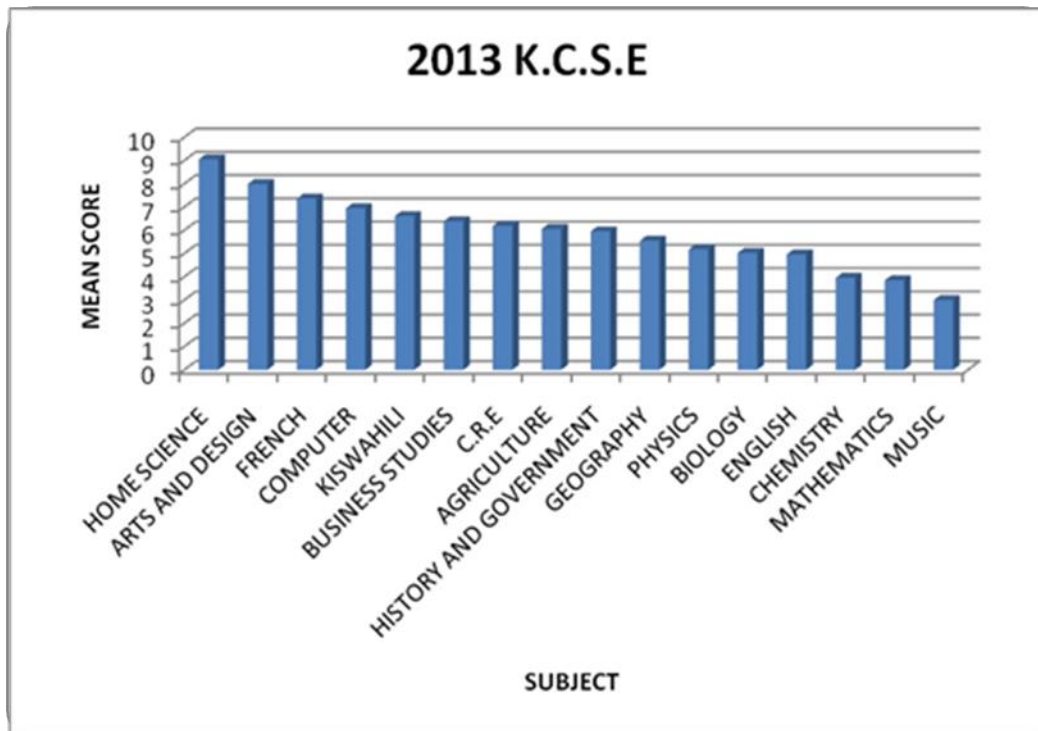
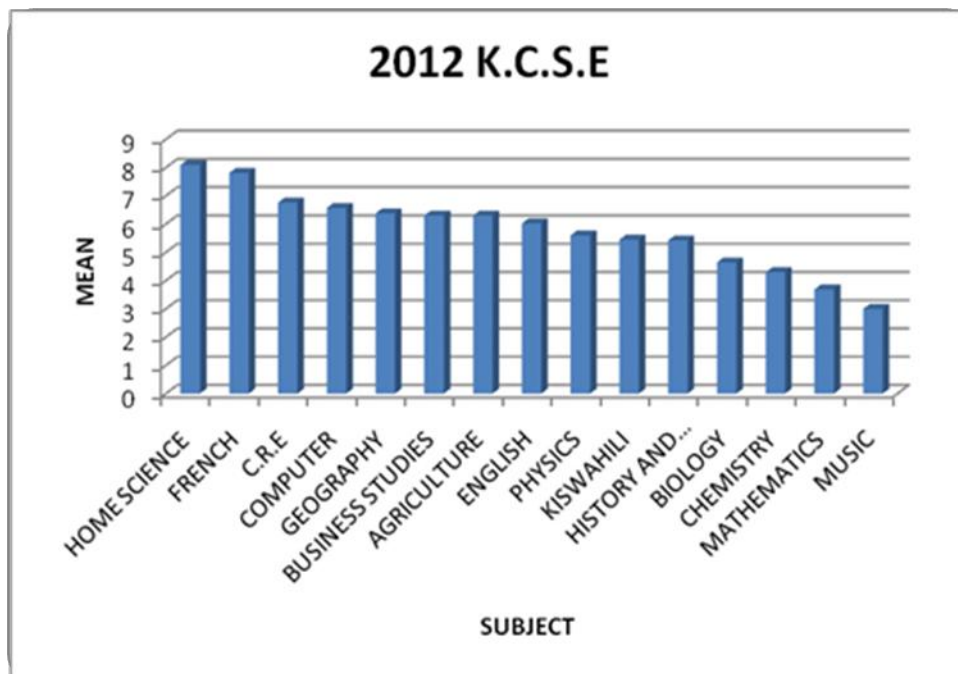


Figure 2: Graphical representation ranking of 2012 K.C.S.E



1.2 Statement of the problem

In comparison with other subjects, Chemistry takes the bottom positions of 13 out of 15 subjects and 14 out of 16 subjects in 2012 and 2013 respectively. Performance in Chemistry has declined from 4.2973 to 3.9573 between the years 2012 and 2013. The performance, though was not good at first continues to deteriorate and this is worrying. Sub average performance in Chemistry affects the Sub County's ability to admit students in universities in courses to do with science and technology. In the county, most of the students take Chemistry and therefore poor performance in the subject affects their social mobility. This is despite the fact that the government has put in measures to improve performance in the subject through launching the Strengthening of Mathematics and Science in Secondary Education (SMASSE), in 1998 that aims at improving mathematics and science education through In-Service Training (INSET) for teachers. Factors that could lead to this are Instructional resources, Teaching method, Teacher's motivation and Learner's academic ability. The study will therefore investigate the factors that contribute to poor performance in Chemistry in public secondary schools in Lugari Sub-County, Lugari County.

1.3 Purpose of the study

The purpose of the study is to investigate the factors contributing to poor performance in K.C.S.E Chemistry in public secondary schools in Lugari Sub County.

1.4 Research objectives

The study will be guided by the following objectives:

- a) To determine the extent to which teaching methods influence performance in K.C.S.E Chemistry in Public Secondary schools in Lugari Sub County.

- b) To analyze the extent to which adequacy of school facilities influences performance in K.C.S.E Chemistry in Public Secondary schools in Lugari Sub County.
- c) To examine the extent to which teacher motivation influences performance in K.C.S.E Chemistry in Public Secondary schools in Lugari Sub County.
- d) To find out if student's attitude towards Chemistry influence performance in K.C.S.E Chemistry in Public Secondary schools in Lugari Sub County.

1.5 Research questions

In order to achieve the objectives of the study, the following questions were addressed:

- a) How does teaching method affect performance in K.C.S.E. Chemistry in Public Secondary schools in Lugari Sub County?
- b) To what extent does adequacy of facilities influence performance in K.C.S.E Chemistry in Public Secondary schools in Lugari Sub County?
- c) To what levels does teacher motivation affect performance in K.C.S.E Chemistry in Public Secondary schools in Lugari Sub County?
- d) What is the influence of Students attitude on performance in K.C.S.E. Chemistry in Public Secondary schools in Lugari Sub County?

1.6 Significance of the study

The findings of the study may be of benefit to different stakeholders in education. Learners may be able to know the correct attitude they ought to have in order to pass in the subjects. School teachers will be able to adjust their teaching methodologies appropriately for maximum results as they are the curriculum implementers.

Chemistry teacher trainers in various universities and colleges may be able to know the major areas of emphasize on efficient teaching methodologies. School administrators may use recommendations to provide a conducive system for the high performance in Chemistry.

1.7 Limitations of the study

The study had the following limitations:

- i. The research findings may not be a representative of the real situations in all public schools in Lugari Sub County.
- ii. Time is a constraint, with four months only it is impossible for the researcher to study a larger sample size.
- iii. Only public schools will be studied, the factors might not apply to private schools.

1.8 Delimitations of the study

The study will deal with students and their teachers in randomly selected four public secondary schools in Lugari Sub- County, Lugari District.

1.9 Basic assumptions of the study

The study will be based on the assumption that:

- i. The respondents were honest and frank and sincere in their responses.
- ii. Time was enough to carry out data collection, data analysis and compile findings on time.
- iii. This study assumes that the results of this study shall apply to general population.

- iv. The respondents selected to participate in the study will cooperate and give honest and truthful responses to research questions.
- v. All secondary schools to be investigated use the same syllabus.
- vi. All Chemistry teachers are trained.
- vii. The sample used in this study is a representative of the wider population of secondary school students of public schools in Lugari Sub County.

1.10 Definition of significant terms used in the study

Challenges: Refers to problems or difficulties encountered in the process of implementing chemistry syllabus which could negatively impact on quality of performance in the subject.

Chemistry: Is a branch of science that deals with study of nature and properties of all forms of matter and the various changes that these substances undergo in different conditions.

Head teacher: Refers to the administrator of a school appointed by the Teachers Service Commission in accordance with Education Act Cap 211.

Performance Refers to student's achievement in Chemistry as indicated by their scores in an important school or national examination.

School Facilities- school facilities means school plant facilities, school plant projects, school buildings and the grounds

Science: Is a vast body of connected knowledge of theories and facts developed by scientists through scientific methods.

Students' attitudes- refer to students' predisposition or a tendency to respond

Positively or negatively towards education.

1.11 Organization of the study

This study is organized into five chapters. Chapter One focuses on the background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, basic assumptions of the study, limitations of the study, delimitations of the study, definition of significant terms used in the study and the organization of the study. Chapter Two deals with literature review with a focus on the major reasons why students do not perform well in Chemistry which include attitude of the learner, motivation of the teacher, availability of instructional resources and teacher characteristics. Chapter Three presents the research methodology. This describes the design of the study, location of study, research instruments, sample size and sampling procedures, data collection and data analysis.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Knowledge of Chemistry is not only important for Career but also plays an important role in day to day life of human beings in places such as food production, better health, industrial growth and enhancement of social lives for instance the cosmetic industry.

According to the Chemistry syllabus the study of chemistry in secondary schools in Kenya is geared towards helping students to: acquire chemical knowledge in order for them to understand their physical environment, be aware of Chemistry Knowledge, to foster acquisition of problem solving skills, appreciate the responsibility of a chemist to the society and prepare them for further training in Chemistry related areas (KNEC, 2013).

Learning is a relatively permanent change in behaviour potentiality which occurs because of reinforced practice (Kimble & Marguis, 1961). Learning Chemistry like other disciplines utilises different methods of instructions like lecture methods, question answering techniques, trip or field work, teacher demonstration and student practical work (Twoli, 2006), in order to cause change in performance in Chemistry. A study on the factors contributing poor performance in Lugari Sub County will enable discovery of factors that hinder learning of the subject in the Sub county

2.2 Factors affecting the performance of Chemistry

Factors that affect the performance of Chemistry are as follows:

2.2.1 Teaching methods and performance of Chemistry

Chemistry, just like other subjects, requires a teacher to prepare appropriately so as to deliver content in a way that could encourage good understanding of the content by the student's hence good performance. There are many teaching methodologies that can be applied in Chemistry and these may include lecture method, demonstration, practical and fieldwork. As Chemistry is a Science, a more practical approach may be more appropriate compared to the other teaching methods. Practicals develop the students' skills such as ability to observe, skills in performing routine laboratory tasks and problem solving abilities.(Hofstein, 2004) These skills are use key in the practical paper as well as in the theory paper.

2.2.2 Adequacy of school facilities and performance of Chemistry

Chemistry is a science and it involves inquiry into natural and artificial processes. Therefore, it should be learnt using both theoretical and practical approaches. To be able to pass chemistry well, a student must pass the practical paper in the exam well. Therefore, presence of a laboratory in the school used for the learning of Chemistry may serve as a Science deals with the phenomena of nature. In as much as the presence of the laboratory is key, more important is how equipped the laboratory is. A well-equipped laboratory, with required chemicals and apparatus makes it easier for the teacher to use the laboratory effectively for Chemistry lessons.

Students' access to relevant Chemistry textbook affects performance. A high textbook to student ratio, ensures that students are able to research on their own out of class. This encourages continuous follow up hence reinforcing learnt ideas. A huge variety of textbooks

of Chemistry may contribute to better performance compared to cases where the types of textbooks are limited. The library, a study area and storage of textbooks affects performance in Chemistry due to its presence, number of Chemistry textbooks and the relevance of the textbooks.

2.2.3 Motivation of the teacher and performance of Chemistry

Motives are those things that provide impetus behind our behavior. They make the organism active and therefore drive behavior (Munavi, 1992). Motives can be divided into two: Primary and secondary. Primary motives satisfy basic needs for example food, water and pain avoidance while secondary motives satisfy secondary needs like prestige. Primary motives have a greater impact than secondary motives.

Motivation is the sole achievement of human resource management practice. It encompasses job satisfaction of an employee and acquisition of highest level of motivation (Jerris, 1999). Teachers just like any other employee need to be motivated, in order for them to put in a lot of effort in order to achieve performance in the subjects they teach. Motivation enables teachers to help them realise their individual needs in line with those of the organisation. Indicators of motivation accomplished are engagement, satisfaction, commitment and intention to quit (Nohria & Lee, 2008).

Theories that explain motivation are Maslow's hierarchy of need theory, Adam's equity theory, and Herzberg's motivation hygiene theory. To be able to motivate a teacher needs most, according to Maslow, basic needs should be focused on. Teachers basic needs may include pay, benefits, reasonable living standards, involvement of cultural activities, health and accommodation. The teacher, for satisfaction of affiliation needs should also be liked by seniors and heads, and recognised (No. 2: E3, 2010).

Adams theory seeks to compare inputs and outputs. Inputs and outputs must balance in order for a teacher to acquire job satisfaction, otherwise this would result into high turn over. Lack of support due to huge workload, increasing administrative task burden rather than engaging teachers in academic assignments decreases their job satisfaction.

A study carried out by Wanyonyi Kadian Wanyamaon impact of motivation as the human resource bundle on performace of teachers of public schools in Bungoma County, (Wanyama & Dankit Nassiuma, 2014) found out that with a unit increase in motivation, an increase of teacher performance by 19.5% was noted. Different ways that that a teacher could be motivated apart from monet are refresher courses offered by SMASSE and KESI, attendance of workshops or seminars in subject areas, provision of scholarships and study leaves and allowance of teachers to increase their education level. Promotions, paying on performance of job performnce, feedback and performance appraisals also improve teacher performance.

2.2.4 Attitude of the learner and performance of Chemistry

Attitude is a complex of mental state involving beliefs (Hussain, Ramzan, & Qadeer, 2011). According to Arya et al (1972) attitude is the sum total of personal inclination towards a certain type of object, institution and ideas . It determines all actions of a human beings. Attitude is not innate but aquiredas a result of various experiences. Attitude can be positive thus useful or negative and therefore harmful. Attitude towards Chemistry will be of like and dislike. How students perceive Chemisty ideas greatly afects how they accept ideas in the subject, solve problems such as Chemistry calculations on topics such as the mole concept, and even the revision process.attitudes towards the subject may be affected by parents attitudes, teachers characteristics and many other students' personal factors such as intelligence and career prospects. Taechers play a major role in making sure the students

clearly Chemistry is interesting and that it is important (Kibwezi SMASSE Panel, 2004). Poor attitudes may lead to poor performance in mathematics and sciences. Bolarin (1988) suggests that there is a huge relationship between the level of liking of a particular subject and the effort and time that is put in the subject. Lavin (1965) also states a reciprocal relationship between interest measure and learning achievement since they reinforce each other. Learning difficulties can be reduced by a right attitude. Good achievement boosts academic interest in science. It also boosts social relationship of students in the class setting. Attitude, if correct, can be a motivating factor of attention and therefore makes students to remember facts easily. (Adodo & Gbore, 2012)

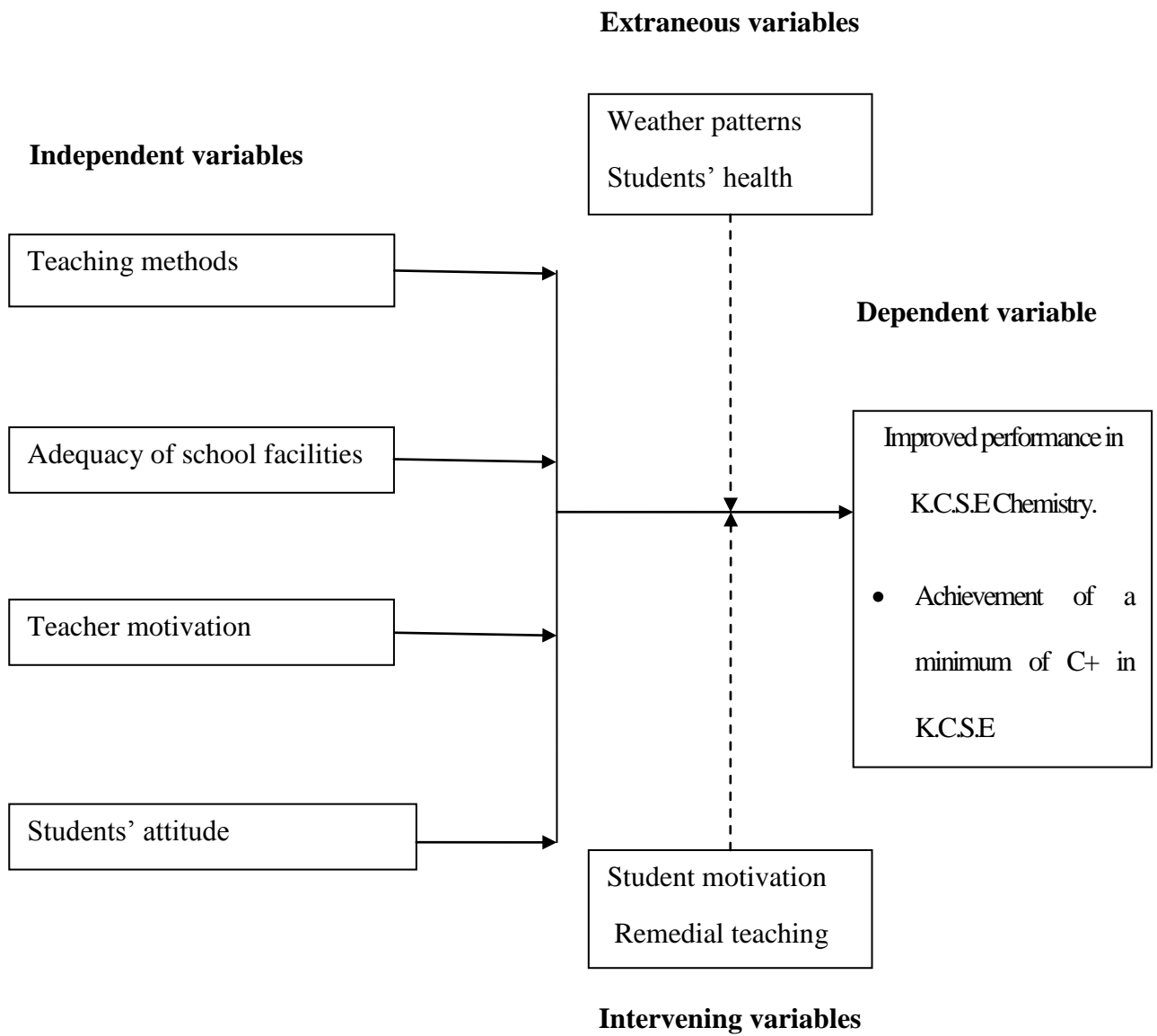
Teachers play a great role in changing the attitude of students by making learning of sciences meaningful and interesting.

2.3 Conceptual framework

The study seeks to examine the factors that affect performance of students in public schools in Lugari Sub County in Chemistry. Performance in Chemistry is linked to various variables like : presence of resources like , libraries, laboratories, laboratory materials and textbooks, characteristics of the teacher such as instruction style, experience , gender and sensitivity, teachers' motivation that is their interests and ability of the learner both in spatial and mathematical. Extraneous variable include weather patterns and student health.

Figure 3 shows the relationship that exists between variables influencing achievement of scores above C+ in Chemistry. The head of the arrow symbolizes direction of the effect.

Figure 3: Conceptual framework showing relationship between variables



The Independent variables which include , teaching methods, adequacy of school facilities such as apparatus and text books, motivation of the teacher of Chemistry and the learners' attitude towards the subject. Extraneous variables used in the study include weather patterns and students' health while intervening variables used were remedial learning and students' motivation. When put in place results into improved performance indicated through students' achievement of a minimum of C+ in K.C.S.E Chemistry.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The chapter consists of the methodology that will be used to carry out the study. It is subdivided into introduction, design of the study, location of study, research instruments, sample size and sampling procedure, data collection, validity and reliability, data collection procedure and ethical considerations.

3.1 Research design

The study will be a descriptive survey as it is designed to study the current status of the problem with respect to one or more variables. The researcher will use questionnaires that will enable data collection of various variables that affect performance in K.C.S.E Chemistry in Lugari District.

3.2 Location of study

The study will be carried out in Lugari Sub County, Kakamega County of Western Province. It neighbors Matete, Likuyani, and UasinGishu and Bungoma North Sub counties. It has three educational zones namely, Lugari North, Central, and South. As at June 2014 it had twenty secondary schools that sat for K.C.S.E. The location is strategic as it is the home of the researcher and not any one has done such a research in the area before.

3.3 Sample size and sampling procedures

Four secondary schools in Lugari Sub County will be selected through simple random sampling technique. From the schools, a sample of 10 students in form four and one

Chemistry teacher will be done by use of random sampling techniques. The head teacher of the school will also fill a questionnaire.

3.4 Research instruments

Questionnaires with both open-ended and close-ended questions will be administered. Three types of questionnaires will be given to cover the three different groups of respondents who are the head teacher, the Chemistry teacher and Form four students who take Chemistry. The questionnaires have two sections, A and B. section A seeks to get the demographic information while section B will focus on investigation of different variables.

3.5 Validity and reliability of research instruments

To establish validity of research instrument, items in the research instrument were scrutinized by the supervisor who is an expert in the area of study. This helped to establish the relevance of the instrument and assist identify any ambiguity in the items.

To establish reliability, the researcher piloted the research instrument to a few students taking Chemistry and teachers of Chemistry. Those who took part in the pilot study would not participate in the actual study. This helped the researcher identify the relevance of the item in relation to the study.

3.6 Data collection procedure

Permission to carry out the research was sought from the relevant authorities. The researcher administered the questionnaires to head teachers, sample students and Chemistry teachers and left with the respondents for three days for filling. They will be collected and collected for analysis.

3.6 Data analysis

The questionnaire was coded, responses were remarked and percentages worked out for comparison. Descriptive and quantitative data analysis techniques were applied. Data was then presented using tables.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATIONS AND INTERPRETATION

4.1 Introduction

The chapter presents an analysis of the data collected from a sample of 40 students from 4 secondary schools, 4 Chemistry teachers and 4 head teachers. Methods that were used during analysis are calculation of percentages and use of representative tables.

4.2 Background characteristics of the students

4.2.1 Gender of the students

Respondents were asked to indicate their gender. Their responses are analyzed in the table below.

Table 4:1: Gender distribution of the students.

Gender	Frequency	Percentage(%)
Boys'	18	45
Girls'	22	55
Total	40	100

Table 4.1 shows 45% of the students were boys while 55% were girls. This shows that slightly more girls attend high school education compared to boys. This may be attributed to recent campaigns on girl child education. An observation by the researcher is that the types of schools in the county favor girl child education. Many schools are either mixed schools or girls; schools with the minority being boys only schools. The difference in gender distribution

percentages in the sub-county however are very small, thus the sample attained near gender parity in the population sample.

4.2.2 Age bracket

Respondents were asked to indicate their ages. The findings are indicated in the Table 4.2.

Table 4:2: Age of the respondents

Age(years)	Frequency	Percentage(%)
14 and below	0	0
15-17	38	95
18-21	2	5
Above 21	0	0
Total	40	100

95% of the students were aged 15-17 years while 5% of the respondents indicated that their age was 18-21 years. None of their respondents indicated that they are 14 years and below and above 21 years of age. This means that most students start school early and finish by the time they are seventeen years old rather than start late and finish at twenty one.

4.3 Kenya Certificate of Primary Education [KCPE] Science grade

Students were asked to indicate their KCPE science grade. The findings were analyzed and summarized in the Table 4.3.

Table 4:3: Students' K.C.P.E Science grade.

Grade	Frequency	Percentage(%)
A (80%-100%)	0	0
B (60%-79%)	26	65
C (45%-59)	14	35
D (30%-44%)	0	0
E (0%-29%)	0	0
Total	40	100

The data analysis indicated that there was none of students who scored A (80%-100%), D (30%-44%) and E (0%-29%) in primary science in KCPE. Most of the respondents, 65% scored a grade of B (60%-79%) while the remaining 35% scored C (45%-59). This indicates that all the students scored a C and above average and thus they passed, making their entry behavior for Chemistry as a subject good. This is despite the fact that there were no A grades present. Performance in K.C.S.E however is below average.

4.4 Library

This is an important resource that may affect the study of Chemistry in a school. Its presence and number of relevant books stocked in it may serve as a clear indicator on the level of the Schools' performance.

4.4.1 Presence of a library

All respondents indicated the presence of a library in their school.

4.4.2 Types of Chemistry Reference books.

Students were asked to indicate the types of Chemistry Reference text books in the school library. The findings were summarized and represented in a Table 4.4 below.

Table 4:4: Number of Chemistry Reference books

Type of Chemistry Book	Range	Percentage(%)
Kenya Literature Bureau Chemistry	0-1	75
Principles of Chemistry and Kenya Literature Bureau	2-4	25
-	4 and above	0
	Total	100

From the analysis, most schools that is 75% of the schools, had only one text book while 25% had two to four books. The books that are in use are Kenya Literature Bureau Chemistry and Principles of Chemistry. This data indicate that the types of books available is inadequate for in depth and valid research of Chemistry during study of the student. This factor may lead to inability of the schools to compete with others that have a wide variety of books. It is worth noting that there was no school that did not have a library. Students in the schools were guaranteed access to Chemistry text books since from the questionnaire all the teachers of Chemistry reported a 1:2 ratio of books to students.

4.5 Venue for practical lessons

All the schools had practical lessons in a laboratory. All the teachers of Chemistry responded that the laboratories were well equipped.

4.6 Teaching method mostly used by Chemistry teachers

4.6.1: Teaching methods from students' questionnaire

Learners were asked to indicate the teaching methodologies used by teachers in teaching Chemistry. The findings were analyzed in Table 4.5 Table 4:5: Teaching methods responses from students' questionnaire.

Teaching method	Frequency	Percentage(%)
Lecture	0	0
Demonstration	29	72.5
Question and answer	9	22.5
Discussion	2	5
Total	40	100

Of the four types of teaching methods, the teachers did not use lecture method, and discussion was the second lowest. Demonstration was the mostly used method with 72.5% followed by question and answer method with a score of 22.5%. Teachers opted to have demonstrations and question and answer method despite the fact that, from their perspective, their laboratories are well equipped. Chemistry, being a science subject needs a more hands on approach. This may have affected performance in the subject.

4.6.2 Teaching methods responses from teachers' questionnaire

Teachers were asked to indicate the teaching methodologies used by teachers in teaching Chemistry. The findings were presented in Table 4.6.

Table 4:6: Teaching methods responses from teachers' questionnaire.

Teaching methodology	Frequency	Percentage(%)
Teacher demonstration experiments:	2	12.5
Student's practicals	3	18.75
Lecture method	2	12.5
Question and answer method	9	56.25
Total	16	100

Each teacher generated four responses bringing the total to 16 responses. From the teachers questionnaire, it is evident that question and answer method is the most commonly used at 65% followed by students practicals at 15% which should be the preferred mode of teaching as Chemistry is a Science whose understanding should be based on practical knowledge. Lecture method and teacher demonstration were the least at 10%.

A 100% of head teachers responded that the most common teaching method was teacher demonstration.

4.7 Attitude of students towards Chemistry

A Likert- 5 point questionnaire was used to collect data on attitude towards Chemistry in the sample population and sampled secondary schools.

4.7.1 Students response on their attitude towards Chemistry

Table 4.7 summarizes the responses of students of questions that analyzed the attitude of Students towards Chemistry. The responses were analyzed using a Likert scale with responses ranging from Strongly Agree(A), Agree(A), Not Sure(NS), Disagree(D), and Strongly Disagree(SD).

Table 4:7: Attitude towards Chemistry.

STATEMENT	SA(%)	A(%)	NS(%)	D(%)	SD(%)	TOTAL(%)
Chemistry is an interesting subject.	10	27.5	62.5	0	0	100
The teacher makes Chemistry interesting.	32.5	50	5	2.5	10	100
Practicals make chemistry difficult.	17.5	52.5	0	0	30	100
Calculation bit of Chemistry makes it difficult.	20	32.5	12.5	5	30	100
There are too many facts to be learnt in Chemistry.	45	47.5	2.5	2.5	0	100
In my future Career I would like to use Chemistry learnt in school.	25	42.5	0	0	32.5	100
Understanding Chemistry will not lead to having a brighter future.	10	12.5	0	2.5	75	100

Most students were not sure whether Chemistry is an interesting subject; the percentage amounted to 62.5%. It is important to note that the remaining students agreed (27.5%) that Chemistry is interesting while 10% strongly agreed that Chemistry is an interesting subject.

On whether the teacher made the subject interesting, there was a 50% agreement to that, the rest 32.5% strongly agreed, 5% disagreed, 2.5% were not sure and the remaining 10% strongly disagreed.

52.5% that is more than a half agreed that practicals make Chemistry a difficult subject. From earlier findings from the questionnaire, practicals were done but not at a very often. This could be the cause of such an attitude towards Chemistry. Most students also agreed that calculations make Chemistry difficult. However a slightly smaller, 30%, population of students strongly disagreed with this point.

47% of the students strongly agreed, 42.5% agreed, 2.5% were not sure and 2.5% disagreed that Chemistry had too many facts to learn.

Some students were aware of the importance of Chemistry in their careers while 32.5% of the students strongly disagreed that Chemistry is important in their careers. Most students, 75% agree that understanding Chemistry would lead to a brighter future. This is a positive indicator on how the students perceive the subject despite the fact there are a few who agree, 12.5% and those who strongly agree, 10%, that understanding the subject would not lead to a brighter future.

4.7.2 Teachers' response on learners attitude towards Chemistry

Teachers were asked to indicate the learners attitude towards Chemistry . The findings were analyzed and presented in Table 4.8.

Table 4:8: Teachers response on learners' attitude towards Chemistry

Attitude towards Chemistry	Frequency	Teachers' response (%)
Very good	0	0
Good	0	0
Average	3	75
Below average	1	25
Total	4	100

From the findings, 75% of the teachers responded that attitude was below average, while 25%, responded that it is poor. This is worrying as attitude towards a subject will determine the performance in the subject.

4.7.3 Head teachers response of learners attitude towards Chemistry

Head teachers were asked to indicate the learners attitude towards Chemistry. The findings were analyzed and presented in Table 4.9.

Table 4:9: Head teachers' response on the attitude of the Student towards Chemistry

Attitude towards Chemistry	Frequency	Head teachers' response (%)
Very good	0	0
Good	1	25
Average	1	25
Below average	2	50
Total	4	100

50% of the Head teachers responded that attitude was below average, 25%, thought it was average while the rest 25% responded that it was good.

4.8 Students' career aspirations

Students were asked to indicate their future career aspirations. The findings are represented in table 4.10.

Table 4:10: Students' career aspirations

Occupation	Frequency	Percentage (%)
Medical Doctor	14	35
Journalist	6	15
Nurse	5	13
Pilot	4	10
Engineer	3	8
Surveyor	2	5
Veterinary officer	2	5
Researcher	1	3
Architect	1	3
Clinical officer	1	3
Teacher	1	3
Total	40	100

Out of the 12 careers students were interested in, only two careers; journalism and surveyor are not exclusively science oriented. Many students therefore would like to branch into careers, such as medical doctor, nurse, pilot, engineering, veterinary officer, researcher, architect, clinical officer, and teaching, that would require the knowledge of Chemistry but from an earlier finding represented in Table 4.7 on whether they think Chemistry will lead to a good future ,75% of the students strongly disagreed that knowledge of the subject would lead to a good future.

4.9 Factors affecting the performance in Chemistry

Teachers were asked to indicate the factors affecting performance in Chemistry. The findings are presented in Table 4.11.

Table 4:11: Factors affecting performance of students in Chemistry

FACTORS	Frequency	Percentage(%)
Availability of Instructional resources	2	50
Learner's academic ability	1	25
Students attitude towards Chemistry	1	25
Teacher's motivation	0	0
Total	4	100

All teachers did not agree that their motivation affected learners. Half of them that is, 50% responded that availability of instructional resources affected their students' performance in Chemistry. 25% responded that learners' ability affected the students' performance while the other 25% responded that it is students' attitude towards the subject that affected performance in Chemistry. Considering that 75% of the schools had 0-1 chemistry reference books, this suggests that presence of textbooks for Chemistry is very important.

4.10 Teacher motivation and performance of Chemistry

Teachers were asked to indicate the factors that affected their motivation and how they affected the Students' performance in Chemistry. The findings are presented in the Table 4.12 below.

Table 4.12: Effect of teacher motivation on the performance in Chemistry

FACTORS	Frequency	Percentage (%)
Monetary benefits	0	0
Fringe benefits	0	0
Availability of Instructional resources	1	25
None of the above	3	75
Total	4	100

75% of the teachers responded that monetary benefits, fringe benefits and availability of instructional resources did not affect their motivation.. However 25% responded that availability of instructional resources affect their motivation which in turn affects the performance in Chemistry.

4.11 Rating of Students' performance in Chemistry

Teachers were asked to rate the performance of their students in Chemistry. The findings were summarized in the Table 4.13.

Table 4.13: Rating of students' performance in Chemistry

Performance of Chemistry	Frequency	Percentage (%)
Good	1	25
Fair	3	75
Poor	0	0
Total	4	100

75% rated performance in Chemistry as fair while 25% rated it as good. Most teachers therefore thought that the results could have been better.

4.12 Professional qualification of staff

Teachers were asked to state their academic qualifications and this was recorded and presented in form of tables.

4.12.1 Head teachers

Head teachers were asked to indicate their professional qualifications. The findings were presented in the Table 4.14.

Table 4.14: Head teacher's qualification

Professional qualification	Frequency	Percentage (%)
Diploma	0	0
B.Sc.	0	0
B. Education/PGDE	3	75
Postgraduate(Masters/Doctorate)	1	25
Total	4	100

75% of teachers rated trained with a Bachelors of Education degree or postgraduate in diploma education while 25% had a Master's degree. None of the head teachers had a Diploma or a Bachelor's degree in Science.

4.12.2 Chemistry Teachers

Teachers were asked to indicate their professional qualification. The results were analyzed in Tables 4.15.

Table 4.15: Chemistry teacher's professional qualification

Professional qualification	Frequency	Percentage (%)
Diploma	0	0
B.Sc.	0	0
B. Education/PGDE	3	75
Postgraduate(Masters/Doctorate)	1	25
Total	4	100

75% of teachers rated trained with bachelors of education degree or postgraduate in diploma education while 25% had a diploma.

4.13 Professional experience of staff

Staff were asked to indicate their professional experience. The results were summarized in the Table 4.16.

Table 4.166: Teacher's professional experience

Experience of Staff	Head teachers frequency	Percentage(%)	Chemistry teachers frequency	Percentage(%)
0-2yrs	0	0	0	0
2-5yrs	0	0	0	0
5-10years	4	100	4	100
10years and above	0	0	0	0
Totals	4	100	4	100

All the head teachers and Chemistry teachers had above five years of professional experience.

This means that they have necessary skills to work well in their positions.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter will give a summary of the research findings, conclusions, recommendations and suggestion for further research. The study was done to determine factors contributing to poor performance in K.C.S.E Chemistry in public secondary schools in Kenya in selected public secondary schools in Lugari Sub County, Kakamega County. The factors that were investigated were attitude of the learner, motivation of the teacher, adequacy of instructional resources and teacher methods. Data for analysis was obtained by use of Questionnaires with both open-ended and close-ended questions. Three types of questionnaires were given to cover the three different groups of respondents who are the head teacher, the Chemistry teacher and Form four students who take Chemistry. The questionnaires have two sections, A and B. section A seeks to get the demographic information while section Focused on investigation of different variables. The questionnaires were coded, therefore responses were marked and percentages worked out for comparison. Descriptive and quantitative data analysis techniques were applied.

5.2 Summary of findings

From data analysis in chapter four, the study isolated some factors which were found to be contributing to the poor performance of students in Chemistry in public secondary schools in Lugari Sub County, Kakamega County. The contents of the analysis can be summarized as follows:

5.2.1 Teaching methods

Teachers prefer demonstration method compared to practicals despite the presence of equipped laboratories. The students therefore are not well versed with the practical dimension of Chemistry. This led to most of them saying that the practicals make Chemistry a difficult subject.

5.2.2 Adequacy of instructional resources

Schools have a library which is not well equipped. The available texts however are relevant and student to book ratio is adequate the laboratory is well equipped but teachers prefer the demonstration method. Lack of the hands on approach has led to students perceiving the subject as difficult due to the presence of practicals. Therefore there is underutilization of the resources.

5.2.3 Motivation of the teacher

Majority of the teachers responded that they were not motivated by money, fringe benefits and availability of instructional resources. 25% noted that availability of instructional resources was a motivating factor for them. When asked about the factors that affected performance of Chemistry in their schools, teachers, a majority responded that availability of instructional materials was key, followed by learners academic ability and student attitude towards the subject. None commented that teachers motivation affected performance. Therefore, from the study, teacher motivation does not affect the performance of the students in Chemistry.

5.2.4 Attitude of the learner

Most students did not respond positively to questions that investigated their attitude towards Chemistry. Teachers neither were not better as 75% of them responded that it was below average too. The students have a negative attitude towards Chemistry despite the fact that they are interested in careers that need the knowledge of Chemistry. Students' attitude towards the subject has affected the performance in the subject

5.3 Conclusion

From the summary above poor performance in Chemistry in Lugari Sub county can be attributed to:

- Lack of exposure of students to practical before K.C.S.E hence inability to tackle practical work well by students due to preference of demonstration method by teachers over practical approach.
- Inadequate reference textbooks in the laboratory hence lack of adequate individual revision by the students.
- Negative attitude of the students towards the subject especially towards the practical paper hence lack of interest in performing well in the subject especially in practicals..

5.4 Recommendations

From the conclusion, the following recommendations are made:

- The school management should provide more instructional resources in form of a variety of Chemistry textbooks for the students in the library.

- Chemistry teachers should expose their students to more practicals individually, and also adopt a practical approach while teaching.
- Teachers of Chemistry should organize motivation talks that would help alleviate the negative attitude towards Chemistry.
- Chemistry teachers in conjunction with the school management should organize educational trips to chemistry based industries to motivate their students.

5.5 Suggested areas for further research

The researcher recommends the following areas for further study:

- i. An investigation as to why teachers prefer demonstration over individual practicals in schools with equipped laboratories.
- ii. Impact of teachers' intrinsic motivation on performance of Chemistry in Public Secondary Schools.

REFERENCES

- Adodo, S. O., & Gbore, L. O. (2012). Prediction of attitude and interest of science students of different ability on their academic performance in basic science. *International Journal of Psychology and Counselling* , 4 (6), 68-72.
- Arya D, J. L. (1972). *Introduction to Research Education*. U S A: Thormson Learning.
- Bolarin, A. (1988). Primary school pupils liked and disliked teaching subject. In *Curriculum* (pp. 103-106).
- Hussain, S. K., Ramzan, M., & Qadeer, Z. (2011). Attitude of secondary school teachers towards teaching proffesion. *International Journal Of Academic Research* .
- Jerris, A. (1999). *Human Resource Management for Hospitality*. New Jersy, USA,Upper Saddle River: Prentice-Hall, Inc.
- Kimble, G. A., & Marguis. (1961). *Conditioning and learning*. New York: Appleton Century-Crofts .
- KNEC. (2013). *K.C.S.E SYLLABUS 2013*. NAIROBI.
- Lavin, D. (1965). *The prediction of academic performance*,. New York: Russel sege foundation.
- Motivational Issues for Teachers in Higher Education: A Critical Case of IUB. (2010). *Journal of Management Research*, 2.
- Munavi, K. M. (1992). *Psychology of learning*. Nairobi: University of Nairobi.

Nbina, J. B. (2012). Analysis of Poor Performance of Senior Secondary Students in Chemistry in Nigeria. *African Research Review*, 6 (4 Serial No. 27), 324-334.

Nohria, G. ..., & Lee, L. (2008). Employee Motivation: A Powerful New Model. *Harvard Business Review*.

Panel, K. S. (2004). Gender issues in Mathematics and Science education A paper presented in cycle 1 of Kibwezi district.

Twoli, N. W. (2006). *Teaching Secondary School Chemistry*. Nairobi: Nehema Publishers.

Wanyama, W. K., & Dankit Nassiuma, C. Z. (2014). Impact of Motivation as HR bundle on performance of teachers of public schools in Bungoma County. *African Journal of Business Management*, 8 (3), 101-112.

APPENDIXES

Appendix I: Letter of transmittal

CECILIA KHAOMBI,
UNIVERSITY OF NAIROBI,
SCHOOL OF CONTINUING AND DISTANCE EDUCATION,
P.O BOX 30197,
NAIROBI.

22nd October 2014

TO WHOM IT MAY CONCERN.

Dear Sir/Madam,

RE: LETTER TO THE RESPONDENTS

I am a postgraduate student of the University of Nairobi pursuing a diploma course in Education. I am conducting a study on factors influencing performance in K.C.S.E Chemistry in Kakamega County and your school has been chosen to participate in this study. I am hereby requesting your assistance when collecting data in the school. The content of this data will be for academic purpose only. The confidentiality of the respondent identity will be highly respected. Do not indicate your name or the name of the school in your questionnaire.

Thank you in advance.

Yours sincerely,

Cecilia Khaombi.

Appendix II: Questionnaire for Headteachers.

Section A: Background information

1. Indicate your professional qualification

Diploma

B.Sc

Trained teacher(degree in education/ P.G.DE)

Postgraduate(Masters/ doctoral)

2. For how long have you been a principal in the current station?

0-2yrs

2-5 yrs

5-10yrs

Over 10yrs

3. Name the common methods used in teaching Chemistry in your school.

Lecture method teacher demonstration

Practicals any other (name them)

Section B:

4. Comment on the attitude of students towards Chemistry in general.

Very Good

Good

Average

Below Average

5. How are teachers motivated to teach Chemistry in your school?

Monetary benefits

Fringe benefits

availability of instructional resources

None of the above

6. Comment on the performance of students in Chemistry in general.

Very Good

Good

Average

Below Average

7. Comment on the standard of the Chemistry laboratory in terms of apparatus for practicals.

Very Good Good Average Below Average

8. In your opinion, how can performance of Chemistry be improved in your school?

Thank you. End

Appendix III: Questionnaire for Chemistry teachers

Section A:

1. Indicate your professional qualification.

Diploma

B.Sc

Trained teacher (degree in education/ P.G.DE)

Postgraduate(Masters/ doctoral)

2. Years of Chemistry teaching experience:

0-2years

2-5years

above 5years

Section B:

3. Rate the performance of Chemistry in your school.

Good

Fair

Poor

4. What is the ratio of Chemistry textbooks to the student?

None

1:2

more than 1:2

5. Rate the level of how equipped the school Chemistry laboratory is.

Adequate

inadequate

Non existent

6. What is the attitude of your students to Chemistry?

Very Good

Good

Average

Below Average

7. How many times do you conduct the following in a week?

Teacher demonstration experiments:

Zero Once twice more than twice

Student's practicals:

Zero Once twice more than twice

Lecture method:

Zero Once twice more than twice

Question and answer method:

Zero Once twice more than twice

8. What are the factors affecting performance of Chemistry in your school?

- Availability of Instructional resources
- Teacher's motivation
- Learner's academic ability
- Students attitude towards Chemistry

9. How are you motivated to teach Chemistry in your school?

- Monetary benefits Fringe benefits
- Availability of instructional resources None of the above

8. Based on your opinion, can performance of Chemistry be improved in your school?

Thank you

Appendix IV: Questionnaire for Chemistry Students

Section A:

1. Indicate your gender: Boy Girl
2. Indicate your age bracket:
14 and below 15-17 18-21 Above 21
3. What was your grade in Science in KCPE?
A (80%-100%):
B (60%-79%):
C (45%-59%):
D (30%-44%):
E (0%-29%):

Section B:

4. Do you have a library in your school?
Yes No
5. How many types of Chemistry textbooks have you used while studying?
0-1 2-4 4 and above

Please list their titles:

6. Where do you conduct your Chemistry practical sessions?

Laboratory Classroom Science room Nowhere

7. Which teaching method is mostly used by Chemistry teachers?

Lecture Demonstration Question and answer Discussion

Read the following statements about Chemistry. Against each are letters **SA**(Strongly agree), **A**(Agree), **NS**(Not sure), **D**(Disagree), and **SD**(Strongly disagree). Tick the right letters depending on what you feel about the statement.

8. Chemistry is an interesting subject.

SA A NS D SD

9. The teacher makes Chemistry interesting.

SA A NS D SD

10. Practicals make chemistry difficult.

SA A NS D SD

11. Calculation bit of Chemistry makes it difficult.

SA A NS D SD

12. There are too many facts to be learnt in Chemistry.

SA A NS D SD

13. In my future Career I would like to use Chemistry learnt in school.

SA A NS D SD

14. Understanding Chemistry will not lead to having a brighter future.

SA A NS D SD

15. How can performance of Chemistry be improved in your school?

16. When I finish school I want to be a :

Thank you

End