SELECTED EDUCATIONAL RESOURCES AS DETERMINANTS OF ACADEMIC PERFORMANCE IN PUBLIC SECONDARY SCHOOLS IN KURIA EAST AND KURIA WEST SUB-COUNTIES, KENYA

BY

HEZEKIAH ADWAR OTHOO

A THESISSUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION IN PLANNING AND ECONOMICS OF EDUCATION

DEPARTMENT OF EDUCATIONAL MANAGEMENT AND FOUNDATIONS

MASENO UNIVERSITY

DECLARATION

This is my original work and has not been presented for any Degree program in anyother university. No part of this thesis may be reproduced without the prior permission of the author and / or Maseno University.

_____ _____

Hezekiah Adwar Othoo Date

Reg No: MED/ED/00033/2014

DECLARATION BY SUPERVISORS

This thesis has been submitted for examination with our approval as university supervisors.

_____ _____

Dr.Maureen A. Olel Date

Department of Education Management and Foundations

Maseno University

_____ _____

Dr. Julius Gogo Date

Department of Education Management and Foundations

Maseno University

ACKNOWLEDGEMENT

This thesis would not have been actualized without the exceptional efforts and contributions made by a number of people. I have made an attempt to thank them all, even though I might not mention each one by name.

I would like to begin by thanking my supervisors; Dr. OLel and Dr.Gogo who put their expertise and time in supervising this work. My appreciations also go to Dr.Sika, Dr. Kabuka, Dr. Wanzare, Dr. Olendo, Dr. Asesa and Prof.Othuon for the intense induction I received in their hands during course work in Planning and Economics of Education.

To my colleagues at Nyaroha Girls School who assisted me in data collection and all the respondents who took their time to fill the questionnaires and provided the data that I required and to my colleaque students who critique the document for improvement ad academic support I got from them. In addition, I appreciate the Librarians who helped me get the necessary documents that assisted in the development of the study.

My special thanks and sincere gratitude to my wife Rosemary and to my parents for believing in me and for making this study possible and for their moral support.

Lastly, to my brother Washington Othoo who sponsored me in my earlier schooling.

DEDICATION

I dedicate this thesis to mywife Rosemary Akoth for financial and moral support, to myparents Mr. Stephen Othoo and Mrs. Isdora Atieno for the love and encouragement and to my two sons Samuel and Joshua. May God shower them with blessings.

ABSTRACT

An analysis of Kenya Certificate of Secondary Education performance in Migori County showed that Kuria East and Kuria west sub- counties were always at the bottom of the seven sub counties with continually declining academic performance with an average mean of 4.3 D+ against Rongo sub county which was the best in the county with an average mean of 5.6 C from 2012 to 2017. The study sought to determine the influence of selected educational resourcesas determinants of academic performance of public secondary schools of Kuria East and Kuria West Sub counties.Objectives of the study were to: determine the influence of levels of adequacy and utilization of teachers on academic performance; establish the influence of financial resources on academic performance and assess the influence of teaching and learning resources on academic performance in Kuria East and Kuria West sub-counties.The conceptual framework consisted of teaching and learning resources, teachers and financial resources as the independent variables and academic performance as the dependent variable**.**The study employed Descriptive survey research design.The population consisted of 40 principals and 345 teachers. Saturated random sampling technique was used to select 36 principals while stratified random sampling was used to select 138 teachers for the study. Data was collected through questionnaires, document analysis guide and observation checklist. Face and content validity of the instruments was ascertained by supervisors. A pilot study was carried out in four schools in order to determine the reliability. Reliability coefficient of .80 was obtained for teachers' questionnaire and .70 for principals' questionnaire from test - retest technique. Quantitative data was analyzed using both descriptive and inferential statistics involving percentages, mean and linear regression and qualitative data using content analysis. Findings indicated that adequacy and utilization of selected educational resources had statistically significant effect on academic performance with a regression coefficient of 0.87 for teachers, 0.79 for financial and 0.28 for teaching and learning resources. It was recommended that the government should employ more teachers, foster strict adherence to the fee guidelines set out by the Ministry of Education and school management should encourage optimal utilization of teaching and learning resources.Findings of the study may be useful to Kuria East and Kuria West sub counties, county government of Migori, Teachers Service Commission, educational planners, policy makers, and educational managers to utilize educational resources efficiently and device measures to address shortages of educational resources in schools so as to improve academic performance and to academicians for research purposes.

TABLE OF CONTENT

ABBREVIATIONS AND ACRONYMS

STR: Student to Textbook Ratio

STRM: Stream

ENRLMNT: Enrolment

F: Frequency

CDF: Constituency Development Funds

GDP: Gross Domestic Product

GNP: Gross National Product

ICT: Information Communication and Technology

KCSE: Kenya certificate of Secondary Education

KIE: Kenya Institute of Education

KNEC: Kenya National Examination Council

NCST: National Council of Science and Technology

NGOs: Non-Governmental Organization

TSC: Teachers Service Commission

UNESCO: United Nations Educational, Scientific and Cultural Organization

IGAs : Income Generating Activities

BOM: Board of Management

GoK: Government of Kenya

SEOs: Sub County Education Officers

PTA: Parents Teachers Association

SAGAs: Semi-Autonomous Government Agencies

MOE: Ministry of Education

NESSP: National Education Sector Support Programme

FDSE: Free Day Secondary Education

FGM: Female Genital Mutilation

CBE: Curriculum Based Establishment

LIST OF TABLES

LIST OF FIGURES

Page

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Under the Bill of Rights in the Kenyan Constitution (2010), free and compulsory basic education is guaranteed to all children, including vulnerable children and children with disabilities. The constitution also commits to providing Kenyan youth with access to quality education. Kenya's Vision 2030, the government's blue print for long-term development, affirms Kenya's aim to transform the country into a middle – income economy providing high quality of life for all its citizens by the year 2030. In addition, Kenya has committed to achieve the global Sustainable Development Goals (SDGs) by the year 2030 (Republic of Kenya Vision 2030). Goal four of the SDGs was quality education which aims to provide inclusive, equitable and quality education and promote lifelong learning opportunities for all. The quality of education imparted to Kenyan children and youth are, and would remain, the determining factor in the achievement of Kenya's Vision 2030. Investing in human capital is the sure means for Kenya to achieve her economic, social and political objectives well-articulated in Vision 2030 and the constitution.

Despite the progress made in enhancing enrolment at all levels of education, there remain challenges that hinder Kenya from reaping maximum benefits of the large investments made in the sector, which stands at close to 7% of the annual GDP (NESSP 2014-2018). One of the challenges is low quality of education outcomes. An analysis of students' 2016 performance on the KCSE examinations indicates that most learners achieved below average scores with 33000 learners' attaining E grade in KCSE of which Kuria East and Kuria West had 200 Es which represents about 7% of the total number of candidates in Kuria East and Kuria West Sub-

Counties with the grade (KNEC Report, 2016).This was a very significant percentage since there are over 300 sub counties in Kenya with only two contributing over 7% of the total number of candidates with the lowest grade. Further analysis of KCSE performance in Migori County shows that Kuria East and Kuria West sub - counties have been at the bottom of the seven sub counties in the county for a number of years as indicated in Table 1.1

Table 1.1: Migori County KCSE Result Analysis from 2012 - 2016

YEAR / SUBCOUNTY	**2012**	**2013**	**2014**	**2015**	**2016**
Rongo	6.26	7.01	5.33	5.60	3.77
Awendo	5.01	5.62	5.49	5.23	3.56
Uriri	4.92	4.89	5.21	5.25	3.56
Nyatike	5.27	5.52	5.30	5.26	3.94
Migori	5.60	5.15	5.14	4.97	3.28
Kuria West	**4.82**	**4.75**	**4.63**	**4.58**	**3.13**
Kuria East	**4.70**	**4.61**	**4.60**	**4.51**	**3.046**

Source: Migori county TSC statistics office

According to the 2014 Kenya Demographic and Health Survey (KDHS), the national prevalence of FGM was 21 percent down from 27 percent. A briefing note published by UNFPA and Unicef in 2015 shows that female genital mutilation prevalence remains high amongst the Somali, Samburu, Kisii and Maasai. It further highlights that one of the grave consequences of female genital mutilation was that it was usually a pre-cursor to early and child marriage which usually forces girls to drop out of school.

Amani (2013) did a study on the influence of selected cultural practices on girls' participation in education in secondary school level in Kuria East and Kuria West sub-counties, Kenya, and

found out that selected cultural practices negatively influence girls' access to education at secondary level in Kenya. Cancella (2010) did a study on persistence of female genital mutilation and its impact on women's access to education and empowerment in Kuria district, Kenya, and found out that education has played a major role in the eradication of FGM and the number of girls undergoing FGM had declined since education empowered the girl and enlightened them on the negative effects of FGM. She further found out that through schooling most girls have learnt to say no to FGM. Report contained in Economic Survey 2016 indicates that insecurity in Kuria has reduced and even cases of FGM have diminished therefore such factors might not have significant influence on learners' academic performance. From the above studies and reports it was evident that socio-economic and cultural factors have been found to impede access and lead to increased repetition and dropout rates. This study was more about quality of education and therefore did not take keen study on the quantity of education.

The Organization for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA) shows that resource shortages hinder instruction and lower student performance (OECD, 2007). In some education systems, there are concerns that schools not only lack the resources to meet the educational requirements of their students, but that schools may have fewer resources with which to provide instruction to their students (OECD, 2008).

A survey report conducted by KNEC, 2017 in Kenya titled National Assessment System for Monitoring Learner Achievement (NASMLA) on what causes poor performance in KCPE and KCSE identified factors that causes poor results as lack of regular meals, textbook sharing, and school entry age, lack of facilities, absenteeism by teachers, irregular assessment and professional qualifications of teachers among others.

A preliminary survey by the researcher in February 2017 on the allocation of teachers, who process all the education inputs in order to achieve a desirable output revealed that out of the seven sub - counties Kuria East and Kuria West had the lowest student teacher ratio as shown in Table 1.2.

SUB COUNTY	NO.OF SCHOOLS	TEACHERS		ENRLMNT	STRM	STR
		ON DUTY	SHORTAGE			
URIRI	33	193	329	9440	241	48:1
MIGORI	53	341	611	17060	431	50:1
RONGO	28	258	317	11696	284	45:1
AWENDO	38	230	378	10673	282	46:1
NYATIKE	53	240	427	10817	241	45:1
KURIA WEST	32	219	246	9233	229	43:1
KURIA EAST	20	126	153	5226	128	42:1

Table 1.2: Migori County Staffing and Enrolment Levels as at February 2017.Source: Migori County TSC Statistics Office

Table 1.2 compared with Table 1.1 presents a sharp contrast on the levels of adequacy of teachers and academic performance. This is because Kuria East and Kuria West sub counties had the best student to teacher ratio compared to other neighbouring sub counties from 2012-2016 but they posted the lowest and continually declining academic performance. Therefore this study sought to determine the influence of levels of adequacy and utilization of teachers on learners' academic performance in Kuria East and Kuria West sub counties.

Due to the scarcity of resources and inequality in the allocation of educational resources because of corruption and remote location of certain institutions, one can find one school having more

than enough resources while others experience deficiencies (Republic of Kenya, Economic Survey, 2017). To address this, the government has provided each learner in any school in Kenya with an equal grant in form of FDSE of Ksh.12870 per year (The Kenya Gazette of 10th March, 2015). This has been stepped up to Ksh.22244 leaving day secondary education free with parents not required to pay fee as indicated in Table 1.3.

Table 1.3: Government Fee Guideline as from 2018

VOTE HEAD	GOVERNMENT SUBSIDY(KES)	PARENT FEE(KES)	TOTAL
Teaching learning materials	4792	00	4792
Repair, maintenance and improvement	2886	00	2886
Local Travel and Transport	1833	00	1833
Administrative costs	1572	00	1572
Electricity, water and conservancy	2151	00	2151
Activity fees	1256	00	1256
Personal emoluments	5755	00	5755
Medical and insurance	1999	00	1999
Total school fees	**22244**	**00**	**22244**

Source: MOE, Kenya 19th October, 2017

The taskforce on implementation of FDSE (2013) recommended that schools should start income generating projects to supplement the fee paid by parents and FDSE grants. As to

whether schools adhered to this advice so as to ensure adequacy of resources was one of the issues to be addressed in this research. A report by Ethics and Anti- Corruption Commission in 2018 revealed that head teachers were issuing wrong enrolment figures, flouting procurement procedures, taking bribes and hiding crucial audit documents to steal free educational funds. The report also unearthed massive irregularities in the procurement of text books for public schools, with head teachers playing a key role in the racket. The fraud ranged from forged signatures, delivery of phantom books, overpricing and single-sourcing of suppliers by instructional materials selection committees at the school level. Many times the school administrators have not respected the fee guidelines set by the government with the major reason being that the funds are not sufficient thus they have tended to increase fee paid by the students (Kilemi Mwiria Report, 2013). However the optimal utilization of these funds depends on the managers of these schools. It was therefore necessary to establish the influence of levels of adequacy and utilization of school financial resources on academic performance of Kuria East and Kuria West sub-counties.

UNICEF (2005) observes that school infrastructure affects quantitative growth and the provision of quality education since a certain minimum space in a classroom per learner, adequate science rooms, well equipped library, recreational facilities and boarding facilities are prerequisite in providing quality education. Further, adequacy of school infrastructure was not only a problem in Africa but also in the whole world. For, instance, Atherton (2008) observed that many schools in America are suffering from incidences of peeling paint, crumbling plaster, leaking roofs, poor lighting, inadequate ventilation and inoperative heating and cooling systems among other problems limiting provision of quality education as these demotivates learners and makes them uncomfortable.

Johan (2004) stated that educational outcomes in schools are closely linked to utilization and adequacy of teaching/learning resources in different ways; poor utilization or underutilization results to low educational performance. He further states that the inadequacy of physical and material resources in schools was a major factor responsible for learning outcome of students. He argued that schools that do not have adequate facilities such as workshops, laboratories, classrooms, teaching learning materials are unlikely to post good results. The principles of facilitating effective learning and teaching involves having the practical skills and putting the learners own experience into practice. They receive inputs from the external environment in form of human and material resources, process them and empty the same into the society as finished products and services. The quality of the products bears a direct relationship with the qualities of the facilities deployed in the process of production.

Mathematics for instance was used as a key subject for selective advancement in the education system although conditions that prevail in the education system discourage a good performance in such examinations (Eshiwani, 1988). This was due to inadequate instructional resources and equipment, poor teacher preparation, uninspired curricular and negative attitude by majority of stakeholders in education, especially the learners.

Wambua (2011) did a study on the impact of school infrastructure on access and provision of quality secondary education in Kisumu Municipality and found that the number and quality of school teaching and learning resources like classrooms, library, and laboratory influence the provision of quality secondary education in Kisumu municipality. Adequate tuition facilities facilitated the provision of quality education. She recommended that the ministry needed to level the ground for all learners particularly those who lack the facility. The study was done in urban centre but the current study was done in the rural and remote area and not only looked at school

infrastructure but also other school resources like teachers and finances. The current study took cognizance of this finding and assessed the levels of adequacy and utilization of selected teaching and learning resources and their influence on academic performance.

1.2 Statement of the problem

There had been low and declining academic performance in public secondary schools in Kuria East and Kuria West Sub Counties over the years. This was despite the fact that the government invested heavily in education, for example, in 2016/2017 financial year; secondary schools were allocated 32 billion for FDSE in which Kuria East and Kuria West benefited (Republic of Kenya, 2016/2017 Budget) to ensure that resources required in schools are availed. Moreover, the government had continuously over the years employed more teachers in public secondary schools in which Kuria East and Kuria West are also beneficiaries but the academic performance continued to decline in Kuria East and Kuria West over the years compared to other neighboring sub counties. This study therefore sought to determine the influence of selected educational resources as determinants of learners' academic performance in Kuria East and Kuria West Sub Counties with a view to addressing low academic performance of public mixed secondary schools in the said sub counties

1.3 Purpose of the study

The purpose of this study was to determine the influence of levels of adequacy and utilization of selected educational resources as determinants of learners' academic performance of public mixed secondary schools in Kuria East and Kuria West Sub Counties.

1.4 Research objectives

This study was guided by the following objectives:

1. To determine the influence of the levels of adequacy and utilization of teachers on learners' academic performance in Kuria East and Kuria West sub counties.
2. To establish the influence of the levels of adequacy and utilization of school financial resources on learners' academic performance in Kuria East and Kuria West sub counties.
3. To determine the influence of the levels of adequacy and utilization of teaching and learning resources on learners' academic performance in Kuria East and Kuria West sub counties.

1.5 Research questions

The study sought to answer the following research questions.

1. What is the influence of the levels of adequacy and utilization of teachers on learners' academic performance in Kuria East and Kuria West sub counties?
2. What is the influence of the levels of adequacy and utilization of school financial resources on learners' academic performance in Kuria East and Kuria West sub counties?
3. What is the influence of the levels of adequacy and utilization of teaching and learning resources on learners' academic performance in Kuria East and Kuria West sub counties?

1.6 Assumptions of the study

The study was carried out on the basis of the following assumptions:

1. Scores in KCSE examinations are indicators of student performance in secondary education or quality of education.

2. The parents and students had embraced education and had positive attitude towards it since the student completed the secondary level of education without dropping out.

1.7 Scope of the study

This study was conducted in Kuria East and Kuria West Sub Counties, Migori County with particular interest to public mixed secondary schools. The public mixed secondary schools had similar characteristics for instance entry behavior and had parents and guardians with almost the same economic ability in terms of fee payment therefore would provide homogenous data which helped the researcher to make informed conclusions. The respondents to this study included principals and teachers in the two sub- counties. The study assessed factors such as adequacy and utilization of: school financial resources, teachers, school teaching and learning resources such as such textbooks, library, computers, laboratory and laboratory equipment as determinants of learners' academic performances in the years 2015, 2016 and 2017.

1.8 Limitations of the study

The study was based on public mixed sub-county secondary schools and the findings might not be applicable to extra- county and national schools because they possess different resource levels and entry behaviour.

Teachers employed by BOM were not used for regression because they were found out to be inconsistent because they had short length of stay in a given school.

1.9 Significance of the study

The findings of the study might have significant implications for the future of public secondary schools in Kuria East and Kuria West Sub Counties in terms of addressing the resource shortages if any and equitable distribution of resources to the schools in the said sub counties. It might also

be useful to the county government of Migori, Teachers Service Commission (T.S.C), educational planners, policy makers, and educational managers to utilize the scarce educational resources efficiently and device measures to address shortages in school resources if any so as to improve performance in KCSE. In addition, the findings of the study might be used by curriculum developers to ensure that teaching and learning materials recommended for secondary schools are those that positively help to promote students' understanding of the curriculum leading to better KCSE performance. Finally, it may be useful to academicians for research purposes.

1.11 Conceptual Framework

This study was based on a hypothesized relationship between a set of variables as diagrammatically explained in Fig. 1.1.

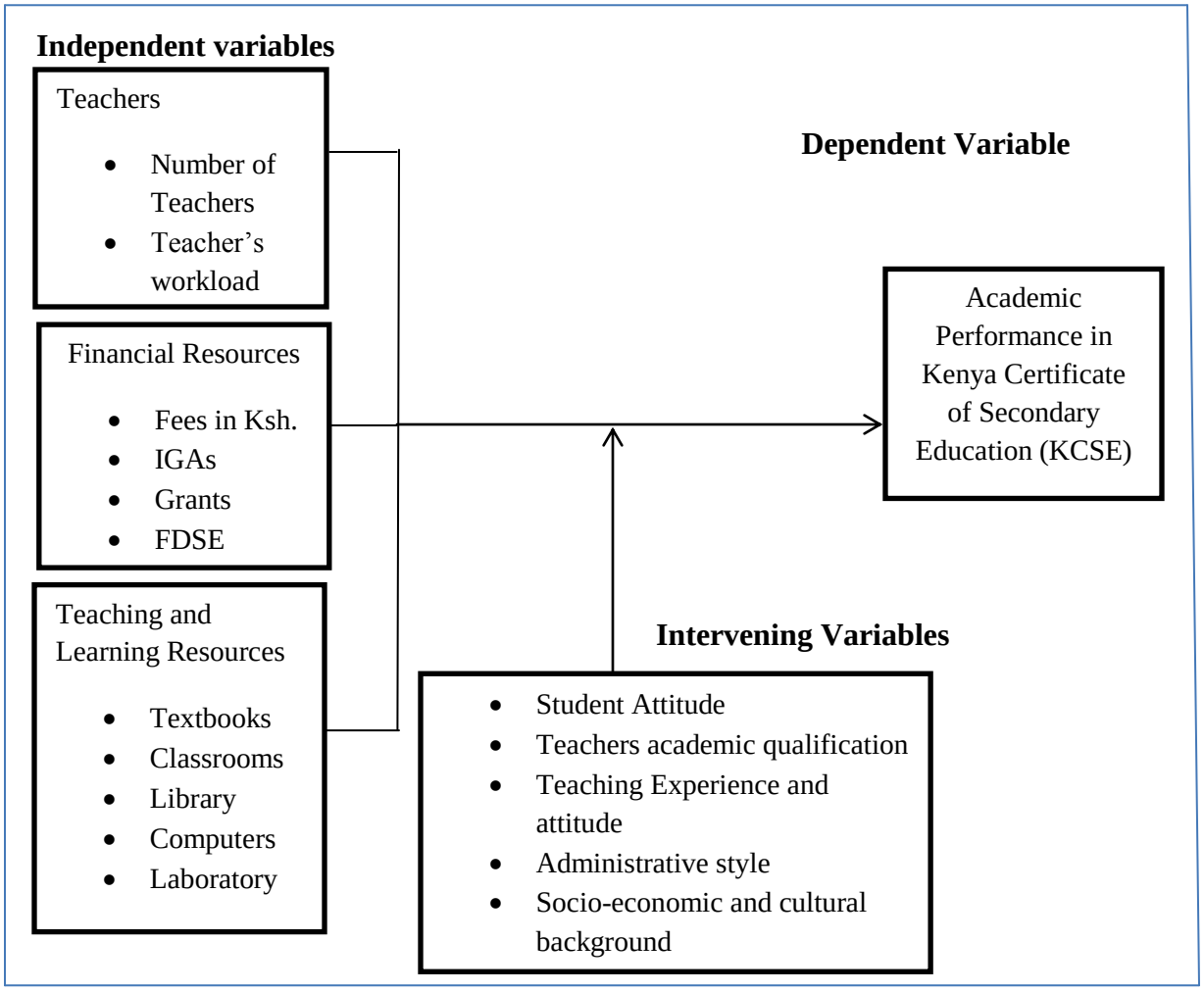

Fig 1.1 Conceptual framework for the study

Source: Self conceptualization, (2018)

Figure 1.1 illustrates the educational resources namely; teachers, financial resources and teaching/learning materials, which were the independent variables in this study, and their influence on academic performance, which was the dependent variable. The intervening variables which might also have had effects on academic performance included but not limited to

student attitude, teachers academic qualification, teaching experience, administrative style and socio-economic and cultural background. The teaching/learning resources commonly used in schools that this research was interested in include textbooks, classrooms, library, computers and laboratory. Adequacy of the above resources ensures that the learners could work independently and with ease, assignments could also be issued and completed in good time, enriched learning environment, adequate syllabus coverage and consequently improved academic results. This study focused on the teachers since they were the ones who were responsible for the processing of all the educational inputs. Further, they are at the center of learning since they disseminate knowledge to the learners and mobilize and use other educational resources to ensure success of any educational system. Teachers' adequacy and utilization was indicated by the number of teachers in relation to CBE and their workload. School financial resources included fees, FDSE, income from income generating projects, Donations, and grants.

1.12 Definition of key Operational Terms

Academic performance: School mean scores in K.C.S.E examination.

Enrolment: Total number of pupils registered in a given school.

Mixed schools: refers to learning institutions where school going girls and boys share available resources.

Educational Resources: all the inputs available in an education system used to facilitate teaching and learning process. In this study teacher, financial, teaching and learning resources were used

Financial Resources: the money available for running schools like fees, FDSE, donations, grants

Free Secondary Education : This is education provided by the government in the second cycle of a school system i.e. secondary. The government caters for tuition expenses while the parent caters for boarding expenses.

Resource utilization: Use of educational resources by a school especially to improve their academic performance. Teachers' utilization will be assessed through number of lessons taught per week which is fixed at 27 lessons, financial resources utilization through analysis of school annual audit reports, Teaching and Learning resources through teaching, assessing, practical, library time, computer purchases and computer time.

Student's Attitude: It was a way of thinking or feeling by a learner about something or somebody usually reflected in a person's behavior when reacted by that thing, situation or person. It can also mean a learned, emotionally formed disposition to react in a consistent way, favorable or unfavorable toward a person, object or situation.

Teaching/learning resource: any equipment that was used to facilitate effective curriculum delivery. In this study Teaching and Learning Resources meant textbooks, library, laboratory and laboratory equipment, classrooms, computer and computer room.

Resource Adequacy: Sufficient supply of educational resources according to standards laid down by MOE, Kenya. According to MOE' CBE, one streamed school should have a minimum of 9 teachers, two streamed17 teachers, three streamed 25 teachers and four streamed 33 teachers. Financial Resource adequacy means 100% payment of fees as set by the MOE for various categories of schools, timely and full disbursement of FDSE funds to schools as indicated in Table 1.3 and income from Income Generating Activities. Student to Textbook ratio should be 1:1, standard classrooms and should host a maximum of 40 to 45 students. The library should be spacious enough and have all relevant reference books.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains various scholarly works that have been reviewed for the purpose of this study. It focuses on adequacy and utilization of human resources, financial resources, teaching and learning resources and their influence on students' academic performance.

2.2 Levels of adequacy and utilization of teachers and their influence on learners' academic performance.

Teachers are the people who constitute the staff workforce in a school. According to Olagboye (2004), people and knowledge, skills and attitudes in them constitute resources. Okwori (2006) agreed with this assertion and added that expertise in technical, mechanical, managerial, social and other areas potentially available for utilization in social and economic institutions constitute human resources.

A secondary school as an educational institution has teaching staff, non-teaching personnel and students including their knowledge, abilities and skills as the human resources. Essentially, the personnel within the institutions and their capabilities in contributing to productivity and performance of institutional objectives are referred to as human resources. Teachers in secondary schools are engaged in the processing of all educational inputs, students inclusive, so that the educational institutions may be able to achieve their objectives. They disseminate knowledge and skills through teaching, contribute to advancement in knowledge and engage in community services. Their adequacy and utilization would determine the success or failure of the educational system.

Teachers constitute the core of the education system and their importance in student performance has been widely confirmed by many studies (Rivkin, Stephen, Ertik & John, 2000). Thus teachers are an important resource in the teaching/learning process and their training and utilization therefore requires critical consideration (Ministry of Education Science and Technology, 2005a). In recent years an increasing number of studies have expressed concern about current and prospective teacher shortages in many countries. According to Santiago (2002) severe shortages currently exist, and there is a gap between demand and supply of teachers needed to ensure effective teaching in many countries. Teacher shortages have therefore, become a major concern to educational authorities and should be addressed continuously by policy makers.

Performance of teachers as reflected by level of training and teaching experience would determine the quality of grades attained in an examination (Harbison, 1964).

A method of determining the extent of teacher's utilization was through the number of students assigned to them for teaching. These are referred to as Students-Teacher Ratio (STR). STR was used to determine the number of students that were allocated to a teacher in a given educational level. The STR shows a teachers workload at a particular level of education. It also helps in determining the number of teaching manpower needed for a projected student's enrolment. Thus, it could be used to determine whether teachers are over-utilized or underutilized (Afolabi, 2005).

$$\text{STR} = \frac{\text{Total number of students at a given educational level in a year}}{\text{Total number of teachers at a given educational level in a year}}$$

This ratio sometimes might not accurately indicate teacher shortage in secondary schools since there are so many subjects offered and those subjects' calls for different teachers with different

subject combinations. To ascertain adequacy of teachers in schools, STR and subject combinations should be considered (CBE).

According to Okumbe (2007), teachers are the most important resource that any country has because an efficient human capital development depends on the quality and effectiveness of teachers.

Odhiambo (2010) contends that there was a growing demand from the Kenyan government and the public for teacher accountability in students' performance. Schools are commonly evaluated using students and teachers cannot be disassociated from the schools they teach and academic results of the students. Teachers celebrate and are rewarded when their schools and subjects are highly ranked.

Researches have shown that Educators qualifications has serious implications for the quality of the education they provide (Fenech, 2006). Well trained teachers are expected to hold their jobs longer, to be able to engage in more responsive, positive and consistent interaction with students, and to positively influence students' performance.

Musili, A.M. (2015), point out that teacher's professional experience influence students' performance in KCSE. This shows that experienced teachers are more satisfied when they have challenging opportunities at work and are better placed to handle them and commit their time to teaching their students for improved performance. This study sought to evaluate the adequacy and utilization of well trained and experienced teachers and their influence on students' performance in KCSE in public secondary schools in Kuria East and West Sub Counties.

A study carried out by Lynn, (2014), on influence of Kenya vision 2030's Education policy on quality Education in public secondary school indicated that, good performance depends on students' intelligence quotient and hard work since some students perform above average in

schools where resources are scarce. It has been documented that many interacting factors may cause the poor performance of students in KCSE. Students characteristics such as students age, student career choice, gender, study times and class attendance being among the factors,(Ogweno,P.O.2014). In another study by Al-Hilawani and Sartawi (1997), it was also found that good study skills and habits are fundamental for student's academic performance.

Moore, (2006) on his study on how student's attitudes about class attendance relate to their performance in introductory science classes indicated that class attendance enhances learning, on average; students who attended most classes made the highest grades, despite the fact that they received no points for coming to class.

According to Lee (2002) everyone who works in a school has a part to play, in raising standards and giving students a better part in life.

Eaker, Keating and Rhoades (2008) observed that the role of support staff in schools may be overlooked by some people. They argued that the support staffs play an important role in any school, especially in schools that are eager to come up as centers of excellence. They observed for instance, that secretaries are often the first people parents contact when they call or enter a school. Bus driver, they argue, may undo in one afternoon what a teacher has worked on for weeks with students. They also observed that for a school to serve as a Centre of excellence devoid of violence, it must shift from the culture of isolation to a culture of collaboration exemplified by high performing collaborative teams. It was their belief that the real impact of a collaborative culture occurs when an entire school including the support staff, was organized into a highly effective collaborative teams, planning together, analyzing results and seeking always to improve.

Human resource as a factor of production was affected by adequacy and quality as reflected by level of training and level of motivation (Juma, 2011). According to behavioral scientists, effective worker performance requires motivation ability and reward system that encourages quality work (Ivancerich, 1994).

2.3 Levels of adequacy and utilization of school financial resources and their influence on learners' academic performance

The financing of the Kenyan education system was the result of a complex partnership, with efforts made mainly by the Government budget and parents, but with substantial contributions from the development partners, the private sector and NGOs. Private education was entirely financed by the parents and the private sector (NESSP 2013/14-2017/18).

A high demand for secondary e ducation has been recorded at secondary level in Kenya. For example, enrolment in secondary schools rose from 2.1million in 2013 to 2.3 million in 2014 (Economic Survey 2015). This demand calls for higher spending in education on the side of government and the parents. To ease the burden on the exchequer, the government introduced cost sharing strategy between the government and parents through sessional paper No.1 of 1986 on economic Management for Renewed Growth that sets procedures for reducing this expenditure to 30% of the total recurrent expenditure. This meant that increased cost sharing in the financing of education and training had called for the use of more cost effective measures in the utilization of educational facilities, equipment, material s and personnel (Republic of Kenya, 1988, pg 17)

Up to 37.3% of the secondary expenditure was spent on indirect educational costs namely uniforms, books and stationery, pocket money and transport. This becomes the critical element in secondary school education financing. Orodho and Njeru (2003) recommended the regulation of

fees guidelines, monitoring effectiveness of indirect secondary school levies such as holiday and weekend tuition and MOCK examination fees and proper accountability of funds from income-generating projects. Out-of-school tuition or 'coaching' has been exploited and converted into a money minting enterprise. Teachers deliberately fail to cover the syllabus during the normal school hours and wait to teach during the extra hours to make a quick buck. This was blamed on 8-4-4 system of education due to its wide curriculum. The grand effect of all these were to increase fees beyond the reach of an average parent (Ibid).

The cost of learning materials, books, uniforms and other expenses, in addition to opportunity costs, deter poor students from engaging in formal secondary education. This cost include Personal books e.g. dictionaries, bible, atlas and hymn Book. Uniform fees, boarding fees, PTA, medical and caution, Personal basics e.g. soap, pens, exercise books, uniforms and shoes (Bray, 2000). It was for this reason that Free Day Secondary Education (FDSE) was introduced in 2008 with the aim of enhancing access, equity, quality and retention in secondary education. The FDSE provides for financing of tuition and operational expenses that make secondary education affordable to most students. Since inception the FDSE capitation has been Ksh. 10,265 which was increased to Ksh.12870 in the 2014/15 FY. This was due to inflation and to cushion parents against the rising costs of education. However, schools have continued to charge parents high fees beyond the government set fee guidelines.

The Secondary Education Program has seven sub-Programs implemented under it. The sub-Programs include Free Day Secondary Education; Science Laboratory Equipment grants; Special Needs Education; Secondary Bursaries and scholarships; Secondary Schools Infrastructure; ASAL, Pockets of Poverty and service gratuity grants; ICT Integration in Secondary Education, Diploma Teacher Education (Education Sector Report 2016/17 – 2018/19)

ICT integration in Secondary Education was aimed at providing capabilities and skills needed for knowledge based economy as envisaged in the Kenya Vision 2030. In the FY 2012/13 Ksh.480 M was allocated and disbursed to 210 secondary schools, 2013/14 KES. 350 M disbursed to 204 schools. In 2014/15 procurement was done centrally for 243 secondary schools.

Science Laboratory Equipment Grant was meant to support identified needy secondary schools with funds to purchase laboratory equipment and chemicals. During the FY 2012/13, a total of Ksh. 165 M was disbursed to 1,179 schools with each receiving Ksh. 139,949. This amount was increased to Ksh. 251,560,000 in 2013/14 and disbursed to 1,324 schools each receiving Ksh. 190,000. In 2014/15 a total of Ksh. 178,255,854 was disbursed to 954 schools each receiving Ksh. 186,851. The fund has improved the teaching and learning of science subjects especially in newly established secondary schools. However, there was need to increase the allocation so that more schools are reached as well as address the adequacy of equipment.

The Secondary Constituency Bursary Scheme has been in existence since 2003 supporting vulnerable groups including orphans, girls and children from poor families in slum areas; poverty-stricken families in high potential areas; and families in ASAL areas. Funds from the scheme have assisted needy secondary school students meet other education expenses not catered for by FDSE. In 2012/2013 Ksh.1 billion was disbursed to constituency bursary committees across the country. The amount was increased to KSH. 1.17 billion in 2013/2014. In 2014/2015, no allocation was provided as the role was to be taken up by Constituency Development Funds.

Secondary Schools Infrastructure: The sub Program has two components namely, school infrastructure development and national schools upgrading. The school infrastructure development component targets all the 8041 public secondary schools while the national schools

upgrading component targets 103 national schools. In 2012/13, a total of Ksh. 200 million was disbursed to 227 schools. Similarly, in 2013/14, a total of Ksh. 108 M was disbursed to 68 schools .The support was enhanced in 2014/2015 to Ksh. 1.56B under the regular and public initiative infrastructure funding and the money was disbursed to 345 schools. (Education Sector Report 2016/17 – 2018/19)

Cost and financing of education was a complex subject; complex because finance underlies so much of the three overarching themes of contemporary education policy, namely: quality and the relationship between funding and quality in any of its several dimensions; access, or the search for social equity in who benefits from, and who pays for, education; and efficiency, or the search for a cost-effective relationship between revenues (particularly those that come from students, parents, and taxpayers) and outputs, whether measured in enrollments, graduates, or student learning, (Barasa, 2006).To reduce secondary unit costs by enhancing cost-effectiveness in education, the Government could target an upper limit of optimal class size of 45 students, and promote the efficient use of both human and physical resources. This option should be accompanied by cost reduction measures for parents towards making secondary education affordable. Increase Class Size was promote class size of 45 students in secondary schools (Lewin, 2006).

Barasa (2006) carried out an investigation on consequences of financial mismanagement in secondary schools in Kenya. The problems encountered include; strikes, poor food lack of learning facilities, school fees hikes and inadequate non-teaching staff. The study was however silent on the influence of these factors on learners' performance.

Other studies done relating to this area include those of Dean (2009) who undertook a study in United Kingdom to investigate problems faced by school management. His findings were that, the most predominant problems inherent in schools include- staff, administrative and discipline problems, financial problems, which come in from resource allocation and management. In essence, (Dean, 2009), underscored the importance of proper utilization of resources. It was therefore important to relate such problems on their influence to learners' output which this study sought to establish.

2.4 Levels of adequacy and utilization of teaching and learning materials and their influence on learners academic performance

Instructional materials have been defined differently by various authors.

Obanya (2009) viewed them as didactic material things which are supposed to make learning and teaching possible.

Wasola (2010) referred to instructional materials as objects or devices, which help the teacher to make a lesson much clearer to the learner.

According to Nicholls (2000) exclusively oral teaching cannot be the key to successful pedagogy. To make the teaching learning process interesting the teacher has to use instructional aids.

School resources including classrooms, desks, chairs, computers, textbooks, teachers, principals, school operating expenses and other instructional equipment/materials are critical in making teaching-learning more effective. They help improve access and educational outcomes since students are less likely to be absent from schools that provide interesting, meaningful and

relevant experiences to them. These resources should be provided in quality and quantity in schools for effective teaching-learning process.

Momoh (2010) conducted a research on the effects of instructional resources on students' performance in West Africa School Certificate Examinations (WASCE). He correlated material resources with academic performances of students in ten subjects. Data were collected from the subject teachers in relation to the resources employed in the teaching. The performances of students in WASCE were related to the resources available for teaching each of the subjects. He concluded that material resources have a significant effect on student's performance in each of the subjects.

Instructional materials in the teaching-learning process, facilitate the learning of abstract concepts and ideas; keep the learners busy and active thus, increasing their participation in the lesson; save teachers' energy of talking too much; illustrate the concepts clearer and better than the teachers' words only; help overcome the limitations of the classroom by making the inaccessible accessible; help to broaden students' knowledge, increase their level of understanding as well as discourage rote-learning; help to stimulate and motivate learners.

Recent emphasis on teaching-learning methods ensures that learners are made to have active participation. Active participation of learners increases motivation and also minimize, disruptive behavior associated with a boring curriculum overloaded with abstract concepts. Active participation was facilitated by making use of instructional materials and resources. Teaching can only be effective when adequate and relevant instructional materials are used (Falade, 2006). Oyeniran (2003) observes that students learn best if they are given the opportunity to see and to

make observations of what they are taught. He said a good instructional material might be a substitute for real life objects in the classroom as against the use of exploratory methods.

Many research reports abound on the inevitability of instructional materials and resources on educational outcomes (Hassan, 2000). When instructional materials and resources are lacking or are inadequate education was compromised and this inevitably was reflected in low academic performance, high dropout rates, problem behaviours, poor teacher motivation and unmet educational goals. This leads to wastage of resources devoted to education.

Having noted through various researches done on the importance of instructional resources on the educational outcomes, it was inevitable to assess their levels of adequacy and utilization in Kuria East and West with an attempt to address the declining academic performance.

A key component of educational quality was infrastructure and this has been a major focus of investment. Constructing and providing for quality classrooms, water and sanitation facilities, laboratories and libraries form a learning environment that not only encourages learning but was also welcoming, gender-sensitive, healthy and safe. Provision of infrastructure in educational institutions was done by the national government, devolved funds such as CDF, and the community and development partners. (NESSP 2013/14-2017/18).

A survey conducted and released by the Saturday Nation on February 4, 2017 presents a picture of decay, disuse and neglect in the schools. Pupils learn under difficult conditions while teachers struggle to create order where chaos reigns. It established, in a week long survey, a pervading sense of decay. In many areas, it was a case of absence of infrastructure as learners sit on the floor, or stones and logs. Open sewers, dumpsites in schools, crumbling ceilings, cracked walls

and potholed floors, characterize the conditions under which many learners in public schools learn.

Rapid increase in school enrolments has resulted into large classes especially in secondary school level resulting to poor performance and less desirable teaching (Wangari 2008)

Luvega (2007) in her study on the success of free primary education in Kenya established that lack of school infrastructure like classrooms, desks, toilets were a major hindrance to quality teaching and learning. Schools where pupils were forced to share desk or sit on the floor reported poor performance. This kind of environment was found not conducive for teaching and learning hence poor academic performances.

According to Lyons (2002) learning was a complex activity that puts students' motivation and physical condition to the test. It has been a long-held assumption that curriculum and teaching are the only major parameters that have an impact on learning. However, it was becoming more apparent that the physical conditions in schools indeed influence student performance.

According to Earthman (2004), Wall, Woolner, & McCaughey (2005) and Schneider (2002) high educational performance was associated with a number of comfort factors such as; air conditioning, less noisy external environments, less graffiti and where classroom furniture are in good repair. More recent reviews have consistently found relationships between building quality and academic outcomes. These studies also seeks to find if design criteria and building conditions related to human comfort, indoor air quality, lighting, acoustical control, and secondary science laboratories have demonstrable influence on student performance.

Earthman (2004) rates temperature, heating and air quality the most important individual elements affecting student performance. Lighting ranked next in order of criteria having

demonstrable effects on student learning outcomes, with daylight offering the most positive effect, potentially due to its biological effects on the human body. Tanner (2000) underscores important recurring patterns of school design. Among the four features of his school design assessment scale which correlate with student performance, are; pathways encouraging ease of movement and positive outdoor spaces allowing learning to extend beyond the classroom walls. Overcrowding has been found to have a harmful effect on student learning (Earthman, 2004). Chronic noise exposure hinders cognitive functioning and impairs reading skills (Haines, 2001; Maxwell & Evans, 2000). The quality of school buildings has also been related to student behavior, including vandalism, absenteeism, suspensions, disciplinary incidents, violence, and smoking (Schneider, 2002). Thus, reviews of research on various aspects of the physical environment tend to conclude that adequate student capacity and appropriate acoustical conditions are important factors in a school environment (Fisher, 2001; Schneider, 2002; Earthman, 2004). Students are not the only ones affected by poor quality buildings. Teacher attitudes and behaviors have also been found to be related to the quality of school facilities. Teacher retention/attrition decisions were significantly related to the quality of school facilities, even when controlling for a host of factors (Buckley, Schneider, & Shang, 2004). Factors that most directly affected the quality of teacher work life also included indoor air quality, thermal controls, noise level and acoustics, adequate classroom lighting, and the amount of natural daylight. Teachers who perceived a detrimental effect on their health due to building conditions, or who were stressed by high noise levels, poor acoustics, and lack of thermal controls were more likely to seek employment elsewhere. They therefore become demotivated and unsettled. Thus, this study assessed such characteristics mentioned above and their influence on the KCSE performance in public secondary schools in Kuria East and West Sub Counties.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology adopted in this study. It describes research design, study area, target population, sample and sampling technique, data collection procedures, research instruments, validity and reliability of the instruments, data analysis methods and ethical considerations.

3.2 Research design

This study adopted a descriptive survey research design. As a result of the cause-and-effect relationships, this research design does not permit manipulation of the variables (Patton, 2002). Therefore the independent variables were studied after they had already exerted their effect on the dependent variable. The researcher therefore studied the independent variable in retrospect for its possible relationship to, and effects on, the dependent variable. This research design was suitable for this study because investigating the cause-and effect relationships of resource adequacy and utilization could not be manipulated by the researcher; there was no way in which some schools could be denied educational resources or restricted to utilize them in order to observe the effect on education by the researcher. What could be done however was to examine the different levels of resource adequacy and the extent to which schools utilized them and compared them with their respective performances. The independent variables in this study were teaching/learning materials, financial and teachers. Academic performance was the dependent variable.

3.3 Location of the Study

The study was carried out in Kuria which was constituted by Kuria East and Kuria West Sub Counties of Migori County. Kuria East and Kuria West Sub Counties are located between latitudes $0^0$29' and $0^0$30' South and longitudes $34^0$15' and $34^0$30' East. They are to the south Western part of Kenya. They border Trans Mara Sub County to the North East, Migori to the West and Republic of Tanzania to the South. Kuria East Sub County capital is at Kegonga and it covers a total area of 173.1 with a population of 81833 square kilometers while Kuria West is at Kehancha and covers a total area of 407.6 square kilometers with a population of 174 253 (Republic of Kenya 2009 Census Report). The poverty level of both Kuria East and Kuria West Sub-Counties was at 60% (Republic of Kenya, Economic Survey 2016). The main economic activity in the two Sub Counties were agro-pastoralism where farmers grow tobacco, maize, beans, sweet potatoes and other horticultural crops for sale. The academic standards in the two sub counties had been lowest compared with other sub counties in Migori county with literacy levels at 55% (Economic Survey 2016). The researcher intended to carry out a study in this locale in order to address the dismal and declining academic performance as shown in Table 1.1 by assessing the influence of levels of adequacy and utilization of selected educational resources.

3.4 Target population

The researcher targeted 40 principals and 345 teachers from 40 public mixed secondary schools.

3.5 Sampling design

3.5.1 Schools

Since the population of public mixed secondary schools in the two sub-counties were only 40 of which the researcher was interested on, saturated sampling technique was used to select 36 schools left after four schools had been used for piloting. This was due to the fact that the number was small and would be convenient for the study. This represented 90% of the study population.

3.5.2 Respondents

The study's sample size was determined using the Bell (2005) rule of thumb which suggests that at least a third of the total population was sufficient for representativeness in a social study. In this study, the principal for each school (90% of the population) and teachers randomly chosen from each of the schools sampled were the respondents in this study. A total of 36 principals were sampled for the study after 4 principals had been used for piloting. This was because principals were the administrators of these institutions therefore possessed all the information about the school they administered and were custodians of all the resources in a school. The other teachers were to complement the data that might have not been given by the principal for objectivity purposes.

The Table 3.2 shows how the respondents were sampled from the 36 public mixed schools in the study area.

Table 3.1: Respondents Sample

Teachers	Population of Kuria			Sample size		
	East	West	Total	East	West	Total
Principals	16	24	40	14	22	**36**
Teachers	156	189	345	64	74	**138**
Total	**172**	**213**	**385**	**78**	**96**	**174**

To ensure fair representation of teachers for the study, stratified random sampling was used in selecting and distributing 138 teachers. The stratification factors were day in , day and boarding. Due to possibilities of non-responses, the study targeted a participation scale of 138 teachers from 36 schools, which was 40% of the total population as illustrated in Table3.3 below. 40% of the teachers in each of the 36 schools were randomly chosen for the study which summed to 138 teachers.

Table3.2: Teachers' Sample

Stratification Factor	Schools		Teachers			
			Kuria East		Kuria West	
	Kuria East	Kuria West	Population	Sample	Population	Sample
Day	9	11	80	32	92	37
Day&Boarding	7	13	76	31	97	38
Total	**16**	**24**	**156**	**63**	**189**	**75**

3.6 Research Instruments

This study used questionnaires to gather information from principals, teachers, observation checklist and document analysis guide.

3.6.1 Questionnaires

This tool was recommended because the data gathered allowed measurement for and against a particular view point. Questionnaires were also considered ideal for collecting data from Head teachers and teachers because they could individually read, interpret and fill them. They allowed information to be collected from a large number of respondents within a short time and ensure anonymity and also eliminated interviewer's bias (Orodho, 2009). Further, the questionnaires ensured freedom of expression and accountability on the information given by the respondents. Both open-ended and closed-ended questions were used. The study employed two different sets of questionnaires for both principals and teachers.

i) Principal's Questionnaires

This instrument (Appendix I) was used to collect information from school principals. This was because principals are responsible for BOM teachers' employment, direct purchase of teaching and learning resources and they determined the entire teaching and learning environment. Principals' questionnaire had four sections. Section A sought Background information, Section B addressed levels of adequacy and utilization of school human resources, Section C addressed adequacy and utilization of financial resources and Section D focused on adequacy and utilization of teaching/learning resources.

ii)Teachers' Questionnaires

The instrument (Appendix II) was used to collect information from teachers. The questionnaire had two sections. Section A sought general information. Section B sought information on teaching and learning Resources.

3.6.2 Secondary Sources

Secondary data was sourced to give more information on: staffing levels of public secondary schools of Kuria East and Kuria West sub counties; students' enrolments in public secondary schools of Kuria East and Kuria West sub counties; KCSE performance of public secondary schools of Kuria East and Kuria West sub counties from 2015 to 2017; Guidelines for the use of FSE funds. In this case, document analysis guide was used to source information from the education offices and other relevant offices, thereafter; content analysis was done on the documents obtained to assess information which was used to supplement the data captured by the questionnaires.

3.6.3 Observation Checklist

Observation was used to source data on number of students per textbook in different subjects, adequacy, nature and size of; classrooms, laboratories, library, availability of equipment stores, computer room filled with enough computers, land availability and the existence of income generating projects. This method had been chosen by the researcher because it gives first-hand information.

3.7 Validity

Face and content validity was determined by expert judges (Kothari, 2004). Items in principals' and teachers' questionnaires were examined by supervisors who were experts in planning and economics of education. They carefully evaluated and critiqued content of the instruments to

establish their soundness in collecting data for the proposed study. They also ascertained the comprehensiveness of the instruments in addressing the research objectives and questions. Igwe (1985) and Nunan (1992) states that, the foregoing approach acts as a check against any ambiguity or inadequacy that the instruments might have. Their suggestions were considered in making the necessary revisions on the final version of the instruments that were used to collect data.

3.8 Reliability

Reliability is the consistency of a measuring device over time. Orodho (2009) define reliability as the degree to which an instrument measures the same way each time it is used under the same conditions with the same subjects. A pilot study involving four public mixed schools which represented 10% of the population was done to ascertain the reliability of the instruments. Test-retest method of assessing reliability of data involved administering the same instrument twice to the same group of subject (Mugenda. 2008).Test retest reliability was used in the study to measure the reliability of the instruments. A test-retest method was applied by administering the questionnaires to 4 principals and 34 teachers which represented 10% of the population sample. After two weeks, the questionnaires were administered to the same people and the results of the two were compared for similarity or closeness. Unclear questions were revised and reframed for clarity.

Pearson's Correlation coefficient of 0.80 was obtained for teachers' questionnaire and 0.71 for principals' questionnaire. Reliability index of 0.70 and above was considered adequate for the instruments (Best, 1998).

3.9 Data Collection Procedure

This study used questionnaires, observation and document analysis guide to collect data. The questionnaires were developed and then printed in time. A preliminary visit was made to each school to inform the Principal of the intended research. The researcher introduced himself and explained the purpose, aims and significance of the study to the Principal and the teacher (s) picked randomly for the study. A date to administer the instruments was agreed upon. Questionnaires were then distributed directly to the respondents in each school by the researcher during normal school days as the researcher also did observation guided by the observation checklist that he had already prepared. Respondents were given instructions and assured of confidentiality, after which they were given time to fill in the questionnaires. Filled questionnaires were thereafter collected by the researcher. Data analysis followed.

3.10 Methods of Data Analysis

Research data in a raw form, that was, before these data was processed and analyzed, conveyed very little meaning to user groups (Saunders, Lewis and Thorndike, 2007). These data therefore needed to be turned into information so that it was useful. In this study, conversion of data into meaningful information was undertaken on two dimensions, one involving quantitative/metric data (nominal, ordinal and interval forms of data) and the other involving qualitative/non-metric data (textual open-ended data). The refined and organized quantitative data was analyzed using descriptive and inferential statistics involving percentages, mean scores and regression analysis to determine varying degrees of response-concentration. According to Hair et al (2010), this statistical approach was essential when finding a way of condensing the information contained in a number of original variables into a smaller set of factors with a minimum loss of information.

The statistics was generated with aid of the computer software, Statistical Package for Social Sciences (SPSS) Version 20.0.

The study's non-metric, open-ended responses were analyzed using content analysis procedure, whereby the pool of diverse responses was reduced to a handful of key issues in a reliable manner. This was achieved through a stepwise process that involved two broad phases: firstly, taking each person's response in turn and marking in them any distinct content elements, substantive statements or key points; and secondly, forming broader categories to describe the content of the response in a way that allowed for comparisons with other responses. The categories obtained in second phase was numerically coded and then entered into the data file to be treated as quantitative data. In particular:

Objective 1, **teacher adequacy** was looked at in terms of the **number of teachers** in the schools against CBE which states that one teacher should handle 40 students. Human **resource utilization** was analyzed through the **number of lessons taught by a teacher in a week**. A teacher should have an optimal number of lessons of 27 per week (TSC Circular, 2017).

Objective 2, **financial resource adequacy** was assessed by looking at **levels of fee payment, returns from IGAs** and **financial utilization** in terms of **school annual audit reports**.

Objective 3, **adequacy of teaching and learning resources** was looked at in terms of **students to textbook ratio** from the common subjects taught in these schools. Students to textbook ratio of 1:1 or 1:2 were considered adequate according to the MOE standards. A likert scale was also developed to assess the levels of adequacy and utilization of resources in schools.

3.11 Ethical Considerations

The expression 'basic ethical principles' refers to those general judgments that serve as a basic justification for the many particular ethical prescriptions and evaluations of human actions.

Three basic principles, among those generally accepted in our cultural tradition, are particularly relevant to ethics of research involving human subjects: the principles of respect of persons, beneficence and justice.

The principle of respect for persons thus divides into two separate moral requirements: the requirement to acknowledge autonomy and the requirement to protect those with diminished autonomy. As the study involved principals and teachers, the researcher treated them as autonomous persons in that their opinions and choices were not influenced in any way by refraining from obstructing their actions unless they were clearly detrimental. The participants were well informed of the purpose of the study and explanations of both benefits and demerits were provided to ensure they were not denied the freedom to act to those considered judgments, or to withhold information necessary to make a considered judgment.

The principle of beneficence was considered in that the researcher maximized on the possible benefits and minimize the possible harm to the participants. This was done by ensuring that the information was treated confidentially and only for the purpose of the study. Justice was observed in sampling. To ensure fairness, saturated sampling was used to ensure equal opportunities for all the public mixed secondary schools in the study population. Stratified random sampling was used to sample 138 teachers from a population of 345 teachers which represented 40% of the population.

The researcher sought permission to conduct research in Kuria East and Kuria West Sub Counties by getting research permit from the Ministry of Education after obtaining a letter of endorsement from Maseno University authorities. The offices to seek permissions included Maseno University Ethical Review Committee (MUERC), SEOs' office at Kegonga and

Kehancha. Copies of research permit and letter from Sub-County Education Officers (SEO) were presented to the Principals' of the selected schools to request for data collection.

The Principals and teachers were given questionnaires to fill and were collected after two weeks. The researcher requested the respondents to fill the questionnaires assuring them of anonymity, privacy and that the data so collected would be used for the research study only and was to be handled in strict confidence. The respondents were also assured that no other person other than thes researcher would have access to the information collected.

Data was coded and bore no names of the participant to protect their identity. The raw data from the field was kept under lock and key where only the investigator could assess. The processed data was stored in computer encrypted by password accessible to only the researcher. At the completion of the research, the information acquired was disseminated to the participants through the school administration channels so as to ensure that the feedback of the findings reach the study participants. At this point, benefits of the study were communicated and potentially implemented in the effort to maximize the benefits to the participants and other non-participating schools at large.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter presents research findings, their interpretation and discussion. The respondents whose responses were received were 36 principals and 138 teachers. The response rate was 100% for each category. The study assessed the influence of adequacy and utilization of selected educational resources on academic performance of public secondary schools.

4.2 Demographic Characteristics of Schools and Respondents

This section describes the demographic characteristics of the respondents in the study area. Such a description is important in providing a clear understanding of the respondents and institutions included in the study and which may have influenced the results based on the objectives of the study. The demographic characteristics covered in this section are category of schools, number of streams in schools, school enrolment, academic qualifications of principals and teachers, teaching experience of teachers and teaching subjects.

4.2.1 Category of Schools

4.2.1.1 Category of Schools

The category of schools are presented in Figure 4.1

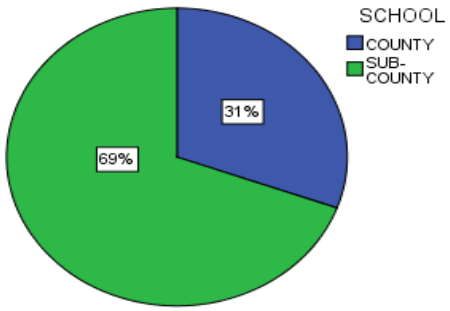

Fig 4.1 Category of Schools

Figure 4.1 indicates that 25 (69%) of the schools were in the sub-county category and 11 (31%) were county**.**

4.2.1.2 Number of Streams in Schools

It was important to establish the number of streams in schools and the responses are presented in Figure 4.2.

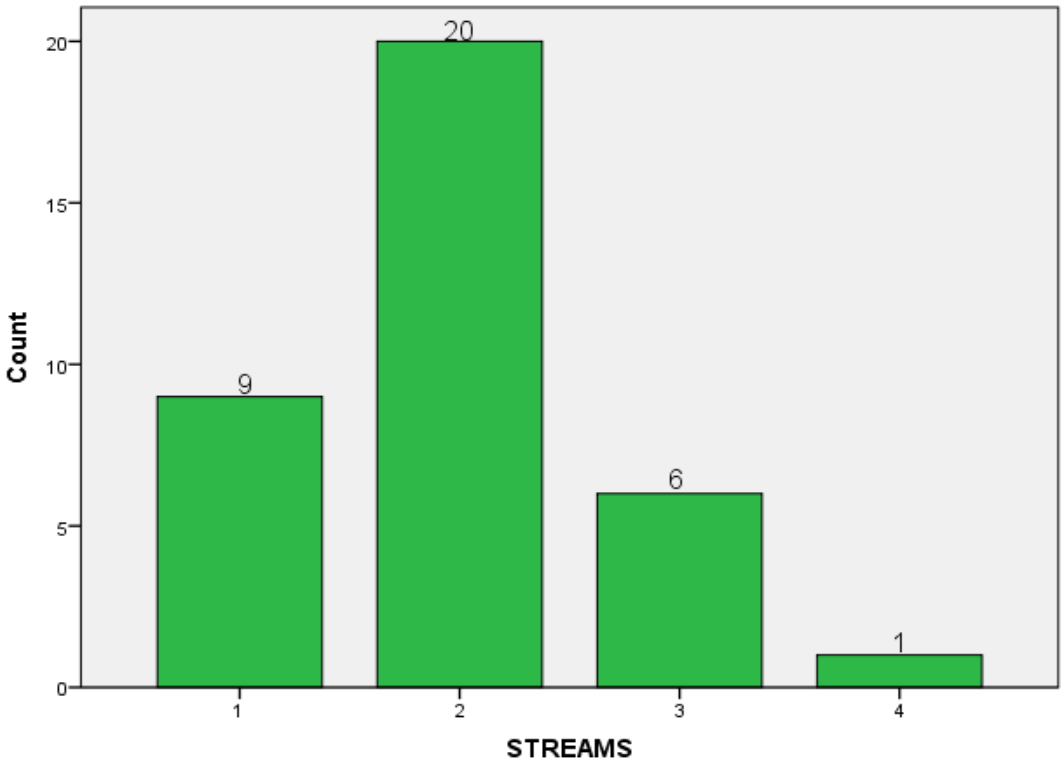

Fig 4.2 Number of streams in schools

Figure 4.2 indicates that 20 (56%) of schools were two streamed, 9 (25%) were one streamed, 6 (17%) had three streams and 1 (3%) was four streamed.

4.2.1.3 Schools Enrollment

The school enrollment for the last three years and the results are provided in Table 4.1.

Table 4.1: Schools Enrollment

Year	Girls	Boys	Total
2015	4251	4254	8505
2016	4756	4726	9482
2017	5638	5706	11344

Table 4.1 indicates that the enrollment for boys was 4254 in 2015, 4726 in 2016 and 5706 in 2017 and for girls was 4251 in 2015, 4756 in 2016 and 5638 in 2017. The total enrolment was 8505 in 2015, 9482 in 2016 and 11344 in 2017. The enrolment data showed that the enrolments had increased from 8505 in 2015 to 11344 in 2017.

4.2.2 Academic Qualification

4.2.2.1 Academic Qualification of Principals

The level of education of the principals is presented in Figure 4.3.

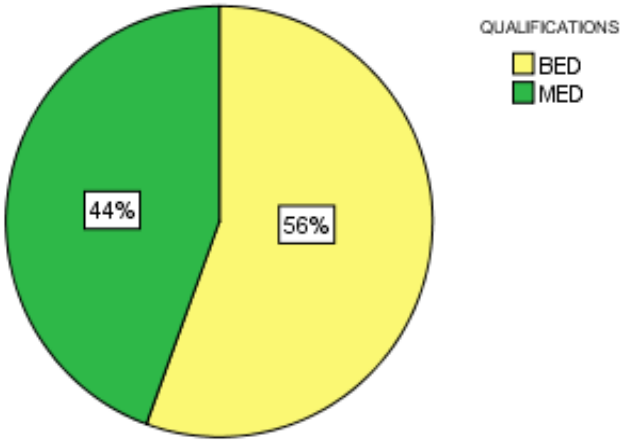

Fig 4.3 Academic qualifications of Principals

Figure 4.3 shows that 20(56%) of the principals had the highest qualification of Bachelor of Education degree while 16(44%) had Masters Degrees in Education. None had Diploma as the highest qualification.

4.2.8 Academic Qualifications of Teachers

The level of education of teachers are presented in Figure 4.4

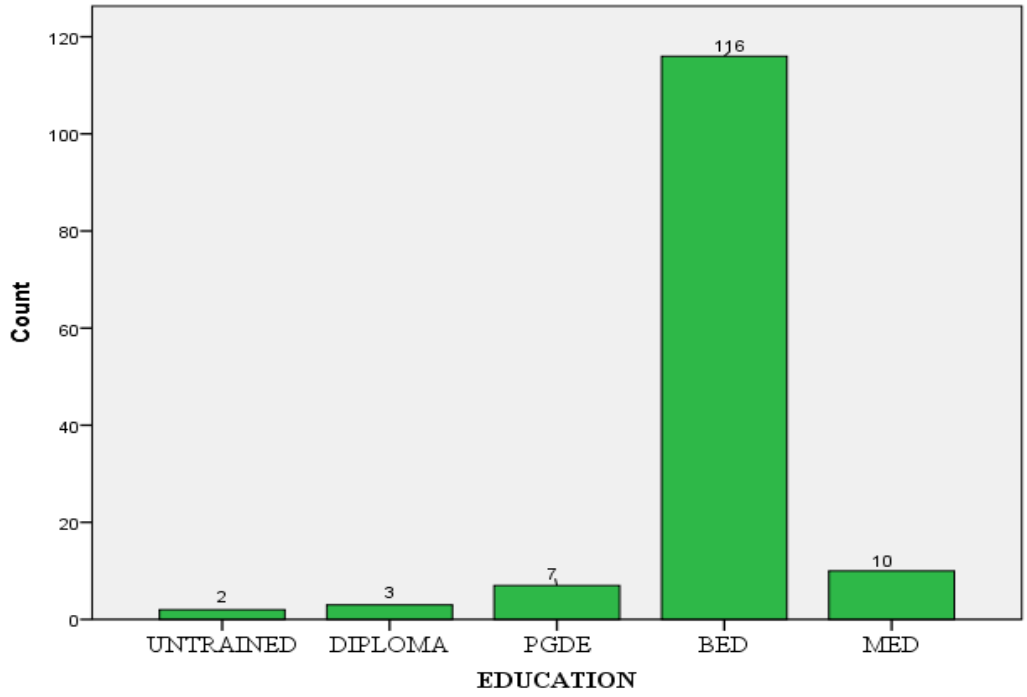

Figure 4.4 Academic Qualifications of Teachers

Figure 4.4 shows that 116 (84%) of the teachers have Bachelor of Education degrees, 10(7%) Master in Education, 7 (5%) postgraduate Diploma, 3(2%) Diploma and 2(1%) untrained.

4.2.3 Teaching Experience

4.2.3.1 Teaching Experience of Principals.

The teaching experience of the principals is shown in Figure 4.5.

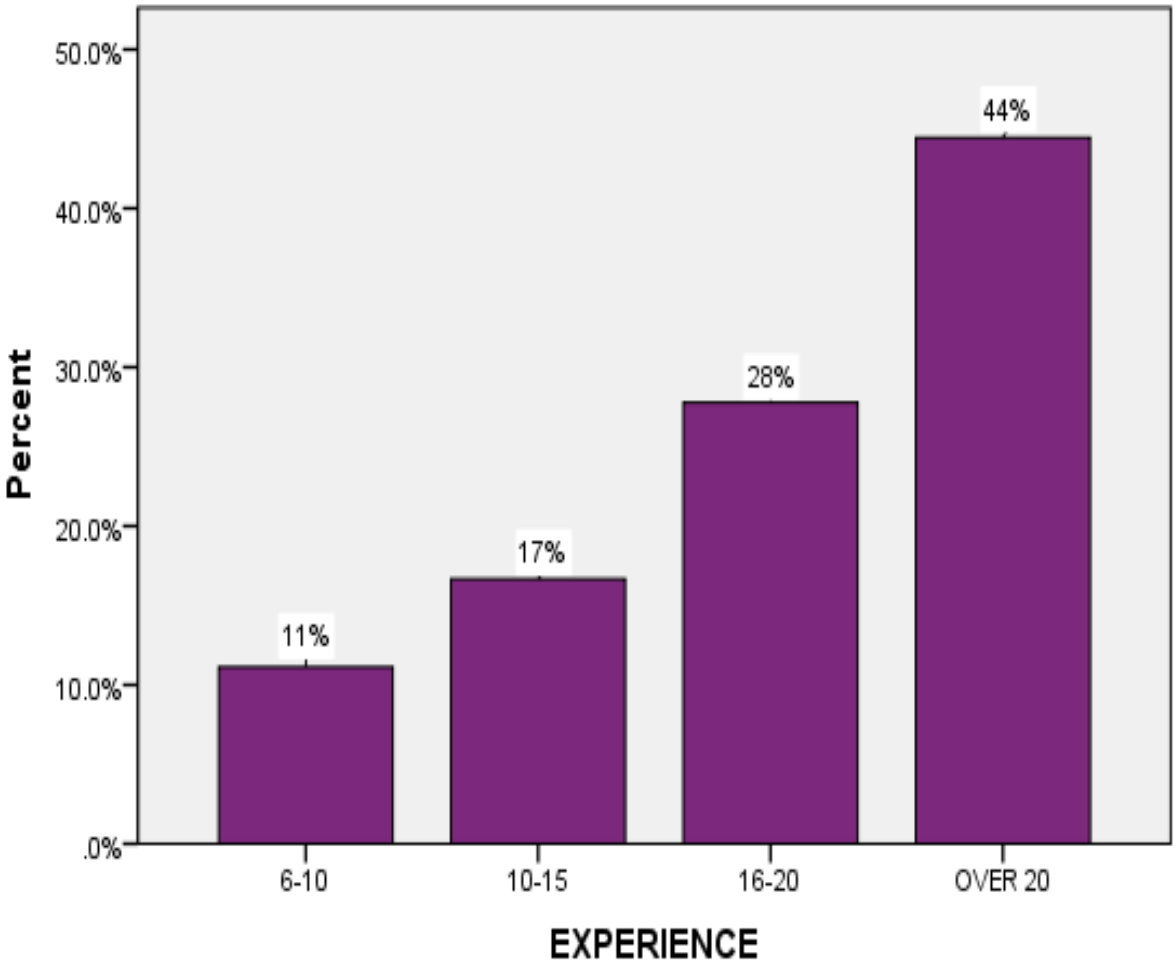

Figure 4.5 Teaching experience of principals

The results in figure 4.5 indicates that 16 (44%) of the principals had over 20 years teaching experience, 10 (28%) had 16-20 years, 7(17%) had 10-15 years and 3(11%) had 6-10 years teaching experience.

4.2.3.2 Teaching Experience of the Teachers

The teaching experience of the teachers is provided in Figure 4.6.

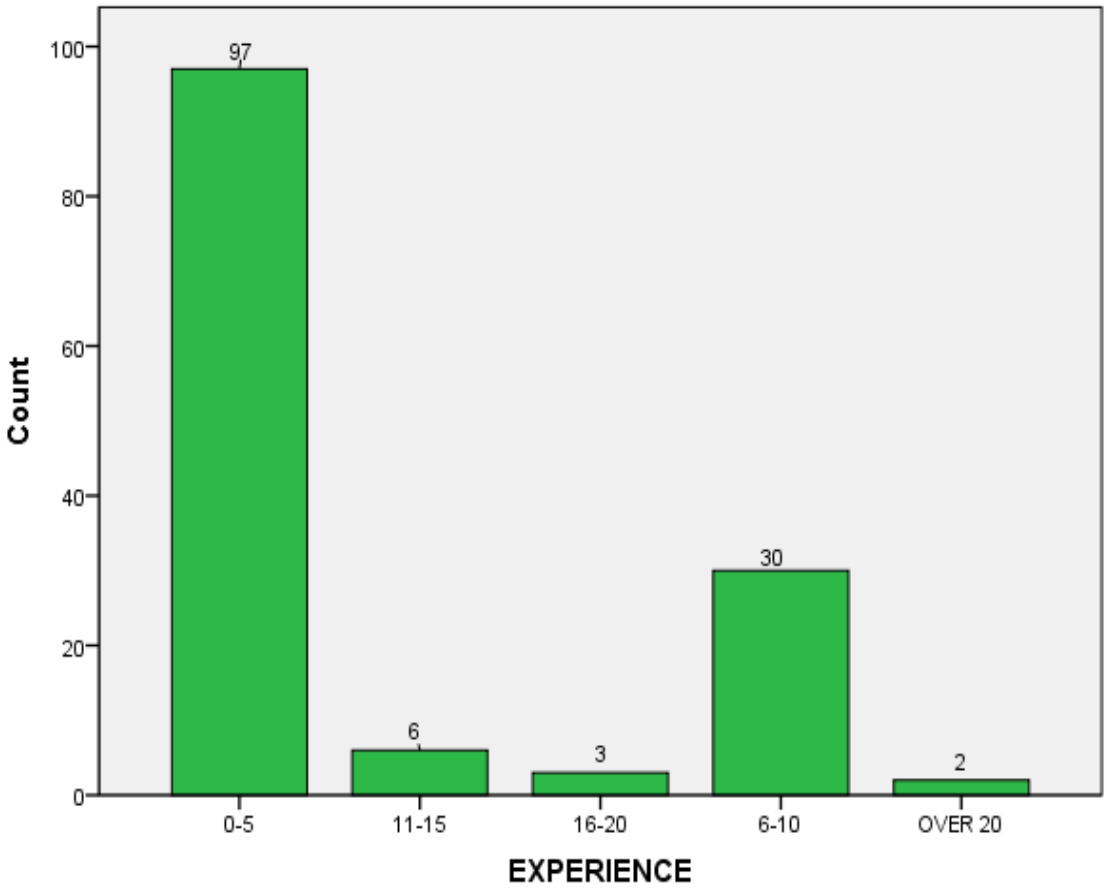

Figure 4.6 Teaching Experience of Teachers

Figure 4.6 indicates that 97 (70%) teachers had a teaching experience of 0-5 years, 30 (22%) had 6-10 years' experience, 6(4%) had an experience of 11-15years, 2(2%) with experience of 16-20 years and only 1(1%) with over20 years' experience. This indicates very high attrition rates for teachers from the region to other places which denied the region experienced teachers who could deliver quality learning hence quality outcome.

4.2.4 Teaching Subjects of Teachers

The teaching subjects of the teachers are provided in Table 4.2.

Table 4.2: Teaching Subjects of Teachers

Teaching Subjects	Frequency	Percent
Geography and CRE	14	10.1
Maths and Business Studies	14	10.1
Mathematics and Physics	13	9.4
Biology and Chemistry	12	8.7
English and Literature	11	8.0
History and CRE	11	8.0
Biology and Agriculture	10	7.2
Kiswahili and CRE	9	6.5
Physics and Chemistry	9	6.5
Mathematics and Chemistry	7	5.1
History and Geography	5	3.6
Kiswahili and Geography	5	3.6
Kiswahili and History	5	3.6
Chemistry and Geography	4	2.9
Geography and Business Studies	3	2.2
Mathematics and Biology	3	2.2
Biology and Geography	2	1.4
Geography and Agriculture	1	.7
Total	**138**	**100.0**

Table 4.2 indicates that the subject combinations like Mathematics and Business Studies and Geography and CRE had the same number of teachers at 14(10.1%) each, Mathematics and Physics 13(9.4%),Biology and Chemistry 12 (8.7%), English and Literature and History and

CRE each had 11 teachers (8%), Biology and Agriculture 10 (7.2%), Kiswahili and CRE and Physics and Chemistry each had 9(6.5%), History and Geography, Kiswahili and Geography and Kiswahili and History each had 5 (3.6%).Geography and Agriculture had only 1(0.7%) teacher.

4.3 Influence of Adequacy and Utilization of Teachers

4.3.1.1 Levels of Adequacy of Teachers

The study sought to assess the number of teachers in public mixed secondary schools in Kuria East and Kuria West sub counties and the results are indicated in Table 4.3 .

Table 4.3: Adequacy of Teachers

Sub County	**Teachers**					
	TSC	**BOM**	**Volunteer**	**CBE**	**Shortage**	**% Adequacy**
Kuria West	232	121	17	465	233	49.90
Kuria East	136	85	5	345	209	39.42

Table 4.3 indicates that in Kuria West, 232 teachers were employed by TSC, 121 by BOM and 17 volunteers. In Kuria East 136 teachers were employed by TSC, 85 by BOM and 5 volunteers. It also indicates that there is a shortage of 233 teachers and 209 teachers in Kuria West and Kuria East respectively. This represented 49.90% and 39.42% levels of teacher adequacy against the CBE.

4.3.1.2 Influence of Adequacy of Teachers on School Mean Academic Performance in KCSE.

The schools mean scores in KCSE provided by the principals were analyzed by averaging the school mean scores for the years 2015, 2016 and 2017. The data obtained was regressed against

percentage adequacy of teachers. The provisions of CBE indicates that a single stream should have at least 9 teachers, double stream 17 teachers, 3 streams 25 teachers and four streams 33 teachers (TSC circular dated February21, 2018). The levels of adequacy of teachers per school were measured by working out the percentage of teachers on duty against the optimal number of teachers that should be employed in that school as provided by the CBE. Using the stated data, the regression model and the scatterplot obtained are indicated in Figure 4.7.

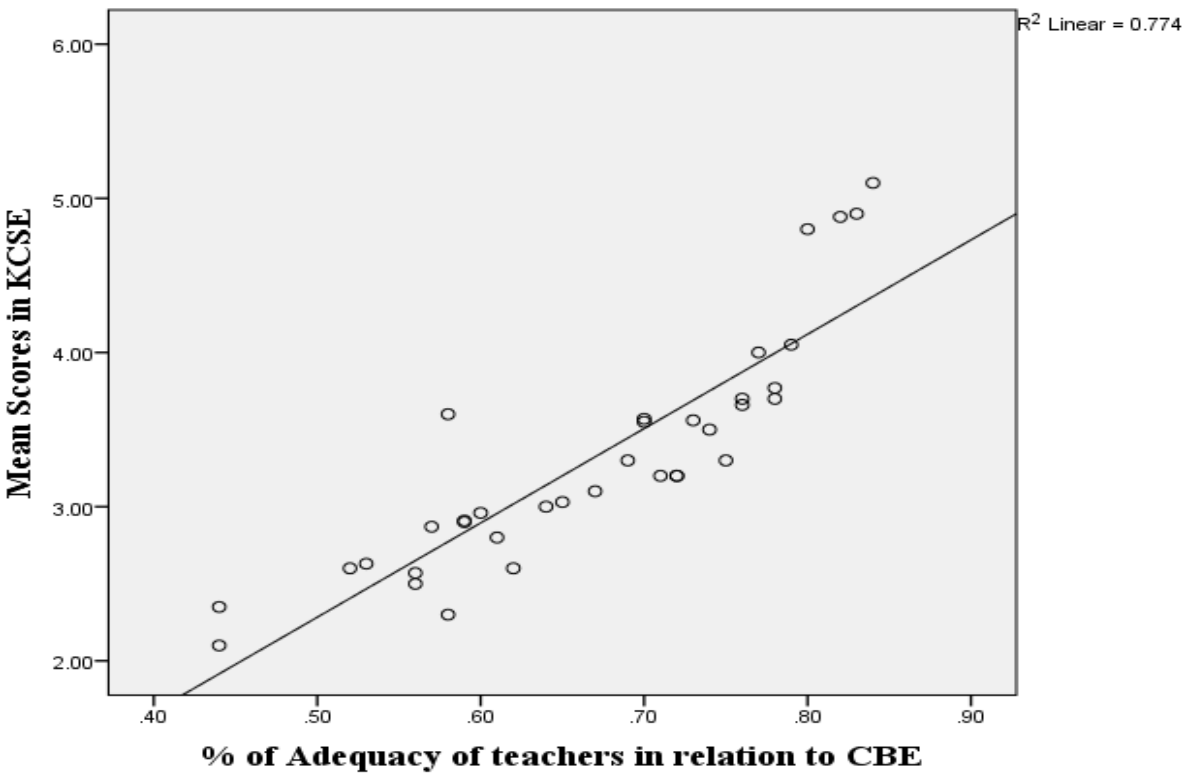

Fig 4.7: Relationship between school mean scores in KCSE and the levels of adequacy of teachers

It was established that there was a positive relationship with a regression coefficient of 5.953 between schools mean scores in KCSE examination and the level of adequacy of teachers in schools. This was because a line of best fit could be drawn across the scatter points except for a

few outliers. This result points to probable positive dividends for students and schools that could be reaped from adequate supply of teachers to schools.

Table 4.4 : Regression Model showing Influence of adequacy of Teachers on School mean Performance in KCSE

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.693	.412		-1.683	.102
	% of Adequacy of teachers in relation to CBE	5.953	.605	.860	9.847	.000

a. Dependent Variable: Mean Scores in KCSE

The model shows that the levels of adequacy of teachers in schools influences performance with a regression coefficient and it is statistically significant with a Pearson's correlation of 0.86 at sig 0.000 against the test value of 0.05.

Levels of adequacy of teachers exhibited a positive trend with school mean performance in KCSE. These findings concurred with those of OECD (2008), Pearls (2000) and a survey conducted by KNEC in 2017 which found out that teacher shortage hinder instructions and lower student performance.

Optimal staffing in schools is a factor of student enrolment, number of subjects and subject combinations, number of hours taught per week, number of streams and teacher involvement in administrative and other extracurricular assignments. These should be taken into account when using the standard student - teacher ratio (STR) for determining school staffing levels. While the Government puts priority on the wage bill as a major factor, teachers, through KNUT and the

school principals, lay strong emphasis on the teacher welfare and workload in arguing their case for increased staffing. Both sides of the argument need to be considered in settling this debate

4.3.2 Teacher Utilization

4.3.2.1 Number of Lessons Taught per week

The study investigated the level of utilization of teachers in terms of the number of lessons taught per week by working out the average number of lessons taught by a teacher per week obtained from class attendance register and the results are indicated in Table 4.5

Table 4.5 Lessons taught per week by a teacher

SAMPLE	AVERAGE NUMBER OF LESSONS TAUGHT BY A TEACHER PER WEEK
1	34
2	26
3	30
4	30
5	27
6	38
7	28
8	32
9	33
10	28
11	28
12	32
13	34
14	36
15	37
16	30
17	33
18	31
19	28
20	33
21	30
22	34
23	33
24	32
25	35
26	37
27	28
28	29
29	29
30	31
31	35
32	34
33	35
34	29
35	30
36	35
Average	**32**

Table 4.5 reveals that teachers taught up to a maximum of 38 lessons per week in a given school while others taught 27 lessons per week. This presented a large range of 11 lessons between the highest and lowest number of lessons by a teacher per week. In Kenya, weaknesses in human resource planning has affected training and deployment of teachers and thus distorted their distribution and utilization. Consequently, there exists an unbalanced distribution of teachers, teacher shortages, teacher surplus and inefficient utilization of teachers (MOEST, 2005b). This could be an indication of the absence of a framework in determining the demand for teachers. Most teachers prefer to work in urban, peri-urban and high potential areas where social amenities are available (MOEST, 2005a). Thus the current policy of recruiting teachers where vacancies exist is aimed at redressing the uneven distribution of teachers. According to the TSC guidelines, the optimal number of lessons a teacher should teach in a week is 27 lessons but the table indicate that on average a teacher handled 32 lessons in a week in Public mixed secondary schools in Kuria East and Kuria West sub counties an indicator that the current redeployment or recruitment policy has not wholly solved the problem since the teachers in this part of Kenya were over utilized.

4.3.2.2 Other responsibilities undertaken by teachers

The study also revealed other responsibilities assigned to teachers as indicated in Table 4.6

Table 4.6: Other responsibilities assigned to teachers

	Frequency	Percent
Games	36	26.1
Class Teacher	34	24.6
HOD	21	15.2
Guidance and Counseling	15	10.9
DOS	9	6.5
Boarding	7	5.1
Librarian	5	3.6
Deputy Principal	3	2.2
Music	2	1.4
Total	138	100.0

From Table 4.6, 36 (26.1%) were games teachers, 34 (24.6%) were class teachers, 21 (15.2%) were heads of departments, 15(10.9) were guidance and counseling masters, 9 (6.5%) were director of studies, 7 (5.1%) were boarding masters, 5 (3.6%) were librarians, 3 (2.2%) were deputy principals and 2(1.4%) were music directors.

4.3.2.3 Influence of utilization of Teachers on School Mean Academic Performance in KCSE

Teacher utilization was arrived at by working out the average number of lessons taught by a teacher per week in each school sampled which was then regressed against KCSE academic performance for each school as shown in Figure 4.8.

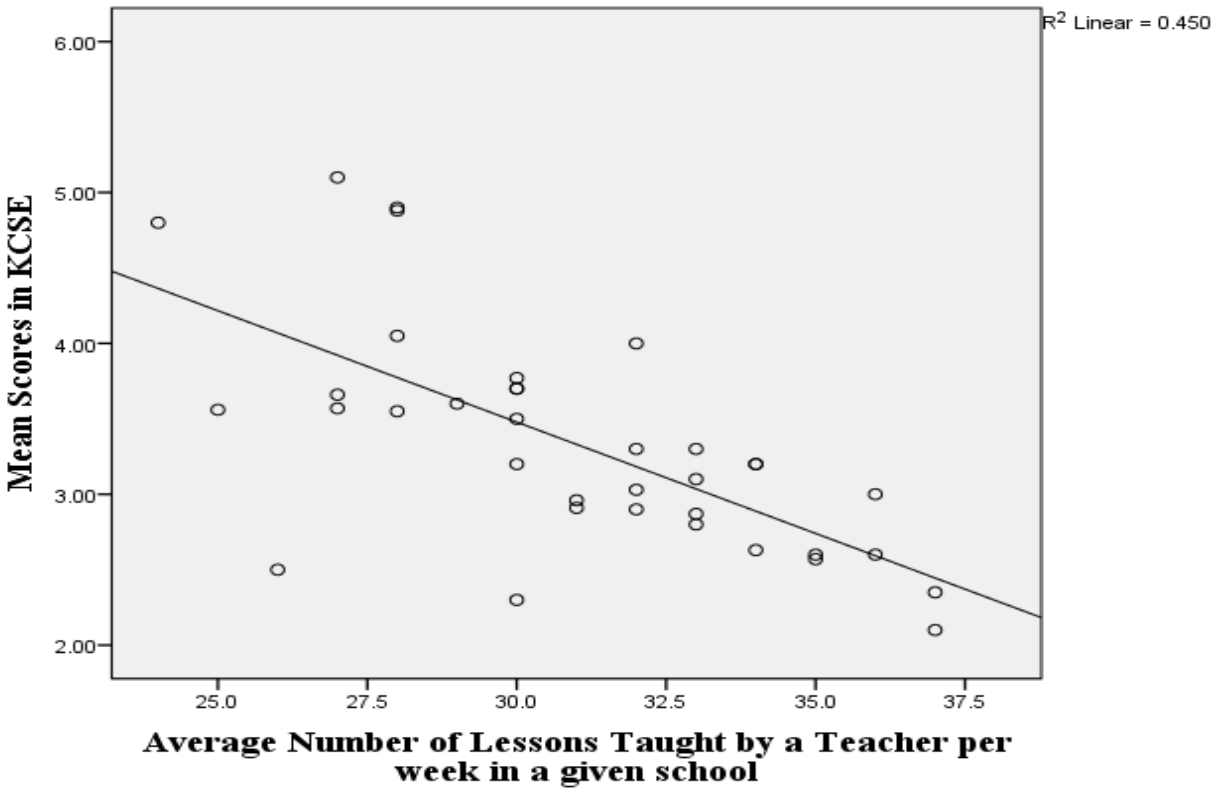

Figure 4.8: Relationship between school mean scores in KCSE and the levels of utilization of teachers

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	8.102	.998		8.122	.000
	Number of Lessons Taught by a Teacher per week	-.151	.031	-.637	-4.823	.000

a. Dependent Variable: Mean Scores in KCSE

It was established that there was a negative relationship between school mean scores in KCSE examination and the number of lessons taught by a teacher per week. This was because as the number of lessons increased the academic performance decreased.

Table 4.7: Regression Model showing Influence of utilization of Teachers on School mean Performance in KCSE

The model shows that the levels of utilization of teachers in schools influence performance negatively with a regression coefficient of -0.151 with a Pearson's correlation coefficient of -0.637.

Levels of utilization of teachers exhibited a negative trend with school mean performance in KCSE. These findings concurred with those of, Johan (2004),Afolabi (2005) ,Olendo (2008) and a survey conducted by KNEC in 2017 which found out that when teachers are over utilized, academic results is likely to decline. Since June 2003, the Teachers Service Commission (TSC) has been carrying out a balancing exercise to move teachers from overstaffed areas to understaffed areas but this exercise has faced major resistance (MOEST, 2005a). Teachers are reluctant to move from their already established stations to remote areas, places considered hardship areas or from rural to urban or vice versa. For this reason, hardship and remote areas continue to suffer teacher shortages. Alternative modes of deployment for appropriate utilization of teachers, therefore, need to be explored and implemented. Some scholars have recommended that the monopoly given to the TSC be dismantled and allow the formation of efficient and independent employment boards to deal with teachers recruitment, promotion and terms of service (Institute of Policy Analysis and Research (IPAR), 2008). Such a move would make teaching profession more efficient (Abagi & Olweya, 1999) and responsive to the demands of the dynamic education system.

4.4 Influence of Adequacy and Utilization of Financial Resources on Academic performance

4.4.1 Adequacy of financial resources

4.4.1.1 Sources of financing school activities

The study sought to investigate the sources of financing school activities and it was found out that all schools were financed through fee payments by parents and Free Day Secondary Education (FDSE) from the government. Other sources of financing school activities included bursary, Constituency Development Funds (CDF), donors like World Vision, Parents Teachers Association, *harambee* and a few schools had income generating activities (IGAS).

4.4.1.2 Fee charged by Schools

The study assessed the amount of fee charged by schools and findings are represented in Figure 4.9.

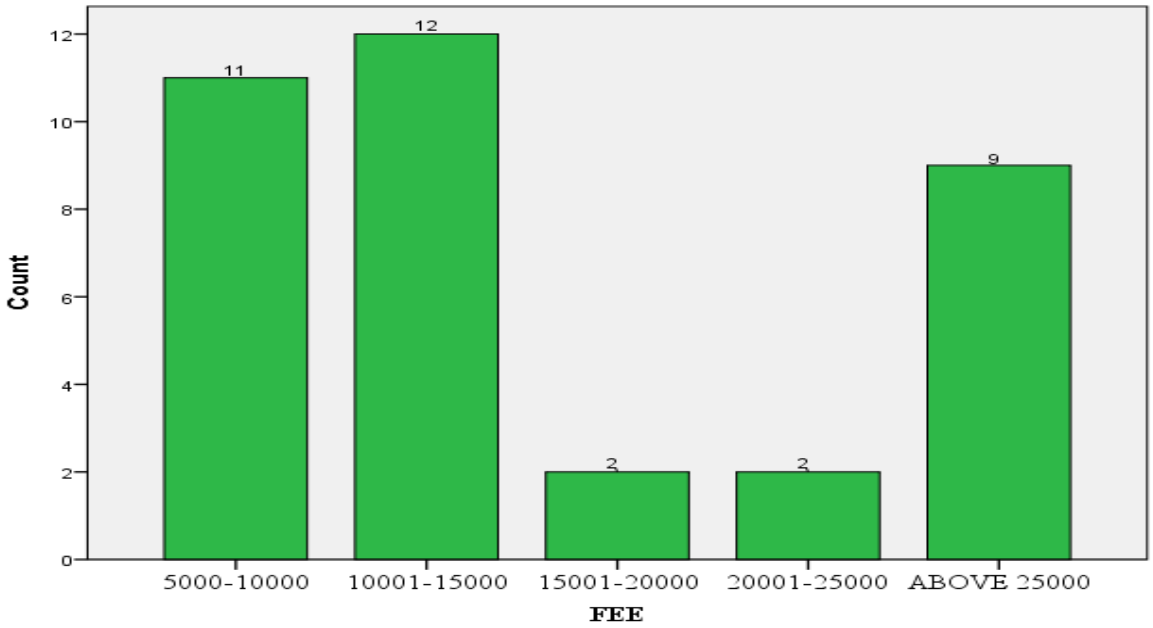

Figure 4.9 Fee charged by schools

Figure 4.9 shows that 12 (33%) of the schools charged fee of Ksh. 10001-15000, 11(31%) 5000-10000, 9(25%) above 25000 and 2(6%) charged 15001-20000 and 20001-25000 each. As had been indicated in Figure 4.1 on page 33, about 70% of the schools were sub county schools which according to the government fee guideline were supposed to charge a maximum of Ksh.9000 from parents but Figure 4.11 shows that only 11 (31%) schools charged fee within the government guidelines.

In addition, all the schools charged extra levies inform of upload of students details for KCSE registration, teacher motivation and printing papers. These funds were never included in the fee structure. This may mean that schools lacked sufficient funds from which they could operate.

4.4.1.3 Level of fee payment

It was necessary to establish the level of fee payment in an attempt to address financial resource adequacy and the results are shown in Figure 4.10

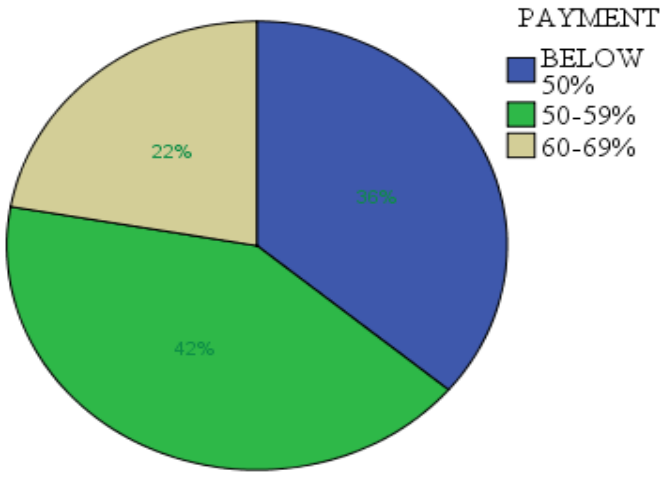

Figure 4.10 Levels of fee payment

Figure 4.10 reveals that fee payment is 50-59% in 15(42%) of the schools sampled followed by 13(36%) of schools with level of fee payment of below 50% and only 8(22%) with fee payment levels of 60-69%. The implication of this is that all the schools have greater number of sundry

debtors in form of fee arrears which means the financial resources are not adequately available in schools at the time of need. This jeopardizes the operations of schools thus interferes with quality output inform of academic performance in KCSE.

4.4.1.4 Income Generating Activities

The study also assessed whether schools had income generating activities and the result is presented in Figure 4.11

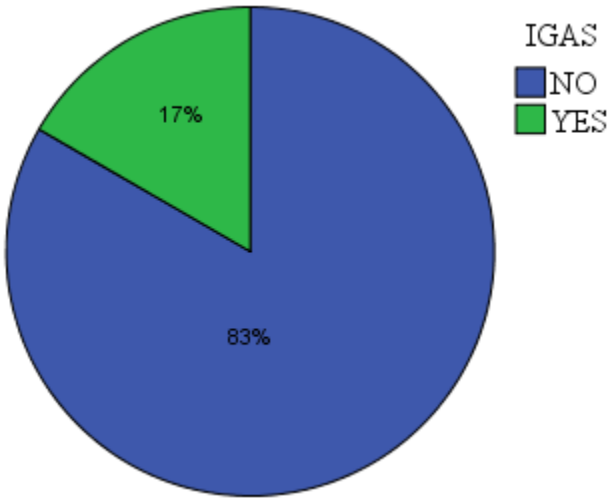

Figure 4.11 reveals that 30(83%) of the schools do not have income generating activities and only 6 (17%) have income generating activities.

For the schools with income generating activities, the research investigated further the type of activities and the result is presented in Table 4.8.

Table 4.8 Types of Income Generating Activities

IGA	Frequency	Percent
Bus hire	2	33.33
Bus hire	1	16.67
Farm	1	16.67
Green House	1	16.67
Poultry	1	16.67
Total	**6**	**100.0**

Table 4.8 shows that income generating activities range from bus hire to farm, poultry and green house.

It was also important to enquire about the amount realized from these activities. The result is indicated in Table 4.9.

Table 4.9: Amount realized from Income Generating Activities (Ksh. p.a)

School	2015	2016	2017
1	4000	6000	10000
2	12000	15000	30000
3	21000	60000	50000
4	12000	20000	0
5	0	250000	300000
6	0	320000	350000

Table 4.9 shows that the amount netted from IGAS ranged from Ksh.4000 to Ksh.350000 for individual schools each year for the period 2015 to 2017. The variation of the amount realized from IGAs was because some schools had projects whose rate of returns were high like bus hire while others had low rate of returns like farm projects.

The study also established why schools do not have IGAS and the reasons advanced are shown in Table 4.10 on page 50.

Table 4.10 Reasons for not having IGAS

	Frequency	Percent
Insecurity	3	10
Improper Management	1	3.33
Lack of capital	6	20
Lack of land	5	16.67
Lack of personnel	1	3.33
Lack of resources	8	26.67
Local politics	2	6.67
Remoteness	3	10

Table 4.10 reveals that 6 (20%) out of the 30 schools with no IGAS lack capital,8(26.67%) lack resources, 5(16.67%) lack land on which to invest among others. This further escalates the inadequacy of financial resources in schools since many schools did not have IGAS with which to complement the financial support received from other sources which were also not adequate.

4.4.1.5 Infrastructure funds

Principals were asked to indicate if their schools had ever received infrastructure funds from the government in the past five years and the responses are shown in Figure 4.12.

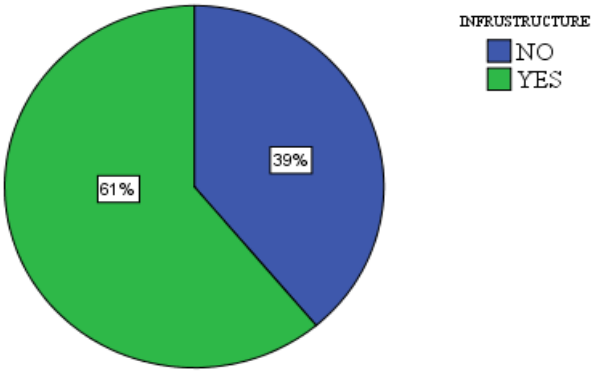

Figure 4.12 Infrastructure Funds

Figure 4.12 shows that 22(61%) schools had not received infrastructure development fund in the past five years and only 14 (39%) schools had received the fund in the past five years from the government. For the schools that received the funds, the researcher observed that the funds were used to build new classrooms, laboratories, libraries, teachers' houses, dining halls among others.

4.4.1.8 Mitigation of Financial Resource Inadequacies

Principals were asked to indicate how they mitigate challenges resulting from financial resource management. The responses are summarized in Table 4.11.

Table 4.11 Mitigation of Financial Resource inadequacies

	Frequency	Percent
Allowing parents to pay fee in form of farm produce	20	55.6
Bank overdrafts	36	100
Borrowing from other voteheads	36	100
Minimizing operation costs, postponing some projects	36	100
Observing financial guidelines	3	8.3
Prudent utilization of FDSE funds	1	2.8
School fee paid via safaricom pay bill	2	5.6
Well wishers donation	1	2.8

Table 4.11 shows that 36(100%) schools mitigated the problems of financial challenges by taking bank overdrafts, borrowing from other voteheads, minimizing operation costs and postponing some projects, 20(55.6%) schools allowed parents to pay fee in form of farm produce, 2(5.6%) allowed parents to pay fee via safaricom pay bill which mitigated the problem of lack of banking services nearby as a result of remote locations of the schools. Some of the solutions are government policies as regards prudent management of financial resources. These include observing financial guidelines and prudent utilization of FDSE funds which were adhered to by only three and one school respectively.

4.4.1.9 Regression Analysis for the Influence of Levels of Adequacy of Financial Resources on school mean performance in KCSE.

Regression analysis was done with the dependent variable being Mean KCSE performance in various schools sampled and the levels of fee payment which was unique to different schools and

the IGAs amount realized also considered to establish the relationship as indicated in the scatterplot and regression model.

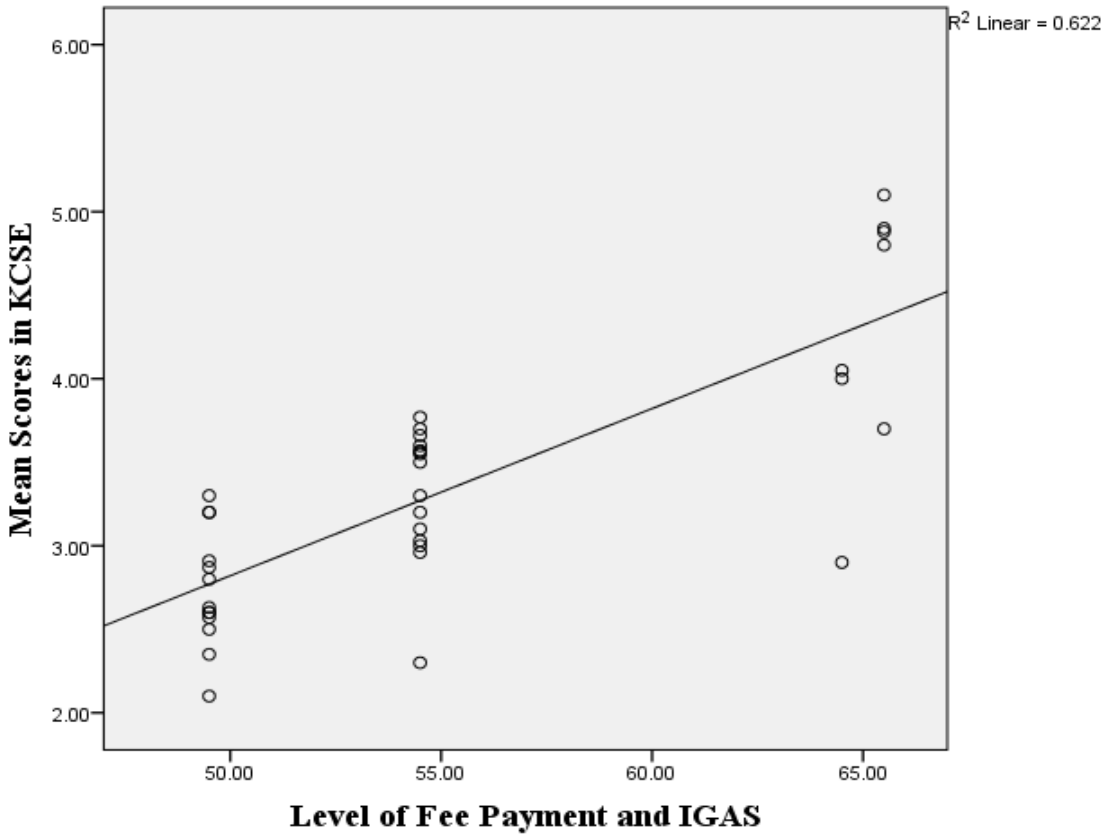

Figure 4.13 Scatterplot showing relations between levels of Fee payment and IGAs and Mean performance in KCSE.

It was established that there was a positive relationship between schools mean scores in KCSE examination and the level of fee payment and IGAs amount realized. This was because a line of best fit could be drawn across the scatter points except for a few outliers.

Table 4.12 : Regression Model showing Influence of adequacy of Financial Resources on School mean Performance in KCSE

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-2.190	.728		-3.006	.005
Level of Fee Payment and IGAS	.100	.013	.793	7.597	.000

a. Dependent Variable: Mean Scores in KCSE

The model shows that the levels of fee payment and IGAs influences academic performance positively with a Pearson's correlation of 0.793, regression coefficient of .1 at sig 0.000 against the test value of 0.05.

Level of fee payment and IGAs exhibited a positive trend with school mean performance in KCSE. These findings concurred partly with those of NESSP (2013), Orodho (2003) and Barasa (2006) who found out that adequacy of financial resources leads to adequacy of other school resources which were ingredients for high academic performance. However, this research found out that some schools had fewer resources but performed better than other schools which had comparably higher resources as illustrated in Figure 4.14.

4.4.2 Influence of Utilization of Financial Resources on Academic Performance

4.4.2.1 School Audit Reports

The researcher analyzed 36 school audit reports for the years 2015 and 2016 and summarized the findings in Table 4.13. The annual audit reports of various schools for the year 2017 were not ready by the time of data collection.

Table 4.13 School Audit Report

ITEM	COMMENTS	FREQUENCY	%
Income&	Excess income over expenditure	5	14
Expenditure	Excess expenditure over income	31	86
Balance Sheet	Funded accounts with saving account	9	25
	Funded accounts without savings account	27	75
	Sundry Debtors	22	0-10
	Majorly fee arrears	7	10-20
		3	20-30
		2	30-40
		2	40-50
Inter–Account	Overdrawn Accounts	33	92
borrowing	Stable Accounts	10	28
Extra Levies	School fund account	36	100
	Academic support programme	36	100
	ID cards	36	100
	Registration of candidates	36	100
	Lunch programme	36	100

NOTE: Tuition account include income for and expenditure on textbooks, exercise books, laboratory equipment, teaching and learning material, chalk, teachers' guide, reference/library materials and internal examinations.

Operations account include income for and expenditure on repairs, maintenance and improvement, local transport and travels, electricity, water & conservancy, administration cost, activity, personal emoluments, smasse, medical and insurance.

School fund account include income for and expenditure on PTA, development/harambee funds, caution money, uniform fund, KCSE registration, farm account, bursary fund, bank loan, sundry creditors, sundry debtors, ID cards , bus hire, bus insurance and bus maintenance.

According to Table 4.13, 31(86%) schools had excess expenditure over income which meant that most schools were spending in excess of budgetary allocation with only 5(14%) schools spending within the budgetary allocation. This is because these schools supplement their financial need by taking bank overdrafts. Further, 27(75%) schools had funded accounts (made mostly of PTA/Development, caution money, uniforms, farm funds and bus hire) without savings account which meant that the funded accounts would not be readily available when required.36(100%) of the schools had sundry debtors majorly consisting of fee arrears but with different recovery rates. All the schools did not obey the government fee guidelines and charged extra levies (upload of registration details for KCSE, printing papers, motivation fee for teachers). No legal implication had been taken against any school for charging extra levies.

4.4.2.2 Influence of utilization of Financial Resources on School Mean Academic Performance in KCSE

Regression analysis was done with the dependent variable being Mean KCSE performance in various schools sampled and school annual audit reports which was unique to different schools and the IGAs amount realized also considered to establish the relationship as indicated in the scatterplot in Figure 4.14 and regression model in Table 4.16 .

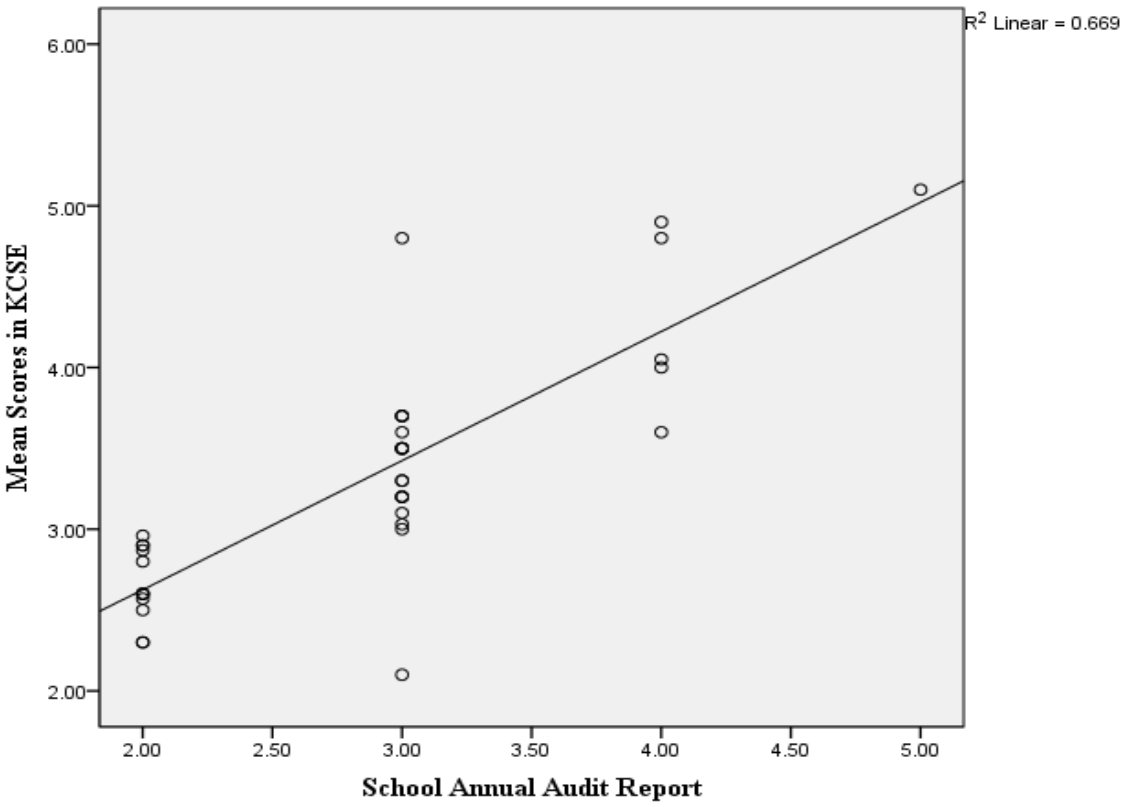

Figure 4.14 Scatterplot for utilization of financial resources against academic performance

Table 4.14 Regression model for levels of utilization of Financial Resources on Academic Performance

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.028	.285		3.610	.001
School Annual Audit Report	.799	.096	.818	8.294	.000

a. Dependent Variable: Mean Scores in KCSE

The model shows that the levels of utilization of financial resources as revealed by school annual audit report influences academic performance positively with a Pearson's correlation of

0.818 and a regression coefficient of 0.799 which meant that the level of utilization of financial resources influenced academic performance by up to 79.9%.

Levels of utilization of financial resources exhibited a positive trend with school mean performance in KCSE. These findings concurred with those of NASMLA (2017), Mwiria (2013) who found out that the levels of utilization of financial resources positively influences the scores in KCSE.

4.5 Teaching and Learning Resources

This section represents the findings from principals and teachers' responses in respect to the levels of adequacy and utilization of teaching and learning resources. Factors such as student/textbook ratio and selected learning and teaching resources are discussed. It also reports on the researcher's observation of adequacy of classrooms, classroom size, classroom arrangement, availability of library, availability of computer room stocked with computers and bookstore and other storage facilities.

4.5.1 Student / Textbook Ratio

The research sought to establish the student to textbook ratio in the common subjects offered in the sampled schools and the findings are summarized in Table 4.15.

Table 4.15 Student to textbook ratio

Department	**No. of pupils per text book**							
Form	**1**		**2**		**3**		**4**	
Subject	**STR**	**F (%)**	**STR**	**F (%)**	**STR**	**F(%)**	**STR**	**F(%)**
English	1:1	100	1:1,2	42	1:1,2	33	1:1,2	50
Kiswahili	1:1	100	1:1,2	50	1:1,2	33	1:1,2	50
Mathematics	1:1	100	1:1,2	42	1:1,2	33	1:1,2	50
Biology	1:1	100	1:1,2	17	1:1,2	21	1:1,2	25
Chemistry	1:1	100	1:1,2	18	1:1,2	23	1:1,2	17
Physics	1:1	100	1:1,2	42	1:1,2	67	1:1,2	67
History	1:1,2	33	1:1,2	33	1:1,2	33	1:1,2	33
Geography	1:1,2	33	1:1,2	42	1:1,2	42	1:1,2	50
CRE	1:1,2	50	1:1,2	17	1:1,2	14	1:1,2	17
Agriculture	1:1,2	33	1:1,2	50	1:1,2	42	1:1,2	50
B/Studies	1:1,2	33	1:1,2	42	1:1,2	33	1:1,2	42

Note: 1:1 and 1:2 STR were used for analysis since they are considered adequate according to the recommendations of MOE.

Table 4.15 reveals that due to government affirmative action of providing textbooks to schools from 2018; English, Kiswahili, Mathematics, Biology, Chemistry and Physics had student to textbook ratio of 1:1 in all schools in form one. In form two,18 (50%) of the schools sampled had the recommended STR in Kiswahili and Agriculture, 6 (17%) had the recommended STR in Biology and CRE. In form three, 24 (67%) had the recommended STR in Physics and 5(14%) in CRE. In form four, 24(67%) schools had the recommended STR in Physics, 18(50%) schools in

English, Kiswahili, Mathematics, Geography and Agriculture. Thus below 50% of the schools sampled had the recommended ratio of student to textbook ratio of either 1:1 or 1:2.

In some schools, certain subjects recorded a student to textbook ratio of 1:10. This indicates to a high degree a deplorable situation of lack of textbooks as instruction materials in most schools thus resulting to low academic performance.

4.5.3 Teachers' responses on adequacy of teaching and learning resources

The study sought the teachers' opinion on the adequacy of teaching and learning resources. Teachers were served with statement on a scale of 1 to 5, where 1 represented strongly disagree, 2 disagree, 3 moderately agree, 4 agree and 5 strongly agree. The statements were meant to assess the levels of adequacy of teaching and learning resources in schools. Average mean scores corresponding to each response based on the scale was calculated and presented in Table 4.16

Table 4.16: Teachers' responses on levels of Adequacy of teaching and Learning Resources

Levels of Adequacy of Teaching and Learning Resources	Frequency (Teachers)					
	5	**4**	**3**	**2**	**1**	**Mean**
1.The number of reference books in the school are adequate	9	51	49	27	2	**3.28**
2.The number of teachers guide in the school are adequate	23	48	34	27	4	**3.38**
3.Teaching resources such as manilas, dusters, plasticine, chalk, models, charts, are adequate	44	44	30	13	6	**3.75**
4.Use of resource persons in the school was thrice in a term	9	22	33	48	23	**2.54**
5.Use of field trips/excursions in the school was at least once in a term	9	30	41	27	30	**2.70**
6.Use of computers in teaching and learning was common	4	19	23	41	49	**2.14**
7.Students have adequate number of calculators	26	34	36	32	9	**3.23**
8.Books and equipment storage facilities in the school are adequate	26	36	34	36	6	**3.29**
Overall mean						**3.04**
Use of professional documents in the school						
9.I always prepare schemes of work for subject that I am allocated	98	34	6	0	0	**4.67**
10.I always make use of lessons plans in my teaching	57	46	23	12	0	**4.07**
11.I always keep updated students records for my subject	79	50	10	0	0	**4.53**
12.I always keep updated lesson notes for my subject	102	30	6	0	0	**4.70**
13.I always keep updated class register for the students in my class	90	36	6	3	4	**4.51**
14. I always make use of practical/experiments for the teaching of my subject	57	46	23	9	12	**4.12**
Overall Mean						**4.43**

Table 4.16 shows that teachers agreed that they always use professional documents in teaching with an overall mean of 4.43 and moderately agreed that teaching and learning resources are adequate with an overall mean of 3.04. They moderately agreed that students have adequate number of calculators, books and equipment storage facilities in the school are adequate , number of reference books in the school are adequate , number of teachers guide in the school are adequate with a mean score of 3. They disagreed that use of resource persons in the school was thrice in a term; use of field trips/excursions in the school was at least once in a term with a mean score of 2. This indicates resources were not adequately available for teachers' usage.

4.5.4 Adequacy of Teaching and Learning Resources as observed by the Researcher.

The researcher visited all the schools and while principals and teachers were filling the questionnaire, he observed selected immovable infrastructure which directly influence learning and summarized the findings as indicated in Table 4.17.

Table 4.17: Teaching Resources

Teaching & Learning Resource	Frequency	% Frequency
Adequate Classrooms	30	83
Standard classroom size	27	75
Computer room	2	6
Library	15	42
Storage facilities	13	36

From table 4.17, 30(83%) schools sampled had adequate classrooms, 16 schools had some classes in laboratories, dining hall and libraries. On the other hand less than half of the total

schools sampled indicated inadequate facilities such as computer room at 6%, library at 42%, storage facilities at 36%.

4.5.5 Influence of Levels of Adequacy of Teaching and Learning Resources on Academic Performance

Regression analysis was done with the dependent variable being mean KCSE performance in various schools sampled. The independent variable was arrived at by considering the mean STR together with the average scores from the likert scale. The observed STRs in different schools were then assigned conventional values. For example STR of 5 was assigned the value 1, 4 was assigned 2, 3 assigned 3,2 assigned 4 and 1 assigned 5. This was then added to the mean scores from likert scale to obtain the overall score for each school for the purposes of regression in an attempt to establish the influence of adequacy of teaching and learning resources on academic performance. The results are shown in Figure4.15 and Table 4.20

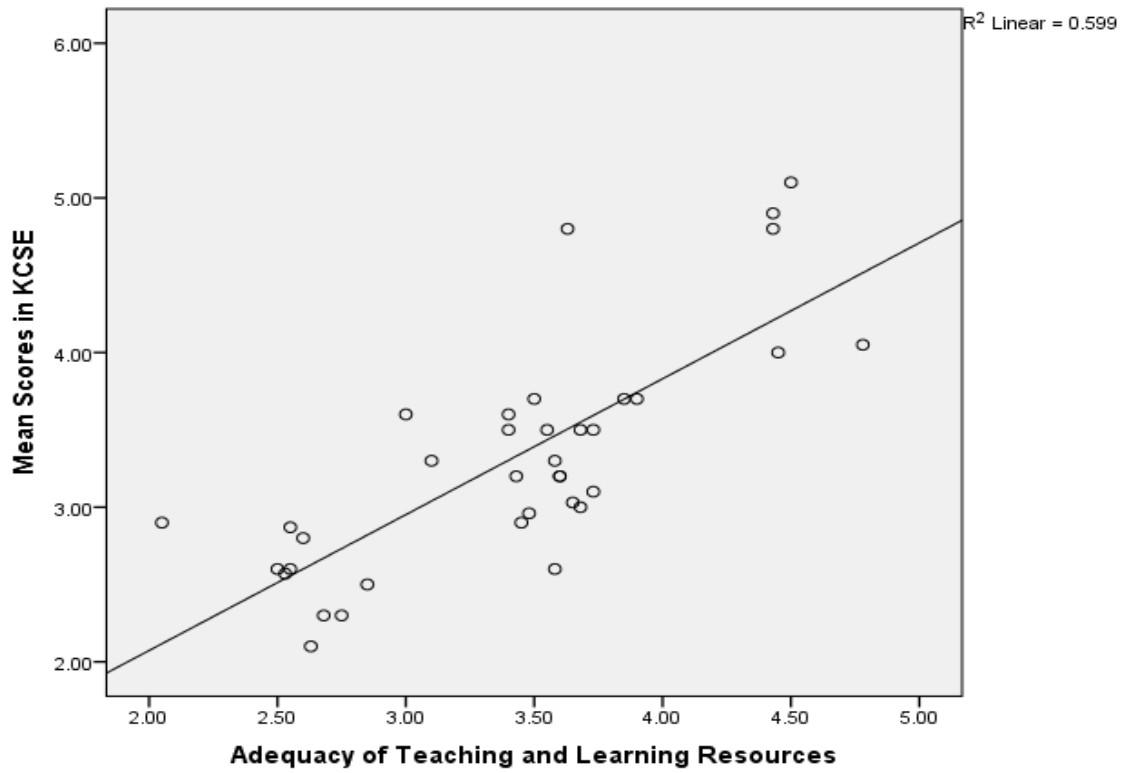

Figure 4.15 Scatterplot of Adequacy of Teaching and Learning Resources

It was established that there was a positive relationship between schools mean scores and the adequacy of teaching and learning resources. This is because the more adequate the resources, the better the academic performance.

The level of significance is indicated by linear regression model in Table 4.18

Table 4.18: Influence of Adequacy of Teaching and Learning Resources

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.316	.428		.740	.465
Adequacy of Teaching and Learning Resources	.879	.123	.774	7.131	.000

a. Dependent Variable: Mean Scores in KCSE

The table shows that adequacy of teaching and learning resources influences the performance positively with a regression coefficient of 0.879.This meant that academic performance improved when the teaching and learning materials are made available for teachers' use. This result support the findings of researchers who have argued that teacher or school resource inputs do not explain a large portion of student academic achievement. For instance, Momoh (2010) conducted a research on the effects of instructional resources on students' performance in West Africa School Certificate Examinations (WASCE) and concluded that teaching and learning resources have a significant effect on students' performance in each of the subjects. Many research reports abound on the inevitability of instructional materials and resources on educational outcomes (Hassan, 2000). When instructional materials and resources are lacking or are inadequate education was compromised and this inevitably was reflected in low academic performance, high dropout rates, problem behaviours, poor teacher motivation and unmet educational goals. This leads to wastage of resources devoted to education.

4.5.6 Teachers' responses on utilization of Teaching & Learning Resources

The study also sought the teachers' opinions on the utilization of teaching and learning resources. Teachers were served with statement on a scale of 1 to5, where 1 represented strongly disagree, 2 disagree, 3 moderately agree, 4 agree and 5 strongly agree. The statements were

meant to assess the levels of utilization of teaching and learning resources in schools. Their responses are provided in Table 4.19

Table 4.19 Teachers' response on utilization of Teaching and Learning Resource

	Levels of utilization of teaching and learning resources	5	4	3	2	1	Mean
1	I make use of the facilities in the laboratory in teaching	45	25	25	17	26	**3.33**
2	I make use of the facilities library in teaching	45	58	30	0	4	**4.00**
3	I make use of the computer room in teaching	17	26	29	30	36	**2.70**
4	I make use of the reference books in teaching	83	39	10	0	8	**4.41**
5	I make use of the set books in my teaching	62	17	4	12	42	**3.30**
6	I make use of the text books in the teaching of subjects	96	32	2	5	2	**4.53**
7	I make use of the teacher's guide in teaching	66	40	18	5	8	**4.07**
8	I make use of the models in teaching	40	44	36	10	8	**3.71**
9	I make use of the resource persons in teaching	22	29	45	26	16	**3.11**
10	I make use of the excursions/field trips in teaching	18	25	34	35	26	**2.8**
11	I make use of the calculators in teaching	34	34	28	16	26	**3.24**
12	I make use of the internet in teaching	24	34	35	20	24	**3.08**
13	I make use of the charts in teaching	34	52	40	5	5	**3.72**
14	I make use of the discussion groups teaching	80	34	18	0	5	**4.31**
	Overall mean						**3.60**

According to Table 4.19, teachers agreed that they make use of the facilities in library in teaching, make use of the discussion groups teaching, make use of the teacher's guide in teaching, make use of the text books in the teaching of subjects and that they make use of the reference books in teaching.

On the contrary, they disagreed that they make use of the computer room in teaching and that they make use of the excursions/field trips in teaching.

On the overall, teachers agreed that they make use of available teaching and learning materials with an overall mean of 3.6, except computers which are unavailable in most schools and that very few schools participate in field trips.

4.5.7 Influence of Levels of Utilization of Teaching and Learning Resources on Academic Performance

Regression analysis was done in an attempt to establish the influence of utilization of teaching and learning resources on academic performance by taking the perceptions of teachers provided in the Likert scale on the levels of utilization of teaching and learning resources against mean performance in KCSE. The results are indicated in Figure 4.16 and Tab le 4.21

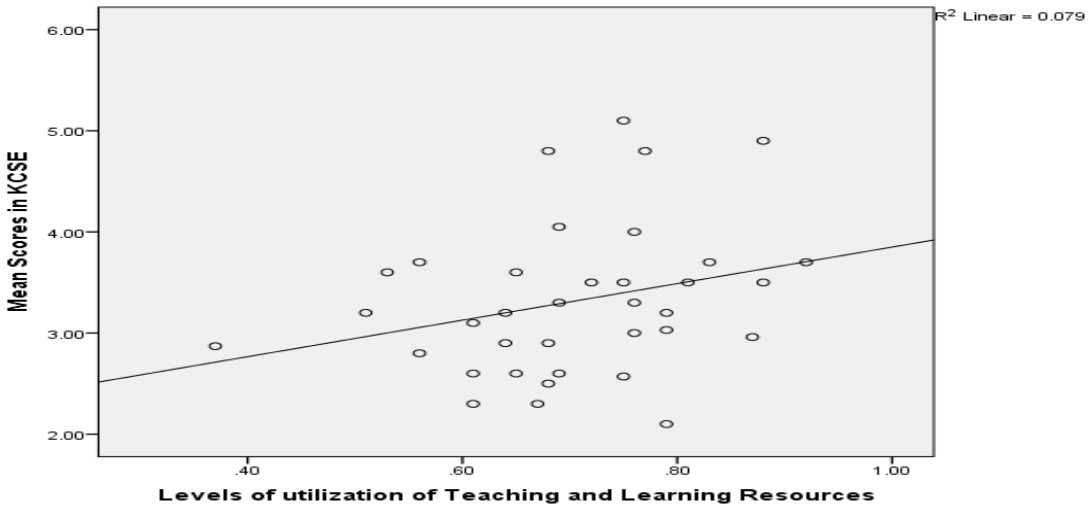

Figure 4.16 Scatterplot showing relationship between levels of utilization of Teaching and Learning Resources against Academic performance

Figure 4.16 shows a weak positive relationship between utilization of teaching and learning resources and performance in KCSE. The strength of the relationship is shown in Table 4.20.

Table 4.20 Influence of Utilization of Teaching and Learning Materials on Academic Performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	2.044	.751		2.720	.010
	Levels of utilization of Teaching and Learning Resources	1.807	1.055	.282	1.712	.096

a. Dependent Variable: Mean Scores in KCSE

The model shows that there is a positive correlation between the levels of utilization of teaching and learning resources with the mean performance in KCSE with a Pearson's correlation coefficient of 0.283 and regression coefficient of 1.807. This means the level of utilization of teaching and learning resources influences the performance by upto 18.07%. This findings concurred with that of Olendo (2008) observed that some well-equipped schools perform dismally due to underutilization of resources while less equipped schools performed relatively well due to proper utilization of resources. Olel (2000) in her research on optimal utilization of educational resources in Kisumu District concluded that the levels of utilization of teaching and learning resources correlate highly with the academic performance. However, the findings of this research reveals overutilization of the few teaching and learning resources available indicated by high STR thereby interfering with the overall outcome of the learning process in form of low academic performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study sought to determine the influence of the levels of adequacy and utilization of selected educational resources as determinants of learners academic performance of public mixed secondary schools of Kuria East and Kuria West Sub – counties, Kenya. The summary of the research findings, conclusions and recommendations for policy makers and suggestions of topics for future researchers and educational practitioners were indicated as follows;

5.2 Summary of Research Findings

The study had three objectives namely: to determine the influence of adequacy and utilization of teachers on learners' academic performance ,to establish the influence of adequacy and utilization of school financial resources on learners' academic performance and to determine the influence of adequacy and utilization of teaching and learning resources on learners' academic performance.

5.2.1 Influence of Adequacy of teachers on Learners' academic performance

An analysis of the first objective of the study revealed that there was a significant positive relationship between adequacy of teachers and academic performance with a regression coefficient of 5.953 as indicated in Table 4.4. It was found out that the more the number of teachers in schools the better the academic performance. The study also revealed that there was a shortage of 209 (60.58%) teachers secondary schools of Kuria East and 233(50.1%) teachers in Kuria West sub counties according to the provisions of Curriculum Based Establishments (CBE)

as illustrated in Table 4.3 on page 40. The study also highlighted low retention of experienced teachers in the study area since 97(70%) of the teachers had a teaching experience of 0 to 5 years. This high level of teacher shortage coupled with low retention rate led to low academic performance in the said region.

5.2.2 Influence of Utilization of Teachers on Learners' academic performance

Levels of utilization of teachers and its influence on academic performance was analyzed through establishing the number of lessons taught by a teacher per week then regression coefficient against academic performance worked out through the help of SPSS. It was established that on average, teachers taught different number of lessons in different departments. Sciences and Mathematics Department had the highest number of lessons taught per week at 29 lessons per teacher followed by Languages at 28 lessons, Technical and Applied at 27 and the least was humanities at 26 lessons per week. On average a teacher handles 28 lessons per week across the departments. This exceeds the optimal number that should be handled by a teacher which should be a maximum of 27 lessons per week (TSC Circular, 2017). Apart from teaching, teachers also had various responsibilities with some having up to four responsibilities including class teacher, head of department, deputy principal, games teacher and boarding teacher. Thus there was a negative relationship between utilization of teachers against academic performance with a regression coefficient of -0.151 which indicates that when teachers handles fewer lessons the academic performance is higher but when the number of lessons handled by teacher exceeds the limit set by TSC the academic performance declines.

5.2.3 Influence of Adequacy and Utilization of school Financial resources on Learners' academic performance

An analysis of the second objective reveals that adequacy of financial resources influences the performance with a regression coefficient of 0.100 as in Table 4.24 on page 53. This indicates that the higher the level of adequacy of finances in schools the better the academic performance.

Financial resource utilization also correlated very highly against academic performance with a regression coefficient of 0.799 as in Table 4.16 on page 56. This meant that the more prudent the financial resources were utilized the better the KCSE performance.

5.2.4 Influence of Adequacy and Utilization of Teaching & Learning resources on Learners' academic performance

Adequacy of teaching and learning resources was analyzed by assessing student to textbook ratio and views of teachers. This had a positive significant with a regression coefficient of 0.879 as in Table 4.20 on page 61. This meant that the more the teaching and learning resources the better the academic performance.

Teaching and learning resources utilization correlated positively with academic performance with a regression coefficient of 1.807 as in Table 4.21 on page 64. This indicates that when the available teaching and learning resources are optimally utilized the results become better. However, when the teaching and learning resources are underutilized or over utilized, the academic results worsen. This study therefore found out that the teaching and learning materials were over utilized and some teaching and learning materials were completely unavailable in most schools like the use of field trips and computers as in Table 4.21 on page 62. The effect was low academic performance.

5.3 Conclusion

5.3.1 The study found out that adequacy of teachers positively influences the academic performance. This is attributed to enhanced teacher- student interaction in the classroom and even in the school as the teacher could get time for individualized attention which took care of the learner differences.

5.3.2 Teacher utilization also revealed a positive relationship with academic performance whereby schools which utilized the available human resources optimally realized better academic performance and vice versa.

5.3.3 Financial resource adequacy never had significant influence on academic performance which meant that the mere availability of the financial resources did not account for major differences in academic performance but the utilization counted much.

In addition, it was found out that the levels of financial resources utilization predicted to a larger extent the academic performance of schools. The more effective the utilization of financial resources, the better the academic performance and vice versa.

5.3.4 The adequacy of teaching and learning resources also had influence on academic performance. The higher the number of students per textbook, the lower the school academic performance. The other teaching and learning resources also correlated highly with academic performance.

There was also positive influence of the level of teaching and learning resource utilization on academic performance whereby in schools where these resources were optimally used posted better academic performance.

5.4 Recommendations

On the bases of the conclusions made from the study, the researcher recommended the following.

5.4.1 Adequacy and Utilization of Teachers

The government should employ more teachers to bridge the gap of over 60.58% teacher shortage in Kuria East and 50.1% shortage in Kuria West and ensure that those who are already employed are not overworked.

The government should employ only the teachers whose subject combinations are in shortage in schools to avoid overcrowding of teachers in a given department as other departments remains in deficit for instance the government should employ more science teachers than humanity teachers in both Kuria East and Kuria West to reduce the number of lessons taught by the same teachers per week to optimum levels.

5.4.2 Adequacy and Utilization of Financial Resources

The principals and parents should ensure the fee balance by students is paid in time to allow for the smooth operations of the schools. This can be supplemented by income generating activities.

Strict adherence to financial guidelines set out by the MOE should be strictly monitored by the government and the culprits punished so as to foster prudence in financial management by the school managers.

5.4.3 Adequacy and Utilization of Teaching and Learning Resources

The government should avail adequate teaching and learning resources in schools in order to realize quality academic performance.

The school management to foster optimal utilization of teaching and learning resources. Underutilization or over utilization of the said resources should be discouraged.

5.5 Suggestions for Further Research

5.5.1 A study should be conducted to suggest ways through which government can foster adherence to the financial guidelines issued to Principals by the government.

5.5.2 A study should be done on ways through which schools can mobilize resources in order to start income generating activities.

5.5.3 Similar research should be carried out in other parts of the country and at different institutional levels in order to ascertain the levels of adequacy and utilization of educational resources.

REFERENCES

Abdulkareen, A.Y. (1989). Impact of school resource management on school effectiveness in selected secondary schools in Kwara State. Nigeria: Lagos Printing Press

Atherton, G. (2008). The Politics of Access: Comparing National Strategies to widen Access in the UK and US. Paris: Wasaw Express

Ayo, A.(1995). Educational planning statistics and models. Ibadan: Keye-Yek printing production

Ayodo, T.M. (2010). The Position of Secondary Education in Kenya: Educational Management Society of Kenya. Kakamega: Eldoview Graphics

Balabolola, J.B. (2007). Reinventing Nigeria Higher Institution for youth Employment in a competitive global economy: Guest lecture. Department of Administration and planning, university of Calabar.

Coleman, T. (2O02). Planning secondary education. London: Macmillan

Cook, M. (2002). Teacher responses on instructional practice. New York: Fieldman Press.

Cronbac, L. J. (1986).How instructions can be adapted to individuals differences: Public Education. New York. Basic books Inc.

Earthman P. N., & Lemasters, M.L (1996) "Review of Research on the Relationship between School Buildings, Student Performance, and Student Behavior. " Paper presented at the Annual meeting of the Council of Education Facility Planners International, Tarpon Springs, FL 1996.

Republic of Kenya (2015).Education for All 2015 National Review Report: Nairobi: Government printer

Ernest, M. (1991). Efficiency in Learning: Evidence-Based Guidelines to Manage Cognitive Load. San Francisco: Pfeiffer

Di Gropello, E. (2006). Meeting the Challenges of Secondary Education in Latin America and East Asia: Improving Efficiency and Resource Mobilization. Washington D.C.: The International Bank for Reconstruction and Development.

Fagbamiye, E.O. Balalola, J.B. Fabunmi, M.& Okwori, A.(2006).Educational Planning for Community Development. Lagos: Nigeria

Falade(2006). Effect of instructional media on the learning of computer in JSS.African Journal of Educational Research. Ibadan: Department of Teacher education.111,2:71-75

FAWE. (1996). The Education of Girls and Women in Africa. Nairobi: FAWE

Gewertz, (2001). Measuring instructional practice. Can policy makers trust survey data ? Educational Evaluation and Policy Analysis. American Journal of Education, 3158.

Glasersfeld, T. F. (1989). Cognition, construction of knowledge, and teaching.Albion. Syntheser Press.

Gogo, J.O. (2002). The impact of cost sharing on Access, Equity and Quality of Secondary Education in Rachuonyo District. Kenya. Unpublished Master Thesis Maseno

Afolabi, S.O.(2005). Statistical tools and models for educational planners. Ilorin: Integrity Publications.

Lynn, S.L. (2014). Influence of Kenya Vision 2030's Education Policy on Quality, Education in Public Secondary Schools in Nakuru District, Kenya.

Lyons(2002). Workers of Tomorrow,Education in progress, Ministry of Education and Scientific Research. Port Fortis. Fiji.

Ministry of Education (2002). Secondary schools Science Laboratory Guide. Nairobi: M.O.E press.

Moore, B. N. & Warner , P. G (1998). Effective Teaching. New Heaven. Yale University.

Moore, R. (2006). Class attendance: How students' attitudes about attendance relate to their academic performance in introductory science classes.

Mugenda, O .M. & Mugenda, A.G. (2003). Research methods: Quantitative and Qualitative Approaches. Nairobi; ACTS press.

Mulkeen, A.. Chapman, D., DeJaeghere, J., & Bryner, K. (2005). Recruiting, Retaining, and Retraining Secondary School Teachers and Principals in Sub-Saharan Africa. GEC 95 Working Paper Series. Washington D.C.: Academy for Education Development and the World Bank.

Njeru, H. N. & Orodho A. J. (2003).Access and Participation in Secondary Education in Kenya: Emerging issues and Policy Implications, IPAR Discussion paper NO 037/2003WASBN 9966-948-27-9

O"Neill and Oates (2001). Research in Education and Development.Newyork Macgraw Hill.

Owolabi, S.O. (2000). Demographic analysis in educational management. Ibadan: Lower House publishers.

Odhiambo, G. (2010). Appraising teacher performance. Themes and issues: Germany; LAP-LAMBERT Academic publishing.

Olagboye, A.A.(2004). Introduction to educational management. Ibadan: Daily Graphics limited.

Olel, M. (2000). Optimal Utilization of Education Resources in Secondary Schools. Unpublished Research Thesis, Maseno University

Orodho, J. A. (2012). Techniques of writing Research Proposals and Reports in Education and Social Sciences. Nairobi: Kanezja Publishers.

Orodho, J. A. (2014). Policies on free primary and secondary education in East Africa: International Organization of Scientific Research (IOSR) Journal of Humanities and Social Sciences *(IOR-JHSS).*Vol.19, Wassue1, Ver, V (Jan 2014).

Psacharpolours, G. & Woodhall, M. (1985). Education for Development: An Analysis of investment choices. Oxford University Press; New York.

Republic of Kenya (2007). Kenya Vision 2030 Brochure. Nairobi: Government printers

Republic of Kenya (2008). Facts and Figures. Nairobi: Kenya National Bureau of Statistics

Republic of Kenya (2010*).* Secondary School Sector as a Component towards the Realization of Kenya Vision 2030.Nairobi: Government Printers

Republic of Kenya, Education Sector Report 2016/17-2018/19 MTEF Budget Report November 2015

Republic of Kenya: Economic Survey 2015

Republic of Kenya: Saturday Nation, February 4, 2017. pg 12-13

UNESCO. (2001). General Secondary School Education in the Twenty-First Century: Trends, Challenges, and Priorities. Beijing: UNESCO International Expert Meeting on Secondary Schooling.

UNICEF(2005). United Nations Children Fund. Nairobi: UNICEF

World Bank. (2007). Secondary Education in Africa: At the Cross Roads: Choices for Secondary Education and training in Sub-Saharan Africa. Washington D.C.: SEIA and the World Bank.

Zymelman, M. (1982). Financing and Efficiency in Education Reference For Administration and Policy Making. Cambridge: Harvard University Press.

APPENDICES

APPENDIX I: PRINCIPAL'S QUESTIONNAIRE

I am a post-graduate student at Maseno University. The questions below seek to find out the levels of educational resource adequacy and utilization on academic performance. Your school has been chosen and you are requested to respond to the questions as honestly as possible. The researcher would like to assure you that the information you provide was be highly confidential and was be used for research purposes only.

Section A: Background information:

Please tick appropriately in box ☐ or provide information as necessary

1. What was your teaching experience (years)

   0-5 ☐ 6-10 ☐ 10-15 ☐ 16-20 ☐ over 20 ☐

2. Please indicate below your academic qualifications.

   Master in Education ☐

   B.E.D ☐

   P.G.D.E ☐

   Diploma Untrained ☐

   Other (Specify) ☐

3. (a) Under which category does your school fall?

Sub County ☐ County ☐ Extra County ☐ National ☐

b) Indicate the number of streams in your school

FORM	STREAM			
	1	2	3	4 and Above
1				
2				
3				
4				

Section B: Adequacy and utilization of school Human Resources

4. Give the number of teachers in your school as follows

T.S.C _____

B.O.G _____

Volunteers _____

5. What was the average number of lessons that a teacher in your school was allocated per week in the following departments?

Department	**No. of lessons taught per week**
Languages	
Science and Mathematics	
Humanities	
Technical and Applied subjects	

6. (a) Are the teachers in your school enough according to the C.B.E?

Yes ☐ No ☐

(b) If your answer in (a) above was no, by how many teachers was your school understaffed?

……

……

……

(c) If your answer in (a) above was yes, by how many teachers was your school overstaffed?

……

……

……..

7. Indicate the enrolment in your school in the following years

Year	Enrolment		Total
	Boys	Girls	
2015			
2016			
2017			

8. a) Indicate the average entry behavior of the learners that are admitted to your school?.....

b) What strategies does your school employ to improve academic performance?

……

……

……

……

……

……

9. Give the school KCSE mean score in the years provided in the table below (tick where applicable)

Year	2015	2016	2017
Mean index			

Section C: Adequacy and utilization of school Financial Resources

10. a) List the sources of financing your school activities.

……

……

……

…….

b) Tick the fee charged by your school p.a in Ksh from parents only

5000 – 10000 ☐ 10001 -15000 ☐ 15001 – 20000 ☐ 20001-25000 ☐ Above 25000

c) Indicate the level of fee payment in your school

Below 50% ☐ 50 -59% ☐ 60 – 69% ☐ 70 – 79% ☐ Above 80% ☐

11. a) Does your school has(ve) an income generating project(s)

Yes ☐ No ☐

b) If yes then indicate the type of income generating project(s) that your school was engaged in

……

……

……..

b) If no, why?

……

……

……

……

c) How much money does your school realize on average from each of the projects p.a in Ksh.

……

……

12 a) Has your school ever received infrastructure improvement fund from the government in the last five years? Yes ☐ No ☐

b) Explain your answer in 13a

……

……

b) Apart from FDSE and infrastructure improvement fund, which other support has your school received from the government in the last five years.

……

……

b) In your own view, how do you mitigate financial resource inadequacies if any?

……

……

……

……

……

Section D: Levels of Adequacy and Utilization of Teaching/ Learning Resources

13. What are the textbook/pupil ratios for each of the following subjects in your school?

Department	**No. of pupils per text book**			
Form	**1**	**2**	**3**	**4**
English				
Kiswahili				
Mathematics				
Biology				
Chemistry				
Physics				
History				
Geography				
CRE				
Agriculture				
B/Studies				

14. This question assesses the levels of adequacy of T/L resources and consist of statements with a scaling of 1 to 5 in a grid, please tick (√) the response that most closely approximates your opinion about the statement.

5 Strongly agree

4 Agree

3 Moderately agree

2 disagree

1 Strongly disagree

Example

	5	4	3	2	1
The supply of water to the school reliable					√

In this case the respondent indicates that the supply of water to the school was very erratic.

		5	4	3	2	1
1	The number of reference books in the school are adequate					
2	The number of teachers guide in the school are adequate					
3	Teaching resources such as manila papers, dusters, plasticine, chalk, models, charts, are adequate					
4	Use of resource persons in the school was thrice a term per subject					
5	Use of field trips/excursions in the school was done termly					
6	Use of computers in teaching and learning was common					
7	Students have adequate number of calculators					
8	Books and equipment storage facilities in the school are adequate					

15. This question assesses the levels of teaching& learning resource utilization in secondary schools; consist of statements with a scaling of 1 to 5 in a grid, please tick (√) the response that most closely approximates your opinion about the statement.

5 Strongly agree

4 Agree

3 Moderately agree

2 disagree

1 Strongly disagree

Example

	5	4	3	2	1
I ensure that I use laboratory in teaching of sciences.					√

In this case the respondent indicates that he/she frequently uses the laboratory in teaching.

		5	4	3	2	1
1	I ensure the facilities in the laboratory are used in teaching					
2	I ensure the facilities in the library are used in teaching					
3	I ensure that the computer room was used in teaching					
4	I ensure the reference books are properly utilized					
5	I ensure the set books are used in teaching					
6	I ensure that text books are used in the teaching					
7	I ensure that teacher guides are used in teaching					

8	I ensure that teachers make use of the models in teaching					
9	I ensure that resource persons are invited to the school					
10	I ensure that excursions/field trips are organized and financed by the school					
11	I ensure that calculators are used in teaching					
12	I ensure that the teachers have access to the internet					
13	I ensure that charts, teaching aids and models are used in teaching					
14	I ensure that discussion groups are used in teaching					
15	I ensure that type writers, copy printers, computers are well utilized for teaching.					

THANK YOU FOR PARTICIPATING IN THIS STUDY

APPENDIX II: TEACHERS' QUESTIONNAIRE

I am a post-graduate student at Maseno University. The questions below seek to find out the levels of educational resource adequacy and utilization on learners' academic performance. Your school has been chosen and you are requested to respond to the question as honestly as possible. The researcher would like to assure you that the information you provide was be highly confidential but used for research purposes only.

SECTION A: Teacher's Qualifications and workload Information

Please tick appropriately in the box ☐ provide additional information if necessary

1. What are your teaching subjects_____ _____

2. What was your Teaching experience (years)

0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ over 20 ☐

3. Please indicate below your level of education

Master in Education ☐

B.E.D ☐

P.G.D.E ☐

Diploma ☐

Untrained ☐

Other (specify) ☐

3. (i) Have you ever enrolled in an in - service training programme in the past one year?

Yes ☐ No ☐

(ii) If yes, did you find the training relevant to your career? Please explain.

……

……

……

i) If no, why?

……

……

ii) How many lessons do you teach per week?……

SECTION B: Teaching and Learning resources

5. This question consist of statements with a scaling of 1 to 5 in a grid, please tick (√) the response that most closely approximates your opinion about the statement.

5 Strongly agree
4 Agree
3 Moderately agree
2 Disagree
1 Strongly disagree

Example

	5	4	3	2	1
The supply of water to the school was reliable					√

		5	4	3	2	1
1	The number of reference books in the school are adequate					
2	The number of teachers guide in the school are adequate					
3	Teaching resources such as manilas, dusters, plasticine, chalk, models, charts, are adequate					
4	Use of resource persons in the school was thrice in a term					
5	Use of field trips/excursions in the school was at least once in a term					
6	Use of computers in teaching and learning was common					
7	Students have adequate number of calculators					
8	Books and equipment storage facilities in the school are adequate					
	Use of professional documents in the school					
9	I always prepare schemes of work for subject that I am allocated					
10	I always make use of lessons plans in my teaching					
11	I always keep updated students records for my subject					
12	I always keep updated lesson notes for my subject					
13	I always keep updated class register for the students in my class					

14	I always make use of practicals/experiments for the teaching of my subject					

6. This question assesses the levels of resource utilization in secondary schools; consists of statements with a scaling of 1 to 5 in a grid, please tick (√) the response that most closely approximates your opinion about the statement.

5 Strongly agree 4 Agree 3 Moderately agree 2 Disagree 1 Strongly disagree

Example

	5	4	3	2	1
I often make use of laboratory in my teaching of my sciences.	√				

In this case the respondent indicates that he/she frequently uses the laboratory in teaching.

		5	4	3	2	1
1	I make use of the facilities in the laboratory in teaching					
2	I make use of the facilities library in teaching					
5	I make use of the computer room in teaching					
7	I make use of the reference books in teaching					
8	I make use of the set books in my teaching					
9	I make use of the text books in the teaching of subjects					
10	I make use of the teacher's guide in teaching					
11	I make use of the models in teaching					
12	I make use of the resource persons in teaching					
13	I make use of the excursions/field trips in teaching					
14	I make use of the calculators in teaching					
15	I make use of the internet in teaching					
16	I make use of the charts in teaching					
18	I make use of the discussion groups teaching					

THANK YOU FOR PARTICIPATING IN THIS STUDY

APPENDIX III: DOCUMENT ANALYSIS GUIDE

The following items guided the document analysis.

1. What are the staffing levels of public secondary schools of Kuria East and KuriaWest sub counties?
2. What is the students enrolments in public secondary schools of Kuria East and Kuria West sub counties in the years 2015, 2016, 2017?
3. What is the academic performance in KCSE of public secondary schools of Kuria East and Kuria West sub counties from 2015 to 2017?
4. How much fee should be charged by in different categories of public secondary schools in Kenya according to the latest MOE fee guideline?
5. What are the guidelines for the use of FSE funds?
6. School Audit reports for 2015 -2017
7. What is the average number of lessons that a teacher handles in a week in the sampled schools according to the Lesson attendance register?

APPENDIX IV: OBSERVATION CHECKLIST

Information on the following was obtained through observation:

1. Adequacy of classrooms
2. Income generating Activities
3. Availability of land for investment
4. Number of students per textbook in classes according to the subjects offered
5. Adequacy of laboratories
6. Availability of library and how it was used

APPENDIX V: INDEPENDENT AND DEPENDENT VARIABLES

SPLE	CATEGORY	ENRLMT	STRM	TRS	CBE	%ADQ	LSN	FEE	AUDIT	STR	UTL	KCPE	KCSE
1	SUB-COUNTY	320	2	10	17	.59	34	60-69%	2	4	.68	220	2.90
2	SUB-COUNTY	130	1	5	9	.56	26	60-69%	2	5	.68	180	2.50
3	SUB-COUNTY	225	2	10	17	.58	30	60-69%	2	4	.61	200	2.30
4	SUB-COUNTY	250	3	19	25	.76	30	Below 50	3	4	.88	220	3.50
5	COUNTY	566	3	21	25	.84	27	Below 50	5	3	.75	260	5.10
6	SUB-COUNTY	160	1	6	9	.67	38	50-59%	2	4	.65	200	2.60
7	SUB-COUNTY	370	2	13	17	.77	28	50-59%	4	4	.69	200	4.05
8	SUB-COUNTY	360	2	13	17	.77	32	50-59%	4	2	.76	240	4.00
9	SUB-COUNTY	177	1	6	9	.67	33	Below 50	3	3	.61	186	3.10
10	SUB-COUNTY	350	2	12	17	.70	28	Below 50	3	5	.81	200	3.50
11	SUB-COUNTY	310	2	12	17	.70	28	60-69%	3	3	.72	180	3.50
12	SUB-COUNTY	303	2	11	17	.65	32	50-59%	3	4	.79	200	3.03
13	SUB-COUNTY	270	2	12	17	.71	34	50-59%	3	5	.64	250	3.20
14	SUB-COUNTY	400	2	11	17	.65	36	Below 50	3	5	.76	230	3.00
15	SUB-COUNTY	185	1	4	9	.44	37	Below 50	3	5	.79	110	2.10
16	SUB-COUNTY	182	1	7	9	.78	30	Below 50	3	5	.56	180	3.70
17	SUB-COUNTY	132	1	5	9	.57	33	50-59%	2	3	.37	200	2.87
18	COUNTY	453	3	15	25	.60	31	50-59%	2	3	.87	250	2.96
19	COUNTY	304	2	14	17	.82	28	50-59%	4	3	.88	220	4.90
20	SUB-COUNTY	203	2	12	17	.71	33	50-59%	3	4	.69	150	3.30
21	SUB-COUNTY	130	1	7	9	.78	30	Below 50	3	4	.83	180	3.70
22	SUB-COUNTY	500	3	18	25	.72	34	Below 50	3	2	.51	280	3.20
23	COUNTY	985	4	20	33	.61	33	Below 50	2	3	.56	250	2.80
24	COUNTY	298	2	13	17	.76	32	Below 50	3	3	.76	270	3.30
25	SUB-COUNTY	180	1	5	9	.56	35	Below 50	2	4	.75	250	2.57
26	SUB-COUNTY	176	1	4	9	.44	37	Below 50	2	4	.67	250	2.30
27	SUB-COUNTY	378	2	14	17	.82	28	60-69%	3	3	.68	287	4.80
28	SUB-COUNTY	191	2	10	17	.58	29	60-69%	4	3	.53	195	3.60
29	SUB-COUNTY	398	2	13	17	.76	29	60-69%	3	3	.65	250	3.60
30	COUNTY	305	2	10	17	.59	31	50-59%	2	3	.64	287	2.90
31	COUNTY	300	2	9	17	.52	35	50-59%	2	4	.69	195	2.60
32	COUNTY	225	2	12	17	.72	34	50-59%	3	4	.79	250	3.20
33	COUNTY	540	3	19	25	.76	35	50-59%	3	3	.75	220	3.50
34	SUB-COUNTY	510	3	20	25	.80	29	60-69%	4	4	.77	200	4.80
35	COUNTY	188	2	13	17	.76	30	50-59%	3	3	.92	200	3.70
36	COUNTY	193	2	9	17	.53	35	50-59%	2	4	.61	240	2.60

N/B: 1.For audit column, 4 was assigned to schools with stable accounts, 3 schools with excess expenditure over income < Ksh.100000, 2 schools with excess expenditure over income > Ksh.500000, and 1 for schools with unstable accounts. 2. UTL represents levels of utilization of teaching and learning resources. This represents mean scores from the likert scale. %ADQ-percentage adequacy, ENRLMT-enrolment, LSN- lesson, STR- student textbook ratio