ADMINISTRATIVE FACTORS INFLUENCING QUALITY OF EDUCATION IN PUBLIC SECONDARY SCHOOLS IN KITUI, KISII AND NAIROBI COUNTIES, KENYA

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DECLARATION

This thesis is my original work and has not been presented for award of a degree in any other University

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This work is dedicated to my late father James Asiago and my mother Mary Mayomi.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ASAL	Arid and Semi - Arid Lands
BA	Bachelor of Arts
EFA	Education For All
FDSE	Free Day Secondary Education
FPE	Free Primary Education
HIV	Human Immunodeficiency Virus
IGAs	Income Generating Activities
INSET	In-service Training
KCSE	Kenya Certificate of Secondary Education
KNEC	Kenya National Examinations Council
MDGs	Millennium Development Goals
MEd	Master of Education
MoE	Ministry of Education
MoEST	Ministry of Education Science and Technology
NCDF	National Constituency Development Fund
PA	Parents Association
PGDE	Post Graduate Degree in Education.
PISA	Programme for International Assessment
SACMEQ	South African Consortium for Monitoring Educational Quality

SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social Sciences
TMSS	International Mathematics and Science Study
TSC	Teachers Service Commission
UNESCO	United Nations Educational Scientific and Cultural Organization
UNICEF	United Nations Childrens Fund

ABSTRACT

Quality of education has remained at the heart of educational administration over the years. The purpose of this study was to investigate the administrative factors influencing quality of education in public secondary schools in Kenya. The study objectives were: to establish the extent to which school physical facilities, teacher motivation levels, financial resources and teaching/learning materials influence quality of education in public secondary schools in Kitui, Kisii and Nairobi counties. The study was guided by the general systems theory. The study used a correlational research design focusing on a target population of 783 public secondary school principals and 8617 public secondary teachers employed by the Teachers Service Commission. Kitui, Kisii and Nairobi counties represent low, medium and high social-economic potential counties in Kenya respectively. Stratified sampling was used to classify schools in these counties into National, Extra County, County and sub County categories. The sample population was 260 schools and 368 teachers. By stratified proportionate sampling, the study sample consisted of 4 national schools, 11 extra county schools, 40 county schools and 205 sub county schools. The schools were randomly selected in each category to ensure representativeness of all school types. The instruments used to collect data included the teachers questionnaire, principals' questionnaire and observation guide. Reliability coefficient for the questionnaires was 0.7 for teacher questionnaire and 0.72 for principals' questionnaire. Data was analyzed using frequencies, percentages, means, T- test, Pearson Product Moment Correlation Coefficients and regression analysis. The findings revealed that- school physical facilities predicted quality of education at 9.4, percent, teacher motivation predicted quality of education at 8.7 percent, school financial resources predicted quality of education at 2.3 percent while teaching and learning resources predicted quality of education at 23.2 percent. When considered jointly, school physical facilities were found to have the greatest influence on quality of education in terms of KCSE mean score while teaching and learning resources influenced transition rate from form one to four and number of trophies won in co-curricular activities the most. Administrative factors were therefore found to influence quality of education positively. The study recommends schools to diversify their financing sources in order to provide quality education. Teachers Service Commission should come up with teacher incentive policy to motivate teachers. More research should be done to investigate administrative factors influencing quality of education in public primary schools, private primary and secondary schools; and public and private universities.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Education is one of the major instruments for a country's economic and social development. It is the main source of human capital which is essential to sustained economic growth. Education contributes to reducing poverty and birthrates, increasing health, strengthening the institutions of civil society and national capacity building and improving governance (World Bank, 2005; 2007; 2008a).

In particular, secondary education is a crucial tool for generating the opportunities and benefits of social and economic development (World Bank, 2007). It equips students with competencies, knowledge and skills necessary and relevant to the labour market while harnessing their attitude and values to ensure that they become active and productive citizens of their communities (World Bank, 2007; World Bank, 2008a).

Furthermore, globalization, the increased importance of knowledge as a driving force in economic development and the consequent skill-based nature of technological changes in the workplace are putting pressure on national governments to modernize their secondary education system in order to produce graduates who are well prepared for work and for further learning (World Bank, 2007). Consequently, secondary education has therefore become a focus of

increasing policy debate especially on issues of quality and relevance in economic development (World Bank, 2005; World Bank, 2008a).

Many definitions of quality in education exist owing to the complexity and multifaceted nature of the concept. According to UNICEF (2000), quality education encompasses learners who are healthy and ready to learn, quality environments that provide adequate resources and facilities and relevant content that is reflected in the curriculum along with adequate materials to support acquisition of knowledge and skills. It also encompasses quality teaching and learning processes that instill meaningful learning experiences to students and quality outcomes that are linked to national goals and positive participation in the society. UNESCO (2015a; 2015b) defines quality education as that which addresses desirable characteristics of learners, processes, facilities, learning materials, context, governance and management, and learning outcomes; quality teaching and learning processes and education inputs to achieve meaningful learning experiences for students. On learning outcomes, UNESCO is categorical that they should not be limited to academic achievements only but also include non-cognitive domains like co-curricular activities and be continually assessed as an integral part of teaching and learning (UNESCO, 2014; UNESCO, 2015b)

Shekytan (2015) describes education as a system consisting of education inputs like school buildings, materials, teachers and facilities; interaction process, and

outcomes. According to Shektan, education is a system and questions regarding its quality must focus on each component of the system. Shekytan further observes that elements of education system are interrelated and a serious deficit in one is likely to have implications of quality for others. Thus, quality of school buildings, classrooms, toilets and libraries, the presence of adequate instructional materials and textbooks and working conditions of teachers influence the ability of teachers to undertake certain instructional approaches hence quality of student academic grades (UNESCO, 2015a; UNESCO, 2015b; UNICEF, 2000). The World Bank and UNESCO list examples of quality of school education indicators as including students grades in national examinations, completion rates, participation rates, school leadership, parent participation, school resources, equity, educational expenditure, class size, teacher incentives, teacher education and training (UNESCO, 2014; World bank, 2008a).

Despite the complexity of the concept of quality of education, there is consensus that quality education should focus on healthy learners, desirable learning environment characterized by adequate resources and facilities, desirable learning processes and expected learning outcomes that encompass knowledge, skills, and attitudes that are linked to national goals of education and are essential in positive participation in the society (Shekytan, 2015; UNESCO, 2015b; UNICEF, 2000). Further, there is consensus that all elements of quality education are interrelated and interdependent. There is further concurrence that the definition of quality of

education should be left open to change and evolution based on information and changing contexts, and that continues assessment and improvement can focus on any or all of these dimensions. There is consensus that quality of education is primarily realized in the school set up and the school principal is key in its achievement (Shektan, 2015; UNESCO, 2015a; UNESCO, 2015b; UNICEF, 2000).

Recognizing the important role of education as a main driver of development, countries world over have continually committed to provision of high quality education to their citizens at all levels of their education systems (UNESCO, 2014; UNESCO, 2015a). Indeed, it is the quality, not the quantity of schooling that explains variation in labour market outcomes between individuals and differences in economic growth rates between countries (World Bank, 2014a).

However, as more countries achieve universal primary schooling, demand for education is moving to higher levels and the world is witnessing an explosion of individuals and families aspirations for secondary education (World Bank, 2005). The massive demand for secondary education has led to improved access but at the same time threatened the quality of education offered at this level. Secondary education has, therefore, become a focus of increasing policy debate and analysis worldwide especially on the challenge of improving access without compromising its quality (World Bank, 2005; UNESCO, 2015b). During the World Forum for

Education in Incheon, Korea, nations committed with a sense of urgency to a single renewed education agenda of ensuring inclusive and equitable quality education for all (UNESCO, 2015b). The forum committed to improving learning outcomes by strengthening education inputs, processes and evaluation of learning outcomes in order to measure progress (UNESCO, 2015b). It also committed to empower teachers, motivate and support them within efficient and effective education systems. Inspite of these global commitments to provision of quality education, countries world over are at different levels of attaining quality education.

Finland is a major international leader in the provision of quality secondary education. It is the world leader in the academic performance of its secondary school students and has consistently ranked in the very top countries in all Programmes for International Assessment (PISA) examinations in the past decade (OECD, 2011). It is renowned for high performance that is remarkably consistent across schools. The country has the least variation in learning outcomes within schools and the gap within schools between the top and bottom achieving students is extraordinarily modest (OECD, 2011). Finnish schools serve students well irrespective of their family background or socio-economic status and consequently, the country has become a tourist destination for education and policy makers on secrets of education success (OECD, 2011).

Finland attributes its exemplary performance to a number of interrelated factors. The schools are small in size with modern buildings that excellently support students learning, and all school finances are strictly focused on the classroom (OECD, 2011). The Finnish teaching profession is noble and attracts graduates at par with medicine and law (OECD, 2011). The teachers hold Master's degree in education and their teaching subjects, and their salaries are high as compared to other European countries. The teachers enjoy fully paid professional development course each year and other incentives. They also enjoy the trust and respect from society owed to their success in helping virtually all students to become successful learners (OECD, 2011).

The United States of America has shown high commitment to provision of quality education to its youth (Parsons, 2011). According to the Report Card on American Education and the Comprehensive Facility Assessment Report, if children fail in class they are likely to fail in life (Leidnar & Myslinski, 2014). According to Leidnar and Myslink, the obligation of all American States is to ensure that all children have access to quality education. American school physical facilities, associated buildings and grounds are well maintained and safe for teachers and students (Leidnar & Myslinski, 2014; Parsons, 2011). Most schools have technology infrastructure to support students learning and the facilities excellently meet the educational needs of school programs housed at the site. In addition, Students benefit from state funded digital programmes to supplement classroom

teaching (Leidnar & Myslinski, 2014; Parsons, 2011). Each American state has set a minimum academic achievement grade for public schools and adapted education policy focusing on quality testing and improving teacher quality and accountability mechanisms. Students from low and middle socio economic backgrounds benefit from education vouchers, scholarships and free or subsidized lunch. Students in America record high averages in PISA and International Mathematics and Science Study (TIMMs) examinations (Leidnar & Myslinsk, 2014; National Centre for Education Statistics, 2011; OECD, 2012).

Singapore is also a benchmark country for quality education (Sclafan & Lim 2008; Singapore Ministry of Education 2010; OECD, 2010). The country has utilized education as the key tool for economic development. The Singaporean government has successfully matched supply and demand of education and skills, transforming Singapore from a developing country to a modern industrial economy in a decade (Singapore Ministry of Education, 2010; OECD, 2010). The government through the Ministry of Education has consistently focused at raising the quality of education and helping each child reach his/her fullest potential (Singapore Ministry of Education, 2010). Consequently, Singapore education system has remained consistently at or near the top of major world education ranking systems (OECD, 2010; UNESCO, 2011).

According to the Singapore Ministry of Education (2010), teacher quality is a key determinant of quality education. This concurs with OECD (2011) remark that the quality of an education system cannot exceed the quality of its teachers. Singapore provides one of the most coherent systems of teacher education in the world (Sclafani & Lim 2008). The country employs high standards for selecting teachers and deeply supports them throughout their career. At undergraduate level, students who aspire to become teachers are financially supported by Singapore Ministry of Education through tuition fees and they are also given stipend while in college (Sclafan & Lim 2008). In the job, there are perks and rewards to retain them. On first posting, teachers are inducted into their new schools and put in structured mentorship programmes in the schools. Equally, newly appointed school principals are attached to experienced principals for mentorship and given opportunity to network, visit overseas education systems and engage in innovation projects.

Singapore has performance based compensation structure that ensures that teachers are duly recognized for their contributions and motivated towards excellence (Singapore Ministry of Education, 2010). Based on performance in academics and co-curricular activities, outstandingly performing teachers get bonuses annually amounting to their three months' salary. Awards are also given to individuals or team contributions to creativity, cost saving, and peer support. The teachers also receive between four hundred to seven hundred Singapore dollars to spend on computer training, buying software, subscribing to journals and joining

professional organizations. To enhance teacher development, the country has the leading academy for professional excellence in education. The teachers get more than one hundred hours to attend professional development courses in the academy every year. To retain teachers and enable them concentrate in teaching, teachers are paid salaries competitive to that of engineers in the public service (Sclafan & Lim, 2008). The Singaporean teaching profession is also characterized by faster promotions that are performance based and high status and recognition for teachers by the society. Singapore schools have a modern generation facilities that support a wide range of educational programs and a variety of teaching and learning resources (OECD, 2011). Singapore ranks second or third in PISA and TIMMS examinations (OECD, 2010).

Most countries in South Asia and Sub-Saharan Africa have made significant progress in achieving their quantitative enrollment goals but the quality of education remains low (World Bank, 2012; 2014a). The regions have the largest share in student variation in test-scores, and low student attainment in standardized examinations (World Bank, 2008b; 2014a). According to World Bank reports, school factors are more important in explaining quality of education in both South Asia and Sub-Saharan Africa than socio-economic factors (World Bank, 2014a). School variations arise in presence and performance of teachers in school, quality of teachers, quantity and quality of school physical facilities, learning/teaching

resources , school fees and other charges among other school internal factors (World Bank, 2005; 2008a; 2008b; 2011a ; 2011b; 2012; 2014a; Veer spoor, 2008).

A study by the World Bank on student learning in South Asia describes learning outcomes in Pakistan, India, and Bangladesh as low compared to learning outcomes in East Asia (World Bank, 2014a). Actually, the study terms learning outcomes in Sri Lanka as being too low. These findings are supported by another study by the World Bank on human development in South Asia (World Bank, 2014b). According to the two reports, education in South Asia is characterized by poor quality of learning environments and poor conditions of facilities. Schools lack drinking water, toilets, furniture, textbooks, teaching materials and teachers' guides. Teachers in South Asia are also poorly trained and their masterly of content is low (World Bank, 2014a). The Training programs in South Asia are short and opportunities for teaching practice before student graduation are low. The newly posted teachers in South Asian schools receive little or no support from older teachers and the teaching profession is highly characterized by low salaries, massive turnover by teachers to other jobs and high level of teacher absenteeism from school (World Bank, 2014a; World Bank, 2014b).

A study by the World Bank on the quality of education in Maldives indicate that education quality is a major challenge facing the country (World Bank, 2012). The learning outcomes in the secondary schools in Maldives are low as evidenced in

summative examinations and teachers lack motivation to effectively engage learners in class because of low salaries and lack of incentives to improve teacher and student performance (World Bank, 2012). To enhance learning outcomes in Maldives, the World Bank suggests professional development of teachers, teacher induction, teacher motivation and a well- designed incentive system for teachers. The report also recommends for provision of adequate infrastructure and teaching resources (World Bank, 2012).

Veerspoor (2008) notes that quality of secondary education in Sub Saharan Africa is a key ingredient for economic growth in the region. Following the Education for All (EFA) campaign and the completion of the Millennium Development Goals (MDGs), there has been tremendous rise in primary school enrollment and completion of primary school education in Africa and consequent high demand for secondary education (Sujewa, 2010; Veerspoor, 2008). This has well translated to higher secondary school access but on the other hand it has posed a big challenge on quality. Enrollment rates in secondary schools has outpaced the increase in resources resulting in shortages of instructional materials, poorly stocked libraries, and overstretched facilities. Teachers in most African countries are underpaid forcing them to look for other part time jobs or be in constant search of a better paying job hence chronic teacher absenteeism. Shortage of classrooms, science laboratories, libraries characterizes education in the Sub-Saharan Africa. These challenges have led to low learning outcomes in the region, as evidenced in low

scores in standardized examinations. In fact, student performance in international tests in Sub Saharan Africa is lower than any other part of the world (Veerspoor, 2008).

Mulken, Chapman, Dejaeghere and Leu (2007) carried out a study on recruiting, retaining, and retraining secondary school teachers in Sub-Sahara Africa. The study was based on country studies in Ethiopia, Ghana, Guinea, Madagascar, Tanzania, and Uganda. The study termed quality of secondary education in these countries as generally low as compared to other developing countries in South Asia and East Asia. This was blamed on lack of effective policies that focus on high quality secondary education. According to the study, the quality of educational outcomes is highly dependent on the quality of the teachers, and quality of teachers is highly influenced by the existing policies on teacher recruitment and management. The study observed that most countries in the Sub-Saharan Africa lack strong policies on attraction and retention of quality teachers. Consequently, their education is characterized by inefficient teacher recruitment practices, poor teacher preparation approaches, low teacher salaries, poor working conditions leading to chronic teacher absenteeism and hence poor student achievement.

Lewin (2008) asserts that poverty as a factor cannot be underestimated in contributing to low quality of education in the Sub-Saharan Africa. According to Lewin, secondary school education in the Sub-Saharan Africa is expensive relative

to the per capita Gross Domestic Product. Using Benin, Ghana, Zambia. Tanzania, Rwanda, and Uganda as country case studies, Lewin observes that secondary schools enroll just a quarter of the region's secondary school age children and those enrolled attend school irregularly with less than a third of a cohort completing secondary school. To mitigate the effects of poverty at school, Lewin advocates for increased budget allocations to secondary schools, introduction of subsidies and waivers for those who cannot afford to pay school fees, scholarships for low income children, fundraising by parents and teachers associations, alumni contributions, regulation of non-tuition fees and engaging in other school income generating activities.

A study by Najjumba and Marshall (2013) on quality of education in Uganda blamed the low student academic achievement on inappropriate pedagogical practices and insufficient teaching and learning materials. According to the study, teacher class attendance, school size and availability of toilets and first aid devices are the leading predictors of student performance. The study did not find significant relationship between teacher masterly of content and student academic achievement. Neither did it find a significant relationship between textbooks and student academic achievement. On the contrary, Veerspoor & Joshi (2013) term the quality of education in Ethiopia as being unacceptably low and blames it on poor teacher preparation and poor teacher management at school level. According to Veerspoor and Joshi, teacher motivation is the most critical element of effective

teacher performance however, teachers in Ethiopia lack clear performance goals and clear incentive system to help them achieve the goals leading to poor student performance.

In Kenya, provision of quality basic education has been the priority of the government since independence (Republic of Kenya 1999; 2007; 2010; 2013; Ministry of Education Science and Technology (MoEST), 2002; 2005; 2014; Ministry of Education (MoE), 2012; 2017). The introduction of Free Primary Education (FPE) in 2003 and Free Day Secondary Education (FDSE) in 2008 led to significant rise in secondary school enrolment in Kenya. Enrollment rose from 1.3 million students in 2008 to 2.8 million students in 2017 (MoEST, 2014; RoK, 2018). Increased enrollment overstretched secondary school resources and provision of quality education to the rapidly expanding population remained a challenge in most schools (MoEST, 2005; 2014; MoE, 2012). Kenyan secondary school students are faced with inadequate learning spaces, high teacher absenteeism, and low education attainment with 88.5 percent of candidates not achieving the minimum grade of C+ and above for admission to university (RoK, 2018). Survival rate from form 1 to 4 dropped from 95 percent in 2015 to 91 percent in 2016 with cohort retention rates of below 90 percent for both boys and girls (RoK, 2017; RoK, 2018). By 2013, the national average for secondary school dropout rate was 7.8 percent with some regions recording participation rates below

35 percent (KIPPRA, 2013). This implies that dropout rates in some regions is very high and much of the government resources allocated to schools is wasted.

The national assessment report by the South African Consortium for Monitoring Educational Quality (SACMEQ), on conditions of schooling and the quality of education in public primary schools in Kenya indicate that school factors such as teacher characteristics, school physical facilities and classroom environment influence quality of education in Kenyan public primary schools to a great extent (Guantai, Kariuki & Nzomo, 2001; Obiero, Nzomo & Onsomu, 2005; Wasanga, Ogle & Wambua, 2012). According to the SACMEQ reports, pupils who learn in permanent built classrooms perform much better academically as compared to students in dilapidated classrooms. The reports also revealed that pupils in schools with adequate teaching and learning resources performed better in Mathematics as compared to pupils in schools with inadequate teaching and learning resources.

The National Assessment System for Monitoring Learner Achievement (NASMLA) , also attest to the fact that student academic achievements in public primary schools in Kenya are more influenced by factors such as teacher characteristics, classroom environment, school environment, school resources and head teacher characteristics (Kenya National Examinations (KNEC), 2010).

Further, the SACMEQ and NASMLA reports indicate that school head teachers, through the Boards of management and Parents Association undertake major administrative responsibilities that impact on instructional quality and the overall management of the school. These include teacher professional support, curriculum implementation, teacher deployment, acquisition of teaching and learning materials, school community relationships, and ensuring conducive learning environment (KNEC, 2010; Wasanga, et al, 2012). Olembo, Wanga, Karagu, (1992), term these responsibilities as administrative tasks that are accomplished through the administrative process of planning, organizing, coordinating, influencing, communicating and evaluating the results. The headmaster, on behalf of the Board of management, supervises and evaluates the extent to which education policies and objectives are achieved by the school (Olembo, et al 1992).

This study sought to investigate the administrative factors influencing quality of education in public secondary schools in Kenya. The study sought to determine the extent to which adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources and teaching and learning materials influence quality of education in public secondary schools in Kenya.

1.2 Statement of the Problem

Quality of education has become a pertinent issue in both developed and developing countries. This is based on the fact that the economy of any country is a function of

its human capital. Kenya has demonstrated its commitment to provision of quality education by introducing Free Day Secondary Education in which the government subsidizes secondary school fees by 22,224 Kenya Shillings per year and households pay annual boarding fees of 53,554 Kenya shillings for National and Extra county schools, and 40,535 Kenya shillings for County secondary schools. Students in Day secondary schools also receive a capitation of 22,224 Kenya shillings each from the government and parents do not pay any fees for them (MoE, 2017). A large proportion of the subsidy goes to the purchase of teaching and learning resources such as textbooks, exercise books and science equipment to enhance quality of education in public secondary schools.

The government has also continued to support provision of school infrastructure through National Constituency Development Fund (NCDF), Arid and Semi-Arid Lands (ASAL) and pockets of poverty grants; and school infrastructure upgrader under vision 2030 flagship project (MoEST, 2014; MoE, 2012). To ensure quality education, the government trains and employs university graduates who specialize in two teaching subjects and benefit from a merit based promotion system (MoEST, 2005; MoEST, 2014). Schools are encouraged to generate more resources through income generating activities, alumni and partnership with private sector (MoEST, 2014; MoE, 2008).

Despite the government efforts to provide quality secondary education, student academic achievement remains low with 88.5 percent of students missing the minimum university entry grade of C+ (KIPPRA, 2013; MoEST, 2014; RoK, 2018). In 2017, only 11.5 percent of candidates who sat for the Kenya Certificate of Secondary Examination attained grade C+ and above, qualifying to join university. This was a drop from 15.6 percent in 2016 (RoK, 2017). The number of students who scored 'A' minus and above declined from 14,754 in 2015, to 4,786 and 2,856 in 2016 and 2017 respectively while the number of students who scored grade 'D' plus and below increased significantly to comprise 65 percent of total KCSE candidature in 2016 and 2017 (KNEC, 2016; RoK, 2017; RoK, 2018). Survival rate from Form 1 to 4 dropped from 99 percent (100 percent for boys and 97 percent for girls) in 2006, to 95 percent and 91 percent in 2015 and 2016 respectively with cohort retention rates mere below 90 percent for both boys and girls (Onsomu, Muthaka , Ngware, & Manda, 2006; RoK, 2017; RoK, 2018).

This scenario has raised concern over the future of education in Kenya. Most studies that have attempted to address quality of education in Kenya have limited themselves to small administrative units with no consideration of the influence of socio-economic potential of an area on students' performance in Kenya Certificate of Secondary Education (KCSE). This trend prompted the researcher to investigate the administrative factors influencing quality of education in public secondary

schools in Kenya with focus on three counties with varying socio-economic potentials.

1.3 The Purpose of the Study

The purpose of this study was to investigate the administrative factors influencing quality of education in public secondary schools in Kenya.

1.4 Objectives of the Study

The study was guided by the following objectives:

i. To determine the extent to which school physical facilities influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.
ii. To establish the extent to which teacher motivation influences quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.
iii. To establish the extent to which school financial resources influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.
iv. To determine the extent to which teaching and learning resources influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

1.5 Research Hypotheses

The study was guided by the following hypotheses:

H_{O1}: There is no statistical significant relationship between school physical facilities and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

H_{a1}: There is statistical significant relationship between school physical facilities and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

H_{O2}: There is no statistical significant relationship between teacher motivation and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

H_{a2}: There is statistical significant relationship between teacher motivation and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

H_{O3}: There is no statistical significant relationship between school financial resources and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

H_{a3}: There is statistical significant relationship between school financial resources and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

H_{O4}: There is no statistical significant relationship between teaching and learning resources and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

H_{a4}: There is statistical significant relationship between teaching and learning resources and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

1.6 Significance of the Study

The study could be significant to the Ministry of Education in that the findings can be used by national education administrators, planners and policy makers in allocation of education resources and formation of policies geared towards achieving quality education. The study could also be significant to secondary school principals as it addresses the contribution of administrative factors on quality of education, a process in which they are most influential. The study may give them an insight on how school resources blend to determine quality of school programmes. This study could also be useful to private education providers, sponsors and the school management for it will provide information on standards to be maintained in provision of quality education. The study findings could add to the existing knowledge on quality of education in schools. It could also serve as a basis from which other researchers could carry out further research.

1.7 Limitations of the Study

Quality of education is not a new concept in Kenya. However available literature on quality of education in public secondary schools in Kenya was insufficient for comprehensive literature review.

1.8 Delimitations of the Study

The study was delimited to public secondary schools in Kenya. The respondents of the study were public secondary school principals and teachers since they are privy

to study information. The study was restricted to school financial resources, teacher motivation, learning and teaching resources and school physical facilities as variables of the study.

1.9 Basic Assumptions of the Study

The study held the following assumptions:

i. That respondents would provide truthful and honest responses.

ii. That all public secondary schools in Kenya are beneficiaries of the Free Tuition Secondary Education fund.

iii. That provision of adequate and quality physical facilities, learning and teaching materials; motivated teachers and school financial resources have a significant influence on quality of education.

1.10 Definition of Significant Terms

Administrative Factors refers to factors or conditions within the direct control of the school such as school financial resources, teacher motivation, school physical facilities, and teaching and learning resources that could positively or negatively influence the quality of education.

Physical Facilities refer to school buildings such as classrooms, halls, dormitories, libraries, laboratories, stores; playgrounds, swimming pools and other sporting facilities.

Public Secondary Schools refer to day and boarding schools owned and run by state government in conjunction with parents.

Quality of Education Refers to the worth of an education system as demonstrated in student performance in national examinations, co-curricular activities, transition rates, graduation rates, enrollment rates.

Teacher Motivation refers to the willingness, drive, or desire to engage in "good teaching", which is further more acted upon. Motivated teachers are professionally supported and recognized.

Teaching and Learning Resources refers to materials that aid the teaching and learning processes such as textbooks, laboratory equipment, exercise books, assessment materials, computers, chalks and sport equipment like balls, drama kits and musical instruments among others.

Transition Rate refers to the percentage of a cohort of students enrolled in form one in a school year who are expected to reach form four.

1.11 Organization of the Study

The study was organized into five chapters. Chapter one consisted of the background to the study, statement of the problem, purpose of the study, objectives of the study, research hypotheses, significance of the study, limitations of the study, delimitations of the study, assumptions of the study and definition of the significant terms. Chapter two dealt with the concept of quality of education, school physical facilities and quality of education, teacher motivation levels and quality of

education, school financial resources and quality of education, teaching and learning resources and quality of education, summary of literature review, theoretical framework and conceptual framework. Chapter three consisted of research design, target population, sample size and sampling procedure, research instruments, data collection procedures and data analysis techniques. Chapter four consisted of data analysis, presentation and interpretation. Chapter five consisted of summary, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This section reviews literature under the following sub-topics. The concept of quality of education, physical facilities and quality of education, teacher motivation and quality of education, school financial resources and quality of education, teaching and learning resources and quality of education, summary of literature review, theoretical framework and conceptual frame work.

2.2 The Concept of Quality of Education

According to UNICEF (2000), quality education encompasses learners who are healthy and ready to learn; quality environments that provide adequate resources and facilities; relevant content reflected in the curriculum and materials to support acquisition of knowledge and skills; quality teaching and learning processes that instill meaningful learning experiences to students and quality outcomes that are linked to national goals and positive participation in society. UNESCO (2015a) defines quality education as education addressing desirable characteristics of learners, processes, facilities, learning materials, context, governance and management, and learning outcomes; quality teaching and learning processes and education inputs to achieve meaningful learning experiences for students. According to the UNESCO (2000) and UNICEF (2015a) reports, quality of school buildings, classrooms, toilets and libraries influence the presence of adequate

instructional materials and textbooks, working conditions of teachers and students and the ability of teachers to undertake certain instructional approaches hence quality student grades (UNICEF, 2000).

According to OECD (2010), quality of education must be defined on the light of its role in the development of cognitive skills of learners, nurturing their creative and emotional growth and helping them acquire the right values and attitudes for national development. According to the OECD (2010) report, quality education should also ensure equitable distribution of the learning opportunities without any form of discrimination. UNESCO (2011) decries the use of academic examinations as the only indicator of quality of education in developing countries. Quality education should focus on both formal, non-formal and informal education with an aim of developing an all-round person (UNESCO, 2005; UNESCO, 2011).

UNICEF (2000), posits that the aim of education is developing a child holistically, and schools play an important role of planning and offering a variety of learning experiences in form of formal, non-formal and informal curriculum. A study by Kapelinyang and Lumumba (2017) found out that student participation in soccer, athletics and music had a positive influence on their talent identification and development. The students were also found to have better academic performance when compared to those who did not participate in co-curricular activities. According to UNICEF (2000), the school environment should provide varied

learning experiences that helps the learner to develop intellectually, socially, physically and spiritually.

UNESCO (2015) and World Bank, (2008a) emphasize on schools as important centres of improving quality of education as opposed to policy documents and strategic plans which may not lead to any real improvements in the schools. The findings of the World Bank study in South Asia indicate that quality of education in developing countries is largely influenced by school related factors than socio-economic factors (OECD, 2011). Schools then must have sufficient financial human and physical resources to provide quality education; otherwise the disparities in resources will turn the schools into potential sources of inequities in distribution of student learning opportunities and educational outcomes (Baker, 2012; OECD, 2011; Savasci & Tomul, 2013; UNESCO, 2015).

According to UNESCO (2002), there is a direct relationship between inputs and outputs to education. More learning experiences are realized in education systems with adequate inputs as opposed to systems with inadequate education inputs (OECD, 2011; Veerspoor, 2008; Saeed & Wain, 2011; World Bank, 2014a). In Kenya, national assessment reports on conditions of schooling and quality of education in public primary schools in Kenya indicate that school factors such as teacher characteristics, school physical facilities and classroom environment influence quality of education in Kenyan primary schools to a great extent (Guantai,

Kariuki, & Nzomo, 2001; Obiero, Nzomo, & Onsomu, 2005; Wasanga, Ogle, & Wambua, 2012). Although primary and secondary education is classified as basic education in Kenya, much is yet to be done on quality of education in public secondary schools in Kenya.

2.3 Physical Facilities and Quality of Education

Quality and adequate school physical facilities are fundamental in teaching, learning and achievement of students (Saeed & Wain, 2011). Physical facilities set the stage for learning to occur and influence the working culture of the school (Kuuskorpi, Kaarima & Gonzalez, 2011). School principals must plan, organize and coordinate the provision and maintenance of the school buildings and grounds to ensure quality learning environment (Olembo et al, 1992).

Research shows that classrooms, libraries, laboratories, playgrounds, administration blocks, staff houses, dormitory halls and sanitary facilities have a significant positive influence in the performance of the students and their teachers (Saeed & Wain, 2011). In addition, school physical facilities play a crucial role in attracting and retaining students and teachers in school (World Bank, 2014a). The facilities determine access to secondary education as well as transition from primary to secondary education (World Bank, 2014a). The international leaders in provision of quality education have invested heavily in school physical infrastructure (OECD, 2011; Parsons, 2011). In Singapore, schools have facilities

that support a wide range of educational programs including use of information technology in teaching and learning. Schools have classrooms that are upgraded to the latest standards, media resource libraries, information technology learning resource rooms and pastoral care rooms. Other facilities include outdoor amphitheatres, art studios, outside running tracks, indoor running tracks and turf fields (OECD, 2011). American schools have well maintained buildings that do an excellent job of meeting the educational needs of school programmes housed at the sites. The schools are safe for teachers and students and have technology infrastructure to support teaching and learning (Parsons, 2011).

Jenkinson and Benson (2010) conducted a study to establish barriers to teaching of physical education in Victorian state secondary and primary schools in Australia. The study sampled 270 state secondary and primary schools. The respondents were physical education teachers and students. Data was collected using an online questionnaire. Respondents were asked to rate the barriers on a scale of one to ten, with one being the least factor affecting the teaching of physical education and ten as the most significant barrier. Data was analyzed using means, percentages and Pearson chi square. Results from both teachers and students indicated that inadequate facilities like swimming pools, playgrounds were the greatest barrier to teaching of physical education in both primary and secondary schools in Victorian state in Australia. The study used descriptive methods only to analyze data. The present study used both descriptive and inferential statistics like T-test and

regression analysis to analyze data and focused on the extent to which physical facilities influences quality of education in public secondary schools in Kenya.

A study by Bhunia, Shit and Duary (2012) on assessment of school infrastructure in primary and upper primary level in Medinipur District in India found school infrastructure to be key in not only improving educational grades but also school attendance and completion. According to the study, adequate toilets, protective school fencing wall, library, playgrounds, kitchen and classrooms are the heart of quality of education. However, the study noted that there was disparity of the facilities in Menipur district. The North, Central and South Eastern parts of the District had adequate facilities while North West and South West parts had inadequate school physical facilities. Academic achievement of learners was found to be positively correlated to adequacy of school facilities. This study was done in primary schools in India and the current study filled the gap by studying the extent of influence of adequacy of school physical facilities in public secondary schools in Kenya.

Fillardo and Jeffrey (2017) conducted a study on adequacy and equity of school infrastructure in America. They discovered that public school facilities have broad benefits not only to students but also to the teachers and school community. Adequate and quality school facilities like toilets, libraries, staffrooms and offices, classrooms and science laboratories enhance student academic achievement and

help reduce teacher turnover. According to the study, Poor facilities are a barrier to delivery of education and implementation of education reforms. Adequate school facilities increase student enrolment, local property value and the confidence of parents and the community on the school. There was need to have effective school administrators who are able to engage the community for purposes of generating ideas on how to acquire and maintain adequate and quality school infrastructure.

Fillardo and Jeffrey (2017) further observed that, there was need for school administrators to ensure that the school mission, values, and strategic plans include school physical facilities. The school administrators should regularly train the students, staff and communities on the use of facilities especially the automated ones to cut down on maintenance costs. Further, they should sensitize the community on how they can partner and benefit from the school facilities. The administrators should inspect the facilities regularly to ensure safety and organize facilities workshops for both the parents and community. When there is a shared partnership between parents, civic society, community and government, on behalf of the students; public school places become transformative and every student becomes successful. The study was carried out in the United States of America while the current study sought to establish the extent to which adequacy physical facilities influence quality of education in public secondary schools in Kenya.

Javier and Marcella (2011) carried out a study to investigate whether school infrastructure and resources do matter on student achievement. The study aimed at determining the incidence of school infrastructure and resources and its impact on the performance of primary education in Latin America. Respondents included 180,000 pupils in 3rd and 6th grades of primary education from 3,000 schools, in 15 countries in Latin America. The findings indicated that adequacy of facilities like laboratories, libraries, sports grounds, music and computer rooms were positively associated to student academic achievement in math and language. The study was carried out in public primary schools in Latin America. The present study sought to establish the extent to which school physical facilities influence quality of education in public secondary schools in Kenya.

A study by Curveys (2011) to establish the impact of school infrastructure on the well-being of students in Flemish secondary schools in Belgian region of Flanders found empirical evidence indicating that students learning in schools with adequate and quality school physical infrastructure record high academic grades as compared to students learning in poor quality facilities. The adequacy of school physical infrastructure was found to affect the performance of technical subjects more than art subjects. This is because technical subjects need workshops and training rooms. The study was conducted in Flemish secondary schools in Belgian region. The current study was carried out in public secondary schools in Kenya.

In Kenya, school physical facilities are a major determinant of transition from primary to secondary school (MoEST, 2014). Student admission to form one is pegged on available facilities in the existing secondary schools. By 2014, the transition rate was 77 percent and the country had 7,325 public secondary schools and 921 private secondary schools (MoEST, 2014). Mwaka and Njogu (2014) found out that establishment of day schools leads to reduced cost of schooling hence enhancing access. The Kenya Institute for Public Policy Analysis (KIPPRA) (2009) had projected an urgent need of 8600 classrooms, new day schools and expansion of existing infrastructure following introduction of FDSE, and upsurge of primary school graduates due to Free Primary Education. Although provision of physical facilities is a responsibility of the parents, the government has continued to support building of school facilities through NCDF, pockets of poverty grants, and infrastructure grants to ASAL areas (MoE, 2012). This is meant to improve access and education quality - major challenges facing Kenya secondary education (MoEST, 2014).

A study by Kapelinyang and Lumumba (2017), to establish the determinants of academic performance in public secondary schools in Kapenguria division, Kenya, found a positive relationship between student participation in co-curricular activities and their academic performance. However, the Principals lamented the poor state and inadequacy of co-curricular facilities like play grounds, swimming pools and sport equipment which tend to limit student participation in co-curricular

activities. This study sought to establish the influence of the school physical facilities on not only co-curricular activities, but also on student academic performance and transition to next grades in public secondary schools in Kenya.

Odhiambo and Shinali (2015) carried out a study to find out the factors that determine access and progression in public primary and secondary schools in Narok North Sub County in Kenya. The study used descriptive research design. By random sampling, the study selected 24 primary head teachers, 4 secondary school principals and 3 quality assurance officers to participate in the study. A total of 68 standard eight pupils and 44 form one students were also selected to participate in the study. Questionnaires and interview guides were used to collect data. Data was analyzed using percentages and means. From the findings, school physical facilities are major determinants of access and progression to higher grades in both public primary and secondary schools in Narok County. About 69 percent of secondary school principals revealed that their schools had inadequate classrooms, laboratories and libraries. About 75 percent of primary school head teachers indicated that their schools had inadequate desks, playgrounds, classrooms and libraries. The study blamed low quality education in Narok County on inadequate school physical facilities. The study was descriptive in nature and failed to show the extent of influence of the physical facilities on quality of education, a gap that this study intends to fill. It was also limited to a small administrative unit (one sub-county county) in Narok County, and therefore, the results could not be generalized.

Omae, Onderi, and Mwebi (2017) conducted a study on quality implications of learning infrastructure on performance in secondary education in Kisii County, Kenya. The study used sequential explanatory design within mixed methods approach. The study targeted 334 secondary school principals, 334 senior teachers and 9 education officers. The study used stratified random sampling to select 181 principals and 181senior teachers. Using saturated sampling technique, the study selected 9 education officers as participants. Data was collected using questionnaires, interview guides and document analysis. Descriptive and inferential statistics were used to analyze data. The findings indicate that libraries, science laboratories, administrative offices, electricity, latrines and classrooms contributed immensely to student academic achievement. The study was conducted in one County and used sequential explanatory design while the current study targeted all public secondary schools in Kenya and used correlational research design.

2.4 Teacher Motivation and Quality of Education

Teacher motivation is currently viewed as the most important variable on learner motivation (Rogers & Vegas, 2009; Sujewa, 2010). A motivated teacher is one who not only feels satisfied with his or her job, but also empowered to strive for excellence and growth in instructional practice (Basil, 2013). It is the responsibility of the school principal to assess the needs of the teaching staff and advise the school stake holders on how to satisfy them (Basil, 2013).

According to OECD (2011), the quality of any education system cannot exceed the quality of its teachers. Consequently, world leaders in provision of quality education have a well-designed incentive system for attracting, developing and retaining teachers (OECD 2011; Singapore Ministry of Education, 2010; Parsons; 2011). Singapore and Finland remunerate teachers a salary competitive to that of engineers, lawyers and medical doctors. The teachers enjoy more perks of rewards and reinforcement based on job performance. Outstanding performers in student achievement get promotions and annual bonuses amounting to three months salary and individuals or teams excelling in creativity, cost-saving and peer support are also rewarded (OECD, 2011; Singapore Ministry of Education, 2010). Singapore teachers get fully sponsored study leaves and additional money to subscribe to educational journals or buy educational software (OECD 2011). The teachers are supported by their schools through teacher mentorship programmes, classroom observation and fully paid in-service teacher development courses (Sclafani & Lim, 2008; Singapore Ministry of Education, 2010). Whereas Finnish teachers enjoy high degree of autonomy in their teaching, prestige and recognition from the society; American states have an established Teacher Incentive Fund (TIF) to reward high performing teachers and principals (Humphrey, Gallagher, Yee & Campbell, 2012; OECD, 2011).

In developing countries, most schools are faced with what amounts to teacher crisis (Bennell & Akyeampong, 2007; Sujeewa, 2010). Schools are characterized by poor

teacher pay, declining social status for teachers, and poor working conditions (Sujewa, 2010). This leads to high level of teacher absenteeism, sub-standard teaching and loss of teachers to better paying professions (Basil 2013; Sujewa, 2010). A study by Sujewa on teacher motivation in Sri Lanka found a correlation between Sri Lanka student achievement and motivation of teachers. According to Sujewa, Sri Lankan teachers experience increased work load, poor teacher pay and lack of school moral support. This affects student academic performance hence low quality of education. The findings are consistent with research study conducted by Basil (2013) on teacher motivation in Public secondary schools in Nyamagana District in Tanzania. The current study explored the extent to which teacher motivation levels influence quality of education in public secondary schools in Kenya.

A study by Lauwerier and Akkari (2015) on quality of basic education in Sub-Saharan Africa asserts that quality in primary education in Sub-Saharan Africa is inseparable from the quality of the teachers involved. The study observed that working conditions of teachers in the Sub Saharan Africa form the heart of any examination of quality of basic education in the region. According to the study, teachers in Sub-Saharan Africa work in disadvantageous environments. Their average class sizes are bigger (1:45) than the rest of the world. The teachers in the region earn low salaries and most of the schools lack formal teacher incentives. Other than South Africa, majority of the countries have no career prospects for their

teachers and the teaching profession lacks societal respect. The study focused on quality of education in public primary schools while the focus of the current study was on quality of education in public secondary schools in Kenya

Lauwerier and Akkari (2015) opined that school heads, together with school management were the most important players in attainment and maintenance of quality of education in the Sub-Saharan region. They bear the sole responsibility of engaging and ensuring that teachers, students, parents and the community have warm relationships and they work together to ensure that the schools achieve educational objectives. Warm relationships help keep teachers in school for long especially in rural areas hence more learning time and better academic achievements. This study sought to explore the extent to which teacher motivation influences quality of education in public secondary schools in Kenya.

Mwaura, Mbugua, and Kagema (2017) carried out a study to assess secondary school teachers participation in co-curricular activities in Kirinyaga central Sub-county in Kenya. The study aimed at identifying co-curricular activities in public secondary schools in Kirinyaga central Sub-county and the challenges faced by teachers as they engage in co-curricular activities. The study used descriptive survey design and randomly sampled 7 principals and 125 teachers to participate in the study. Data was collected using questionnaires and interview schedules, and analyzed using means, frequencies and standard deviations. Findings indicate that

sports, drama, music and science related curriculum activities were the common co-curricular activities in public secondary schools in Kirinyaga Central Sub-county. Majority of the teachers (77.7%) acknowledged that co- curricular activities contribute to mental, physical and social development of the learner. However 60.3 percent of the teachers reported to have no intention of participating in co-curricular activities because the activities are not part of end year teacher appraisals, and hence have no incentive attached to them at school level and national level. Teachers did not receive any certification for participating in co-curricular activities and the activities were not considered for assessment and certification both internally and nationally. This scenario indicates low quality education as teachers concentrate on examinable subjects only. The study was limited to one sub-county in Kirinyaga County hence the findings cannot be generalized. This study sought to establish the extent to which teacher motivation influences quality of education in public secondary schools in Kenya.

A study by Save the Children Organization (2011) on teacher motivation linked higher teacher motivation to high student academic grades. According to the study, teachers in developing countries need intrinsic and extrinsic motivational supports. Intrinsic motivational supports like career development, recognition and support, were found to be more effective in sustaining teacher effort and professionalism in the long run and more readily enhanced student achievement. However, before the teacher is motivated to meet his/her intrinsic needs, and hence student needs, his/her

basic needs must be met extrinsically through adequate remuneration, performance based incentives and bonuses, provision of quality and adequate teaching and learning materials, and a conducive learning environment. Only when these basic needs of a teacher are met, can then, be possible for higher order needs, which offer true job satisfaction be realized.

The findings of Save the Children (2011) report revealed that teachers in developing countries face several challenges in the course of discharging their duties. The teachers workload was found to be very high and not commensurate with their salaries. Heavy workload negatively affect the morale of a teacher to work and make teachers resist applying new teaching methods that are learner friendly. Teacher salaries, especially in Africa, were found to be very low and irregularly paid. The study observed that teachers who do not earn enough money to live on, resort to secondary jobs like private tuition which undermine their performance in their primary job as a teacher. The study established that teachers in developing countries also lacked recognition and prestige. Many teachers indicated that respect for their job had decreased in the eyes of students, parents, government and the larger society. Teachers earned low salaries compared to civil servants and could be assigned administrative jobs that are menial in nature like serving meals and offering security services on school functions. Students joining the teaching profession came from the lower performing academic tracks in the education system, making teaching to be viewed as a job for the less skilled or the

last resort for the skilled. This scenario demoralized teachers making them view teaching as a stepping stone to school administration or better jobs elsewhere. The teachers kept pursuing other courses in anticipation for a better job, thereby missing more classes, hence lowering quality of education in their schools.

The Save the Children (2011) report also observed that teachers in developing countries did not participate in formation of education policies. They were viewed as passive implementers of education reforms. The report recommended for an establishment of merit awards for best performing teachers and a structured in service training programme for teachers. Further recommendations require the schools to partner with the community to start income generating activities to support teacher incentive programmes. An establishment of a public education campaign on the importance of teachers was also considered important in restoring the image of a teacher in the society. These could enhance working conditions of teachers and boost their morale to offer quality education. The countries that participated in the study included Uganda, Ethiopia and Egypt, Afghanistan, Pakistan, Tajikistan, Nepal, Bolivia, Philippines and Nicaragua. This study sought to establish the extent to which teacher motivation influence quality of education in public secondary schools in Kenya.

Okumu, Maithya, and Ronoh (2017) carried out a study on the influence of co-curricular activities on students KCSE academic performance in Nakuru County.

According to the study, students who participated in drama had better grades in KCSE as opposed to students who did not engage in drama. However, the study found out that 86 percent of the club patrons had no professional training to coach the students due to lack of funds in the school. Majority of the teachers reported to have had little support and motivation from the school administration hence making them reluctant to enroll a big number of students in drama club. This could affect identification and exploitation of student talent and hence the number of awards won by a school in co-curricular activities. The study was carried out in one county (Nakuru) hence limiting generalization of the findings. The current study sought to investigate the extent to which teacher motivation influences quality of education in public secondary schools in Kenya.

A study on gender stereotypes in teachers running of co-curricular activities at Rhodes Park and Silver Springs schools in Zambia established that majority of the teachers who coach students in co-curricular activities hardly receive incentives from the school administration (Muninde, 2016). According to the study, only 3 out of 62 teachers who coached their teams to national levels that year received certificates to appreciate their effort. This raised their chances of being promoted to higher positions. The other teachers did not receive even verbal appreciation from the school. This could affect the morale of the teachers and consequently the number of students who could participate in co-curricular activities hence few

trophies to be won by a school. The study was carried out in Zambia while the current study was conducted in public secondary schools in Kenya.

Although the supply of teachers in Kenya is higher than the demand and student teacher ratio is lower than recommended (32:1 instead of 35:1) Kenya experiences a teacher absenteeism rate of 15 percent of a teacher's annual working time and a high teacher turnover to other better paying professions (MoEST, 2014). Understanding teacher motivation in Kenya may help in understanding its contribution to provision of quality education.

2.5 School Financial Resources and Quality of Education

Issues of education funding and adequacy of school financial resources have been highly debated both in developing and developed countries Mascitti-Miller (2013). Policy makers, tax payers and other education stakeholders do wonder whether schools that receive the most in terms of financial resources produce most in terms of student academic performance (Johnson, 2004). According to Mascitti-Miller, adequacy of school financial resources and student academic achievement are highly related. Citing an example of America, Mascitti-Miller claims that the amount of wealth in a school shapes the quality of its education. Research by Miles and Frank (2008) identified commonalities among high performing schools in America. According to Miles and Frank, high performing schools have adequate finances that are focused to offering a variety of programmes that ensure students

meet rigorous academic learning standards, create individual student attention and develop structures for personal relationships between students and teachers. In addition, the schools allocate more fiscal resources to teacher professional development, teacher incentives and other motivational activities aimed at retention of highly effective teachers. This concurs with the findings of the World Bank (2008a) in Tanzania. According to the World Bank report, Tanzania's best performing schools are financially advantaged with support from parents, educational partners and high budgetary allocations from the government.

On the contrary, Veerspoor (2008) argues that quality school leadership is the most significant factor in improving educational quality. According to Veerspoor, quality of education depends primarily on the way schools are managed more than on the abundance of available resources, and the capacity of schools to improve teaching and learning is strongly influenced by the quality of the leadership provided by the head teacher (World Bank, 2008b). Although financial constraints are real and secondary education is costly, what the available resources are spent on and how efficiently they are used is as important as the level of resources available (Veerspoor, 2008). Therefore, head teachers need training on financial management, strategic planning, and human resource management in order to effectively mobilize resources and efficiently allocate and use them to achieve institutional goals (Veerspoor, 2008; World Bank, 2008b).

Amos and Koda (2018) carried out a study to find out the contribution of school based Income Generating Activities (IGAS) on quality of education provision in secondary schools managed by the catholic diocese of Moshi, Tanzania. The study was conducted in 12 secondary schools managed by Catholic Diocese of Moshi and adopted a cross-sectional survey research design. The respondents were 168 students, 72 teachers and 12 principals. Data was collected using questionnaires and document analysis. Findings revealed that Cash crops, vegetables and poultry farming were the main school-based IGAs practiced in the secondary schools. Other IGAs included cattle rearing, school shop, piggery and bakery. The IGAs helped the schools to have reliable source of food. They provided a balanced diet for the students, teachers and other staff. The surplus from IGAs was sold and the money used to cushion the school from financial shocks like non-payment of school fees by parents. The money helped the schools to motivate students, teachers and support staff. The IGAs was a reliable source of funds that supported provision of academic remedial classes for weak students, provision of additional funds to support co-curricular activities like sport gear and funds for purchasing more teaching and learning resources.

According to Amos and Koda (2018) Secondary schools that had more IGAs produced more funds for financing quality education. The schools with more IGAs performed much better in national examinations as compared to schools with limited number of IGAs. The IGAs provided practical learning lessons (bakery,

entrepreneurship, crop and animal production) to students and enabled the schools to cope with external financial shocks without necessarily passing down budgetary adjustments to students` parents. Profit made from school projects was used to purchase quality teaching and learning materials and development of physical facilities like science laboratories and libraries. IGAs funds were also used for installation of solar and generators as sources of power, employing qualified teachers to supplement existing staff, catering for in-service training of staff members, building and maintenance of staff and student accommodation and provision of free education to children from poor families. The schools received financial support from the Catholic Church as a sponsor and from school Alumni. The funds supported infrastructure development and children from poor families. The study was conducted in secondary schools in Tanzania while the current study explores the influence of adequacy of school financial resources in public secondary schools in Kenya.

A study by Shahidul, and Karim (2015) on factors contributing to school drop- out among the girls revealed that school costs especially school fees was the major reason for girls dropping out of school. According to the study, 47 percent of girls and 30 percent of boys drop out of elementary and junior secondary school in China every year due to lack of school fees. The study revealed that 27 percent of boys and 30 percent of girls in public secondary schools in South Africa drop out of school every year due to lack of school fees. The study advocates for consideration

of school income generating activities as an alternative way of raising more finances in schools. The current study sought to establish the extent to which school financial resources influence quality of education in public secondary schools in Kenya.

In Kenya, the government and households are the main sources for financing secondary education (MoEST, 2005; MoEST 2014; MoE, 2017). In 2008, the unit cost of secondary education was estimated at KES 10,265 for day schools and KES 28,892 for boarding schools, exclusive of teachers' salaries. Findings of the Mwiraria Task Force led to the current unit cost of 22,244 Kenya shillings for day schools, 75,798 Kenya shillings for National and Extra county schools, and 62,779 Kenya shillings for County schools (MoEST, 2014; MoE, 2017). The government remits free tuition capitation grant of KES 22,244 per pupil to all regular secondary schools, and households are charged school fees of KES 53,554 and KES 40,535, for students in National and Extra-county schools, and county schools respectively. In addition, the government pays examination fees for end of course examination (Kenya Certificate of Secondary Examination (KCSE) for all form four candidates to the examining body (Kenya National Examinations Council (KNEC). Parents pay for expenditure items including uniform, transport, boarding expenses, infrastructure development and other expenses after approval by Board of Management and County Education Officer (MoEST, 2014; MoE, 2017).

Despite the guidelines on fees, secondary schools in Kenya have continued to charge prohibitive fees and other levies from parents (Republic of Kenya, 1999; MoEST, 2014; Glennerster, Kremer, Mbithi & Takavarasha, (2011)). Some national schools charge as high as KES 120,000 per student per year, county and extra county schools charge as high as KES 93,317 and KES 62,393 respectively (MoEST, 2014). Bloating of school fees guidelines has led to demonstrations from all stakeholders against school principals (MoEST, 2014). A study by Orodho (2014) on education financing mechanisms in Kenya found the government capitation grant to be grossly inadequate to ensure provision of quality education in public secondary schools in Kenya.

Nyamwega (2016) raised concern on the amount of time wasted by students who are sent home for school fees. According to Nyamwega almost all public secondary schools in Kenya face serious financial difficulties due to failure of parents to pay school fees. Government subsidy to secondary education is often disbursed late and is hardly enough to serve students adequately. The principals therefore send students home for school fees forcing them to waste more learning time and hence lowering quality of education in the schools. According to Nyamwega, the government should stop controlling secondary school fees and allow schools to charge fees in line with the rising cost of living in the country. The study was carried out Nairobi County as an evaluation of IGAS projects in public secondary schools. Eleven public secondary schools participated in the study and data was collected

using questionnaires and an observation guide. Data was analyzed using percentages and means, and presented on frequency tables. Findings revealed that IGAS earned the schools between Kshs 680,000 to Kshs 1,000,000 annually an indication that IGAS is a profitable venture that schools can rely on to ease the household contribution to secondary education and increase student retention and performance. The study did not explore the influence of adequacy of school financial resources on quality of education, a gap that this study intended to fill.

Nyangaresi, Onderi and Mwebi (2016) carried out a study on the influence of school IGAS on student retention rates in public secondary schools in Kisii County. The study was motivated by the effect of social economic status of learners on secondary school retention rates. The target population was 60 principals, 95 class teachers, 4267 form four students, 60 bursars and one sub county quality assurance and standards officer. Simple random sampling was used to obtain 24 principals, 24 bursars, 38 class teachers, and 214 form four students. Purposive sampling was used to select the quality assurance officer. Data was analyzed using frequencies and percentages. Findings indicate that public secondary schools in Kisii County engage in vegetable farming, dairy farming, poultry farming, sugarcane farming, maize farming and hire of school facilities like halls, school bus and playgrounds to the school community. The schools also received financial support and scholarships for needy students from sponsors and private bodies like banks. IGAs funds contributed enormously to school infrastructure development, easing

household support to secondary education. The IGAs funds also catered for students break-tea, lunch and supper. It also catered for uniform for bright needy students hence increasing retention rates and academic achievement.

Shavisa, Ndiku and Musasia (2016) carried out a study that sought to determine the role of student characteristics in dropout rates among secondary school students in Vihiga County, Kenya. They examined the school factors and social-economic factors of the students. The study used descriptive survey design. The study sampled 200 school drop outs using snowball method. Data was collected using a questionnaire and analyzed using descriptive and inferential statistics. The findings of the study show that lack of school fees and pressure from other school dropouts were the leading cause of student dropping out of school in public secondary schools in Vihiga County in Kenya. Inspite of FDSE, schools continue to charge other levies like lunch fees, uniform fees and money for supplementary books; a burden that students from poor families cannot afford to pay hence forcing them to drop out of school. The study recommended a review of school fees policy and suggested to have the government pay full school fees for every student irrespective of the school he/she is attending. The study was limited to one County only (Vihiga County) and did not seek the views of school principals on the extent to which adequacy of school financial resources influence quality of education in the schools. The current study targeted all public secondary schools in Kenya. It used stratified and random sampling to select principals and teachers as respondents to

the study. The study sought to know the extent to which adequacy of financial resources influence quality of education in public secondary schools in Kenya.

Odundo and Rambo (2013) conducted a study to determine the value added by income-Generating Activities (IGAS) on the financial performance of public secondary schools in terms of assets, liability and net worth. Findings revealed that schools with IGAs were significantly different from non IGAs schools. Schools with IGAs were wealthier than non-IGAs schools. The IGA schools were 1.9 times more likely to own as many assets as schools not having IGAs. National schools and other schools with a big number of students were more associated with IGAs than newly established schools. These schools are also associated with high performance in national examinations. The study recommended for formulation of a policy to regulate IGA projects in schools and initiation of training programs for school managers on IGA projects.

A study by Ogalo, Simatwa and Okwachi (2013), found school levy default, high cost of education and child labour to be the main challenges facing school principals in provision of quality education. Failure of parents to pay school fees promptly led to delayed purchase of supplementary learning resources and insufficient programmes to motivate teachers. The principals are left with no option other than sending students home for school fees, and consequently forcing them to miss class and others to eventually dropping out of school. The cost of secondary education

therefore remains to be a deterrent to access, enrolment and retention in Kenyan secondary schools (Republic of Kenya, 1999; MoEST, 2005; MoEST, 2014). This study sought to investigate the extent to which adequacy of school financial resources influence quality of education in public secondary schools in Kenya.

Omukoba, Simatwa and Ayodo (2011) evidenced that most schools experience fiscal distress and financial gaps that need school managers to engage in income generating activities to enable schools to run efficiently. In their study on contribution of income generating activities to financing secondary school education in Kenya, a case study of Eldoret municipality, Omukoba et al observed that the government fees guidelines which principals must adhere to and cost sharing system still leave a financial gap in the schools. Schools in Eldoret municipality were found to be engaged in poultry keeping, dairy farming, pig rearing, fish farming, hire of classrooms during drama competitions, hire of play grounds, renting out houses to the school staff, and hire of school bus to the community. The funds collected from IGAS were used by the schools to build more houses for the staff, build more classrooms, build laboratories, paint the school and buy more land for expansion of the school. The findings indicated that the IGAS projects contributed positively to the quality of education in the schools. However, the study did not focus on the extent to which adequacy of school financial resources influence students academic performance, transition rates and student

participation in co-curriculum activities, a gap that the current study intended to fill.

Anyango and Orodho (2016) conducted a study to examine the main coping strategies used in the management of resources in public secondary schools in Mumias Sub- County. The study adopted a descriptive survey design. Purposive and simple random sampling techniques were used to sample 25 principals, 200 teachers and 25 chairpersons of PTAs. Data was collected using questionnaires and interview guides. The study established that most schools in Mumias Sub County experienced resource constrains ranging from inadequate funding from the government of Kenya under the Free Day Secondary Education fund and overworked teachers. The most preferred coping mechanism was implementation of school income generating activities and use of school Alumni as teachers to supplement the existing teaching staff. The study did not show the extent to which the challenges facing public secondary schools like inadequate funds influenced quality of education, a gap that this study intended to fill.

Lwakasana and Getange (2016) carried out a study to examine the effects of income generating activities in public secondary schools in Transmara Sub-county, Narok County, Kenya. .The population for the study comprised of all principals, teachers and bursars.A combination of purposive and stratified random sampling techniques were applied to select a sample of 13 principals, 322 teachers and 13 bursars.

Questionnaries and interview schedules were the main instruments used to collect data. The results of the study revealed that funds from income generating activities eased financial burden on parents, increased enrolment in school, improved academic performance and was used to motivate both students and teachers. The income was insufficient to cater for physical facilities and also did not cater for bursaries for needy students. Based on the findings, the study recommended that IGAs should be encouraged and enhanced to support the academic programmes. It further recommended that strategies be put in place to improve the income from IGAs so that it can cater for needy students and improve physical facilities in school. Whereas the study dealt with effects of IGAS activities in public secondary schools in Transmara Sub County, the present study focused on the influence of adequacy of financial resources derived from diverse sources including IGAS on quality of education in public secondary schools in Kenya.

A review of Kenyan education system by Glennerster, et al (2011) to inform the education investment strategy of the Government of Kenya, identified school fees as the major obstacle to quality education in Public secondary schools in Kenya. Despite government subsidy to secondary education and increased availability of bursaries from NCDF, school fees still prevented many students from accessing and completing secondary education. This is especially important for vulnerable groups like orphans and the poor. Transition from primary to secondary level was found to be very low and student performance at KCSE was very poor. Progression

rates to the next higher grade was low not because of repetition but dropouts. The report advocated for merit scholarships for bright students, conditional cash transfers especially for families of students who attend a minimum of 80 percent of class hours, distributing vouchers for school uniforms especially for children from poor families and educating both parents and students on economic returns of education. These could reduce dropout rates and enhance academic achievement of students.

2.6 Teaching and Learning Resources and Quality of Education

Teaching and learning resources play an important role in diminishing the effect of socio-economic features in academic achievement and creating equal opportunities for students (Savasci & Tomul, 2013). According to Asikhia (2010) adequate well prepared teaching and learning resources determine the amount of learning that takes place in a learning setting. Asikhia posits that quality learning materials motivate students, maintain concentration and make learning more meaningful. Veerspoor, (2008) argues that shortages of learning materials adversely affect instructional effectiveness. Veerspoor claims that lack of quality teaching and learning resources in Sub-Sahara Africa has greatly contributed to low quality of education in the region. According to Veerspoor, provision of textbooks at the high school level in developing countries is deplorable. A book to pupil ratio is 1:4 and in other cases the only text book is on the hands of the teacher who uses it as the basis for lessons. The World Bank study on students learning in South Asia also

emphasizes the significance of textbooks in students learning (World Bank, 2014a). According to the World Bank report, textbooks have a positive impact in student learning and they need to be adequate, kept relevant and delivered to schools in time.

International research has consistently demonstrated the positive effects of textbooks and other learning materials on student learning. In Greece, Mexico, Poland, Turkey, Brazil, Lithuania, Indonesia, Serbia, Thailand, Tunisia, Uruguay and Russian Federation, the school managers maintain that lack of teaching aids or its poor quality hinder instruction quality (Savisci & Tomul, 2013). In PISA countries 80 percent of the school managers reported that lack of adequate learning resources hinder student achievement to a great extent (Ministry of National Education, 2005; Savasci & Tomul, 2013). A study by the British Columbia Teachers Federation (BCTF) found a significant relationship between well stocked libraries and student achievement. According to the study, schools with libraries with large book collections have higher average test scores than schools that have libraries with fewer books (BCTF, 2012).

Fostering meaningful learning and motivation among students is a long-standing concern for all educators. According to Allison (2012), twenty first century learners expect teachers to create an active learning environment where they can interact with the material, the instructor and their peers. Studying the effects of

multimedia learning materials on student academic achievements and attitudes in science, Chundang, Singha, Adisak and Punchong (2012), Ercan (2014), and Figen and Ozlen (2012) found out that multimedia teaching and learning materials promote more effective learning, motivate learners and leads to higher academic achievements. According to Figen and Ozlen, multimedia resources improve student memory, problem solving skills, knowledge transfer and understanding, and fulfills the need for deeper personal relationships in learning.

Javier and Marcella (2011) carried out a study to investigate whether school infrastructure and resources do matter. The study aimed at determining the incidence of school infrastructure and resources and its impact on the performance of primary education in Latin America. Respondents included 180,000 pupils in 3rd and 6th grades of primary education from 3000 schools, from 15 countries in Latin America. The findings indicated that adequacy of textbooks in the library and the number of computers in a school had the highest effect on student academic achievement. The study was conducted in primary schools in Latin America. The present study was conducted in public secondary schools in Kenya.

Shari, Howard and Ellan (2013) conducted a study to establish what works in education in developing countries. The study observed that use of computers by learners led to self - learning. According to the study, improving school quality with additional resources also increased school enrolment by encouraging students to go

to school so that they can use the new resources. Findings of the study indicate that provision of learning materials such as textbooks, posters, flipcharts and chalkboards helped children follow the learning process easily. Teaching resources were found to impact positively on student academic achievement, attendance and dropout rates. This study investigated the extent to which teaching and learning resources influence quality of education in public secondary schools in Kenya.

In Kenya, low education attainment at secondary school level is partly attributed to inadequate learning and teaching resources (MoEST, 2005; MoEST, 2014). Textbook to students ratio stand at 1:3 or higher especially in compulsory subjects (MoEST, 2014). The government effort to increase its tuition grants to secondary schools anticipates to reduce the textbook to student ratio to 1:1 (MoEST, 2014).

A review of Kenyan education system by Glennerster, et al (2011) to inform the education investment strategy of the Government of Kenya found differential distribution of learning resources to be the major reason for differential performance of regions in Kenya. According to the report, most schools could not teach a variety of subjects because they lacked the requisite facilities and resources for instruction. Offering of technical and science subjects in a school solely depended on availability of a skilled teacher, the relevant physical facilities, and teaching and learning resources. Subjects like music, electricity, woodwork, home science, Art and Design, German, French and Aviation could only be offered by

national schools whose capacity to access more teachers, facilities and teaching resources was higher. The schools could offer a minimum of sixteen examinable subjects while County and Sub-county schools offer a maximum of 11 examinable subjects.

2.7 Summary of Related Literature Review

This section has reviewed literature related to quality of education with focus on school physical facilities, teacher motivation, school financial resources and teaching and learning materials. Amos and Koda (2018), Anyango and Orodho (2016), Lwakasana and Getange (2016) Mascitti-Miller (2013), Miles and Frank (2008), Nyamwega (2016), Nyangaresi, Onderi and Mwebi (2010), and World Bank (2008a) are in agreement that the amount of financial resources in a school and students achievement are positively related. On the contrary, Veesrpoor (2008) and the World Bank (2008b) argue that quality of education in a school depends primarily on the way schools are managed, than the abundance of available resources. Existence of these inconsistencies necessitates further research justifying the need for this study. From the literature reviewed, it is also evident that there is limited literature on quality of education in Kenya especially on teacher motivation. The study by Ogallo et al., (2013) on challenges faced by Principals in the provision of Secondary School education in Kenya was carried out in Nyando and Muhoroni districts in western Kenya and was limited to social-economic factors of education. Orodho (2014) also studied quality of education in Kenya with a focus on secondary

school financing only. This study investigated the influence of adequacy of school physical facilities, adequacy of teacher motivation levels, adequacy of school financial resources and adequacy of teaching and learning resources on quality of education in public secondary schools in Kenya. The study sought to establish the extent to which each of these variables influence quality of education both individually and jointly.

2.8 Theoretical Framework

The study is supported by the systems theory by Von Bertalanffy (1968). According to Bertalanffy, an organization can be compared to an organism made up of independent parts each with its own specific function and interrelated responsibilities. A disturbance of one part, affects the functioning of the whole. Real systems are open to and interact with their environments, and it is possible to acquire new properties through emergence, resulting in continual evolution.

The theory is applicable in the study of schools as explained by Okumbe,(2001). Okumbe describes a school as an open system that receives learners, transforms them through teaching into knowledgeable and informed citizens. Indeed, the quality of learners produced by the school system is highly influenced by the schools' financial resources, physical facilities, learning and teaching resources, student and teacher characteristics. These are influenced by the socio-economic environment of the school and of parents of the learners. The school and its social-

economic environment interact to influence the teaching and learning process and hence determine the quality of education offered in a school. This theory is beneficial since open systems are interrelated and interdependent. Continuous feedback between system inputs and outputs results in more refined output and more effective organizations. However, the theory fails to specify the nature of relationships and interdependence between organizations and the environment.

2.9 Conceptual Framework

The diagram shows the interrelationships of administrative factors and quality of education.

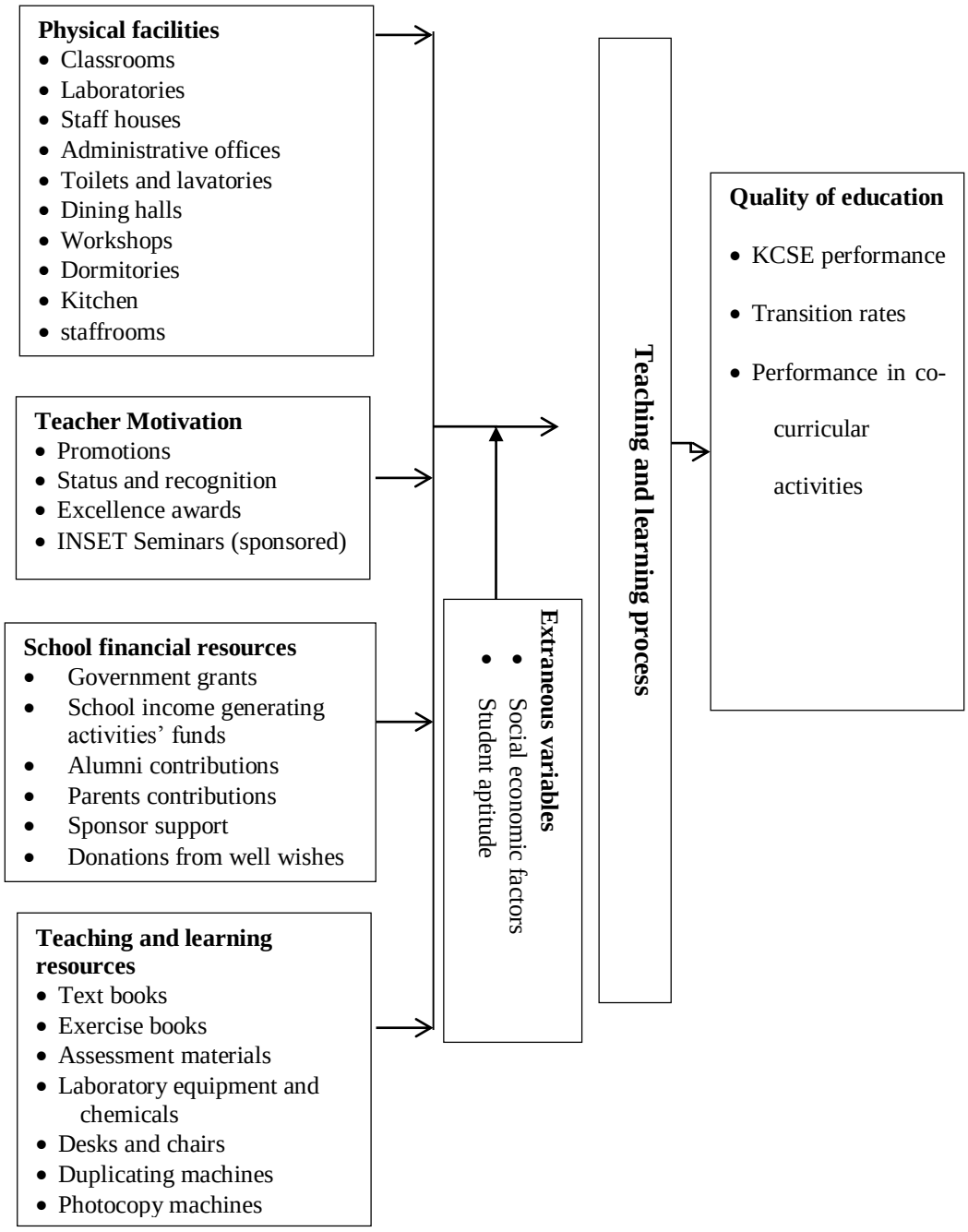

Diagram 2.1: Interrelationships of Administrative Factors and Quality of Education.

The independent variables of the study (inputs) include school financial resources, physical facilities, learning and teaching resources and teacher motivation. The inputs influence the quality of education offered in a school (dependent variable) through the teaching and learning process. Change in the state of any independent variable affects the dependent variable hence low or high quality of education.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focused on research methodology that was used to conduct the research study. The chapter specifically dealt with the research design, target population, sample size and sampling procedures, research instruments, instrument validity, instrument reliability, data collection procedures, data analysis techniques and ethical considerations.

3.2 Research Design

The study adopted the correlational research design. According to Mugenda and Mugenda (2003), correlational research design explores relationships between variables and describes in quantifiable terms the degree to which the variables are related. The design was considered appropriate in this study as it could be used to explore relationships between the independent variables (adequacy of physical facilities, teacher motivation levels, adequacy of school financial resources, adequacy of teaching and learning resources) and the dependent variable (quality of education), and quantify the degree to which the variables are related. The researcher collected data using questionnaires, and observation guides in order to determine whether and to what degree a relationship existed between two or more variables.

3.3 Target Population

Target population is the total group of subjects to whom the study wants to apply the conclusion from the findings (Mugenda & Mugenda, 2003). The target population for this study was 783 public secondary school principals and 8617 teachers employed by Teachers Service Commission in those schools yielding a sample size of 9,400.

3.4 Sample Size and Sampling Procedures

According to Orodho (2005), a sample is a small proportion of the target population selected using some systematic procedure that is used for selecting a given number of subjects from a target population as representative of that population. The study used multistage sampling. According to Kothari and Garg (2014), multistage sampling is a sampling technique most preferred for studies involving large geographical areas such as a whole country. It is a method that entails sampling in stages based on one or more criteria and the first stage involves selecting large primary sampling units such as states, followed by smaller units like districts, towns and families. The study used purposive sampling to select three counties to represent high, medium and low social economic regions in Kenya. Babbie and Earl (2010) describes purposeful sampling as a technique of sampling based on researcher's judgment on the most useful units to the study. Purposeful sampling technique was therefore considered appropriate in this study since social-economic potential of a region largely influences quality of education especially academic

performance (UNESCO 2005; KIPPRA 2013). Consequently, Kitui (low), Kisii (medium) and Nairobi (high) counties were sampled based on county poverty incidence, county human development index and county poverty severity index (Wiesmann, Kiteme, & Mwangi, 2014; KNBS, 2015). The three counties had 783 public secondary schools hence a population (N) of 783 principals and 8617 teachers yielding population size of 9400 and a sample (n) of 260 principals and 368 teachers, yielding a sample size of 628 (Krejcie & Morgan, 1970). The sample population and sample size is as shown in Table 3.1;

Table 3.1: School Population and Sample Size

County	**Population (N)**		**Sample (n)**	
	Principals	**Teachers**	**Principals**	**Teachers**
Kitui	364	3991	121	171
Kisii	336	3072	111	131
Nairobi	83	1554	28	66
Total	**783**	**8617**	**260**	**368**

By stratified sampling, the schools were categorized into national schools, extra county schools, county schools and sub county schools. Kothari and Garg (2014) describe stratified sampling as a technique that stratifies a population into non-overlapping subgroups, especially when the population is not homogenous, for purposes of representing the peculiarity of each subgroup in the sample. Based on

KCSE performance and admission criteria, public secondary schools have been classified into national schools, extra county schools, county schools and sub county schools. Thus, the population sample of this study consisted of 11 national schools, 34 extra county schools, 120 county schools and 618 sub county schools (MoE Statistics, 2014).

To ensure accurate representation of each strata in the sample, the study used stratified proportionate sampling. According to Babbie and Earl (2010), stratified proportionate sampling ensures proper representation of the stratification variables in the sample. Each sample stratum is proportionate to its population stratum hence a more accurate representation of all population variables. The sizes of sample strata were calculated by multiplying the proportion of each stratum in the population sample and sample size. The sample therefore consisted of 4 national schools, 11 extra county schools, 40 county schools and 205 sub county schools. The schools were randomly selected in each category to ensure representativeness of all school types. All school principals were purposively sampled for participation.

To ensure representativeness of teachers from all school categories, the total number of teachers sampled was subjected to stratified proportionate sampling based on sampled school strata. The proportions of each school stratum in school sample was multiplied by total number of sampled teachers to give the number of

teachers expected to participate from each school stratum. This yielded 6 national school teachers, 16 extra-county school teachers, 57 county school teachers and 290 sub county school teachers. Random sampling was used to sample the teachers from each stratum.

3.5 Research Instruments

The purpose of a research instrument in a study is to collect important information about the population (Mugenda & Mugenda, 2011). The study used questionnaires and observation guide to collect data. Kothari (2014) terms the questionnaire as the most popular instrument in collecting data in social research. Two sets of questionnaires were used namely, the principal's questionnaire and the teacher's questionnaire. The questionnaire items were both structured and unstructured in order to determine conformity of responses on issues raised on the questionnaire and to allow respondents to expound and give their opinions on the same. Teachers and principals' questionnaires each with items addressing study objectives were used. Part I of the questionnaires focused on background information of the schools and respondents, while part II and III covered teacher motivation, school financial resources, physical facilities, teaching and learning resources and quality of education. The researcher delivered the questionnaires to respondents and collected them after two weeks. An observation guide was also used to collect data on adequacy of school physical facilities in public secondary schools in Kenya. According to Kothari and Garg (2014), an observation guide enables the study to

collect data without interviewing respondents. The data collected shows the current events in the field and is free from the attitudes, intentions or behavior of the respondents. The observation guide had a list of school physical facilities that are likely to influence quality of education such as classrooms, libraries, science laboratories and toilets. Based on school population, the researcher recorded the perceived level of adequacy of the school facilities on a five-point Likert scale (1- not all, 2-less extent, 3- moderate extent, 4- larger extent and 5- more adequate).

3.6 Instrument Validity

Validity is the degree to which results obtained and data analyzed represent the phenomenon under investigation (Orodho, 2009). It refers to the level of accuracy that the data obtained in the study represents the study variables. To enhance validity of the instruments a pre-test (pilot study) was carried out in 26 schools, drawn from Nyamira County. This represented 10 percent of the sample size of the study. Mugenda and Mugenda (2003) recommended a sample of 10 - 30 percent as sufficient for a pilot study. The principals of the 26 schools and a teacher who was randomly selected in each case, were requested to fill the questionnaires which were then handed over to the researcher.

Pre-testing helped to assess the clarity of the instrument items so that the items found to be inadequate could be modified to improve the quality of the research. To ensure content validity the study captured all objectives in the questionnaires.

For construct validity, the study used short, straight forward and close ended questions that could be easily understood. In addition, the study used a 5-point Likert scale that operationalized the constructs. The research instruments were further subjected to criticism from two experts in the Department of Educational Administration and Planning, University of Nairobi. Items found to be ambiguous, irrelevant or confusing were removed or reconstructed to convey the intended meaning.

3.7 Instrument Reliability

Orodho (2005) defines reliability as the measure of the degree to which a research instrument yields consistent results after repeated trials. Reliability of a research instrument is its level of internal consistency or stability over time (Borg & Gall, 1989). A measuring instrument is reliable if it produces consistent results (Kerlinger & Lee, 2000; Kothari, 2011; Miles & Huberman, 1994). According to Mugenda and Mugenda (2003), the reliability of data collected may be affected by error due to inaccuracy of the data collection instrument or error due to inaccuracy in scoring by the researcher, or error related to respondent mood and attitude. To minimize on these errors and increase the reliability of the collected data, the study used split half method to test reliability of the questionnaires. The developed questionnaires were given to respondents in the pilot schools. The questionnaires were scored manually and collected. The questionnaire items were divided into two halves (odd number questions (x) and even number questions (y) and their scores

computed. A comparison between the scores obtained in the two cases was then made using Pearson's Product Moment Correlation formula.

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2]\,[n\sum y^2 - (\sum y)^2]}}$$

Where

$\sum x$ = sum of x scores

$\sum y$ = sum of y scores

$\sum x^2$ = sum of the squared x scores

$\sum y^2$ = sum of the squared y scores

$\sum xy$ = sum of the product of paired x and y scores

n = number of paired scores

Correlation score of 0.7 and above was considered high enough to declare the research instrument reliable (Best & Kahn, 2006). The Pearson reliability coefficient results are shown in Table 3.2.

Table 3.2: Reliability Results

Instrument	**Reliability**
Principals Questionnaire	0.72
Teachers Questionnaire	0.7

The instruments were therefore considered reliable.

3.8 Data Collection Procedures

Before data was collected, a research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI). The study sought further clearance for carrying out research in Kisii, Kitui and Nairobi counties from the County Directors of Education (CDEs) and County Commissioners of these counties. According to Best and Kahn (2006) the person administering the instrument has an opportunity to establish rapport, explain the purpose of the study and the meaning of items that may not be clear.

The researcher visited the schools on set dates, consulted with the principals, and sought permission to observe school physical facilities and administer the questionnaires. The researcher administered the questionnaires personally and explained the respondents on how to fill them. The respondents were given a period of two weeks to fill the questionnaires however, the researcher kept visiting the schools randomly to give more information and guidance on filling of the questionnaires. The researcher could pick any questionnaire that was ready for collection before the lapse of the two weeks. The researcher observed the school physical facilities during the visits and recorded their adequacy in the observation schedule. At the end of two weeks, from the date the questionnaires were administered, the researcher went to the schools to collect the questionnaires.

3.9 Data Analysis Techniques

Data analysis is the process of bringing order and meaning to the raw data collected (Best & Kahn, 2006). The study collected both quantitative and qualitative data using the teachers questionnaire, principals questionnaire and an observation guide. Both data were edited for relevance and completeness and then coded. The data was analyzed by use of descriptive and inferential statistics. Descriptive methods used include frequencies, percentages and the mean. The descriptive methods of data analysis were used to describe and explain relationships between facts and variables of the study. The four hypotheses were majorly analyzed through inferential research methods. The Pearson Correlations and T-test analysis were used to test whether there existed a relationship between the dependent and independent variables. Simple and multiple regression analysis were used to show the extent to which the independent factors influenced the dependent factor both singly and jointly. The findings of the study were then presented in tables.

Qualitative data collected from open ended questions was coded and analyzed quantitatively. The qualitative information was coded, tallied and frequency counts of all similar responses recorded. The results were reported in frequency tables and explained based on study objectives. Data analysis was done with the aid of the Statistical Package for Social Sciences (SPSS), version 21.

3.10 Ethical Considerations

According to Mugenda (2011), research ethics should apply in the planning of the research study, analysis of data collected, dissemination and use of research results. Therefore, the study ought to address logistical, ethical and human relations issues to effectively and successfully complete a research project (Orodho, 2009).To ensure informed consent and voluntary participation of the respondents, the researcher sought permission from the secondary school principals to collect data from the institutions. Each respondent was served with a copy of the introduction letter informing them of the purpose and importance of the study. To ensure anonymity, the respondents were assured of treatment of their identities with utmost confidentiality and privacy. They were not required to write their names or names of their schools on the data collection tools. The study findings were reported using codes.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter focused on data analysis followed by presentation, and interpretation of the findings. The study utilized both descriptive and inferential statistics. The analysis was guided by the following objectives; to determine the extent to which school physical facilities influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties; to establish the extent to which teacher motivation influences quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties; to establish the extent to which school financial resources influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties, and finally, to determine the extent to which teaching and learning resources influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

4.2 Response Rate

Response rate refers to the number of respondents who returned usable instruments for the study out of the total number contacted for the study (Mugenda & Mugenda, 2003). The questionnaires were administered on school principals and teachers. The study also used an observation guide to collect data on adequacy of school physical facilities such as science laboratories, classrooms, staffrooms and libraries among

others. Analysis of data was on the basis of these questionnaires and the observation guide. The response rate was as shown in Table 4.1.

Table 4.1: Number of Observations Made

Respondents	Sample	Returned	%
Principals	260	226	86.92
Teachers	368	292	79.34
Totals	**628**	**518**	**82.48**

From Table 4.1, 518 out of 628 respondents returned usable research instruments for this study. This represents 82.48 percent response rate. In particular a response rate of 86.9 percent for principals, 79.34 percent for teachers is very good response. Further, 213 out of 260 observation schedules were filled and used to analyze data hence a return rate of 81.92 percent. The return rate became possible because the researcher explained the importance of the study to the respondents hence convincing them to actively participate in the study. The teachers and principals were given a time limit of two weeks to fill the questionnaires after which the researcher went round collecting them. The researcher observed the school physical facilities like classrooms, libraries, kitchen, staffrooms among others, either on the day of administering the questionnaires or when collecting the questionnaires from the schools. This was done with permission and assistance from the school

administration. The high return rate therefore provided adequate information for purposes of data analysis and meaningful generalization.

4.3 Demographic Characteristics of Respondents

The study sought demographic information of the respondents. These included respondents' gender, highest academic qualifications and years of experience.

The respondents in this study were school principals and teachers. The study chose them because they were privy to the information sought by the study. Teachers engage in teaching and other activities related to curriculum implementation, and are therefore crucial in determining the quality of education offered in a school. School principals supervise curriculum implementation at school level to ensure provision of quality education.

4.3.1 Distribution of Principals and Teachers by Gender

The study sought to know the respondents gender because the issue of gender balance is of great concern in all sectors of the society. The Government of Kenya has adopted the gender mainstreaming strategy that endeavors to bring deliberate attention on how women, men, girls and boys can be reached, influenced and involved in development and leadership positively. This is done by ensuring equal opportunities among female and male staff members in the areas of recruitment, promotion, training and working conditions (Republic of Kenya, 2011).

The principals' gender is important as it shows the proportion of men and women heading public secondary schools in Kenya. Hence the extent to which both gender have been empowered to leadership positions in the education sector. In addition, teachers' gender is a variable that highly influences the way learners perceive leadership roles and their association to leadership opportunities (National Centre for Educational Statistics (NCE), 2011). The findings on gender are as shown in Table 4.2.

Table 4.2: Gender of Teachers and Principals

	Teachers		**Principals**	
Gender	**n**	**Percentage (%)**	**n**	**Percentage (%)**
Male	150	51.4	146	64.5
Female	142	48.6	80	35.5
Total	**292**	**100**	**226**	**100**

Table 4.2 shows that there were more male (51.4%) than female (48.6%) teachers who participated in this study. The figures provided an adequate balance of view from both gender considering that they almost met the threshold of 50 percent (Mugenda & Mugenda, 2003). The Ministry of Education indicates that equity must be addressed in the staffing needs of every school to enable students experience diversity among teaching staffs (KEMI, 2014). In addition, it is important to have teachers of different gender going into class to help learners relate well, and identify positively with teachers as part of the mentorship programme. Hence gender

balance is a factor that contributes positively to the performance of learners in school. The result on Table 4.2 agrees with Buckland and Thurlow (1996); Bush and Heystek (2006); Khewu (2012); and Onderi and Makori (2013) all of whose studies found a considerable evidence that women are greatly under-represented in management positions. Jackline (2009) also noted that more male teachers are in school headship than female teachers.

The findings are inconsistent with Kenya National Policy on Gender and Development that spells out a policy approach of gender mainstreaming and empowerment of women (RoK, 2000). According to the policy, it is the right of women, men, girls and boys to participate in and benefit equally from the development process where men and women enjoy equal rights, opportunities and a high quality of life.

According to the gender policy in education, gender, is a variable that has a strong bearing on the quality of education in Kenya (MoE, 2007). In remote and rural areas where there is lack of women teachers especially for science, mathematics and technical subjects, girls have continued to perform poorly in these subjects due to lack of role models. The Ministry of Education Science and Technology (MoEST, 2015) appeals to school principals to ensure that schools are gender responsive in order to attract and retain learners especially girls in school hence increasing completion rates.

To address gender disparities in education, the gender policy in education suggests increased appointment of qualified female education managers and administrators and gender parity– based recruitment and deployment of teachers and managers (MoE, 2007). This study has revealed under representation of female school principals in Kenya despite of the many mixed day and boarding secondary schools that could be headed by either of the gender.

4.3.2 Highest Academic Qualifications of Principals and Teachers

Academic qualification of secondary school teachers is very important because it indicates their professional development. According to OECD (2011) report, the quality of any education system is determined by the quality of its teachers. Teachers with high academic qualifications are better equipped with both technical, human and conceptual skills to perform their duties more effectively (Kart, 1995). Research has further found a positive relationship between teacher qualifications and student academic achievement (OECD, 2011; MoEST, 2015b).

In Kenya, teachers in public secondary schools possess a minimum of diploma qualification from Teacher Training Colleges or University. School principals are experienced teachers who are appointed to head a school on a merit system by the Teachers Service Commission (RoK, 2012; Rarieya, 2007).This study sought to know the highest academic qualifications of the principals and teachers. The results are as shown in Table 4.3.

Table 4.3: Highest Academic Qualifications of Teachers and Principals

Highest academic qualifications	Teachers (N)	%	Principals (N)	%
Doctorate	1	0.34	0	0
Masters	30	10.27	77	34.2
Bachelors Degree	218	74.7	147	64.9
Diploma	43	14.7	2	0.9
Total	292	100	226	100

From Table 4.3, majority of the teachers and principals have Bachelor's degree qualification. This can be explained by the fact that the Teachers Service Commission (TSC) which is the sole employer of teachers in public secondary schools in Kenya recruit university graduates who have trained as secondary school teachers and few teachers from diploma colleges. Table 4.3 also indicates that more head teachers have pursued Masters Degree as opposed to teachers. This follows the TSC teacher recruitment procedures that are merit based and confirms arguments by Odundo (1990) that teachers are becoming more professionally qualified. Hanushek (2011) asserts that teacher qualification is the single most significant variable that determines learning outcomes. According to Hanushek, there is a strong positive relationship between teacher competence and student achievement. Quality of teachers is reflected in teacher qualifications, training and experience. Therefore the findings of this study indicate that teachers in Kenyan

secondary schools are highly qualified and can be trusted to provide quality education in their respective schools.

4.3.3 Working Experience of Teachers and Principals

The length of time people spend in a career gives them a better chance to give an objective view of the situation on the ground. Imonje (2011) observed that teaching experience is considered in terms of enhancing the mastery and application of pedagogical skills. Elmuti (2004) posits that effective institutional managers need not only academic content but also sufficient and lengthy exposure to practical management of the institutions. According to Elmuti, education managers acquire technical, human and conceptual skills through learning but they enhance these skills through experience in their management roles. Staying in a station for a longer period enhances level of adjustment to the work environment and teamwork which promotes the culture of unity for purposes of providing high quality education in an institution. This study sought to establish the length of stay of the teachers and principals in their present stations. The results are shown in Table 4.4.

Table 4.4: Working Experience in Current School for Teachers and Principals

	Teachers		Principals	
Working experience	**n**	**%**	**N**	**%**
Less than a year	52	17.8	26	11.4
1-5 years	138	47.3	117	51.8
6-10 years	83	28.4	73	32.5
11-15 years	10	3.4	6	2.6
Over 15 years	9	3.1	4	1.8
Total	**292**	**100**	**226**	**100**

Table 4.4 shows that most of the teachers 138 (47%) have been in their current stations for a period of between one to five years while over 30 percent of the teachers have been in the same school for a period exceeding 6 (six) years. This implies that most of the respondents had adequate and reliable information pertaining to quality of education in their present stations and the learning outcomes of each school was influenced to a great extent by the teaching processes and activities undertaken by the staff in those schools.

For school principals, over 50 percent of them had served in their current stations for a period of one to five years while more than 35 percent of them had served their present stations for a period exceeding six years. In Kenya school principals first serve as ordinary teachers before promotion to headship through a merit-based interview. Therefore, majority of the principals are experienced and knowledgeable

on teaching and learning processes, hence they have an added advantage in guiding the teaching staff on effective curriculum delivery towards quality learning outcomes.

According to Olembo et al (1992), the principal is the chief administrator of a school and the chief influencer of the institution's education quality. The principal is responsible for provision and maintenance of school physical facilities, influencing and motivating teachers and pupils, determining and acquiring school financial resources, providing learning and teaching resources and assessing outcomes. Therefore, the more experienced the principal, the higher the quality of education.

4.4 Demographic Information of Schools Studied

The study sought some demographic background of the schools. These included; category of the school, school type and number of streams.

4.4.1 Distribution of Schools by Category

According to the Task Force on Secondary School Fees (MoEST, 2014) public secondary schools are classified as national schools, extra county schools, county schools and sub county schools. The study sought to determine the proportion of each category in the sampled counties- Nairobi, Kisii and Kitui counties. The results are presented in Table 4.5.

Table 4.5: Distribution of Schools by Category

School category	n	%
National	5	2.2
Extra county	20	8.8
County	35	15.4
Sub county	166	73.6
Total	**226**	**100**

From Table 4.5 many of the schools (73.7%) are sub county schools. According to the Taskforce Report on Secondary School Fees, majority of sub county secondary schools are day schools. The category also comprise of a few boarding schools that have a day wing. Sub county secondary schools comprise of 65 percent of secondary school population in Kenya, and admit more than 60 percent of all Kenya Certificate of Primary Education (KCPE) candidates annually. The day schools charge no fees however, boarding schools charge lower school fees as compared to county, extra county and national schools (MoE, 2017). The schools admit bright students from poor families, orphans and low achievers in KCPE examination. These schools are built close to primary schools in heavily populated regions and they serve at least five primary schools in any given locality (MoEST, 2014).

County schools consist of 15.4 percent of all schools in Nairobi, Kisii and Kitui counties. The schools are former provincial schools whose performance is average

and are mostly boarding (MoEST, 2014). The schools admit students from all over the County based on each sub-county candidature, but they admit at least 20 percent of the students from the host district. They are centres of excellence in their counties and they benchmark with extra county and national schools for improved performance. School fees charged in these schools is lower than that charged in extra county schools (MoEST, 2014).

The findings on Table 4.5 revealed that 8.8 percent of schools in Nairobi, Kisii and Kitui counties are extra county schools. These are former extra-provincial schools that are characterized by high academic performance, promotion of integration and bench mark standards and supplementing the national schools. The schools admit students at the ratio of 40 percent nationally; 40 percent from the county and 20 percent from the host district. They are regional academic centres of excellence (MoEST, 2014).

Table 4.5 also revealed that 2.2 percent of schools in Nairobi, Kisii and Kitui counties are national schools. National schools are the best performing schools in Kenya. Most of the schools were established during the colonial period and are single sex schools (Lucas & Mbiti, 2011). The schools admit the best performers in KCPE countrywide and are only 18 in number. They are most prestigious schools that promote cohesiveness and citizenship by admitting students from every part in Kenya. According to the taskforce in secondary school fees, (2014) the schools

charge very high school fees because of the type of meals they give to their students, and high maintenance costs of the varied and quality learning facilities in the schools. Since these schools admit learners from every county in Kenya, traveling costs, together with the high school fees charged increase costs and disadvantage those students from poor households (MoEST, 2014).The schools offer high quality education and most top leaders in Kenya are Allumni to them (Lucas & Mbithi, 2011).

A study by Kamau, Rintangu, Muniu, and Amusa (2015) on the effect of participation in competitive sports on school connectedness of secondary school students, found a positive relationship between school category and students psychological connectedness to the school. According to the study, students in national schools are more connected to their schools than those in other school categories. The schools are more endowed in terms of sport and academic infrastructure and students have strong commitment to the schools, taking more demanding courses and participating in sports hence few cases of delinquency. Consequently, the students have lower absenteeism rates, low dropout rates, and fewer cases of drug abuse and violence hence, high quality education.

4.4.2 School Type

The study sought to know the proportion of schools under study based on their gender, and whether they were boarding or day schools. The results are presented in Table 4.6.

Table 4.6: Distribution of Schools by Type

School type	n	%
Boys boarding	23	10.1
Girls boarding	19	8.3
Mixed boarding	31	13.6
Boys day	5	2.2
Girls day	2	0.9
Mixed day	146	64.9
Total	**226**	**100**

From Table 4.6 over half of public secondary schools in Kisii, Kitui and Nairobi counties are mixed day schools (64.9%). This is because of the high proportion of sub county schools that have been established to enhance access to secondary education (MoEST, 2014; RoK, 2012a). However the number of girls schools both boarding and day are notably low (10%) as compared to boys boarding and boys day schools (12%). This means that the number of girls accessing secondary education is lower than that of boys. According to MoEST (2015a), gender gaps widen as learners progress to higher education levels. More girls drop out of school

due to gender roles, cultural factors and economic factors giving the boy child a better opportunity to dominate higher education.

A study by Kamau et al (2015) found a significant relationship between school type and students psychological connectedness to the school. According to the study, students who learn in single sex schools are more connected to their schools than those who learn in mixed schools. Connectedness to a school was seen to guard against bullying, risky sexual behavior, fighting, vandalism, truancy, emotional stress and violence. Therefore, single sex schools are likely to offer high quality education as compared to mixed schools.

A study by Sang, Koros and Bosire (2013) to analyze dropout levels in public secondary schools in Kericho District indicated that single sex schools offer more quality education than mixed schools. According to the study, dropout rates were higher in mixed schools as compared to single sex schools. Further, dropout rates were found to be higher in day schools as compared to boarding schools. Therefore, boarding single sex schools were found to offer more quality education than day schools and mixed schools.

4.4.3 Distribution of Schools by the Number of Streams

Schools have varied population sizes and this dictates the number of streams in each school. Therefore the study sought to establish the distribution of streams among the schools under study. The findings are shown in Table 4.7.

Table 4.7: Distribution of Schools by Number of Streams

School number of streams	n	%
1 to 3 streams	198	87.7
4 to 6 streams	19	8.4
Above 6 streams	9	3.9
Total	**226**	**100**

From Table 4.7, it is clear that majority (87.7%) of the schools had between one and three streams. This can be explained by the large proportion of sub-county schools in the study population (Table 4.5). It is also supported by the government policy to establish more day schools to enhance access to secondary education (RoK, 2012a). According to the policy, all secondary schools should have a minimum of 3 streams in order to relieve parents on the cost of constructing new secondary schools and ensure efficient utilization of teachers employed by Teachers Service Commission (MoEST, 2014; RoK, 2012a) hence, quality education.

A study by Sang, et al (2013) on dropout levels in public secondary schools in Kericho District revealed that student drop out levels are higher in single streamed schools as compared to schools with more than one school. In most cases, single streamed schools are newly established schools which are still struggling to acquire

teachers and other physical infrastructure, and students could be moving out to more established schools in search of quality education.

4.5 Adequacy of School Physical Facilities and Quality of Education

The first objective of this study sought to determine the extent to which adequacy of school physical facilities influence quality of education in public secondary schools in Kenya. This objective had a corresponding hypothesis H_{O1} that stated that-

H_{01}: there is no significant relationship between adequacy of school physical facilities and quality of education in public secondary schools in Kenya. The analysis sought to establish the adequacy of school physical facilities in schools, relationship between adequacy of the school physical facilities and quality of education, and the extent to which physical facilities influence quality of education in public secondary schools in Kenya.

4.5.1 Adequacy of School Physical Facilities in Schools

School physical facilities are fundamental in teaching and learning (Saeed & Wain 2011). According to Kuurskorpi et al (2011), physical facilities set the stage for learning to occur and also influence the working culture of the school. Physical facilities also influence student participation in co-curricular activities hence holistic student development (Kapelinyang & Lumumba, 2017). Based on this, the

study sought to establish the levels of adequacy of school physical facilities in public secondary schools in Kenya. The results are presented in Table 4.8.

Table 4.8: Adequacy of School Physical Facilities: Principals Perceptions

School Physical facilities	Not at all		Less adequate		Moderate adequate		More adequate		Very adequate	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Classrooms in the school	3	1.3	44	19.5	133	58.8	34	15.0	12	5.3
The school laboratories	18	8.0	82	36.3	102	45.1	18	8.0	6	2.7
Staff houses	67	29.6	67	29.6	78	34.5	11	4.9	3	1.3
Availability of administrative offices	9	4.0	62	27.4	130	57.5	22	9.7	3	1.3
Toilets and lavatories	5	2.2	42	18.6	125	55.3	42	18.6	12	5.3
Workshops	85	37.6	82	36.3	54	23.9	2	.9	3	1.3
Students' accommodation	71	31.6	63	28.0	79	35.1	10	4.4	2	.9
Sufficient space within the staff room	11	4.9	75	33.2	119	52.7	17	7.5	4	1.8
Dining area	55	24.3	69	30.5	85	37.6	13	5.8	4	1.8
The school's kitchen facilities	2	.9	83	36.7	115	50.9	24	10.6	2	.9
The school's playgrounds	11	4.9	77	34.1	98	43.4	36	15.9	4	1.8
Library	46	20.4	81	35.8	87	38.5	9	4.0	3	1.3

From Table 4.8, only 20 percent of the schools have adequate classrooms while 80 percent of the schools have inadequate number of classrooms. On school laboratories and libraries, 90 percent of the respondents indicated that the schools have inadequate science laboratories to support learning. Majority of the respondents reported to have inadequate libraries too. This implies that most of the schools in the study have large class sizes, high student teacher ratios, overworked teachers and use of teacher centred methods of learning leading to low quality of education. The library is one of the predictors of student academic achievement (BCTF, 2012). It offers conducive atmosphere for private studies and gives learners access to learning resources. Inadequacy of science laboratories limit practical learning of science subjects hence poor performance in the science subjects. A study by Owino, Osman and Yunguyungu (2014) found a positive relationship between quality of education and school investment in science laboratories. Schools with adequate and well equipped science laboratories performed well in sciences in KCSE.

Staff houses are a necessary requirement especially in boarding schools in order to ensure security of learners. The study established that only 6 percent of the schools had enough houses for the teachers while 57 percent could house some of the teaching staff. On administrative offices, 90 percent of the principals indicated that they have inadequate number of offices for school administration. Teachers houses and offices influence their stay in school for longer (World Bank, 2014a).

According to World Bank report, the facilities help in retaining teachers in school for long hence increased contact hours with students, leading to more student and teacher consultation, and therefore, quality learning experiences.

The study found out that only two (2) percent of the schools had sufficient number of workshops while 38 percent did not have a workshop at all. This implies that majority of the schools can hardly offer technical subjects like wood work, metal work, home science and music. Quality education aims at tapping the talent and potential of every learner. Offering limited range of subjects limits the ability of the curriculum to identify, exploit and nurture students abilities (UNICEF, 2000).

On playgrounds, the study established that 87 percent of the schools had inadequate playgrounds for sports, games and leisure. This implied that most of the schools did not engage students in co-curricular activities like soccer, athletics, netball, rugby, basketball, and volleyball among others. According to UNICEF (2000), education should develop the cognitive, psychomotor and affective domain of a student. Physical education in school helps develop the learner physically, emotionally and helps in the development of core skills such as communication, collaboration, critical thinking and leadership (UNESCO, 2015c). Inadequate playgrounds deny the learners an opportunity to participate in co-curricular activities, which are essential for full development of their personality.

To supplement the principals' responses on availability of physical facilities in schools, the researcher used an observation guide to collect data and rate the adequacy of physical facilities in the schools. In this case, the researcher rated the responses 1,2,3 (not at all, less extent, moderate extent) on the respondents key of rating as inadequate; while 4,5 (large extent and very large extent) responses were rated as adequate. The findings are shown on Table 4.9.

Table 4.9: Distribution of School Physical Facilities as Observed by the Researcher

Facilities	Responses	n	%
	Inadequate	145	68.0
Classrooms	Adequate	68	32.0
	Total	**213**	**100**
	Inadequate	179	84.0
Laboratories	Adequate	34	16.0
	Total	**213**	**100**
	Inadequate	198	93.0
Staff houses	Adequate	15	7.0
	Total	**213**	**100**
	Inadequate	182	85.45
Administrative offices	Adequate	31	14.55
	Total	**213**	**100**
	Inadequate	171	80.28
Toilets and lavatories	Adequate	42	19.72
	Total	**213**	**100**
	Inadequate	197	92.49
Dining halls	Adequate	16	7.51
	Total	**213**	**100**
	Inadequate	206	96.71
Workshops	Adequate	6	3.29
	Total	**213**	**100**
	Inadequate	197	92.49
Dormitories	Adequate	16	7.51
	Total	**213**	**100**
	Inadequate	196	92.0
Kitchen	Adequate	17	8.0
	Total	**213**	**100**
	Inadequate	191	89.67
Staffroom	Adequate	22	10.33
	Total	**213**	**100**
	Inadequate	196	92.0
Library	Adequate	17	8.0
	Total	**213**	**100**
	Inadequate	170	79.81
Playground	Adequate	43	20.19
	Total	**213**	**100**

From Table 4.9 the study established that not a single school had adequate physical facilities to support teaching and learning. The facilities available were all inadequate and could not effectively support learning and teaching activities in the schools. Majority of the schools had inadequate classrooms (68%), inadequate laboratories (84%), inadequate libraries (92%), toilets and lavatories 80 percent), and playgrounds (79.8%) among others.

The findings concur with that of Omae (2018) whose study on predictors of quality education in public secondary schools in Kisii County indicate that most of the schools had inadequate libraries, science laboratories, toilets, administration offices and school playgrounds. The study requested the principals to comment on adequacy of school physical facilities in their schools and the responses are as shown in Table 4.10.

Table 4.10: Principals Perceptions on Physical Facilities in the schools

Comments	**Frequency**	**Percent**
Have enough physical facilities	15	11.9
Have moderate physical facilities	11	8.7
Need physical facilities	83	65.9
No enough space for expansion	17	13.5
Total	**126**	**100.0**

From Table 4.10, majority of the principals (65.9 %) indicated that their schools needed more physical facilities. Only 15 percent of them indicated that they had enough physical facilities in their schools while 13.5 percent of the school principals felt that their schools lacked enough space for expansion.

4.5.2 Bivariate Correlation Between School Physical Facilities and Quality of Education

In order to have deeper understanding on the association between adequacy of school physical facilities and quality of education, Pearson Correlation was used to establish whether there existed a relationship between adequacy of the physical facilities and quality of education. The result is shown in Table 4.11.

Table 4.11: Bivariate Correlation Between School Physical Facilities and Quality of Education

Correlations

		School Physical facilities	Quality of Education
School Physical facilities	Pearson Correlation	1	0.307**
	Sig. (2-tailed)		<0.001
	N	226	223
Quality of Education	Pearson Correlation	0.307**	1
	Sig. (2-tailed)	<0.001	
	N	223	223

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.11, the correlation coefficient (r) = 0.307 at P<0.001 indicates a positive relationship between school physical facilities and quality of education. Since p<0.001, the relationship is statistically significant. This implies that physical facilities have a positive influence on quality of education. The more adequate the school physical facilities, the higher the quality of education in a school. Therefore schools that have adequate classrooms, laboratories, staff houses, toilets and lavatories, libraries, dormitories, playgrounds, dining and kitchen facilities among others, are likely to record higher KCSE mean scores, win more trophies in co-curricular activities and record higher student transition rates between form one and form four. On the contrary, schools with inadequate facilities (classrooms, libraries, laboratories, staff houses, toilets and lavatories, playgrounds and administrative offices among others, are likely to record poor quality of education (low KCSE mean score, low student transition rates from form one to form four and low participation in co-curricular activities hence winning few number of trophies).

Massoni (2011) observes that schools that have co-curricular facilities like playgrounds encourage students to actively participate in co-curricular activities. According to Massoni, co-curricular activities keep learners in school hence ensuring high transition and completion rates. The activities also instill discipline, patience and resilience that work together to enhance their study behavior and hence better academic achievement.

4.5.3 Adequacy of School Physical Facilities and Quality of Education

The study sought to establish whether there is a significant difference in quality of education between schools with different levels of adequacy of school physical facilities. This was meant to answer hypothesis one;

H_{O1}: *There is no significant relationship between adequacy of school physical facilities and quality of education in public secondary schools in Kenya*

To answer the hypothesis, the study conducted a T-test to establish whether quality of education for different schools with different level of availability of physical facilities is the same. If they were the same, the study concluded that there is no significant relationship between adequacy of school physical facilities and quality of education in public secondary schools in Kenya. However if found to be different across schools, then the study could conclude that there is a relationship between adequacy of school physical facilities and quality of education, hence proceed to establish the strength of the relationship.

To establish the variation of quality of education with school physical facilities, the study classified the five responses (1-not all, 2-less extent, 3-moderate extent, 4-larger extent and 5-more adequate) into two (1,2,3- inadequate; 4,5 –adequate) physical facilities. The study then computed the mean quality of education for each group of physical facilities based on quality of education parameters (KCSE mean score, transition rate, and school mean trophies won in co- curricular activities). The result for the means of the two groups is as shown in Table 4.12.

Table 4.12: Adequacy of School Physical Facilities and Quality of Education

Adequacy of physical facilities	Mean	Std Deviation	Std. Error Mean
Inadequate	2.64	0.563	0.0569
Adequate	2.85	0.5552	0.0497

From Table 4.12, schools with adequate physical facilities have a mean education quality of 2.85 and those with inadequate physical facilities 2.64. However to ascertain whether the variances of the two groups are the same, the study did Levene's test of variance and the results are presented on Table 4.1

Table 4.13: Test for Equality of Means- School Physical Facilities and Quality of Education

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.046	0.83	-2.7	221	0.008	-0.20	0.08	-0.35	-0.05
Equal variances not assumed			-2.7	207	0.008	-0.20	0.08	-0.35	-0.05

From the Table 4.13, F=0.046 at p=0.83(greater than 0.05) implying that variances of the two groups (adequate and inadequate) school physical facilities is the same. From Table 4.13, (T- test), p=0.008 which is less than 0.05, implying that the two means (2.64 and 2.85) are significantly different. Therefore, schools with adequate physical facilities such as classrooms, staffrooms, toilets, libraries, dormitories, workshops and science laboratories have better quality of education (2.85), as compared to schools with inadequate school physical facilities (2.64). According to this study, quality of education was measured using KCSE mean score, transition rate from form one to four and mean trophies won by schools in co-curricular activities. The findings then imply that schools with adequate physical facilities had higher KCSE mean score, higher transition rates from form one to four, and

performed well in co-curricular activities as opposed to schools with inadequate physical facilities.

The study has therefore established that there is indeed a statistical significant difference between schools that have adequate physical facilities and those with inadequate physical facilities. Schools with adequate physical facilities have higher quality of education than those with inadequate physical facilities. Thus, the study rejected the null hypothesis H_{o1} and concluded that there is a significant relationship between adequacy of school physical facilities and quality of education in public secondary schools in Kenya.

The findings of the study concur with Saeed and Wain (2011) who observed that adequate school physical facilities positively influence student learning and academic achievement. Kuurskopi et al (2011), also post that school physical facilities set the stage for learning to occur and influence the school working culture. Having established that there is a significant relationship between adequacy of school physical facilities and quality of education, the study sought to know the extent to which adequacy of school physical facilities influence quality of education in public secondary schools in Kenya.

4.5.4 Influence of Adequacy of School Physical Facilities on Quality of Education

To determine the extent to which school physical facilities influence quality of education, the study used simple regression analysis and the results of the regression analysis are presented in Table 4.14.

Table 4.14: Influence of Adequacy of School Physical Facilities on Quality of Education

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.307[a]	0.094	0.090	0.540370

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.708	1	6.708	22.972	<0.001
	Residual	64.532	221	0.292		
	Total	71.240	222			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.890	0.184		10.244	<0.001
	School Physical facilities	0.341	0.071	0.307	4.793	<0.001

a. Dependent Variable: Quality of Education

b. Predictors: (Constant), School Physical facilities

The results from Table 4.14 were summarized into a regression equation of the form $Y = a + bX$, where

Y = was the dependent variable (quality of education) to be predicted by the study

a= Constant in the regression analysis equation

b=Value of the coefficient of X

X= the value of the independent variable (the independent variable was school physical facilities).

The model in Table 4.14 was summarized to give the linear equation

$Y = 1.89 + 0.34$ x physical facilities. Since ($P<0.001$), it therefore implied that physical facilities have a significant positive relationship to quality of education; meaning that the more adequate the physical facilities, the higher the quality of education is in a given secondary school. This was further supported by the fact that $R^2 = 0.094$; therefore the study had established that 9.4 percent of quality of education was predicted by school physical facilities. The model therefore established that physical facilities predict quality of education at 9.4 percent. Since $P<0.001$, we conclude that school physical facilities have a significant relationship with quality of education at $R^2=0.094$; and therefore reject the null hypothesis that there is no significant relationship between school physical facilities and quality of education in public secondary schools in Kenya.

The findings agree with that of Saeed and Wain, (2011) whose research found out that classrooms, libraries, laboratories, playgrounds, administration blocks, staff houses, dormitories, and sanitary facilities have a positive influence in the performance of the students and teachers.

Since quality of education was a product of school KCSE mean score, transition rate within classes (between form 1 to 4) and number of trophies won by students in co-curricular and extra-curricular activities, the study sought to know the extent of influence of physical facilities on each of these factors of quality of education.

4.5.4.1 Influence of Adequacy of School Physical Facilities on KCSE Mean Score

The study used KCSE mean score as one of the indicators of quality of education. To determine the extent to which physical facilities influence KCSE mean score, the study used simple regression analysis and the result was presented in Table 4.15.

Table 4.15: Influence of Adequacy of School Physical Facilities on KCSE Mean Score

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.381[a]	0.145	0.141	1.266447

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.701	1	56.701	35.352	<0.001
	Residual	333.609	208	1.604		
	Total	390.310	209			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.448	0.451		5.430	<0.001
	School Physical facilities	1.030	0.173	0.381	5.946	<0.001

a. Dependent Variable: Y_Mean KCSE score

b. Predictors: (Constant), School Physical facilities

The model in Table 4.15 was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (KCSE mean score), a- is the constant

of regression analysis, b - the value of the coefficient of the independent variable and X, the value of the independent variable. The independent variable was school physical facilities. Thus the regression analysis equation becomes, Y = 2.448 + 1.030 x physical facilities. Since P<0.001, the findings clearly revealed that school physical facilities have a positive significant relationship with school KCSE mean score at R^2 = 0.145.The model therefore revealed that school physical facilities predict KCSE mean score at 14.5 percent. Implying that there is a statistical significant relationship between school physical facilities and schools KCSE mean score. The more adequate the physical facilities, the higher the school KCSE mean score and the less adequate the physical facilities, the lower the school KCSE mean score.

In this study, KCSE mean score was used as one of the indicators of quality of education. Since the significance level was P<0.001, then the null hypothesis that hypothesized that there is no significant relationship between school physical facilities and quality of education is rejected. The study concluded that there is a significant relationship between adequacy of school physical facilities and quality of education; since 14.5 percent of school KCSE mean score was predicted by school physical facilities.

The findings concur with Bhunia et al (2012) whose study on assessment of school infrastructure in primary schools in Medinipur District in India found adequacy of school physical facilities to be positively correlated to academic achievement of learners. According to the study, adequate science laboratories, libraries, toilets, protective school fencing wall, playgrounds, and classrooms are at the heart of quality of education. The facilities attract learners to school, enhance the learning process and influence their retention in school. A study by Curveys (2011) to establish the impact of school infrastructure on the well-being of students in Flemish secondary schools in Belgian region of Flanders found empirical evidence indicating that students learning in schools with adequate and quality school infrastructure record high academic grades as compared to students learning in inadequate, poor quality facilities. Inadequacy of school infrastructure such as workshops and science laboratories affected the performance of technical and science subjects more than art subjects. This is because technical subjects need workshops and training rooms; while science practical lessons must be undertaken in an equipped science laboratory.

4.5.4.2 Influence of Adequacy of School Physical Facilities on Transition Rate

The study used student transition rate (within secondary school level) from form one to form four as another indicator of quality of education. The focus was on 2013-2016 cohort in the sampled schools. According to World Bank (2009), a school system is internally efficient when it takes the least possible time to produce

a twelveth grade graduate. Repetition and school dropout leads to wastage hence low internal efficiency. Low internal efficiency is, therefore, an indicator of low quality of education. School principals were asked to indicate the number of students who have successfully transited from form 1 to form 4 (2013-2016) cohort upon which transition rates were calculated. To determine the extent to which school physical facilities influence transition rates of students between grades, the study used simple regression analysis and the results were presented in Table 4.16.

Table 4.16: Influence of Adequacy of School Physical Facilities on Student Transition Rate from Form 1 to 4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.158[a]	0.025	0.020	32.4019

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5632.603	1	5632.603	5.365	0.022
	Residual	220475.030	210	1049.881		
	Total	226107.633	211			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	60.095	11.393		5.274	<0.001
	.School Physical facilities	10.164	4.388	0.158	2.316	0.022

a. Dependent Variable: Transition Rate

b. Predictors: (Constant), School Physical facilities

From Table 4.16, the model was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (transition rate), a- is the constant of regression analysis, b - the value of the coefficient of the independent variable and X, the value of the independent variable. The independent variable in this case was adequacy of school physical facilities. Thus the regression analysis equation becomes Y= 60.095 + 10.164 x physical facilities. Since the significance level (P=0.022), the study concluded that there is a statistical significant relationship between students transition rate from form one to form four and school physical facilities. The more adequate the school physical facilities, the higher the transition rate. Schools with adequate classrooms, science laboratories , libraries, staff houses, toilets and lavatories, dining halls, workshops, staffrooms and playgrounds were more likely to attract and retain more students from form one to form four than schools with inadequate physical facilities. A unit increase in school physical facilities translated to 10.164 unit increase in student transition rate.

Further, since R^2 =0.025 implies that physical facilities predicted transition rate at 2.5 percent. Meaning that school physical facilities have a significant relationship to students transition rates within secondary school level. In this study, transition rate was used as one of the indicators of quality education and therefore the study has established the existence of a statistical significant relationship between physical facilities and transition rate. Thus there is a statistical significant relationship between school physical facilities and quality of education.

The findings are consistent with those of the World Bank (2014b) who found out that school physical facilities play a crucial role in attracting and retaining students and teachers in school. The facilities determine access to secondary education and the educational programmes to be offered by the school (OECD, 2011; Parsons, 2011; World Bank, 2014). The more adequate the physical facilities, the wider the curriculum supported by the school and the more the students to be attracted and retained in the school.

4.5.4.3 Influence of Adequacy of School Physical Facilities on the Mean Number of Trophies Won in Co-curricular Activities

Co-curricular activities are an integral part of a well-rounded education that develops students knowledge, competencies, skills, values and attitudes (MoEST, 2015a). According to UNESCO (2014, 2015b), quality education should not be limited to development of cognitive domain only but rather be inclusive of the psychomotor and affective domains too. Co-curricular activities accord learners an opportunity to expose their skills and competencies. The learning activities that expose these abilities include sports and games, martial arts, drama and music festivals, science and engineering fares, essay competitions, athletics, Art, Home Science, Clubs and Societies (MoEST, 2015a).

The study sought to establish the extent to which physical facilities influence the number of trophies won by students on co-curricular activities. A simple regression

analysis was done to test whether there existed a significant relationship between school physical facilities and the mean number of trophies won in co-curricular activities in public secondary schools in Kenya.

The results are shown in Table 4.17

Table 4.17: Influence of Adequacy of School Physical Facilities on Mean Number of Trophies Won in Co-curricular Activities

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.343[a]	0.117	0.113	2.480462

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	158.786	1	158.786	25.808	<0.001
	Residual	1193.622	194	6.153		
	Total	1352.409	195			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.035	.947		2.150	0.033
	Q9.School Physical facilities	1.819	.358	.343	5.080	<0.001

a. Dependent Variable: Mean.trophies

b. Predictors: (Constant), School physical facilities

The model was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (mean number of trophies), a- is the constant of

regression analysis, b - the value of the coefficient of the independent variable and X, the value of the independent variable. The independent variable in this case was school physical facilities. Thus the regression analysis equation becomes

Y= 2.035+1.819 x physical facilities. This equation implies that the school mean trophies won in co- curricular activities were highly associated to the adequacy of the schools physical facilities. Schools with more adequate physical facilities were likely to win more trophies in co-curricular activities as opposed to schools with less adequate school physical facilities. Since $p<0.001$the study concluded that physical facilities have a significant positive relationship with school mean trophies won in co-curricular activities. Further, $R^2 = 0.117$ implies that physical facilities predicted 11.7 percent of mean trophies won by a school in co-curricular activities. Co-curricular activities were used as indicators of quality of education in this study. Therefore the null hypothesis that there is no significant relationship between school physical facilities and quality of education was rejected.

According to OECD (2011), Schools should have facilities that support a wide range of educational programs including the co-curricular activities. Such facilities include school playgrounds, swimming pools, outdoor amphitheatres, art studios, outside running tracks indoor running tracks and turf fields among others. Availability of these facilities enables student participation in many games and sports hence winning more trophies in school competitions. World Bank (2009)

also concur that inadequacy of school facilities such as computer laboratories, playgrounds and internet connectivity limit participation of students in co-curricular activities hence affecting quality of education in schools. In Kenya, student participation in co-curricular activities is constrained by inadequate training facilities and resource materials (RoK, 2012a). According to MoEST (2015a), public secondary schools lack important sporting resources like football nets, cricket nets, grassed playing area, art and drama studios, and auditorium for student presentations and performances. Schools, therefore, need to invest in educational facilities that promote students participation in co-curricular activities to enhance holistic learning hence quality education.

4.6 Teacher Motivation and Quality of Education

Teacher motivation is currently viewed as the most important variable on learner motivation (Rogers & Vegas, 2009; Sujewa, 2010). A motivated teacher is one who not only feels satisfied with his or her job, but also empowered to strive for excellence and growth in instructional practice (Basil, 2013). It is the responsibility of the school principal to assess the needs of the teaching staff and advise the school stake holders on how to satisfy them (Basil, 2013).

According to OECD (2011), the quality of any education system cannot exceed the quality of its teachers. The study sought to investigate the extent to which teacher motivation levels influence quality of education in public secondary schools in

Kenya. A study by Save the Children Organization (2011) on teacher motivation linked higher teacher motivation levels to high student learning outcomes. According to the study, teachers in developing countries need intrinsic and extrinsic motivational supports like career sponsorship to in-service training, welfare support and recognition. Using teacher recognition, status, awards, sponsorship to in service seminars and workshops, team building activities and teacher welfare support as indicators of teacher motivation, the teachers were asked to rate adequacy of each indicator on a scale of 1 to 5 (1-less adequate, 2-less adequate,3-moderately adequate, 4 –adequate,5 -more adequate). Responses 1, 2, 3 were considered as inadequate while 4 and 5 were considered as adequate. The findings are as shown in Table 4.18.

Table 4.18: Teachers Responses on their Level of Motivation

Indicators	Responses	n	%
The school recognizes the role teachers play as crucial	Inadequate	222	76
	Adequate	70	24
	Total	**292**	**100**
The teachers in the school are held with high status	Inadequate	228	78
	Adequate	64	22
	Total	**292**	**100**
The school has awarded high performing teachers	Inadequate	237	81
	Adequate	55	19
	Total	**292**	**100**
The school sponsors teachers for INSET seminars	Inadequate	242	83
	Adequate	50	17
	Total	**292**	**100**
The school has sponsored teachers to team building trips	Inadequate	248	85
	Adequate	44	15
	Total	**292**	**100**
The school has supported teachers social welfare initiatives	Inadequate	239	82
	Adequate	53	18
	Total	**292**	**100**

From Table 4.18 above, majority of the teachers 222 (76 %) felt that schools do not recognize the role they play as crucial. The teachers also indicated that the schools do not hold them with high status 228 (78%). From the findings, over 80 percent of the respondents revealed that their schools do not award high performing teachers adequately; nor do they adequately sponsor teachers for INSET seminars.

These results have generally established that teachers are hardly motivated in most of the schools.

The Save the Children (2011) report observed that intrinsic motivation like recognition of teachers, supporting teacher career development and professionalism are more effective in sustaining teacher effort and enhancing student achievement. Supporting teachers to go for INSET courses enhances their teaching skills and professional growth; and therefore their ability to effectively influence student achievement.

According to the Basic Education Framework (RoK, 2017b), twenty first century teachers need to be highly knowledgeable and skilled to be able to identify the learners needs, ability and skills and collaborate with other stakeholders to influence the learners future career. The teachers need to be reflective and competent in modern pedagogical tools such as coaching and mentorship in order to provide innovative learning experiences that will ensure that each learner takes his/her rightful place in the world. Schools, therefore, need to support teachers to acquire these skills through INSET seminars and workshops. In-service training of teachers improves their content delivery methods and exposes them to modern practices in the teaching profession. They are given certificates of attendance which increases their chances of promotion. These enhances teacher performance hence quality education.

The findings concur with those of Bennell and Akyeampong (2007), and Sujewa (2010) who observed that in developing countries, most schools are faced with what amounts to teacher crisis. According to Sujewa (2010) Schools in developing countries are characterized by poor declining social status for teachers, and poor working conditions. Such conditions have highly affected the teacher productivity and hence, low student achievement academically.

To supplement the responses of teachers on their level of motivation, the teachers were asked to comment on their motivation levels in the schools. The results are shown in Table 4.19.

Table 4.19: Teachers Perceptions on their Motivation Levels

	Frequency	**Percent**
Motivation is moderate but not adequate in the school	82	28.0
There is motivation in the school	76	26.1
No motivation at all in the school	134	45.9
Total	**292**	**100.0**

From Table 4.19, majority of the teachers 216(74%) indicated their dissatisfaction with the motivation levels in their schools. About 46 percent of the teachers indicated that their schools do not motivate them at all. Recognition and support of

teachers increases their morale to teach. When teachers are praised or given certificates of excellence, they not only get motivated to work the more, but also challenge other teachers to put more effort to their work. When teachers effort is not recognized, they see no reason for working hard and fail to strive for excellent in student achievement. Lack of motivation in public secondary schools can be attributed to lack of a policy on teacher motivation. Schools have no guidelines on how to motivate teachers and those that do, they appreciate teachers based on available funds and principals good will. The findings concur with that of Basil (2013) whose study on teacher motivation in Tanzania revealed that majority of teachers in Tanzania are hardly motivated. Basil attributes the low student academic achievement in Tanzania to lack of teacher motivation.

4.6.1 Bivariate Correlation Between Teacher Motivation and Quality of Education

In order to obtain adept understanding on how teacher motivation relates with quality of education, Pearson correlation was used to establish the direction and strength of the relationship. The result is shown in Table 4.20.

Table 4.20: Bivariate Correlation Between Teacher Motivation and Quality of Education

Correlations

		Teacher Motivation	Quality of Education
Teacher .Motivation	Pearson Correlation	1	0.294**
	Sig. (2-tailed)		<0.001
	N	213	209
Quality of Education	Pearson Correlation	0.294**	1
	Sig. (2-tailed)	<0.001	
	N	209	223

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.20, the correlation coefficient (r)=0.294 and P<0.001.Therefore there is a significant positive relationship between teacher motivation levels and quality of education. This implies that schools with highly motivated teachers have high quality education as compared to schools whose teachers have little or insufficient motivation.

Schools that award high performing teachers, sponsor teachers to in-service training courses and seminars, sponsor teachers for team building trips, support teachers social welfare and hold teachers with high status are more likely to record high KCSE mean scores, record high student transition rates from form one to form four and win more trophies in co-curricular activities.

According to Basil (2013), a motivated teacher feels satisfied with his or her job and strives for excellence in instructional practice hence high quality education for learners. The quality of any education system cannot exceed the quality of its teachers and therefore its the responsibility of school principals to assess the needs of the teaching staff and advice the school stakeholders on how to satisfy them (Basil, 2013; OECD, 2011).

4.6.2 Teacher Motivation Levels and Quality of Education

The study sought to establish whether there is a significant difference in quality of education between schools with different teacher motivation levels. This was to answer the second hypothesis that stated that;

H_{O2}**:** *There is no significant relationship between teacher motivation levels and quality of education in public secondary schools in Kenya.*

T-Test analysis was done to establish whether schools with different levels of teacher motivation had same quality of education or not, if quality of education for schools with different teacher motivation levels was found to be the same, then the

study could conclude that there is no significant relationship between teacher motivation levels and quality of education but if quality of education varied with teacher motivation levels, then the study could conclude that there is a significant relationship between quality of education and teacher motivation levels. To do this**,** the study classified the five responses(1-not all, 2-less extent, 3-moderate extent, 4-larger extent and 5-more adequate) into two (1,2,3-inadequate, and 4,5 – adequate) and computed the means of the responses based on quality of education parameters (KCSE mean score, transition, school mean trophies won in co-curricular activities).The study aimed at computing the means of the two groups (schools with high teacher motivation and schools with low teacher motivation) and establishing whether their means for education quality had a statistical significant difference.

The results of the means of the two groups is as shown in Table 4.21.

Table 4.21: Teacher Motivation Levels and Quality of Education

Motivation levels	**Mean**	**Std. Deviation**	**Std. Error Mean**
Low motivation	2.6559	0.44316	0.04807
High motivation	2.8188	0.62401	0.05312

From Table 4.21, mean of education quality for schools with highly motivated teachers is 2.8188 while schools with low teacher motivation have a mean of 2.6559.The findings indicate that quality of education is higher in schools that

motivated their teachers highly as compared to schools whose teachers were lowly motivated. However to ascertain whether the mean differences are statistically significant, the study undertook Levenes test of variance and the results are presented in Table 4. 22.

Table 4.22: T- test for Equality of Means—Teacher Motivation Levels and Quality of Education

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	9.262	0.003	-2.102	221	0.037	-0.163	0.078	-0.316	-0.010
Equal variances not assumed			-2.275	216.484	0.024	-0.163	0.072	-0.304	-0.022

From the Table 4.22, F=9.262 at p=0.003 (less than 0.05) implying that variances of the two groups (highly and lowly) motivated teachers is not the same. From Table 4.22 (T-test), p =0.024 which is less than 0.05, implying that the two means are statistically different. Hence schools with highly motivated teachers have better quality of education (2.8188) as compared to schools with lowly motivated teachers (2.6559). Thus, schools that reward teacher performance, sponsor teachers to in service courses, support teachers welfare and team building activities and recognize the role played by teachers as crucial have better quality of education than those that do not motivate their teachers. This study used KCSE mean score, student transition rate from form one to form four and mean number of trophies won in co-curricular and extracurricular activities to indicate quality of education. The findings imply that schools that motivate their teachers well are likely to have high KCSE mean scores, higher student transition rates from form one to form four and better performance in co-curricular activities as opposed to schools with low teacher motivation levels.

The study has therefore established that there is indeed a statistical significant difference in quality of education between schools that have highly motivated teachers and those with low teacher motivation. Schools with highly motivated teachers have higher quality of education (2.8188) than those with low teacher motivation. The schools are likely to have high KCSE mean scores, high transition rates within grades and more participation in co-curricular activities. When schools

recognize and award teacher performance, they increase the morale of the teacher to work hence impacting learner achievement positively. The teacher will spend more time in teaching, coaching, mentoring and caring for learners hence quality education. Thus, there is a significant relationship between teacher motivation levels and quality of education in public secondary schools in Kenya. The findings are consistent with Basil (2013) and Sujewa (2010) who observed that low student academic performance in Tanzania and Sri Lanka is largely due to poor teacher motivation.

4.6.3 Influence of Teacher Motivation on Quality of Education

To establish the extent to which teacher motivation influence quality of education, the study used simple regression analysis to test whether there exists a significant relationship between teacher motivation levels and quality of education in public secondary schools in Kenya. The results of the regression analysis are presented in Table 4.23.

Table 4.23: Influence of Teacher Motivation on Quality of Education

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.294[a]	0.087	0.082	0.546247

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.854	1	5.854	19.620	<0.001
	Residual	61.766	207	0.298		
	Total	67.620	208			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.958	0.184		10.661	<0.001
	Teacher Motivation	0.289	0.065	0.294	4.429	<0.001

a Dependent Variable: Y Quality of education

b. Predictors: (Constant), Teacher motivation

The model was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (quality of education), a- is the constant of regression analysis, b - the value of the coefficient of the independent variable and X- the value of the independent variable. The independent variable in this case was teacher motivation. Thus the regression analysis equation becomes,

Y= 1.958+0.289 x teacher motivation. This implies that teacher motivation has a positive relationship with quality of education. For every one-unit increase in teacher motivation, quality of education increased by 0.289 units. Therefore the higher the level of motivation of the teachers the better the quality of education in a school. Since the significance level, $p<0.001$, then the relationship between teacher motivation and quality of education was very significant. Further, $R^2=0.087$ implies that teacher motivation predicted quality of education at 8.7 percent. Thus, the study concluded that teacher motivation levels had a statistical significant relationship with quality of education and the null hypothesis that teacher motivation levels have no significant relationship with quality of education was rejected.

The findings agree with those of Save the Children (2011), who observed that teacher motivation is at the heart of quality of any education. The needs and welfare of the teacher must be reasonably attended to before the needs of the learner OECD (2011), posits that the quality of any education system cannot exceed the quality of its teachers. Quality education is delivered by highly knowledgeable and motivated teachers. Studying secondary education in India the World Bank (2009) noted that teacher characteristics is one of the key determinants of quality education. According to the World Bank report, teachers are the most valuable resource for education quality. Therefore, it is important that school principals and management

come up with guidelines on how to appreciate teachers and help them in professional development. This increases their effort to teach and inspire them to work and stay longer in the school, in anticipation for enhanced professional development and promotions. When teachers' effort is increased, learner achievement increases too hence quality education.

Since quality of education was a product of school KCSE mean score, transition rate (between form 1 to 4) and number of trophies won by students in co-curricular activities, the study sought to know the extent of influence of teacher motivation on each of these indicators of quality.

4.6.3.1 Influence of Teacher Motivation on KCSE Mean Score

To establish the extent to which teacher motivation levels influence KCSE mean score, the study used simple regression analysis to establish whether there exists a significant relationship between teacher motivation and KCSE mean score in public secondary schools in Kenya. The result was presented in Table 4.24.

Table 4.24: Influence of Teacher Motivation Levels on KCSE Mean Score

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.255[a]	0.065	0.060	1.355587

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.839	1	24.839	13.517	<0.001
	Residual	356.497	194	1.838		
	Total	381.336	195			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.380	0.472		7.166	<0.001
	Teacher Motivation	0.621	0.169	0.255	3.677	<0.001

a. Dependent Variable: Y_ KCSE Mean Score

b. Predictors: (Constant), Teacher Motivation

The model in Table 4.24 was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (KCSE mean score), a- is the constant

of regression analysis, b - the value of the coefficient of the independent variable and X, the value of the independent variable. The independent variable was teacher motivation levels. Thus the regression equation becomes,

Y = 3.38 + 0.621 x teacher motivation. For every one unit increase in teacher motivation, KCSE mean score increased by 0.621 units. Since P<0.001, the findings clearly revealed that teacher motivation had a positive significant relationship with school KCSE mean score at R^2 = 0.065. The model therefore revealed that teacher motivation predict KCSE mean score at 6.5 percent. This implied that there is a statistical significant relationship between teacher motivation levels and KCSE mean score. The higher the level of motivation of teachers in a school, the higher the school mean score and the lower the level of motivation, the lower the school mean score. Since the significance level P<0.001, the study concluded that there is a statistical significant relationship between teacher motivation levels and KCSE mean score.

The findings are consistent to research findings of Basil (2013), OECD (2010), and Sujewa (2010). According to OECD (2011), teachers in the worlds leading countries in academic performance such as Finland and Singapore enjoy a variety of incentives based on their academic performance. The teachers enjoy fully paid

professional development course every year and have a structured mentorship programme on first posting. Teachers with outstanding performance in academics and co-curricular activities get bonuses amounting to their three months salaries, and other stipends for computer training, research and subscription to relevant journals.

Research by Basil (2013) and Sujewa (2010) in Tanzania and Sri Lanka respectively indicate that teachers in these countries are faced with increased workload, poor teacher pay, declining social status, poor working and living conditions. Consequently, the countries record high level of student absenteeism, teacher transfers between schools, migration of qualified teachers to developed countries in search of better paying jobs, hence low student academic achievement. When teachers work in poor conditions and the schools fail to support them, their input becomes minimal leading to poor quality education in the schools.

4.6.3.2 Influence of Teacher Motivation on Student Transition Rate

The study used student transition rate from form one to form four as an indicator of quality of education. The study used Secondary school cohort (2013-2016) in the sampled schools. According to World Bank (2009), high student transition rates within education levels indicate high quality of education while repetition and dropout indicates low quality of education. Therefore, to establish the extent to which teacher motivation influences student transition rate within secondary school

level, the study used simple regression analysis to test whether there exists a significant relationship between teacher motivation levels and student transition rate in public secondary schools in Kenya.

The result is presented in Table 4.25.

Table 4.25: Influence of Teacher Motivation Levels on Student Transition Rate

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.435[a]	.189	.126	33.8008

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	608.019	1	608.019	5.32	0.021
	Residual	22392.107	196	114.255		
	Total	23000.126	197			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	77.976	11.892		6.557	<0.001
	Teacher Motivation	0.632	0.278	0.052	3.730	0.021

a. Dependent Variable: Transition Rate

b. Predictors: (Constant), Teacher Motivation

From Table 4.25, the model was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (transition rate), a- is the constant of regression, b - the value of the coefficient of the independent variable and X, the

value of the independent variable. The independent variable in this case was teacher motivation. Thus the regression equation becomes,

Y=77.976+0.632 x teacher motivation. This implied that there is a positive relationship between teacher motivation and transition rate of students from one grade to the next in public secondary schools in Kenya. For every one-unit increase in teacher motivation, transition rate increased by 0.632 units. Furthermore, R^2=0.189 implied that teacher motivation predict transition rate of students at 18.9 percent. Since the significance level (p= 0.02) is less than 0.05, the study concluded that the relationship between teacher motivation levels and student transition rate in public secondary schools is significant.

The findings are consistent with World Bank (2009; 2014b) on education in India. According to World Bank (2009), approximately one half of students who enroll for lower secondary education in India fail to complete the course due to teacher absenteeism. This indicates a big problem of retention and loss of potential human capital. Quality of secondary education in India is therefore very low and there is an urgent need to address the issue of teacher motivation, a key factor behind the fast deteriorating secondary education in India. Teachers in India reported that they have low morale to perform their duties, schools have no incentive system to motivate them, and they have little access to school facilities and resources that support teaching and learning including textbooks and teacher guides (World Bank,

2014b). The teachers, therefore, lack commitment to engage students effectively hence high grade repetition and dropout rates; leading to low quality education.

4.6.3.3 Influence of Teacher Motivation Levels on Mean Number of Trophies Won by a School in Co-curricular Activities

To establish the extent to which teacher motivation levels influence mean number of trophies won in co-curricular activities, the study used simple regression analysis to test whether there exists a significant relationship between teacher motivation levels and mean number of trophies won in co-curricular activities in public secondary schools in Kenya. The result is presented in Table 4.26.

Table 4.26: Influence of Teacher Motivation Levels on Mean Number of Trophies Won in Co-curricular Activities

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.168[a]	0.028	0.023	2.691858

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.772	1	37.772	5.213	0.024
	Residual	1304.298	180	7.246		
	Total	1342.070	181			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.512	0.992		.517	.606
	Teacher Motivation	0.814	0.357	0.168	2.283	.024

a. Dependent Variable: Mean. No. of trophies

b. Predictors: (Constant), Teacher motivation

The model was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (mean number of trophies), a- is the constant of

regression analysis, b - the value of the coefficient of the independent variable and X, the value of the independent variable. The independent variable in this case was teacher motivation. Thus, the regression analysis equation becomes,

Y= 0.512+0.814 x teacher motivation. This equation implied that school mean trophies won in co- curricular activities were proportionate to the motivation levels of the teachers. Schools that motivated teachers to high levels were likely to win more trophies in co-curricular activities as opposed to schools with less teacher motivation. Since $P<0.05$, the study concluded that teacher motivation has a significant relationship with school mean trophies won in co-curricular activities. Furthermore, $R^2=0.028$ implied that teacher motivation levels predict 2.8 percent of school mean trophies won by a school in co-curricular activities. Co-curricular activities were used as indicators of quality of education in this study. Therefore, the findings indicate that teacher motivation levels have a statistical significant relationship with quality of education.

The findings concur with MoEST (2015a), who indicated that poor performance of students in co-curricular activities in public secondary schools in Kenya is mainly attributed to teacher characteristics such as absenteeism and lack of commitment to engage learners. Although co-curricular activities are mandatory and programmed in the school timetable, teachers in public secondary schools overemphasize examinable subjects at the expense of co-curricular activities (MoEST,2015a).The teachers lack the right attitude towards co-curricular activities and are inadequately

trained and motivated to coach students (Kapelinya & Lumumba 2017 MoEST, 2015a).This is because schools focus more on academic grades and motivation of teachers in school is mostly based on academic performance.

A study by Okumu et al (2017) on the influence of co-curricular activities on students KCSE academic performance in Nakuru County revealed that majority of the teachers who are club patrons and coaches, received little support and motivation from the school administration hence making them reluctant to enroll a big number of students in co-curricular clubs and sports. This could affect exploitation of student talent and the number of awards won by a school in co-curricular activities and, therefore limit the range of curriculum offered in a school, hence low quality education.

A study on gender stereotypes in teachers running of co-curricular activities at Rhodes Park and Silver Springs schools in Zambia also found out that majority of the teachers who coach students in co-curricular activities hardly receive incentives from the school administration (Muninde, 2016). According to the study, only 3 out of 62 teachers who coached their teams to national levels that year received certificates to appreciate their effort. This raised their chances of being promoted to higher positions. The other teachers did not receive even verbal appreciation from the school. This could affect the morale of the teachers and consequently the

number of students who could participate in co-curricular activities hence few trophies to be won by a school.

4.7 School Financial Resources and Quality of Education

Issues of education funding and adequacy of school financial resources have been highly debated both in developing and developed countries (Mascitti-Miller, 2013). Policy makers, tax payers and other education stakeholders do wonder whether schools that receive the most in terms of financial resources produce most in terms of measurable student outcomes (Johnson, 2004). The study sought to establish the sources of financial resources received by the schools. The results are shown in Table 4.27.

Table 4.27: Principals' Responses on Sources of School Financial Resources

Financial resources	Responses	n	%
School receive government grants	Yes	226	100
	No	0	0
	Total	**226**	**100**
School generates funds from income generating activities	Yes	83	37
	No	143	63
	Total	226	100
School receives budgetary support from alumni contribution	Yes	20	9
	No	206	91
	Total	**226**	**100**
Parents contribute to the school's financial resources	Yes	207	92
	No	19	8
	Total	**226**	**100**
School receive financial sponsor support	Yes	97	43
	No	128	57
	Total	**226**	**100**
School receive donations from other well wishes	Yes	109	48
	No	117	52
	Total	**226**	**100**

From Table 4.27, all principals (100%) reported to have received financial support from the government. This follows the government policy to fund all public secondary schools through the Free Day Secondary Education and subsidized education in boarding schools. According to the Circulars on guidelines on implementation of Free Secondary Education in Kenya (MoE, 2008; MoE, 2017), government subsidy to schools is based on capitation. The money is sent by the Ministry of Education directly to schools and broken down into the following vote heads- tuition, repairs, maintenance and improvement, local travel and transport, electricity, water and conservancy, activity fees, personal emoluments, and medical insurance fees. For public day secondary schools, the money is supposed to cover all the financial needs of the schools however for boarding secondary schools, parents are supposed to pay for boarding expenses the amount of which depends on the cost of living of the location of the school (MoE, 2008; MoE, 2017; MoEST, 2014).

According to the findings in Table 4.23, majority of the principals 207(92%) reported to have received financial support from the parents. This is in line with the government policy that parents need to support education in public secondary schools through the Parents Association. This could be done through organized fundraising activities and individual parent contributions towards students' boarding fees and school infrastructure development funds. A few schools (37 %)

also engage in income generating activities while 9 percent of the schools reported to have received support from their Alumni.

4.7.1 Adequacy of Financial Resources in Schools

The study sought to establish whether the financial resources received from the different sources above were adequate in running school activities. The school principals were asked to rate the adequacy of the financial resources against each source on a scale of 1-5 (1-not at all, 2-less adequate, 3 moderately adequate, 4-large extent and 5-very large). The study considered results responses 1 and 2 and 3 as inadequate while 4, and 5 were rated as adequate. The results are shown in Table 4.28.

Table 4.28: Principals Responses on Adequacy of School Financial Resources

Indicators	Responses	n	%
The school has received adequate government grants	Inadequate	200	88.6
	Adequate	26	11.4
	Total	**226**	**100**
The school has generated sufficient funds from various income generating activities	Inadequate	215	95.2
	Adequate	11	4.8
	Total	**226**	**100**
The school has received adequate budgetary support from alumni contribution	Inadequate	220	97.4
	Adequate	6	2.6
	Total	**226**	**100**
Parents contributions have been sufficient	Inadequate	203	89.9
	Adequate	23	10.1
	Total	**226**	**100**
The school has received a lot of financial sponsor support	Inadequate	215	95.2
	Adequate	11	4.8
	Total	**226**	**100**

According to the findings in Table 4.28, majority 200 (88.6%) of the school principals felt that the government grants sent to public secondary schools to support Free Secondary Education was inadequate. About 95 percent of the school principals also reported that their schools had not generated sufficient funds from income generating activities. The study also established that majority 220(97.4%)

of the school principals had not received adequate financial support from the school alumni. Almost 90% of the principals indicated that the financial support received from parents was inadequate while an overwhelming majority of the principals indicated that they had received insufficient financial support from school sponsors. The findings concur with that of Ogallo et al (2013), whose findings blamed poor quality of education in Nyando and Muhoroni Districts on inadequate funds in schools due to school levy default. A study by Orodho (2014), also revealed that the government support for tuition fee in secondary schools was inadequate to provide quality education in public secondary schools in Kenya.

4.7.2 Bivariate Correlation Between School Financial Resources and Quality of Education

After establishing the adequacy levels of each of the sources of school finances, the study sought to establish whether there exists a relationship between adequacy of school financial resources and quality of education. Pearson correlation was used to test if a relationship exists between school financial resources and quality of education. The result is as shown in Table 4.29.

Table 4.29: Bivariate Correlation Between School Financial Resources and Quality of Education

Correlations

		School Financial Resources	Quality of Education
School Financial Resources	Pearson Correlation	1	0.152*
	Sig. (2-tailed)		0.023
	N	225	222
Quality of Education	Pearson Correlation	0.152*	1
	Sig. (2-tailed)	0.023	
	N	222	223

*. Correlation is significant at the 0.05 level (2-tailed).

From Table 4.29, Pearson correlation coefficient (r) = 0.152 at 0.023 significance level. Therefore, there is a positive relationship between school financial resources and quality of education. The implication is that, schools with adequate financial resources have higher quality of education than schools with inadequate school financial resources. Since the study used KCSE mean score, student transition rates and mean number of trophies won in co-curricular activities to indicate quality of education, then, the study has established that schools with adequate financial resources are likely to score higher KCSE mean scores, record high transition rates

between form one and form four, and win more trophies in co- curricular activities. Since p=0.023, then the relationship between school financial resources and quality of education is significant. The findings concur with that of Mascitter-Miller (2013) and Amos and Koda (2018). According to Mascitter-Miller, school financial resources and quality of education are highly related and the amount of wealth in a school shapes the quality of education the school offers. After establishing a relationship between quality of education and school financial resources, the study sought to establish how quality of education varies with adequacy of school financial resources

4.7.3 Relationship Between School Financial Resources and Quality of Education

The study sought to establish whether there was a significant difference in quality of education between schools with different levels of adequacy of school financial resources. This was to answer the third hypothesis that stated that;

H_{O3}**:** *There is no significant relationship between adequacy of school financial resources and quality of education in public secondary schools in Kenya.*

T-Test analysis was done to establish whether schools with different levels of school financial resources had same quality of education or not. If quality of education for schools with different levels of adequacy of school financial resources was found to be the same, then the study could conclude that there is no significant relationship between adequacy of school financial resources and quality of

education .However, if quality of education varied with levels of adequacy of school financial resources, then the study could conclude that there is a significant relationship between quality of education and adequacy of school financial resources. To do this**,** the study requested the school principals to indicate the level of adequacy of school financial resources in their schools according to the five point Lickert scale (1-not all, 2-less extent, 3- moderate extent, 4- larger extent and 5- more adequate). The responses were classified into two (1, 2, 3 - inadequate, and 4, 5 – adequate) and the means of their responses computed based on quality of education parameters (KCSE mean score, transition rate, school mean trophies won in co-curricular activities). The study aimed at computing the means of the two groups (schools with adequate financial resources and schools with inadequate financial resources) and establish whether the means were significantly different. The results of the means of the two groups is as shown in Table 4.30.

Table 4.30: Adequacy of School Financial Resources and Quality of Education

Adequacy of school financial resources	**Mean**	**Std. Deviation**	**Std. Error Mean**
Inadequate	2.65	0.42	0.03
Adequate	3.03	0.77	0.10

From Table 4.30, the mean of education quality for schools with adequate school financial resources is 3.03 while schools with inadequate financial resources have

a mean of 2.65. This could mean that quality of education is higher in schools that have adequate financial resources compared to schools with inadequate school financial resources. However to ascertain whether the mean differences are statistically significant, the study undertook Levenes test of variance and the results are presented in Table 4.31.

Table 4.31: Test of Equality of Means-School Financial Resources and Quality of Education

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	66.781	0	-4.67	221	0	-0.38	0.08	-0.54	-0.22
Equal variances not assumed			-3.64	73.959	0.001	-0.38	0.10	-0.59	-0.17

From the Table4.31 F=66.781 at p<0.001 (less than 0.05) implying that variances of the two groups (adequate and inadequate) school physical facilities is not the same. From Table 4.31 (equal variances not assumed), p-value =0.001 which is less than 0.05, implying that the two means have a statistical mean difference. Therefore schools with adequate financial resources have better quality of education as

compared to schools with inadequate school financial resources. Thus, besides the government grants, schools that engage in income generating activities; receive financial support from parents, alumni, sponsors and receive donations from well-wishers are more likely to have better quality of education than schools that depend solely on government grants. This study used KCSE mean score, student transition rate from form one to form four and mean number of trophies won in co-curricular activities to indicate quality of education. The findings imply that schools that have adequate financial resources are likely to have high KCSE mean scores, higher student transition rates from form one to form four and better performance in co-curricular activities as opposed to schools with inadequate financial resources.

The study has therefore established that there is indeed a statistical significant difference between schools that have adequate school financial resources and those with inadequate school financial resources. Schools with adequate school financial resources have higher quality of education (3.03) than those with inadequate financial resources. Thus the study concludes that there is a significant relationship between adequacy of school financial resources and quality of education in public secondary schools in Kenya.

The findings concur with Miles and Frank (2008) and the World Bank (2008a) who observed that high performing schools have adequate financial resources. The schools receive high allocations from parents, government and other partners; and

the finances are focused to offering a variety of academic programmes and individualized student and teacher attention hence enhanced learner achievement.

4.7.4 Influence of School Financial Resources on Quality of Education

To establish the extent to which school financial resources influence quality of education, the study used simple regression analysis to establish whether there existed a significant relationship between school financial resources and quality of education in public secondary schools in Kenya. The results of the regression analysis are presented in Table 4.32.

Table 4.32: Influence of School Financial Resources on Quality of Education

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.152[a]	0.023	0.019	.562410

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.653	1	1.653	5.226	0.023
	Residual	69.587	220	0.316		
	Total	71.240	221			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.428	0.149		16.307	<0.001
	School Financial Resources	0.162	0.071	0.152	2.286	0.023

a. Dependent Variable: Y_Quality of education

b. Predictors: (Constant), School financial resources

The model in Table 4.32 was summarized into a regression equation of the form Y= a+ bX where Y is the dependent variable (quality of education), a- is the constant of regression equation, b - the value of the coefficient of the independent variable and X, the value of the independent variable. The independent variable in

this case was school financial resources. Thus, the regression analysis equation becomes Y= 2.428+0.162 x school financial resources.

This implied that for every one-unit increase in school financial resources, quality of education increased by 0.162. Therefore the more the financial resources in a school, the better the quality of education. Since p=0.023 and therefore less than 0.05, the relationship between quality of education and school financial resources was found to be significant.

Further, since R^2=0.023, it implies that school financial resources predicted quality of education at 2.3 percent. Therefore the results in Table 4.32 have revealed that there is a statistical significant relationship between adequacy of school financial resources and quality of education in public secondary schools in Kenya. Thus, the study rejected the null hypothesis and concluded that there is a statistical significant relationship between adequacy of school financial resources and quality of education in public secondary schools in Kenya. The findings concur with Miles and Frank (2008) who found out that high performing schools have adequate finances that are focused to offering a variety of programmes, and ensure that students meet rigorous academic learning standards and create personalized relationships between students and teachers.

Since quality consisted of KCSE mean score, transition rate and co-curricular activities, the study sought to establish the relationship between school financial resources and KCSE mean score, school financial resources and transition rate and school financial resources and co-curricular activities.

4.7.4.1 Influence of School Financial Resources on KCSE Mean Score

To establish the extent to which school financial resources influence KCSE mean score, the study used simple regression analysis and the results are presented in Table 4.33.

Table 4.33: Influence of School Financial Resources on KCSE Mean Score

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.333[a]	0.111	0.112	2.470462

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	158.8	1	158.8	25.8	<0.001
	Residual	1193.6	194	6.153		
	Total	1352.4	195			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.040	.95		2.149	0.032
	School Financial Resources	1.820	.357	.342	5.079	<0.001

a. Dependent Variable: Y_Mean KCSE score

b. Predictors: (Constant), School financial resources

The model in Table 4.33 was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (KCSE mean score), a- is the constant of regression equation, b - the value of the coefficient of the independent variable

and X, the value of the independent variable. The independent variable in this case was school financial resources. Thus the regression analysis equation became, Y= 2.04 + 1.82 x school financial resources. This implied that for every one-unit increase of school financial resources, KCSE mean score increased by 1.82 units. Therefore the more adequate the school financial resources, the higher the schools' KCSE mean score. Since $p<0.001$, then the relationship between school KCSE mean score and school financial resources is significant.

Since $R^2=0.111$, it also implied that school financial resources predict school KCSE mean score at 11.1 percent. Therefore the study established that there is a statistical significant relationship between adequacy of school financial resources and school KCSE mean score. School financial resources predict school KCSE mean score at 11.1 percent. The study used KCSE mean score as an indicator of quality of education thus it concluded that there is a statistical significant relationship between school financial resources and quality of education. This agrees with findings of the World Bank report (2008a) that linked Tanzania's high performing schools to high budgetary allocations from the government and high financial support from parents, sponsors and other educational partners.

4.7.4.2 Influence of School Financial Resources on Student Transition Rate

To establish the extent to which school financial resources influence student transition rate, the study used simple regression analysis to establish whether there

exists a significant relationship between school financial resources and student transition rate in public secondary schools in Kenya. The results are shown in Table 4.34.

Table 4.34: Influence of School Financial Resources on Student Transition Rate

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.198[a]	0.039	0.035	32.2367

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8880.819	1	8880.819	8.546	0.004
	Residual	217193.269	209	1039.202		
	Total	226074.087	210			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	61.240	8.757		6.993	<0.001
	School Financial Resources	12.128	4.149	0.198	2.923	0.004

a. Dependent Variable: Transition rate

b. Predictors: (Constant), School financial resources

The result in Table 4.34 was summarized into a regression equation of the form Y= a+bX where Y is the dependent variable (Transition rate), a- is the constant of regression equation, b- the value of the coefficient of the independent variable and X- the value of the independent variable. The independent variable in this case was

school financial resources. Thus the regression analysis equation became Y= 61.24+12.128 x school financial resources. This implied that for every one-unit increase in school financial resources, transition rate increased by 12.128 units. Therefore the more adequate the financial resources, the higher the transition rate. Since $p<0.05$, then it implied that there is a significant relationship between school financial resources and student transition rate within the secondary school level. Furthermore, since $R^2=0.039$ it implied that school financial resources predict student transition rate in secondary school level at 3.9 percent. Therefore there is a significant relationship between school financial resources and student transition rate within secondary school level in public secondary schools in Kenya. Since transition rate is a component of quality education, the study concluded that there is a statistical significant relationship between adequacy of school financial resources and quality of education in public secondary schools in Kenya.

The findings concur with Lewin (2008) who observed that secondary schools in the Sub Sahara Africa enroll just a quarter of the region's secondary school age children and those enrolled attend school irregularly with less than a third of a cohort completing secondary school course. Lewin attributes this low transition within secondary school level to lack of school fees and poverty. He recommends for increased budgetary allocation from the government, scholarships, subsidies and waivers for those who cannot afford to pay secondary school fees. Nyangaresi et al (2016) also relates student retention rates to adequacy of school financial resources

and advocates for schools to engage in IGAs to ease financial burden of school fees from parents and increase retention and student achievement.

4.7.4.3 Influence of School Financial Resources on Mean Number of Trophies Won in Co-curricular Activities

To establish the extent to which school financial resources influence mean number of trophies, the study used simple regression analysis to establish whether there exists a significant relationship between school financial resources and mean number of trophies won in co-curricular activities in public secondary schools in Kenya. The results are presented in Table 4.35.

Table 4.35: Influence of School Financial Resources on Mean Number of Trophies Won in Co-curricular Activities

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.481[a]	0.2314	0.103	2.643306

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8780.1	1	8780.10	7.84	<0.001
	Residual	216197.2	193	1120.2		
	Total	224977.3	194			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	62.216	5.741		7.012	0.001
	School Financial Resources	13.233	2.549	0.048	3.287	0.003

a. Dependent Variable: Mean trophies

b. Predictors: (Constant), School financial resources

The findings in Table 4.35 were summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (number of trophies), a- is the constant

of the regression analysis, b- the value of the coefficient of the independent variable and X, the value of the independent variable. The independent variable in this case was school financial resources. Thus the regression analysis equation became Y= 62.216 +13.233 x school financial resources. For every one unit increase in school financial resources, the number of trophies increased by 13.233 units. Since p=0.003, then the relationship between school financial resources and the number of trophies won in co-curricular activities is significant. Further, R^2=0.2314 implied that school financial resources predict the number of trophies won in co-curricular activities at 23.14 percent. Therefore, the study established that there is a significant relationship between the schools mean number of trophies won in co-curricular activities and adequacy of school financial resources.

The findings concur with MoEST (2015a), who observed that student participation in co-curricular activities in Kenya is low due to inadequate financial resources to support the co-curricular activities, organize and coordinate the competitions. MoEST recommends for increased funding to public secondary schools to manage and provide adequate materials for co-curricular activities, incorporation of more partners to support co-curricular activities, and monitoring and evaluation of co-curricular activities at all levels.

4.8 Teaching and Learning Resources and Quality of Education

Teaching and learning resources play an important role in diminishing the effect of socio-economic factors in academic achievement and creating equal opportunities for students (Savasci & Tomul, 2013). According to Asikhia (2010) adequate well prepared teaching and learning resources determine the amount of learning that takes place in a learning setting. Asikhia posits that quality learning materials motivate students to learn, maintain concentration and make learning more meaningful. Veerspoor, (2008) argues that shortages of learning resources adversely affect instructional effectiveness. Based on this, the study sought to determine the extent to which teaching and learning resources influence quality of education in public secondary schools in Kenya. This could only be established effectively when the level of availability of teaching and learning resources in schools was known. Teachers were requested to rate the adequacy of teaching and learning resources in their schools on a scale of 1-5 (1-not at all, 2-less adequate, 3 moderately adequate, 4-large extent and 5-very large). The study considered responses 1, 2, and 3 as inadequate while 4, and 5 were considered as adequate. The results are shown in Table 4.36.

Table 4.36: Teachers' Responses on Adequacy of Teaching and Learning Resources

Indicators	Responses	n	%
The school has had adequate textbooks	Inadequate	231	79
	Adequate	61	21
	Total	**292**	**100**
The school has had adequate exercise books	Inadequate	169	57.9
	Adequate	123	42.1
	Total	**292**	**100**
The school has provided sufficient assessment materials	Inadequate	219	75
	Adequate	73	25
	Total	**292**	**100**
The school has had adequate laboratory equipment and chemicals to undertake experiments	Inadequate	239	82
	Adequate	53	18
	Total	**292**	**100**
The desks and chairs in the school match all the learners needs	Inadequate	216	74
	Adequate	76	26
	Total	**292**	**100**
There is adequate Information, communication and technological teaching aids in the school	Inadequate	257	88
	Adequate	35	12
	Total	**292**	**100**

From Table 4.36, majority of the teachers 231 (79%) reported to have had inadequate textbooks in their schools. About 58 percent of the teachers also indicated that their schools have inadequate exercise books. On assessment materials, 75 percent of the teachers reported to have had inadequate assessment materials in their schools. Majority of the teachers 239 (82%) also revealed that their schools had inadequate laboratory equipment and chemicals to undertake experiments. The desks and chairs were also found to be insufficient and therefore could not match all the leaners needs. Majority of the teachers (88.4%) also reported to have had inadequate information, communication and technological teaching aids in their schools.

The findings concur with the Ministry of Education Science and Technology (MoEST 2014, 2015a) that attributes low academic achievement in public secondary schools to inadequate teaching and learning resources. According to MoEST (2015a), insufficient teaching and learning resources in public secondary schools greatly contribute to poor academic achievement of students, and under performance by teachers. In Greece, Mexico, Poland, Turkey, Brazil, Lithuania, Indonesia, Serbia, Thailand, Tunisia, Uruguay and Russian Federation, the school managers maintain that lack of teaching aids or its poor quality hinder instructional quality (Savisci & Tomul, 2013).

4.8.1 Bivariate Correlation Between Teaching and Learning Resources and Quality of Education

After establishing the adequacy levels of each of the teaching and learning resource, the study sought to find out whether there exists a relationship between teaching and learning resources and quality of education. Pearson correlation was used to test if a relationship exists between school teaching and learning resources and quality of education. The results are shown in Table 4.37.

Table 4.37: Bivariate Correlation between Teaching and Learning Resources and Quality of Education

		Teaching and Learning Resources	Quality of Education
Teaching.and.Learning. Resources	Pearson Correlation	1	0.481**
	Sig. (2-tailed)		<0.001
	N	213	209
Quality of Education	Pearson Correlation	0.481**	1
	Sig. (2-tailed)	<0.001	
	N	209	223

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.37, the correlation coefficient (r) =0.481 and P<0.001. Therefore there is a significant positive relationship between teaching and learning resources and quality of education. The implication is that, the more adequate the teaching and learning resources in a school, the higher the quality of education in the school. Schools with inadequate or insufficient teaching and learning resources are more likely to offer low quality education. The study used KCSE mean score, student transition rates from form one to form four and mean number of trophies won in co-curricular activities to indicate quality of education. The findings indicate that schools with adequate teaching and learning resources are likely to provide high quality education than schools with inadequate teaching and learning resources. The findings concur with that of Asikhia (2010) who found out that teaching and learning resources determine the amount of learning that takes place in a school.

4.8.2 Adequacy of Teaching and Learning Resources and Quality of Education

The study sought to establish whether there is a significant difference in quality of education between schools with different levels of adequacy of teaching and learning resources. This was to answer the fourth hypothesis that stated that;

H_{O4}**:** *There is no significant relationship between adequacy of teaching and learning resources and quality of education in public secondary schools in Kenya.*

T-Test analysis was done to establish whether schools with different levels of teaching and learning resources had same quality of education. If quality of education for schools with different levels of adequacy of teaching and learning resources was found to be the same, then the study could conclude that there is no significant relationship between adequacy of teaching and learning resources and quality of education but if quality of education varied with levels of adequacy of teaching and learning resources, then the study could conclude that there is a significant relationship between quality of education and adequacy of teaching and learning resources. To do this**,** the study classified the five responses (1-not all, 2-less extent, 3-moderate extent, 4-larger extent and 5-more adequate) into two (1,2, 3 -inadequate, and 4,5 –adequate) and computed the means of the responses based on quality of education parameters (KCSE mean score, transition rate, school mean trophies won in co- curricular activities). The study aimed at computing the means of the two groups (schools with more adequate teaching and learning resources and schools with inadequate teaching and learning resources) and establish whether the means had a significant difference. The results of the means of the two groups is as shown in Table 4.38.

Table 4.38: Adequacy of Teaching and Learning Resources and Quality of Education

Adequacy of teaching and learning resources	Mean	Std. Deviation	Std. Error Mean
Inadequate	2.5965	0.44510	0.05895
Adequate	2.8117	0.59380	0.04609

From Table 4.38, schools with adequate teaching and learning resources had a higher mean for education quality (2.8117), than those with inadequate teaching and learning resources (2.5965). However to ascertain whether the mean differences are statistically significant, the study conducted Levene's test of variance and the results are presented on Table 4.39

Table 4.39: Test for Equality of Means- Teaching and Learning Resources and Quality of Education

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	6.972	0.009	-2.5	221	0.013	-0.22	0.09	-0.38	-0.05
Equal variances not assumed			-2.88	129	0.005	-0.22	0.07	-0.36	-0.07

From the Table 4.39 F=6.972 at p=0.009 (less than 0.05) implying that variances of the two groups (adequate and inadequate) school physical facilities is not the same. From Table 4.18 (T-test), p-value =0.005 which is less than 0.05, implying that the two means have a statistical mean difference. Therefore, schools with adequate teaching and learning resources have better quality of education (2.8117)

as compared to schools with inadequate teaching and learning resources (2.5965). Thus, schools that had adequate textbooks, exercise books, laboratory equipment, desks and chairs, sufficient assessment materials and information and communication technology aids have better quality of education as opposed to schools with inadequate teaching and learning resources. The study used KCSE mean score, transition rate from form one to four and mean trophies won by schools in co-curricular activities to indicate quality. The findings then imply that schools with adequate teaching and learning resources had higher KCSE mean score, higher transition rates from form one to four, and performed well in co-curricular activities as opposed to schools with inadequate teaching and learning resources.

The study has therefore established that there is a statistical significant difference between schools that have adequate teaching and learning resources and those with inadequate teaching and learning resources. Schools with adequate teaching and learning resources have higher quality of education (2.8117) than those with inadequate teaching and learning resources. Thus, there is a significant relationship between adequacy of teaching and learning resources and quality of education in public secondary schools in Kenya. Asikia (2010) observes that adequate teaching and learning resources in a classroom set-up determines student academic achievement. Veerspoor (2008) and World Bank (2014) attributes low student academic performance to inadequacy of textbooks in both Sub-Sahara and South Asia schools.

4.8.3 Influence of Adequacy of Teaching and Learning Resources on Quality of Education

After establishing that teaching and learning resources have a significant relationship with quality of education, the study sought to establish the extent to which the teaching and learning resources influence quality of education. The study used simple regression analysis and the result is presented in Table 4.40.'

Table: 4.40: Influence of Adequacy of Teaching and Learning Resources on Quality of Education

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.481[a]	0.232	0.228	.500952

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.673	1	15.673	62.453	<0.001
	Residual	51.947	207	0.251		
	Total	67.620	208			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.355	0.181		7.505	<0.001
	Teaching and Learning Resources	0.477	0.060	0.481	7.903	<0.001

a. Dependent Variable: Y_Quality of Education

b. Predictors: (Constant), Teaching and Learning Resources

The results in Table 4.40 was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (quality of education), a- is the constant of regression, b - the value of the coefficient of the independent variable and X- the value of the independent variable. The independent variable was teaching and learning resources. Thus the regression analysis equation became Y = 1.355 + 0.477 x teaching and learning resources. This implied that there is a direct relationship between teaching and learning resources and quality of education. For every one-unit increase in teaching and learning resources, quality of education increased by 0.477 units. Since P<0.001, then the relationship between teaching and learning resources is significant.

Further, since R^2=0.232, it implied that teaching and learning resources predict quality of education at 23.2 percent. Therefore, there is a significant relationship between teaching and learning resources and quality of education. Thus, the study rejected the null hypothesis that there is no significant relationship between teaching and learning resources and quality of education and concluded that there is a statistical significant relationship between teaching and learning resources and quality of education.

The findings concur with that of the World Bank report (2014), whose findings indicate that the role played by teaching and learning resources like textbooks and well stocked libraries to ensure quality education cannot be under estimated.

Teaching and learning resources diminish the effect of socio-economic factors of learners and create equal opportunities for learning (Savasci & Tomul, 2013). Veerspoor (2008) blames low quality of education in Sub Sahara Africa on lack of adequate teaching and learning resources. Since quality of education comprised of schools KCSE mean score, transition rate within secondary level and number of trophies won in co-curricular activities, the study sought to establish the extent to which adequacy of teaching and learning resources influence each of these components of quality of education.

4.8.3.1 Influence of Adequacy of Teaching and Learning Resources on KCSE Mean Score

To determine the extent to which teaching and learning resources influence KCSE mean score, the study used simple regression analysis to establish whether there is a significant relationship between teaching and learning resources and KCSE mean score in public secondary schools in Kenya. The result is presented in Table 4.41.

Table 4.41: Influence of Adequacy of Teaching and Learning Resources and KCSE Mean Score

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.340[a]	0.115	0.111	1.318570

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.043	1	44.043	25.332	<0.001
	Residual	337.294	194	1.739		
	Total	381.336	195			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.631	0.495		5.313	<0.001
	Teaching and Learning Resources	0.836	0.166	0.340	5.033	<0.001

a. Dependent Variable: Y_Mean KCSE score

b.Predictors: (Constant), Teaching and learning resources

The model in Table 4.41 was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (KCSE mean score), a- is the constant of regression, b - the value of the coefficient of the independent variable and X -the value of the independent variable (teaching and learning resources). Thus the regression analysis equation became,

Y = 2.631 + 0.836 x teaching and learning resources. This implied that for every unit increase in teaching and learning resources, KCSE mean score increased by 0.836 units. Therefore there is a relationship between teaching and learning resources and KCSE mean score. Since the significance level, $p<0.001$, the relationship between teaching and learning resources and KCSE mean score is significant.

Further, since $R^2=0.115$, teaching and learning resources predict KCSE mean score at 11.5 percent. The study concluded that there is a statistical significant relationship between teaching and learning resources and KCSE mean score. The findings support that of Ercan (2014), Chundang et al (2012) and Figen and Ozlen (2012) all of whose findings revealed that teaching and learning resources promote effective learning, motivates learners and leads to higher student academic achievements.

4.8.3.2 Influence of Adequacy of Teaching and Learning Resources on Student Transition Rate

To determine the extent to which teaching and learning resources influence student transition rate, the study used simple regression analysis to test whether there exists a significant relationship between teaching and learning resources and student transition rate in public secondary schools in Kenya.

The result is presented in Table 4.42

Table 4.42: Influence of Adequacy of Teaching and Learning Resources on Student Transition Rate

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.577[a]	0.313888	.213	33.7458

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1336.518	1	1336.518	11.73	<0.001
	Residual	22320.608	196	113.881		
	Total	23657.126	197			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	57.853	7.762		7.840	<0.001
	Teaching and Learning Resources	11.674	3.315	0.077	4.083	0.0023

a. Dependent Variable: Transition rate

b. Predictors: (Constant), Teaching and learning resources

The model in Table 4.42 was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (transition rate), a- is the constant of regression, b - the value of the coefficient of the independent variable and X-the value of the independent variable. The independent variable here was teaching and learning resources. Thus the regression analysis equation became

Y = 57.853+11.674 x teaching and learning resources. Unit increase in teaching and learning resources results to an increase of 11.67 units in transition rate. Further, R^2=0.3134, implied that teaching and learning resources predict 31.34 percent of student transition rate in public secondary schools in Kenya. Since p=0.0023, there is a significant relationship between teaching and learning resources and student transition rate. The study concluded that there is a statistical significant relationship between teaching and learning resources and student transition rate in public secondary schools in Kenya. Thus, the null hypothesis that there is no significant relationship between teaching and learning resources in public secondary schools in Kenya was rejected.

The findings concur with World Bank (2009) report that attributes low quality of education in India to inadequate teaching and learning resources. According to the World Bank report, grade repetition and dropout are the two key variables affecting transition within secondary education level in India. Secondary schools in India have limited access to academically important resources like textbooks, laboratory

equipment and information communication technology hence low student achievement leading to grade repetition or dropping out of school (World Bank, 2009).

4.8.3.3 Influence of Adequacy of Teaching and Learning Resources on Mean Number of Trophies Won in Co-curricular Activities

To determine the extent to which teaching and learning resources influence mean number of trophies won in co -curricular activities, the study used simple regression analysis to test whether there exists a significant relationship between teaching and learning resources and mean number of trophies won in co-curricular activities in public secondary schools in Kenya. The result is presented in Table 4.43.

Table 4.43: Influence of Adequacy of Teaching and Learning Resources on the Mean Number of Trophies Won in Co-curricular Activities

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.386[a]	0.149	0.145	2.518463

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	200.392	1	200.392	31.594	<0.001
	Residual	1141.678	180	6.343		
	Total	1342.070	181			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.532	0.955		2.652	0.009
	Teaching and Learning Resources	1.799	0.320	0.386	5.621	<0.001

a. Dependent Variable: Mean. trophies

b. Predictors: (Constant), Teaching and learning Resources

The model in Table 4.43 was summarized into a regression equation of the form Y=a+bX where Y is the dependent variable (number of trophies), a- is the constant of regression equation, b - the value of the coefficient of the independent variable and X- the value of the independent variable (teaching and learning resources). Thus the regression analysis equation became,

Y= 2.532+1.799 x teaching and learning resources. This implied that for every one-unit increase in teaching and learning resources, number of trophies won increased by 1.799 units. Therefore the more adequate the teaching and learning resources, the more the number of trophies won in co-curricular activities. Since $p<0.001$, then the relationship between schools teaching and learning resources and the number of trophies won in co-curricular activities was very strong and therefore highly significant.

Further, since $R^2=0.149$, it also implied that teaching and learning resources predicted the school's number of mean trophies at 14.9 percent. Therefore the study had established that there is a statistical significant relationship between teaching and learning resources and number of trophies won in co-curricular activities. Kapelinya and Lumumba (2017) attributed limited student participation in co-curricular activities to inadequate facilities and equipment. The number of trophies won by students partly depend on the variety of activities a school participates in.

The more the number of co-curricular activities a school engages in, the more the students will be involved according to individual talent and interest, hence the more the trophies won.

4.9 Joint Influence of Administrative Factors on Quality of Education

After establishing the relationship between adequacy of school financial resources, adequacy of school physical facilities, teacher motivation levels, and adequacy of teaching and learning resources on quality of education, the study sought to establish how these variables relate to quality of education when considered jointly. The results are presented in Table 4.44.

Table 4.44: Joint Influence of Administrative Factors on Quality of Education

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.533[a]	0.284	0.270	0.488318

ANOVA [a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	19.214	4	4.803	20.144	<0.001
	Residual	48.406	203	0.238		
	Total	67.620	207			

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.857	0.245		3.505	<0.001
	School Financial Resources	0.176	0.066	0.178	2.087	0.035
	School Physical facilities	0.218	0.069	0.197	3.163	0.002
	Teacher Motivation	0.182	0.086	0.183	2.179	0.024
	Teaching and Learning Resources	0.517	0.087	0.520	5.946	<0.001

a. Dependent Variable: Y_Quality of education

b. Predictors: (Constant), Teaching and learning resources, School financial resources, School physical facilities, Teacher motivation

Table 4.44 shows the combined influence of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources and teaching and learning resources on quality of education. From the results, quality of education has a strong positive relationship with adequacy of school physical facilities,

teacher motivation levels, adequacy of school financial resources and adequacy of teaching and learning resources (R=0.533). Since R^2 = 0.284, it meant that the independent variables (school physical facilities, teacher motivation, school financial resources and learning and teaching resources) explained 28.4 percent of quality of education in Kenya. The remaining 71.6 percent are to be explained by variables not considered in this model. The calculated p-values (0.035, 0.002, 0.024, and 0.001) are less than 0.05, implying that there is a statistical significant relationship between quality of education and school physical facilities, teacher motivation, school financial resources and teaching and learning resources. These were represented in the equation,

Quality of education = 0.857+0.176 school financial resources+0.218 school physical facilities + 0.182 teacher motivation + 0.517teaching and learning resources.

From the equation, one unit increase in school financial resources leads to an increase of 0.176 units in quality of education, while a unit increase in school physical facilities yields 0.218 positive change in quality of education. In addition, a one unit increase in teacher motivation leads to 0.182 positive change in quality of education while a one unit increase in teaching and learning resources yields 0.517 positive change in quality of education. Thus, quality of education=0.857 units when the four variables are kept constant, and varies otherwise with variation of the variables. Thus, adequacy of teaching and learning resources was found to

influence quality of education most, followed by adequacy of school physical facilities, teacher motivation levels, and adequacy of school financial resources.

Since quality was conceived to be a composite of school KCSE mean score, student transition rate and mean number of trophies won in co-curricular activities, the study sought to establish the joint influence of the predictor variables (school physical facilities, teacher motivation, school financial resources and teaching and learning resources) on each of the quality indicators.

4.10 Joint Influence of Administrative Factors on KCSE Mean Score

The study sought to establish the joint influence of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources, and adequacy of teaching and learning resources on KCSE mean score. The results are presented in Table 4.45.

Table 4.45: Joint Influence of Administrative Factors on KCSE Mean Score

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.467[a]	0.218	0.202	1.247850

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	82.697	4	20.674	13.277	<0.001
	Residual	295.854	190	1.557		
	Total	378.551	194			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.758	0.650		1.166	0.245
	School Financial Resources	0.636	0.171	0.214	2.13	0.046
	School Physical facilities	0.906	0.181	0.333	4.997	<0.001
	Teacher Motivation	0.710	0.229	0.290	3.10	0.013
	Teaching and Learning Resources	0.648	0.230	0.263	2.820	0.005

a. Dependent Variable: Y Mean KCSE Score

b. Predictors: (Constant), Teaching and Learning Resources, School Financial Resources, School Physical facilities, Teacher Motivation

Table 4.45 shows joint influence of school physical facilities, teacher motivation, school financial resources and teaching and learning resources on KCSE mean score. The results reveal that the four variables (school physical facilities, teacher

motivation levels, school financial resources and teaching and learning resources have a positive relationship (R=0.467) on KCSE mean score. From the findings, the joint influence of the four variables (school physical facilities, teacher motivation levels, school financial resources and learning and teaching resources explains 21.8 percent KCSE mean score (R=0.218).This means that the other 78.2 percent is explained by factors not accounted for in this model. Since F(4,190)= 13.277 , p value <0.001,which is less than 0.05,the model was found to be statistically significant at 95 percent confidence level and appropriate to measure the hypothesis.

From the results, the four variables (adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources and adequacy of teaching and learning resources) have a positive influence on KCSE mean score (school financial resources = 0.636, school physical facilities = 0.906, teacher motivation levels = 0.71 and teaching and learning resources = 0.648). The four variables are statistically significant (p values = 0.046, 0.001, 0.013, and 0.005 respectively) since the p values are less than 0.05. Hence the equation becomes-

KCSE mean score = 0.758+0.636 x school financial resources + 0.906 x school physical facilities +0.710 x teacher motivation + 0.648 x teaching and learning resources.

From the equation, a unit change in school financial resources yields 0.636 positive change in KCSE mean score. A unit change in school physical facilities leads to an increase of 0.906 units in KCSE mean score while a unit increase in teacher motivation yields 0.71 positive change in KCSE mean score. The results also revealed that a unit change in teaching and learning resources yields 0.648 positive change in KCSE mean score.

The findings have established that there is a statistical significant relationship between KCSE mean score and the variables (school physical facilities, teacher motivation, school financial resources and teaching and learning resources) when combined together. The results in Table 4.45 established that school physical facilities influenced school KCSE mean score most, followed by teacher motivation levels, then teaching and learning resources and lastly, school financial resources.

4.11 Joint Influence of Administrative Factors on Student Transition Rate

The study sought to establish the joint influence of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources, and adequacy of teaching and learning resources on student transition rate .The results are presented in Table 4.46.

Table 4.46: Joint Influence of Administrative Factors on Student Transition Rate

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.304[a]	0.093	0.074	32.5721

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	20796.654	4	5199.163	4.901	0.001
	Residual	203700.897	192	1060.942		
	Total	224497.551	196			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	52.190	16.920		3.085	0.002
	School Financial Resources	10.262	4.464	0.165	2.299	0.023
	School Physical facilities	10.640	4.716	0.162	2.256	0.025
	Teacher Motivation	11.710	5.956	0.194	1.966	0.049
	Teaching and Learning Resources	15.619	6.018	0.257	2.595	0.010

a. Dependent Variable: Transition rate

b. Predictors: (Constant), Teaching and learning resources, School financial resources, School physical facilities, Teacher motivation

Table 4.46 shows regression analysis of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources and adequacy of

teaching and learning resources on students' transition rates from form one to form four in public secondary schools in Kenya. The results reveal that the four variables (school physical facilities, teacher motivation, school financial resources and teaching and learning resources have a positive relationship (R=0.304) on transition rate. The joint influence of the four variables (school physical facilities, teacher motivation, school financial resources and learning and teaching resources explains 9.3 percent of student transition rates (R^2=0.093). Since F(4,192)= 4.901 , p value <0.001,which is less than 0.05, the model was found to be statistically significant at 95 percent confidence level and appropriate to measure the hypothesized scenario.

The variables (adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources and adequacy of teaching and learning resources) have a statistical significant relationship with student transition rate since their p-values are less than 0.05 (school physical facilities = 0.025, teacher motivation = 0.490, school financial resources = 0.023 and teaching and learning resources = 0.010). These can be represented in the equation,

transition rate = 52.19+10.262 x school financial resources + 10.64 x school physical facilities + 11.71 x teacher motivation + 15.619 x teaching and learning resources.

From the equation, one unit increase in school financial resources leads to an increase of 10.262 units in student transition rate, while a unit increase in school

physical facilities yields 10.64 positive change in student transition rate. In addition, a one unit increase in teacher motivation leads to 11.71 positive change in student transition rate while a unit increase in teaching and learning resources yields 15.619 positive change in student transition rate. Thus, transition rate=52.19 when the four variables are kept constant, and varies otherwise with variation of the variables. From the findings, adequacy of teaching and learning resources was found to influence student transition rate from form one to form four more than any of the variables in consideration. School financial resources had the least influence on student transition rate from form one to form four when jointly considered with school physical facilities, teaching and learning resources and teacher motivation levels.

4.12 Joint Influence of Administrative Factors on Mean Number of Trophies Won in Co-curricular Activities

The study sought to establish the joint influence of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources, and adequacy of teaching and learning resources on mean number of trophies won in co-curricular activities.

The results are presented in Table 4.47.

Table 4.47: Joint Influence of Administrative Factors on Mean Number of Trophies Won in Co-curricular Activities

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.509[a]	0.259	0.242	2.376192

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	347.453	4	86.863	15.384	<0.001
	Residual	993.747	176	5.646		
	Total	1341.200	180			

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.093	1.289		3.950	<0.001
	School Financial Resources	1.067	0.334	0.217	2.224	0.037
	School Physical facilities	1.596	0.364	0.295	4.379	<0.001
	Teacher Motivation	1.050	0.463	0.215	2.267	0.025
	Teaching and Learning Resources	2.308	0.441	0.494	5.227	<0.001

a. Dependent Variable: Mean Trophies

b. Predictors: (Constant), Teaching and Learning Resources, School Financial Resources, School Physical facilities, Teacher Motivation

Table 4.47 shows the results of multiple regression analysis done to establish the joint influence of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources, and adequacy of teaching and learning

resources on the mean number of trophies won by a school in co- curricular activities. From the results, combined influence of school physical facilities, teacher motivation, school financial resources, and teaching and learning resources had a strong positive relationship (R=0.509) on the mean number of trophies won by a school in co-curricular activities. From the findings, the joint influence of the four variables (school physical facilities, teacher motivation, school financial resources, and teaching and learning resources) accounts for 25.9 percent of the mean number of trophies won by schools in co-curricular activities (R^2=0.259).

Since F (4,176) = 15.384 and p-value of the model is p<0.001, the model was found to be statistically significant at 95 percent confidence level. School financial resources, school physical facilities, teacher motivation, and teaching and learning resources had a positive influence (Bs= 1.067, 1.596, 1.050 and 2.308 respectively) on the mean number of trophies won by schools in co- curricular activities. The four variables were also found to have a statistical significant relationship (p values=0.037, 0.000, 0.025, and 0.001 respectively) with the mean number of trophies won by schools in co- curricular activities. Hence the equation, mean number of trophies = 5.093+1.067 x school financial resources + 1.596 x school physical facilities + 1.050 x teacher motivation+2.308 x teaching and learning resources.

From this equation, one unit increase in school financial resources leads to an increase of 1.067 units in mean number of trophies, while a unit increase in school physical facilities yields 1.596 positive change in mean number of trophies. In addition, a one unit increase in teacher motivation leads to 1.05 positive change in mean number of trophies while a unit increase of teaching and learning resources yields 2.308 positive change in mean number of trophies won in co-curricular activities. Thus, mean number of trophies won in co-curricular activities were found to be influenced most by adequacy of teaching and learning resources followed by school physical resources, school financial resources and teacher motivation levels respectively.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, the conclusion and the recommendations based on the findings of the study.

5.2 Summary of the Study

The purpose of this study was to investigate the administrative factors influencing quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties, Kenya. The study was guided by the following objectives:

i. To determine the extent to which adequacy of school physical facilities influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.
ii. To establish the extent to which teacher motivation influence quality of education in public secondary schools in Kitui, Kisii, and Nairobi Counties.
iii. To establish the extent to which school financial resources influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.
iv. To determine the extent to which teaching and learning resources influence quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

The study used the correlational research design. The study was basically quantitative in nature although qualitative data was collected through the principals

and teachers questionnaire. The questionnaire was the main instrument used in data collection supplemented by the observation guide. Data was analyzed using correlations, T-Test and regression analysis while qualitative data was organized into themes as per study objectives and analyzed. Descriptive statistics like frequencies and percentages were also used to analyze data. Presentation of data was done using tables and the discussion of the findings linked the data to literature review.

5.3 Summary of the Major Findings

The findings of this study were anchored on hypotheses.

5.3.1 Findings Based on Hypothesis HO1

H_{O1}: There is no significant relationship between school physical facilities and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

The findings showed that there is a significant relationship school physical facilities and quality of education in public secondary schools in Kenya. A T-test analysis to establish whether quality of education for different schools with diverse level of availability of physical facilities was the same, revealed that schools with adequate physical facilities had a higher mean education quality (2.85) as compared to schools with inadequate physical facilities (2.64).The two means were found to be

statistically different at p=0.008. Furthermore, regression analysis results on H_{O1} were as follows.

Influence of School Physical Facilities on Quality of Education in Public Secondary Schools in Kitui, Kisii and Nairobi Counties.

The results were summarized into a simple regression equation

Y = 1.89 + 0.341*physical facilities……5.1

Where Y = quality of education, and $R^2 = 0.094$ at $p< 0.001$.

From equation 5.1, adequacy of school physical facilities has a significant relationship with quality of education. The physical facilities predict quality of education at 9.4 percent in public secondary schools in Kenya. This was supported by the following findings that linked physical facilities to components of quality of education (KCSE mean score, student transition rate, mean number of trophies won in co-curricular activities).

Influence of School Physical Facilities on KCSE Mean Score.

The results were summarized into the regression equation

Y = 2.448 + 1.030* physical facilities……5.2

Where Y = KCSE mean score, and $R^2 = 0.145$ at $p< 0.001$.

From equation 5.2, adequacy of school physical facilities has a significant relationship with KCSE mean score. The physical facilities predict quality of education at 14.5 percent in public secondary schools in Kenya.

Influence of School Physical Facilities on Transition Rate

The results were summarized a simple regression equation

$Y = 60.095 + 10.164 * \text{physical facilities}$……5.3

Where Y = student transition rate from form 1 to 4, and $R^2 = 0.025$ at $p = 0.022$.

From equation 5.3, adequacy of school physical facilities has a significant relationship with student transition rate from form 1 to 4. The physical facilities predict transition rate at 2.5 percent in public secondary schools in Kenya.

Influence of School Physical Facilities on Number of Trophies Won in Co-curricular Activities

The results were summarized into a simple regression equation

$Y = 2.035 + 1.819 * \text{physical facilities}$……5.4

Where Y = Number of trophies won in co-curricular activities, and $R^2 = 0.117$ at $p < 0.001$.

The results show that there is a significant relationship between school physical facilities and number of trophies won in co-curricular activities. Regression analysis revealed that school physical facilities predict the mean number of trophies won in co-curricular activities at 11.7 percent.

From the descriptive results of the study, majority of the schools had inadequate physical facilities. About 80 percent of the respondents indicated that their schools had inadequate classrooms. Nine out of every ten respondents confirmed that their schools had inadequate science laboratories. On training workshops, only two

percent of the respondents indicated that their schools had enough workshops. The study established that 95 percent of the schools had insufficient dormitories. About 80 percent of the respondents indicated that their schools had inadequate libraries while 83 percent of the respondents confirmed that their schools had inadequate playgrounds for student use in co-curricular activities.

The findings were further supported by the researchers' observation which revealed that most of the schools had inadequate classrooms (68%), inadequate laboratories (84%), inadequate libraries (92%), toilets and lavatories (80%), and inadequate play grounds (79%).

5.3.2 Findings Based on Hypothesis HO2

H_{O2}: There is no significant relationship between teacher motivation and quality of education in public secondary schools in Kitui. Kisii and Nairobi Counties.

By bivariate correlation, teacher motivation and quality of education had correlation coefficient (r) =0.294 at P<0.001. Implying that there is a significant relationship between teacher motivation levels and quality of education in public secondary schools in Kenya. By T-test analysis, the study established that there is a statistical significant difference in quality of education between schools that had highly motivated teachers and those with low teacher motivation. Schools with highly motivated teachers had a higher mean of quality of education (2.8188) than those with low teacher motivation (2.6559) at p=0.024. Thus, there is a significant

relationship between teacher motivation levels and quality of education in public secondary schools in Kenya. Regression analysis results were as follows:

Influence of Teacher Motivation on Quality of Education

The results were summarized into a simple regression equation

Y = 1.958 +0.289 * teacher motivation……5.5

Where Y = quality of education, and $R^2 = 0.087$ at $p< 0.001$.

From equation 5.5, teacher motivation levels have a significant relationship with quality of education. Teacher motivation levels predict quality of education at 8.7 percent. Since quality of education was composed of KCSE mean score, student transition rate from form one to four (2013-2016) cohort, and mean number of trophies won in co-curricular activities, the following findings also supported the results of equation 5.5.

Influence of Teacher Motivation on School KCSE Mean Score

The results were summarized into a simple regression equation

Y = 3.380 +0.621 * teacher motivation……5.6

Where Y = KCSE mean score, and $R^2 = 0.065$ at $p< 0.001$.

Equation 5.6 indicate that there is a significant relationship between teacher motivation levels and school KCSE mean score. The regression analysis revealed

that teacher motivation levels predict school KCSE mean score at 6.5 percent in public secondary schools in Kenya.

Influence of Teacher Motivation on Student Transition Rate

The results were summarized into a simple regression equation

Y = 77.976 +0.632 * teacher motivation……5.7

Where Y = student transition rate from form 1 to 4, and R^2 = 0.189 at p = 0.021.

From equation 5.7, teacher motivation levels has a significant relationship with student transition rate. Teacher motivation levels predict student transition rate (from form 1- 4) at 18.9 percent in public secondary schools in Kenya.

Influence of Teacher Motivation on Number of Trophies Won in Co-curricular Activities

The results were summarized into a simple regression equation

Y = 0.512 +0.814 * teacher motivation……5.8

Where Y = Number of trophies won in co-curricular activities, and R^2 = 0.028 at p< 0.024.

Therefore, there is a significant relationship between teacher motivation levels and number of trophies won in co-curricular activities. The regression analysis equation revealed that teacher motivation predicted school mean trophies won in co-curricular activities at 2.8 percent.

From descriptive statistics, most of the respondents (76%) indicated that schools do not recognize the role played by teachers as crucial. Majority of the respondents (81%) alluded that schools inadequately reward high performing teachers. It was also confirmed that majority of the schools (83%) hardly sponsor teachers to INSET seminars for professional training. In addition, 85 percent of the respondents indicated that their schools hardly sponsored team building events for teachers. About 82 percent of the respondents indicated that their schools hardly sponsor social welfare for teachers. Most of the respondents (79%) perceived the level of teacher motivation in their schools as unsatisfactory while about half of the respondents indicated that their schools do not motivate teachers at all.

5.3.3 Findings Based on Hypothesis HO3

H_{O3}: There is no significant relationship between school financial resources and quality of education in public secondary schools in Kitui, Kisii and Nairobi Counties.

By bivariate correlation, adequacy of school financial resources and quality of education had a Pearson Correlation Coefficient, (r)=0.152 at 0.023 significance level. T-test analysis indicated that Schools with adequate school financial resources had higher quality of education (3.03) than those with inadequate financial resources (2.65) at p=0.001.The findings from regression analysis are summarized as follows.

Influence of School Financial Resources on Quality of Education

The results were summarized into the regression equation

Y = 2.428 +0.162 * school financial resources……5.9

Where Y = quality of education, and R^2 = 0.023 at p= 0.023.

From equation 5.9, adequacy of school financial resources predicted quality of education at 2.3 percent .This was supported by the following findings on the components of quality of education (KCSE mean score, student transition rate from form 1-4 and mean number of trophies won in co-curricular activities).

Influence School Financial Resources on KCSE Mean Score

The results were summarized into the regression equation

Y = 2.04 + 1.82* school financial resources……5.10

Where Y = KCSE mean score, and R^2 = 0.111 at p< 0.001.

Results on equation 5.10 indicate that there is a significant relationship between school financial resources and school KCSE mean score. The regression equation revealed that school financial resources predict school KCSE mean score at 11.1 percent in public secondary schools in Kenya.

Influence of School Financial Resources on Student Transition Rate

The results were summarized into the regression equation

$$Y = 61.24 + 12.128 * \text{school financial resources} \ldots\ldots\ldots\ldots\ldots\ldots 5.11$$

Where Y = student transition rate from form 1 to 4, and $R^2 = 0.039$ at $p = 0.004$.

From equation 5.11, adequacy of school financial resources had a significant relationship with student transition rate. The regression analysis revealed that school financial resources predict student transition rate at 3.9 percent in public secondary schools in Kenya.

Influence of School Financial Resources on Mean Number of Trophies Won in Co-curricular Activities

The results were summarized into the regression equation

$$Y = 62.216 + 13.233 * \text{school financial resources} \ldots\ldots\ldots\ldots\ldots\ldots 5.12$$

Where Y = Number of trophies won in co-curricular activities, and $R^2 = 0.2314$ at $p = 0.003$.

Therefore, the results show that there is a significant relationship between adequacy of school financial resources and mean number of trophies won in co-curricular activities. The regression analysis equation revealed that school financial resources predict mean number of trophies won in co-curricular activities at 23.14 percent.

From descriptive statistics, all principals reported to have received government grants to support secondary education. This is the free tuition capitation that the

government of Kenya sends to all registered public secondary schools based on the number of registered students. An overwhelming majority (92%) of respondents confirmed that parents supported the schools financially through school fees and school infrastructure development. However about four of every ten respondents sampled indicated that their schools had no income generating activity. Further, majority of the respondents (91%) indicated that their schools had not received any financial support from school alumni. From the findings of the study, majority (88.6%) of the respondents did not perceive the government capitation to schools as adequate. Over 90 percent of the respondents indicated that their schools had not ventured into any income generating activity and the schools had received inadequate financial support from the alumni, and school sponsors. It was held by majority (95.2%) of the respondents who took part in the study that the financial support of the parents was insufficient in provision of quality education.

5.3.4 Findings Based on Hypothesis HO4

H_{O4}: There is no significant relationship between adequacy of teaching and learning resources and quality of education in public secondary schools in Kitui,Kisii and Nairobi Counties.

By bivariate correlation, adequacy of teaching and learning resources and quality of education had a Pearson Correlation Coefficient, (r)= 0.481 at p= 0.001 significance level. T-test analysis indicated that Schools with adequate teaching and

learning resources had higher mean for quality of education (2.812) than those with inadequate financial resources (2.597) at p=0.005.The findings from regression analysis are summarized as follows.

Influence of Teaching and Learning Resources on Quality of Education

The results were summarized into the regression equation

Y = 1.355 +0.477 * teaching and learning resources……5.13

Where Y = quality of education, and R^2 = 0.232 at p< 0.001

Results on equation 5.13 indicate that there is a significant relationship between adequacy of teaching and learning resources and quality of education. From the equation, teaching and learning resources predict quality of education at 23.2 percent .This was supported by the following findings on the components of quality of education (KCSE mean score, student transition rate from form 1-4 and mean number of trophies won in co-curricular activities).

Influence of Teaching and Learning Resources on KCSE Mean Score

The results were summarized into the regression equation

Y = 2.631 + 0.836* teaching and learning resources……5.14

Where Y = KCSE mean score, and R^2 = 0.115 at p< 0.001.

Results on equation 5.14 indicate that there is a significant relationship between adequacy of teaching and learning resources and KCSE mean score. The analysis equation revealed that adequacy of teaching and learning resources predict school KCSE mean score at 11.5 percent in public secondary schools in Kenya.

Influence of Teaching and Learning Resources on Student Transition Rate

The results were summarized into the regression equation

$$Y = 57.853 + 11.674 * \text{teaching and learning resources} \ldots\ldots\ldots\ldots 5.15$$

Where Y = student transition rate from form 1 to 4, and $R^2 = 0.3139$ at $p = 0.0023$. The results on equation 5.15 indicate that there is a significant relationship between adequacy of teaching and learning resources and student transition rates. From the equation, teaching and learning resources predict student transition rate at 31.34 percent in public secondary schools in Kenya.

Influence of Teaching and Learning Resources on Number of Trophies Won in Co-curricular Activities

The results were summarized into the regression equation

$$Y = 2.532 + 1.799 * \text{teaching and learning resources} \ldots\ldots\ldots\ldots\ldots 5.16$$

Where Y = Number of trophies won in co-curricular activities, and $R^2 = 0.149$ at $p < 0.001$.

Therefore, the results show that there is a significant relationship between adequacy of teaching and learning resources and mean number of trophies won in co-

curricular activities. The regression analysis equation revealed that teaching and learning resources predict school mean number of trophies won in co-curricular activities at 14.9 percent.

From the descriptive analysis of the study, most of the respondents (79%) indicated that the number of textbooks in their schools were inadequate. Many of the respondents (75%) also indicated that the schools had insufficient assessment materials in provision of quality of education. About 80 percent of the respondents confirmed to have had inadequate laboratory equipment in their schools while 88 percent of the respondents indicated that ICT teaching and learning aids were inadequate.

5.3.5 Contribution of Administrative Factors on Parameters of Quality of Education

The study sought to know the extent to which administrative factors influenced quality of education when considered jointly. This was accomplished through multiple regression analysis and results summarized as follows.

Joint Influence of Administrative Factors on Quality of Education

The results were summarized into a regression equation

Quality of education = 0.857 + 0.176 school financial resources + 0.218 school physical facilities + 0.182 teacher motivation + 0.517 teaching and learning resources…….5.17

R2=0.24, calculated p-values (0.035, 0.002, 0.024, and 0.001) respectively.

From the regression equation, the coefficient for the multiple determination R^2 =0.24, implying that the independent variables (school physical facilities, teacher motivation, school financial resources and learning and teaching resources) explain 24 percent of quality of education in Kenya. The remaining 76 percent are explained by variables not considered in this model. The calculated p-values (0.035, 0.002, 0.024, and 0.001) are less than 0.05, implying that the independent variables were statistically significant.

From equation 5.17, adequacy of teaching and learning resources was found to influence quality of education most, followed by adequacy of school physical facilities, teacher motivation levels, and adequacy of school financial resources.

Joint Influence of Administrative Factors on KCSE Mean Score

The results were summarized into a regression equation

KCSE mean score=0.758 + 0.636 school financial resources + 0.906school physical facilities + 0.710 teacher motivation + 0.648 teaching and learning resources…….5.18

R^2=0.218, p value <0.001

Calculated p values = (0.046, 0.001, 0.013, and 0.005) respectively.

From equation 5.18, R^2=0.218 implying that the joint influence of the four variables (school physical facilities, teacher motivation levels, school financial resources and learning and teaching resources explain 21.8 percent KCSE mean score. This means that the other 78.2 percent is explained by factors not accounted for in this model. From the regression equation 5.18, school physical facilities had the highest in put (0.906) in KCSE mean score followed by teacher motivation levels at 0.710, teaching and learning resources at 0.648 and school financial resources at 0.636.

Joint Influence of Administrative Factors on Transition Rate

The results were summarized into the regression equation

Transition rate = 52.19 + 10.262*school financial resources + 10.64*school physical facilities+11.71*teacher motivation + 15.619* teaching and learning resources…….5.19

R^2 = 0.093, calculated p values = 0.023, 0.025, 0.049 and 0.01 respectively.

From equation 5.19, R^2=0.093 implying that the joint influence of the four variables (school physical facilities, teacher motivation levels, school financial resources and learning and teaching resources explain 9.3 percent of student transition rate. This means that the other 90.7 percent is explained by factors not accounted for in this model. From the regression equation 5.19, teaching and learning resources had the highest in put (15.619) in influencing student transition rate, followed by teacher

motivation levels at 11.71, school physical facilities at 10.64 and school financial resources at 10.262.

Joint Influence of Administrative Factors on Mean Number of Trophies Won in Co-curricular Activities

The results were summarized into a regression equation,

Mean number of trophies = 5.093+1.067*school financial resources + 1.596*school physical facilities + 1.050*teacher motivation + 2.308* teaching and learning resources……5.20

R^2=0.259, and calculated p values= 0.037, 0.000, 0.025 and 0.000 respectively).

R^2=0.259 implying that the joint influence of the four variables (school physical facilities, teacher motivation levels, school financial resources and learning and teaching resources explain 25.9 percent mean number of trophies won in co-curricular activities. This means that the other 74.1 percent is explained by factors not accounted for in this model. From the regression equation 5.20, teaching and learning resources had the highest in put (2.308) in influencing the number of trophies won in co-curricular activities, followed by physical facilities at 1.596, school financial resources at 1.067 and teacher motivation at 1.050.

5.4 Conclusions of the Study

Based on findings from the study, the following conclusions were made:

The study established that there is a significant relationship between school physical facilities and quality of education in public secondary schools in Kenya.

School physical facilities had a positive correlation to quality of education and schools with more adequate physical facilities were found to have better quality of education than schools with inadequate facilities.

The study found out that there is a significant relationship between teacher motivation levels and quality of education in public secondary schools in Kenya. Teacher motivation was found to be positively correlated to quality of education. Schools that motivated teachers to a great extent recorded higher KCSE mean scores than those that minimally motivated their teachers.

The study established that there is a significant relationship between adequacy of school financial resources and quality of education. Adequacy of school financial resources was found to be positively correlated to quality of education. Schools with more adequate financial resources were found to have better quality of education as compared to schools with inadequate financial resources

The study established that there is a significant relationship between teaching and learning resources and quality of education in public secondary schools in Kenya. Teaching and learning resources were found to have a positive correlation to quality of education. Schools with more adequate teaching and learning resources were found to have better quality of education than schools with inadequate resources.

On the joint influence of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources and adequacy of teaching and learning resources on quality of education, the study established that adequacy of teaching and learning resources had the highest contribution to quality of education, followed by adequacy of school physical facilities and teacher motivation. Adequacy of school financial resources was found to have the least contribution to quality of education.

On the contribution of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources and adequacy of teaching and learning resources on KCSE mean score, the study established that school physical facilities had the highest input in KCSE mean score followed by teacher motivation levels and teaching and learning resources. School financial resources was found to have the least contribution to quality of education.

On the joint influence of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources, and adequacy of teaching and learning resources on student transition rate, the study found teaching and learning resources to have had the highest input in influencing student transition rate, followed by teacher motivation levels, physical facilities, and school financial resources in that order. The study concluded that adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources, and

adequacy of teaching and learning resources had a significant relationship to student transition rate, thereby contributing significantly to provision of quality education.

On the joint influence of adequacy of school physical facilities, teacher motivation levels, adequacy of school financial resources and adequacy of teaching and learning resources on co-curricular activities, the study established that teaching and learning resources had the highest input in influencing the number of trophies won in co-curricular activities, followed by school physical facilities and school financial resources. Teacher motivation levels had the least contribution to the number of trophies won in co-curricular activities.

5.5 Recommendations of the Study

In light of the findings, the study recommends that:

i. The Teachers Service Commission and the Ministry of Education should come up with teacher incentive policy based on teacher performance and student achievement. Teacher incentives should be linked to student performance not only in academics but also co-curricular activities, student discipline, leadership skills, and soft skills like being honest and courteous. The policy should be cascaded to schools with clear guidelines on how the school administration should reward teachers.

ii. In terms of practice, the school principal and Parents Association should strategize on how to actively engage parents and the community for purposes of acquiring adequate school physical facilities and teaching and learning resources. The school administration should engage the parents and community through seminars, and general meetings to raise their awareness of the role played by school physical facilities such as libraries, laboratories and toilets in provision of quality of education. This will make them contribute willingly towards school development projects.

iii. Other than government capitation and National Constituency Development Fund bursaries, the government should come up with scholarship policy for bright needy students. This will cover school fees, uniform and a stipend for all the four years of secondary education. The scholarships should target poor students who do well in grade eight with a focus on retaining them in school throughout the secondary school level. Those admitted to private secondary schools should not be discriminated either.

iv. The school principals and school management should diversify sources of school financial resources. They should engage in income generating activities, reach out to the school alumni and sponsors and encourage them to support school development projects. The school principal, in consultation with management should write grant proposals to the Ministry of Education and other donors in search

of funds to support school infrastructure development like Workshops and ICT laboratory and equipment. The more the sources of school finances, the less the burden of household contribution to secondary education leading to enhanced access, participation and student achievement.

5.6 Suggestions for Further Research

The following areas were suggested as possible areas for further research

i. A study should be done to investigate the administrative factors influencing quality of education in public primary schools in Kenya.

ii. A study should be done to investigate the challenges facing provision of quality education in public secondary schools in Kenya.

iii. A study should be done to investigate administrative factors influencing quality of education in private secondary schools in Kenya.

iv. A comparative study on the perceptions of parents, teachers and students on the quality of education in public secondary schools in Kenya should be done.

v. A study should be done on administrative factors affecting quality of education in public universities in Kenya.

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APPENDICES

APPENDIX A

LETTER OF INTRODUCTION TO THE RESPONDENTS

University of Nairobi
Department of Education Administration and Planning
P.O. Box 21108-00100
NAIROBI.

Dear respondent,

RE: RESEARCH STUDY

I am a postgraduate student at the University of Nairobi pursuing a Doctorate Degree in Education. The topic of my research is: **Administrative Factors Influencing Quality of Education in Public Secondary Schools in Kenya.** I kindly request you to sincerely provide the most relevant information in each item on the instrument of data collection given to you. Your identity will strictly be kept confidential. Kindly do not indicate your name or the name of the institution

Looking forward to a positive response.

Yours faithfully,

Asiago Dorcah.

APPENDIX B

PRINCIPAL'S QUESTIONNAIRE

This questionnaire is designed to collect data from public secondary schools in Kenya within selected counties. You are kindly requested to complete the questionnaire by ticking (√) against your option and offering explanations in words in the blank spaces. For confidentiality purposes, you need not write your name on the questionnaires. Your cooperation and assistance will be highly appreciated.

Part I: School Profile

1. Which year was the school established_____

2. (a).Which category is your school in

i. National [ ]

ii. Extra County [ ]

iii. County [ ]

iv. Sub county [ ]

(b) Please indicate school type

i. Boys boarding [ ]

ii. Girls' boarding [ ]

iii. Mixed boarding [ ]

iv. Boys day [ ]

v. Girls day [ ]

vi. Mixed day and boarding [ ]

v. Mixed day [ ]

3(a) Please indicate the number of students in your school_____

(b) Please indicate the number of streams……..

(c) Please indicate the number of teachers in your school……

4. (a) Please indicate your gender. Male [ ] Female [ ]

(b)Please indicate your highest academic qualification

i. Doctorate

ii. Masters

iii. Degree

iv. Diploma

v. Any other……

5. For how long have you been heading this school (in years)

a) Less than a year [ ]

b) 1-5 [ ]

c) 6-10 [ ]

d) 11-15 [ ]

e) Over 15 [ ]

PART II: School Financial Resources

6. One aspect of this study is school financial resources. Several statements related to various financial resources have been stated. Answer by ticking 'Yes' or 'No' to each of the following questions.

School Financial Resources	Yes	No
Does your school receive government grants?		
Does the school generate funds from income generating activities?		
Does the school receive budgetary support from alumni contribution?		
Do parents contribute to the school's financial resources?		
Does the school receive\ financial sponsor support?		
Does the school receive donations from other well wishes?		

7. If your answer is 'Yes' in any of the questions in '7' above, to what extent have the statements applied to your school?

   Key:

   1-Not at all; **2**-Less extent; **3**- Moderate extent; **4**- Large extent; **5**-Very large extent

School Financial Resources	1	2	3	4	5
The school has received adequate government grants					
The school has generated sufficient funds from various income generating activities					
The school has received adequate budgetary support from alumni contribution					
Parents contributions have been sufficient					
The school has received a lot of financial sponsor support					
The school has received donations from other well wishes					

8. Please state any other comments concerning adequacy of financial resources in your school_____

Section II: Physical Facilities

9. Another aspect of this study is the physical facilities that exist in school. Please indicate the extent to which the statements apply to your school using the key provided.

Key:

1-Not at all; 2-Less adequate; 3- Moderate adequate; 4- more adequate; 5-Very adequate

School Physical facilities	1	2	3	4	5
Classrooms in the school					
The school laboratories					
Staff houses					
Availability of administrative offices					
Toilets and lavatories					
Workshops					
Students' accommodation					
Sufficient space within the staff room					
Dining area					
The school's kitchen facilities					
The school's playgrounds					
Library					

10. Please state any other comments regarding physical facilities in your school_____

Section III: Quality of Education

11. (a)Another aspect of this study is the quality of education. The statements provided relate to various aspects of the quality of education. Please indicate the extent to which they have applied to your school in the past five years. Use the key provided to TICK as appropriate.

Key: 1-Not at all; 2-Less extent; 3- Moderate extent; 4- Large extent; 5- Very large extent

Quality of Education	1	2	3	4	5
The performance of the school in KCSE has improved tremendously					
There has been steady transition of students from one grade to the next					
The school has performed well in co-curricular activities.					

11(b) Please indicate the school mean score in Kenya Certificate of Secondary Education (KCSE) for the last five years

Year	Mean score
2010	
2011	
2012	
2013	
2014	

11(c) Please indicate the number of students who were admitted in the school in 2013 and have successfully transited from form 1 to form 4 (exclude those who joined in form2,3,4)

Cohort (2013-2016)	**No. of Students**
Form 1(2013)	
Form 2(2014)	
Form 3(2015)	
Form 4(2016)	

11 (d) Please indicate the number of trophies won by the school in co- curricular activities in the last five years.

Year	2011	2012	2013	2014	2015
No. of trophies					

12. Please state any other comments on the quality of education in your school……

……

Thank you for your time and cooperation.

APPENDIX C

TEACHER'S QUESTIONNAIRE

This questionnaire is designed to collect data from public secondary schools in Kenya within selected counties. You are kindly requested to complete the questionnaire by ticking (√) against your option and offering explanations in words in the blank spaces. For confidentiality purposes, you need not write your name on the questionnaires. Your cooperation and assistance will be highly appreciated.

Part I: School Profile

1. (a)Which category is your school in

(i) National [ ]

(ii) Extra County [ ]

(iii) County [ ]

(iv) Sub county [ ]

(b)Please indicate school type

i. Boys boarding [ ]

ii. Girls boarding [ ]

iii. Mixed boarding [ ]

iv. Boys day [ ]

v. Girls day [ ]

vi. Mixed day and boarding [ ]

v. Mixed day [ ]

2. What position do you hold in the school _____

3. (a) Please indicate your gender. Male [ ] Female [ ]

(b)Please indicate your highest academic qualification

(i) Doctorate [ ]

(ii) Masters [ ]

(iii) Degree [ ]

(v) Diploma [ ]

(vi) Any other……

(c)How long have you been in the teaching profession?.....years.

(d)For how long have you taught in this school (in years)

a) Less than a Year [ ]

b) 1-5 [ ]

c) 6-10 [ ]

d) 11-15 [ ]

e) Over 15 [ ]

PART II: Teacher Motivation

4. One aspect of this study is teacher motivation. This relates to all activities that can result to higher teacher motivation. To what extent have the following statements about teacher motivation applied to your school?

Key:

1-Not at all; **2**-Less extent; **3**- Moderate extent; **4**- Large extent; **5**-Very large extent

Teacher Motivation	1	2	3	4	5
The school recognizes the role teachers play as crucial					
The teachers in the school are held with high status					
The school has awarded high performing teachers					
The school sponsors teachers for INSET seminars					
The school has sponsored teachers to team building trips					
The school has supported teachers social welfare initiatives					

5. Please state any other comments concerning teacher motivation in your school_____

Section II: Teaching and Learning Resources

6. Another aspect of this study is teaching and learning resources. The statements provided relate to various aspects of this aspect. Please indicate the extent to which they have applied to your school in the past five years. Use the key provided to TICK as appropriate.

Key: 1-Not at all; 2-Less extent; 3- Moderate extent; 4- Large extent; 5- Very large extent

Teaching and Learning Resources	1	2	3	4	5
The school has had adequate textbooks					
There have been adequate exercise books					
The school has provided sufficient assessment materials					
The school has had adequate laboratory equipment and chemicals to undertake experiments					
The desks and chairs in the school match all the learners needs					
There is adequate Information, communication and technological teaching aids in the school					

7. Please state any other comments concerning the teaching and learning resources in your school_____

Thank you for your time and cooperation

APPENDIX D

OBSERVATION GUIDE

FACILITY	1	2	3	4	5
Science Laboratories					
Classrooms					
Staff houses					
Administrative offices					
Toilets and lavatories					
Dining hall/s					
Workshops					
Dormitories					
Kitchen					
Staffrooms					
Library					
School playground					

KEY: 1-Not at all

2-Less extent

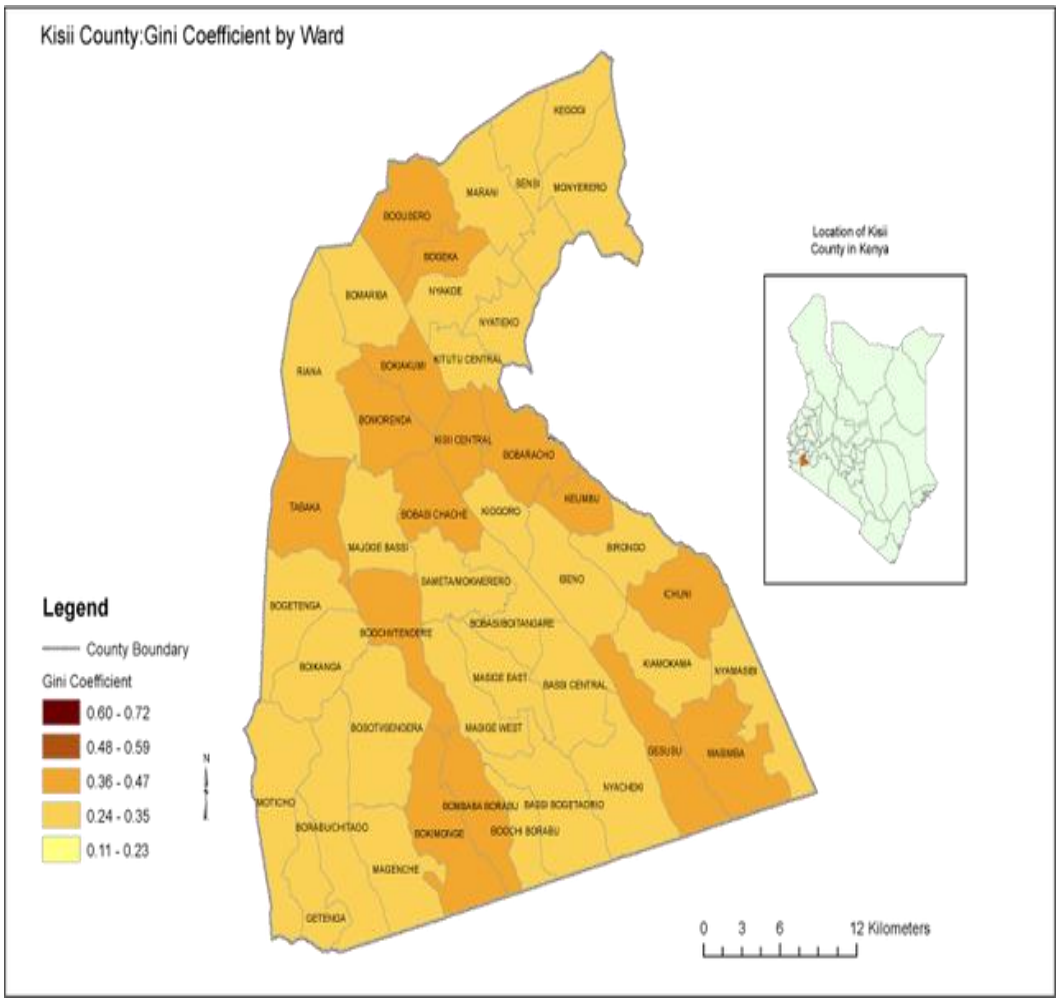
3-Moderate extent

4-Large extent

5-Very large extent

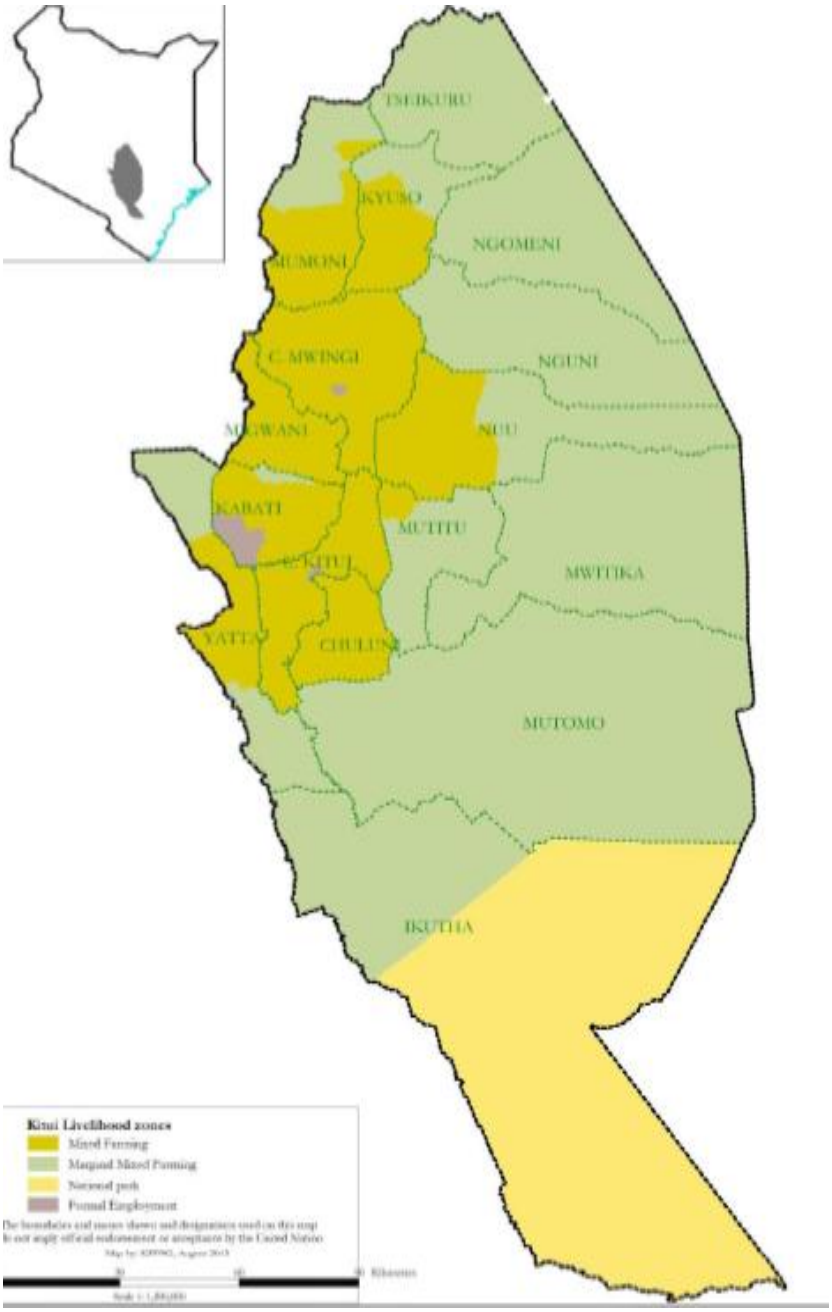
APPENDIX E

MAP OF KISII COUNTY



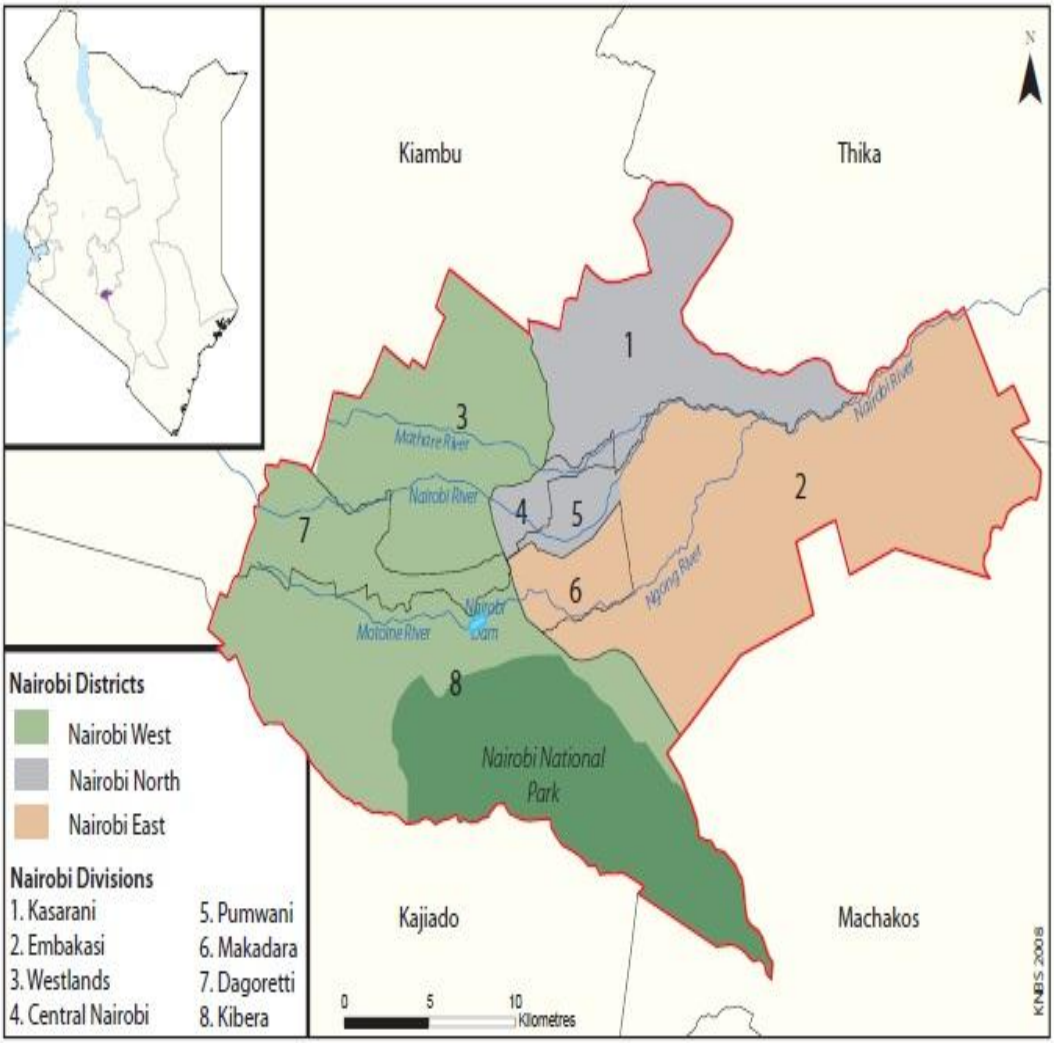
APPENDIX F

MAP OF KITUI COUNTY



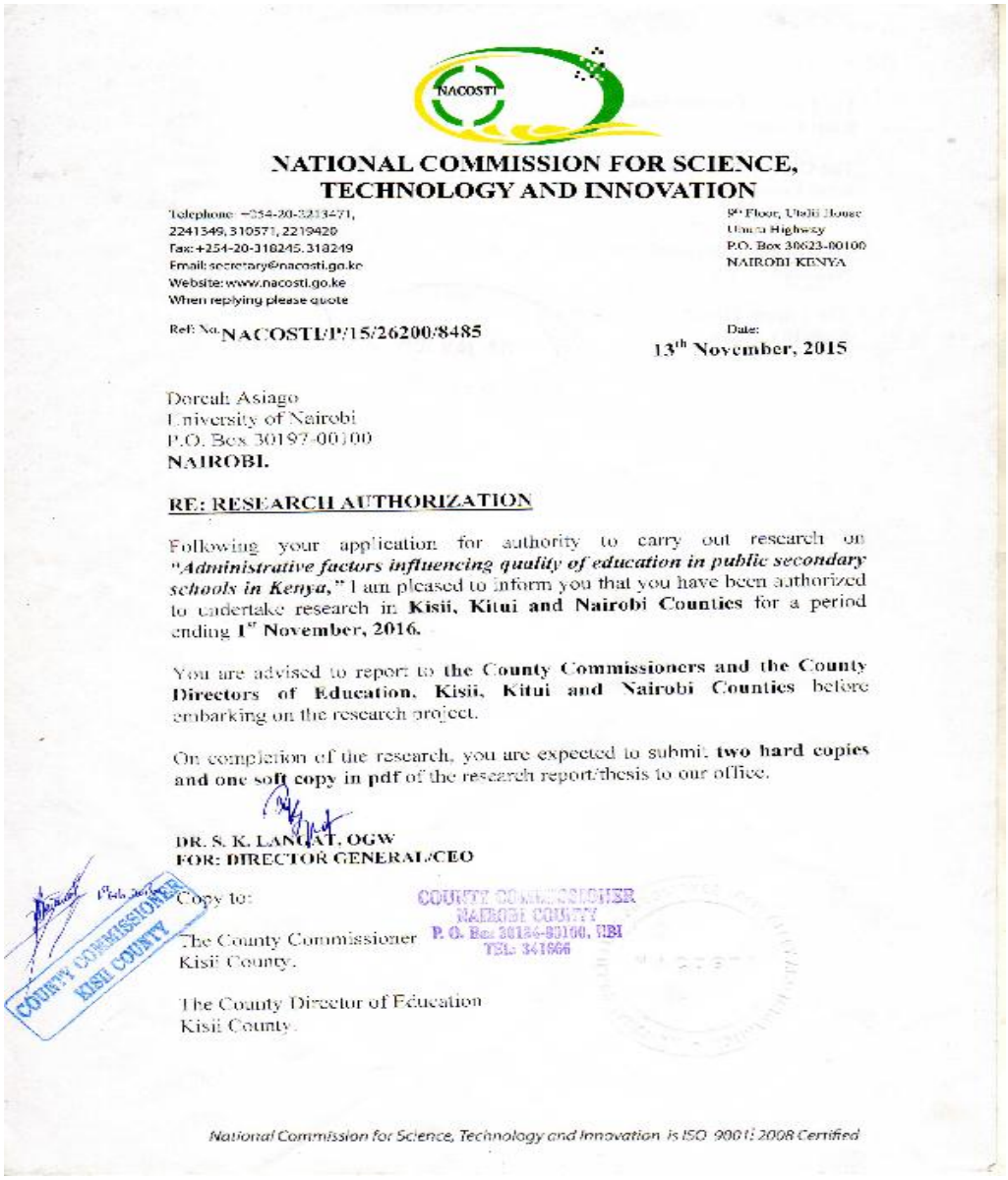
APPENDIX G

MAP OF NAIROBI COUNTY



APPENDIX H

NACOSTI RESEARCH AUTHORIZATION



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI KENYA

Ref: No. NACOSTI/P/15/26200/8485

Date: 13th November, 2015

Dorcah Asiago
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Administrative factors influencing quality of education in public secondary schools in Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Kisii, Kitui and Nairobi Counties** for a period ending **1st November, 2016.**

You are advised to report to **the County Commissioners and the County Directors of Education, Kisii, Kitui and Nairobi Counties** before embarking on the research project.

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

DR. S. K. LANGAT, OGW
FOR: DIRECTOR GENERAL/CEO

COUNTY COMMISSIONER KISII COUNTY

COUNTY COMMISSIONER NAIROBI COUNTY P. O. Box 30126-00100, NBI TEL: 341666

Copy to:

The County Commissioner
Kisii County.

The County Director of Education
Kisii County.

National Commission for Science, Technology and Innovation is ISO 9001: 2008 Certified

APPENDIX I

RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MS. DORCAH ASIAGO
of UNIVERSITY OF NAIROBI, 0-100
NAIROBI,has been permitted to conduct
research in *Kisii , Kitui , Nairobi Counties*

on the topic: *ADMINISTRATIVE FACTORS INFLUENCING QUALITY OF EDUCATION IN PUBLIC SECONDARY SCHOOLS IN KENYA*

for the period ending:
1st November,2016

Permit No : NACOSTI/P/15/26200/8485
Date Of Issue : 13th November,2015
Fee Recieved :Ksh 2000

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

CONDITIONS

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

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 7176

CONDITIONS: see back page