ASSESSMENT OF QUALITY OF EDUCATION IN SECONDARY SCHOOLS IN KIAMBU COUNTY, BASED ON SELECTED METRICS

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A Thesis Submitted to the School of Education and Social Sciences in Partial Fulfilment of the Requirements for the Conferment of the Degree of Doctor of Philosophy in Leadership and Education Management of the Kenya Methodist University

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DECLARATION AND RECOMMENDATION

Declaration

This thesis is my original work and has not been presented for a degree or any other award in any other university.

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Recommendation

We confirm that the work reported in this thesis was carried out by the candidate under our supervision.

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DEDICATION

To my Parents Milika Muthoni Kariuki, Late father, Joseph Kariuki, my late Parents- in-Law Solomon Wabacha and Beatrice Wangui

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ABSTRACT

A quality education is the sum of the effects of all the processes and services that give the learner the skills they need to be economically productive, sustain their livelihoods and have a positive social impact. Academic achievement is one of the most important indicators of the quality of education, where the quality of exam grades determines the level of academic achievement of an individual, organization or class. The academic performance of secondary schools in Kiambu District has been very poor compared to other neighboring districts in central Kenya, despite the fact that the district is endowed with resources. Most of the candidates in the county have relatively low grades, which leads to the fact that few of them are admitted to universities and high schools. This performance leads many students to drop out of school or become delinquents. The aim of the study was to evaluate the quality of education in secondary schools based on selected metrics, which, in addition to school management principles, also included school, teacher and home factors. Descriptive surveys and correlational research designs were used to evaluate various metrics that influence the quality of education in Kiambu County. The sample was selected through stratified and purposive sampling. A sample of 249 students, 191 teachers, 49 principals and 5 county school officials was selected from a target population of 23,849 students, 5,989 teachers, 386 principals and 12 quality assurance and standards officers from Kiambu County. Data was collected by the researcher using questionnaires, interview schedules and document analysis. Qualitative data were analyzed using descriptive statistics such as percentages and means as well as inferential statistics such as correlation analysis. Analysis was performed using SPSS version 22.0 computer software. The study concluded that school-based and teacher-based factors, together with parent/guardian socio-economic factors and principal leadership practices were independently significantly correlated with the quality of education in secondary schools in Kiambu County. However, the findings showed that although school factors had a significant effect on educational quality, when other predictors were held constant, their magnitude ceased to be significant. The other three independent variables (teacher-related characteristics, parents' socio-economic factors, and principals' leadership practices were all statistically significant predictors of educational quality in secondary schools in Kiambu County in a combined model. The study recommended that key stakeholders in schools, including principals, teachers, students and parents, should establish clear and comprehensive criteria for measuring the quality of education in schools, which should include the expected standards in the provision of all teaching and learning resources, material and human, as points of involvement/engagement of all stakeholders and the standards expected of each. It is hoped that the findings of the study will serve as a basis for improving policies, planning and decision-making aimed at improving the quality of secondary school education in Kiambu County, Central Region and Kenya in general.

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LIST OF ABBREVIATIONS AND ACRONYMS

BMZ	Bundesministerium Für Wirtschaftliche Zusammenarbeit (German Federal Ministry for Economic Development Cooperation).
BoM	Board of Management
CDF	Constituency Development Fund
CDE	County Director of Education
DEB	District Education Board
DEO	District Education Officer
DFID	Department for International Development
DQASO	District Quality Assurance and Standards Officer
ERS	Economic Recovery Stimulus
EFA	Education for All
FDSE	Free Day Secondary Education
FPE	Free Primary Education
KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
MoE	Ministry of Education
NACOSTI	National Commission for Science, Technology and Innovation
PTA	Parents Teachers Association
SEB	Sub county Education Board
TSC	Teachers Service Commission
USAID	United States Agency for International Development
WCEA	World Conference for Education for All

CHAPTER ONE

INTRODUCTION

This chapter deals with the background of the study, statement of the problem, purpose of the study, objectives of the study, research hypotheses and significance of the study. It also includes scope limitations, research assumptions and operational definition of terms in relation to the study.

1.1 Background to the Study

Education is a significant human activity that enable the society to model persons to function optimally within their environment. Education is perceived as an essential individual right, and is one of the potent drivers of poverty eradication, improved health, gender equity and enhanced peace and stability. Education generates consistent returns and is a critical factor in ensuring equality of opportunities. At individual levels, education enhances opportunities for employment, access to good health and poverty eradication. Worldwide, an extra year of schooling has been shown to increase hourly earnings by about 9%. Education also spurs economic growth, innovations and foster societal cohesion. It therefore critical to make smart investments in education as a way of eradicating poverty through enhanced human capital brought about by quality education. (World Bank, 2021; UNESCO, 2015). Hence, education does not just have to be accessible, it is important that it adds value to the lives of students.

Quality education has a strong impact on a nation's development goals and is a prerequisite for achieving the fundamental goal of equity and sustainable development. This is especially so as the demand for education, and especially secondary education, and correspondingly skilled labour increases worldwide. It is more so important at the critical

secondary school level where learners are being prepared to transit to the labour market or to higher education. Quality education has a robust impact on the development aspirations of a nation. Generally, formal education is perceived as a critical component of individual skills and development of human capital. The role of schools is quite significant due to education and creation of skills and also due to the fact that key public policies usually have direct influence on education (UNESCO, 2004).

However, understanding what quality means in education varies from country to country. Different actors of education and organizations also have their own meanings. However, most generally agree on three general principles: the need for compliance, equality of access and outcome, and due respect for individual rights (UNESCO, 2004). UNESCO's Framework for Flexibility in Education Quality has five components: 1. Learner characteristics - which include learner competencies, patience, and school readiness, and prior knowledge, barriers to learning and demographic diversity. 2. Context - including social learning resources, parental support, national standards, labor market demands, social and cultural and religious factors, peer pressure, free time for school and homework. 3. Enabling inputs - for integrating teaching and learning resources, virtual infrastructure and resources, and human resources. 4. Teaching and learning - that includes study time, teaching methods, assessment and class size. 5. Outcomes - literacy, numeracy, values and life skills (UNESCO, 2004).

The quality of education has important implications for academic achievement. Academic achievement refers to the quality and quantity of understanding, techniques and skills as well as positive attitude and thinking that learners obtain. The capability to attain requisite academic performance is assessed by reference to the grades achieved in an exam, at

designated and specified times (Odubuker, 2004; Kaggwa, 2003). The quality of scores and the percentage of students who pass in particular subjects or examinations dictate the extent of academic performance of a definite class or school (Odubuker, 2004; Kaggwa, 2003). Levin et al. (2011) concluded that the academic accomplishment of learners of a school, is not merely an indicator of the success of the learning institution, but is as well a key element of the welfare of youths in particular, and the society in general. However, such an achievement is determined by various factors including infrastructure set up, staffing situation, as well as, type of school headship and management.

Quality of education has significant effect on school completion as well (Hawkins et al., 2013; Imbova et al., 2018). Collins and Halverson (2018) assert that in states experiencing high secondary school dropout rates is an indication that their education system is failing. Globally, UNESCO (2019) reports that 262 million (18%) of all children and youths of ages 6 to 17 years dropped out of school in 2017. On the basis of this trend, these figures are expected to drop slightly to 14% by 2030. Sixty-one million (16%) of adolescents aged 12-14 years, who should be in lower secondary schools also dropped out of school. This rate has remained fairly constant since 2010. The school drop-out rate is 14% in middle-income nations while in low-income nations, the rate is 36%.

Additionally, 138 million (36%) of youth aged 15-17 years, who should be in upper secondary school are out of school too. The upper secondary drop-out rate is 60% in low-income nations, 37% in middle-income and 6% in high-income nations. Though nations made devotion in SDG 4 on achievement of entire secondary completion, upper secondary learning is not mandatory in 47% of nations. Completion of lower and upper secondary stood at 72% and 48%, correspondingly, in 2018. Based on these trends, lower secondary

school completion would reach 81% and upper secondary school completion would be at 58% by 2030 if quality education among other factors were emphasized (UNESCO, 2019).

Twenty-two years ago at the World Conference for Education for All (WCEA) held in Dakar, Senegal, it was clearly stated that quality of education needed improvements. Consequently, the conference recommended that education should be universally available and more appropriate or relevant (Chinapah et al., 2013). It also acknowledged quality as a requirement for realizing the ultimate aim of equity and prominence was given to measurements of improvements of learning outcomes in order to provide assistance to policy makers through development support, capacity building and advocacy support.

Over a decade later the UN's Sustainable Development agenda through Goal 4 recognized quality of edification as an indispensable factor needed to attain sustainable development (UNESCO, 2015). Sustainable Development Goal 4 was formulated to provide for inclusivity and equitability of education quality and to foster lifelong training opportunities for all. Some of its key targets include; ensuring that by 2030, both boys and girls complete free, fair and quality primary and secondary school education, which should lead to significant learning outcomes and elimination of gender disparity through equal access to learning at all phases. The kind of education offered should also be favourable to the vulnerable, the disabled, and indigenous populations (UNESCO, 2019). Goal 4 also states the need to improve literacy, numeracy, problem-solving, cognitive, interpersonal, and social skills at all education levels (UNESCO, 2015; Gindo, 2020).

A lot has been achieved over the years in promoting education for all across the globe since the EFA conference in Jomtien in 1990. However, there are still lots of aspects that are yet

to be accomplished across the countries in terms of quality education. According to an earlier TIMSS 2007 assessment, students in Ghana, Morocco and Indonesia performed poorly when compared to students in Japan and Republic of Korea and this was attributed to quality education (Akiba et al., 2007). A global survey done by PISA in 2006 established that performance disparities among learners and from schools in countries of differing socio-economic contexts still exist. These variations were observed in Bulgaria, Germany, Austria, Czech Republic, Hungary, the Belgium, Netherlands, Japan, Slovenia, Italy, Argentina, and Chile. However, in nations such as. Finland, Iceland, Norway, Sweden, Poland, Spain, Denmark, Ireland, Latvia and Estonia, school disparities were slight in influencing variations in performance. These school disparities were linked to the status of quality education in the countries (UNESCO, 2018).

This substantiation corroborates the importance of availing education opportunities for every student irrespective of their socioeconomic status, but also its quality. For instance, the highly decentralized Swedish education system focuses on societal equity through education access to all and supports the concept that schools ought to assist in decreasing home influence on education (Swedish National Agency for Education, 2009). Socio-economic disparities have been identified as an impediment in the provision of quality education in Mauritius and vital measures have been provided to enhance the learning outcomes; however, urban-rural disparities coupled with variations in performance based on school types is still a serious challenge (Chinapah et al., 2013).

Expansion of secondary education the world over, was meant to expand quality secondary education that is vital in ensuring well educated workforce (Wang, 2012). For instance, in

Latin America some of the challenges experienced before expansion included rigid institutional cultures, inflexible organization of time and space in schools, high cases of absenteeism and improper curricular (Gacel-Ávila, 2012). All these led to reforms in the 1990s to enhance quality, efficiency and equality. In Asia/Latin America and Europe, improvement of quality and reduction of inequalities together with modernizing the functions of secondary schools were the challenges that were prioritized. Similar constraints were experienced in countries in southern Africa and South Asian countries such as Indonesia (Deolalikar, 2012). These regions also faced problems of high student numbers on the backdrop of limited public funding, thereby affecting the quality of education.

The need to expand access to secondary education was so as to have improved literacy globally and this was made possible through more years of education. Provision of quality education was seen as a means of reducing income inequities and promotion of social mobility (Riddell, 2019). However, in China, expansion of education initially led to deterioration of education quality characterized by inappropriate curricular, high enrolment rates, large numbers of qualified teachers, and inadequate teaching materials among others. This was reflected by high level of drop-out rates and repetition, poor examination scores or attainment levels (Imbahala et al., 2019).

Unlike Africa, various states in the Arab region have significantly invested in programmes that improve the teaching and learning conditions to promote the quality of learning offered. The findings of the UNESCO-Beirut Quality Study from the national Education

for All (EFA) Mid-Term Review 2008 reported significant improvement in several member states (Sywelem, 2015). Some of these improvements included reduction in class density, construction of basic infrastructures and provision of clean drinking hose (Jordan, UAE, Bahrain, Saudi Arabia, Oman, and Qatar). Moreover, learning materials centres well-equipped with modern ICT amenities, libraries, and air conditioning units have been provided in countries such as Oman and Qatar. Nevertheless, glaring disparities in the provision of basic school needs still exists among the countries (Chinapah et al., 2013).

According to UNESCO (2000), teaching/learning aspects that affect education quality include learner background, home background and teacher background. The aspects also include teaching conditions; the working environment for the teachers (availability of teaching resources, teachers' activities); school head factors (sex, experience and qualifications) and the features of the school that include protection, class size, and school amenities. An analysis of these variables and how they are associated with learning outcomes in 9 states (Botswana, Madagascar, Malawi, Mali, Mauritius, Morocco, Senegal, Uganda ad Zambia) revealed that the key factors that influenced education quality included the background of the teacher, teaching conditions, work setting of the teacher and characteristics of the school (UNESCO, 2000). A study done in Nigeria by Obadara and Alaka (2010) reported that resource allotment of finances to schools had significant impact on the student's academic achievement. The study also confirmed that allocation of human resources to schools had significant impact on the learning outcomes of secondary school students. This study concluded that manpower and availability of resources were critical for a system to function and succeed.

An investigation by Asiago et al. (2018) reported that teachers in Sub-Saharan Africa work in unconducive settings; with much bigger standard class sizes as compared to the rest of the world. Most of the schools lacked incentives meant to enhance teachers' morale and are always subjected to low salaries. Apart from South Africa, most of the nation's lack or have limited career prospects for the teachers and teachers are subjected to ridicule and lack of societal respect. The study also reported that teacher motivation was linked to better student performance in examinations and proposed both intrinsic and extrinsic motivation of trainers to enhance quality of education. Teachers in Africa have extremely high workload and do not participate in formation of education policies. Merit award schemes should be established to motivate teachers and schools need to collaborate with the community to set up income generating projects meant to avail incentives for the teachers (Asiago et al., 2018).

Moreover, governments hugely participate in the education of their citizens and lots of materials are always put in in education with the intention of enhancing the teaching and learning processes of the nations. However, in spite of all these investments, the education quality on offer more often does not meet its potential, more so in developing nations (Madani, 2019). Low levels of access to quality schooling have consequences for many aspects of development (Lewin, 2011). For example, in countries like Niger, school enrollment has increased, but many students finish school still lacking basic skills such as literacy and numeracy (Goujon et al., 2021). This leaves them unprepared for the job market and gives them very little hope of escaping the cycle of poverty. Quality education for some selected sections of the population can further be understood as the only way to

provide at least some students with the necessary educational foundation for a successful career after leaving school.

In Kenya, the expansion of secondary schools was meant to improve access and offer quality training. Before, a number of primary school leavers would miss chances during selection for form one admissions, and this made the government to recommend building of more public day secondary institutions, with disregard to the education quality that was to be offered in those institutions. Even though the education sector has continued to receive the lion's share of budgetary allocation since the introduction of FDSE, the quality of education offered in secondary school has remained a serious challenge (Imbahala et al., 2019). The expansion of public day secondary schools was taken in the backdrop of the fact that it was more economical expanding rather than establishing new schools from scratch. However, it is worth mentioning that even these existing schools had inherent challenges affecting education quality, way back before the beginning of school expansions. The challenges brought about by the expansions calls for concerted effort and involvement of all key stakeholders so as to bridge the gap in as far as resources necessary for provision of quality secondary education is concerned.

Due to the significant role played by secondary education, the government of Kenya introduced free tuition in public secondary schools so as to enhance and sustain its demand (Ohba, 2009). Offering quality education in secondary schools is thus, significant in creating chances and socio-economic benefits (Onsomu et al., 2006). The Kenyan Government profoundly invests in education, due to its responsibility in spearheading national growth and development. The funds budgeted and utilized on education has

continuously been on the increase over the years to be at par with the exponential increase in school enrolments at all levels. The Kenyan government initiated subsidized secondary education in 2008 where each student gets Kshs. 22,800 per year to cater for learning and teaching materials.

The government is responsible for the training and employment of university graduates who specialize in teaching two subjects only, for quality purposes (Asiago et al., 2018). The Kenyan government has made consistent efforts in enhancing quality and equity in education to all Kenyans. For instance, it has waived tuition fee for public secondary schools. The government through Basic Education Act of 2013 No 14 section 35 also promises to give students appropriate incentives to learn and complete basic education. Further, in an attempt to improve equity and access to education, the Kenyan government as stipulated in sessional paper No1 of 2005 commits itself to providing extra resources for the development of infrastructure in hard- to- reach and arid areas (Juma, 2016).

As reported by Odhiambo (2008) the issues concerning poor performance are profoundly embedded in management practices that should change for education goals to be achieved. Issues pertaining to students' absenteeism and lateness have been associated with poor academic performance. As reported by Etsy (2005) lateness, absenteeism and irregular school attendance negatively affect the learners and they would find it complicated to comprehend the concepts taught in his/her absence. Further, absenteeism also leads to stagnation and failure to grasp content taught in the learner's absence (Odhiambo, 2008). Regular school attendance and adequate exposure to curriculum affect students' performance levels. Studies have showed that learners with higher attendance rates often attain higher academic performances (Madani, 2019).

Evidently, quality of education is linked to features in the learning environment among them teaching and learning resources, school physical facilities, leadership and qualified teachers. The schools are centres of learning and have the mandate to positively impact training and learning of students regardless of their socio-economic status, colour, sex, race and physical or mental impairment. At school, teachers have the role of developing rather than teaching the learners. They are also supposed to assist the learners to be independent, motivate them and encourage them to be independent (Bubblews, 2013). According to Onyango (2001), human resource is quite critical in a school and teachers are the most significant employees within the school setting. He also opines that the contributions made by other members of staff, including secretaries, bursars and even the other support staff are similarly critical. The school infrastructure is also important in creating conducive learning environment that would lead to improved academic performance amongst the students (Duflo, 2001).

Consequently, one of the significant aims under SDG 4 is to raise the number of qualified teachers by 2030. The indicator for this target is the number of teachers having the least professional qualifications relevant to a particular education level in a country. Towards this end, Central Asia has the uppermost number of qualified teachers while in Sub-Saharan Africa, just 50 % of the teachers have minimum basic training. However, this number has been on the decline due to the prevalence of hiring unqualified teachers under contract to bridge the teacher deficit at lower cost (UNESCO, 2019).

Well-designed programmes and incentives are needed to attract, develop and retain teachers (Asiago et al., 2018). Towards this front, both Singapore and Finland are reputed for having the best and competitive remunerations for teachers, comparable to those of

doctors, lawyers and engineers (Liu, 2017). Moreover, the teacher also get other incentives such as annual bonuses, equivalent to three-month salary, based on performance. Singapore has mentorship programmes for their teachers, managed and supported by their schools. They are also eligible for fully paid-in teacher development courses. In America, Teacher Incentive subsidize was established to compensate principals and teachers who exhibit excellence in their performances (Johnston, 2020). In developing countries, on the other hand, most schools are faced with teacher crisis. Teachers are poorly paid, coupled with declining teacher status in the society, thus leading to high incidences of absenteeism among teachers, thus lowering education quality and eventually, these teachers opt for alternative professions that are well paying (Asiago et al., 2018).

For quality education to be realized, however, there must be substantial investment by stakeholders and mainly the government which happens to be the major stakeholder with power, interest and resources (Marshall, 2018). However, parents too are important stakeholders in education though their role in provision of quality secondary education is least understood. The roles played by households and communities in providing and maintaining physical infrastructures and instructional materials is also significant in the provision of quality education. Parents' associations also play vital role through financial support to academic institutions (Onsomu et al., 2004). Both the government and other key stakeholders in the education sector need to regularly invest in teacher development as a way of enhancing education quality in secondary schools since teachers' professional performance and the learning outcome of the students go hand in hand (Odhiambo, 2008).

The capacity of the Boards of Management and Parents Teachers Associations (PTAs) needs serious scrutiny on their ability to contribute towards the provision of quality education in schools. These bodies could be useful in maintenance of discipline in schools and therefore, those nominated and appointed into such bodies need to have the requisite knowledge and skills to execute their roles appropriately. They should be able to comprehend the dynamics of curriculum implementation and management of the institution. According to a report by IPAR (2018), political patronage, absenteeism amid school managers, and failure to appreciate the contributions of parents and the society in general, often curtail the growth of a school.

Empirical studies have shown that there is no single bullet of improving learning outcomes since learning environments differ greatly across nations and regions (UNESCO, 2017). However, it's been shown that enhanced learning environment is a critical aspects needed for quality education in schools. The learning environment encompasses physical infrastructure and the frequent and regular interactions between learners and teachers (Chinapah et al., 2013). Given the overview of what it takes to manage a school effectively and efficiently, and the factors that lead to dismal performances, it was imperative to map out the state of quality education in Kiambu County.

Table 1. 1

Public Secondary School Statistics for Central Kenya Region 2016

County	No. of Schools	Average School Size	GER %	NER %	No. of Teachers	Teacher/ Pupil Ratio
Kiambu	303	376	91.1	73.6	5631	20
Kirinyanga	141	310	112.7	81.4	2119	21
Muranga	307	330	139.1	104.4	4855	21
Nyandarua	167	304	94.6	69.3	2313	22
Nyeri	218	303	132.9	98.5	3384	20

Table 1.1 shows that in spite of public secondary schools Kiambu County having comparably high average school size, high number of teachers and high teacher/pupil ratio compared to other counties in the Central Kenya Region, it still had the lowest GER and the second lowest NER in the comparison to the other counties in the region. Recent empirical studies done across the Sub-Counties in Kiambu County corroborate the dropout rates in Table 1.1. For instance, Kiambati and Katana (2020) using data obtained from County Education Officer, showed that of the 2016 – 2019 secondary school cohort in Kikuyu Sub-County, 4.6% of the students either dropped out or failed to complete the secondary school cycle with the rest of the cohort. This suggests that in spite of the high and positive teacher/pupil ratio the low NER could be explained by other quality education factors not mentioned in the Statistical Booklet. Some of these emerged during the current study and are tabulated in Table 1.2.

Table 1. 2

State of Teaching and Learning Facilities in the Schools in Kiambu County

Parameter	Mean	Mode	Std. Dev.	Remark
Instructional materials	3.14	2	1.292	Inadequate
School compound spaces	2.64	3	1.082	Moderately Adequate
Classrooms	3.64	4	1.008	Adequate
Furniture	3.5	4	1.019	Adequate
Library	2.29	1	1.326	Very Inadequate
Toilets/latrines	2.64	2	1.082	Inadequate
Dormitories	2.43	1	1.284	Very Inadequate
Recreation facilities	2.71	2	1.069	Inadequate
Average number of students per stream	3.5	4	0.65	Adequate
Teaching staff (teacher-student ratio)	3.14	4	1.027	Adequate
Support staff	3.14	3	0.864	Moderately Adequate

From Table 1.2 it is evident that according to the teachers in the area, most of the school teaching and learning facilities were inadequate and this affected the quality of education. According to the observations of Schneider (2002), school facilities significantly affected teaching and learning, hence, poor conditions of school facilities hampered teaching and availability of education to students. The UK Department for International Development (DfID, 2010) emphasizes the importance of quality educational infrastructure in schools, further noting that where the quality of facilities (especially water and sanitation facilities) is maintained and improved, student enrollment and completion increases. According to Geeves and Bredenberg (2015), quality facilities are particularly important for adolescent girls who are menstruating and whose active participation in school during the monthly

period may depend on access to clean toilets separate from those used by boys and water supplies. The findings also agree with of school facilities hampered teaching and availability of education to students. Also high pupil to textbook ratios affects quality and limit expansion of access (UNESCO, 2020). Nyaegah (2011) also asserts that lack of adequate teachers and sufficient learning facilities hinders the government from achieving its goal of students' accessibility to education. However, the impact of these school metrics on quality education from the perspective of the school management and learners in public secondary schools in Kiambu County were yet to be determined, therefore, necessitating the current study.

1.2 Statement of the Problem

Secondary education can be meaningfully realized through provision of quality education. Quality education is has been broadly defined by UNESCO (2004) as; learner characteristics, context, enabling inputs, teaching and learning facilities and learning outcomes. Other parameters of quality education have been outlined by Scheeres (2011) in totality as; school factors, teacher related factors, parental socio-economic factors and principals' leadership practices. Studies, however, suggest that while the policies and reforms have led to improved access to secondary education and, consequently, significant enrolment in secondary education, provision of quality secondary education still remains an unmet need especially in the developing countries. For instance, the schools teaching and learning facilities are strained in some cases while teacher/student interaction is minimized in others. School infrastructure is not also adequate in the vast of secondary schools leading to poor attendance and dropping out altogether for some students. All this coupled with other quality learning metrics including school leadership reflects in poor

performance and school completion rates in various contexts. For example, in some contexts, enrolment has gone up for schools, but many students complete school and still lack basic skills like literacy and numeracy leaving them unprepared for the job market, and gives them very little hope for escaping the cycle of poverty (Goujon et al., 2021). In Kiambu County, findings from the Basic Education Statistical Booklet (2016) suggesting that the public secondary schools in the County have high teacher/pupil ratio while at the same time reflecting poor GER and NER trends are especially worrying. This could suggest the existence of other unmet quality education factors militating against quality education in the County if left unaddressed could significantly impair secondary education in the County in the long term. With a growing population that is eminently young against a rapidly urbanizing background, access to quality secondary education will be important in safeguarding the socio-economic fabric in the area. Several studies done on secondary education performance and school completion in Kiambu County such as (Muindi, 2015; Kiambati & Katana, 2020; Kemuma, 2020) while revealing factors behind these developments such as harassment, school resources, poverty, substance abuse, failed to link the status of quality education as a possible cause to these developments. Therefore, it was important to establish how education metrics in Kiambu County affected the quality education in public secondary in the area, thus necessitating the conducting of the study.

1.3 Purpose of the Study

The purpose of the study was to examine the effect of selected metrics on the quality of education in Kiambu County, Kenya.

1.4 Research Objectives

The objectives of this study were to:

i. Investigate the relationship between school factors and quality of education in secondary schools in Kiambu District.
ii. Establish the relationship between teacher related factors and educational quality in secondary schools in Kiambu District
iii. Determine relationship between parental socio-economic factors and quality of education in secondary schools in Kiambu District.
iv. Examine the relationship between principals' leadership practices and educational quality in secondary schools in Kiambu County.

1.5 Research Hypotheses

The study sought to test the following hypotheses.

$H_{01:}$ There is no significant relationship between the school-based factors and quality of education in secondary schools in Kiambu County.

$H_{02:}$ There is no significant relationship between teacher-related factors and quality of education in secondary schools in Kiambu County.

$H_{03:}$ Parents' socio-economic status does not significantly influence quality of education in secondary schools in Kiambu County.

H04: Principal's leadership practices does not significantly influence quality of education in secondary schools in Kiambu County.

1.6 Significance of the Study

It is expected that the outcomes of this study would go a long way in forming the basis for development of policies and decision-making, geared towards improvement quality of education in secondary schools in Kiambu County especially on school equipping with teaching and learning facilities and teacher placement and principals leadership training. The findings and recommendations could also be useful to education officials; school heads (principals), teachers, students and all key stakeholders of schools, by providing pertinent information that may help in formulation of policies geared towards providing of quality learning in secondary schools, not only in Kiambu County, but in the whole republic.

For the principals and teachers, the findings are meant to facilitate them with insight over the situation in their schools and help them when carrying out planning and budgeting for the schools as well as implementing policy directives on quality education. It could also assist teachers in their routine executive of schools and classroom activities aimed at improving learners' academic performance. The students too could be affected by the resulting managerial and policy actions stemming from the study that will enable them enjoy quality education in the future.

The students' parents as important stakeholders in the process could also benefit from the study findings substantially when disseminated as they will be in a position to understand the challenges the schools were going through in terms of quality education and, hence, also provide additional inputs that could be instrumental in enabling the schools achieve their goal of quality education.

Education officials in the ministry of education may also find the outcome of this study instrumental in addressing their concerns about the state of education policy implementation. And, therefore, the findings together with other related findings could be used for future policy reviews on the basis of the empirical evidence and theoretical arguments.

The study findings could also form basis for further research in future on other aspects that influence provision of excellence education in learning institutions. This could lead to emergence of new ideas that could lead to improvement of students' academic achievement in secondary schools in Kiambu County and Kenya at large. The findings, for instance, have established that contrary to theoretical assumptions of the Functionalism theory that teacher-factors such as teacher absenteeism and teachers' integrity were conflicting forces militating against the education provision, that were in fact having very limited contribution on the quality of education as compared to teachers' professional skills, teachers-qualification and teaching experience.

1.7 Scope of the Study

This study was conducted in secondary schools within Kiambu County of Kenya only. Schools were selected from the sub-counties based on their categories and geographical locations to capture all the possible contributions of the study metrics. These included school based factors, teacher related factors, socio-economic status of parents and institutional management styles. These metrics were selected because they are the key factors that are considered to have major contributions to quality of education in in Kenya and other countries. The study, however, did not examine the issue of school completion

rates and how it affected quality of education. This study targeted secondary school students, secondary school teachers, principals, parents, and County education officers.

1.8 Limitations of the Study

Some participants demonstrated some resistance in providing the required information. However, the researcher made the necessary effort to negotiate and agree with respective respondents on the importance of participating in the study. Accessibility of some documents from the schools administration proved somehow difficult, especially in cases where record keeping was apparently very poor and also in cases where the school management considered the documents to be very confidential and possibly incriminating. However, the researcher made deliberate moves to obtain a research permit from relevant authorities allowing access to official documents including classified ones. Some selected schools were located in remote areas of the county and accessibility was challenging. Nevertheless, the researcher allocated more time to access such areas. In addition, the researcher made arrangements to use means of transport such as motorbikes to negotiate through such areas. The study also encountered theoretical limitations mainly arising from the lack of a universal definition of quality education and an established theoretical framework to support it. However, the study used the widely cited definitions by UNESCO (2004) and Scheeres (2011) to address this limitation. For the theoretical framework, the study used the Functionalist theory of education, the Transformational leadership theory and the Theory of all-round educational quality.

These limitations could influence the external validity of the findings. Consequently, the generalization of results should be done with caution.

1.9 Assumptions of the Study

This study was premised on the assumptions that:

i. The participants would cooperate and give accurate and honest information.

ii. There would be cooperation with school administrators in the provision of valuable documents needed for the study and that they would allow their teachers, students and parents to willingly participate in the study

iii. All respondents could identify the factors leading to provision of quality education in secondary school in Kiambu County.

1.10 Operational Definition of Terms

The key terms of the study as used are defined as follows:

Education- Parents and teachers pass on their knowledge, abilities, and attitudes to their children.

Education quality- in Kiambu County is the total effect of the features of the process or service that provide all students with competencies required to be economically productive, have sustainable livelihoods, contribute to democratic and peaceful societies and improve people's well-being. Quality in this sense can be demonstrated through aspects such as teachers and students discipline, appropriate infrastructure, academic grades and sound management system.

Family income- in Kiambu County is the amount of money received by a family over a given time frame, which could be through returns or work on investments.

Managerial style- The processes and practices employed by an secondary schools in Kiambu County under the supervision of an executive body to streamline all the activities that entail the running of the enterprise.

Performance indicators- These are indices used by operational units, such as, schools, and departments to ascertain the degree to which

programmes are achieving favorable results in secondary schools in Kiambu County.

Principal's leadership Practices- These are lists of teaching-related jobs, and involves the interaction amongst the principal and teachers, learners, other stakeholders and the curriculum meant to impact the quality of education offered in secondary schools in Kiambu County.

Quality- A state in which a product, a process, object or even concept meets the set standards.

Quality assessment- This is the process of measurement of efficiency and as defined by key stakeholders in education and the representatives of the school such as secondary schools in Kiambu County.

School-based factors- These are the aspects and factors within the school set up that have an influence on the provision of high-quality education and include school and class size, physical facilities, instructional materials, learning aids, human and monetary resources among others, needed for the provision of quality education within a school setting.

Selected metrics- These are some of the identified and chosen aspects or factors that influence the education quality in a secondary school in Kiambu County.

Socio-economic factors- These are the home-based factors or social and economic characteristics of the parents/guardians in Kiambu County that directly affects the student's participation in education and include family income, education level of the parents, and marital status.

Standards- These are requirements and conditions against which is evaluated. It's a measure of processes, performances and outcomes that can be quantified or assessed on a continuum.

Student achievement- The measure of the extent of academic content a student learns in a set amount of time with proctored examination results as a key indicator of the success.

Teacher-related factors- These are the professional characteristics of school teachers such as qualifications and experience and all related factors including motivation, work environment and job security that influence how they go about their responsibilities of providing quality education to students.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter deals mainly with both empirical and theoretical literature related to this study. There are several previous studies that delved into topics similar to the current study. The literature provides some important data needed to address the issues mentioned in chapter one particularly purpose of the study. Focus was on metrics that seem to influence education quality in secondary schools in Kiambu County. Review of associated literature helped the researcher to take note of research gaps and justified the need for research on assessment of education quality in secondary schools in Kiambu County. The researcher thought it in order, to set the study in its context before exploring the effects of the various selected metrics. The chapter also discusses a theoretical framework underpinning the study together with a conceptual framework showing the relationships between the independent variables and the dependent variable.

2.2 Quality of Education in Secondary Schools

In as much as there has been tremendous increase in access to primary schools worldwide, access to secondary schools has remained low. According to World Bank (2009), by 2009, the net enrolment rate in secondary schools was about 50 percent, whereas the rate of transition from primary to secondary schools was about 55%. Secondary education has broad and specific goals that include preparation of learners for positive living in the public and higher education. Apart from producing graduates who are prepared for higher education, secondary education serves as a ladder to students' intellectual development and

competencies in the higher education level which allows them to make useful contribution to their nation's growth and development (Chigbu & Ogboegbulem, 2018).

Education is an expensive initiative that requires top notch proficiency, expensive tools and equipment, critical infrastructure including laboratories, dormitories, classrooms, and libraries, as well as, ICT infrastructure and a well-established academic culture (Mualuko & Lucy, 2013). Secondary education has always been financed by various stakeholders including both public and private sectors, external donors and resources provided by communities neighbouring the school.

2.2.1 Measurement of Quality in Education

Defining quality education is quite complex and several definitions exist. Terms such as effectiveness, efficiency, quality and equity have frequently used interchangeably (Adams, 1993). Quality refers to high degree of goodness. It is a degree of fitness to the client's wish to ascertain the maximum level of approval with usefulness in the service rendered. Based on this, quality refers the extent to which the client's satisfaction is met over the product or service received at any given time. Quality should be viewed as a proper that drives the revolution of secondary school education. The changes in education should be gradual and should lead to enhanced quality. For instance, the intensification in learning should be a transformative process that would enable the learner to move to a better level of understanding. The transformation should include change in behaviour, emotions, psychology and morals (Ojo & Adu, 2017). Globally, study has established that the quality of education on offer is critical for the development of a nation since it would lead to elevated economic growth and also improve the output of teachers. In African countries,

rapid expansion of schools has been witnessed in the recent past. However, low quality of education has been reported and this trend has generated debate on whether the expansion has contributed to the degeneration of quality as reported from the studies (Ojo & Adu, 2017).

Quality of education is a wide concept with no clear-cut classification. Terms such as efficacy, equity, effectiveness, and quality are always used interchangeably. Based on all these, the definition of quality needs to be amenable to change so as to take into consideration, the educational evolutions since quality is affected by several factors which could be political, cultural, and economical. According to EFA Global Monitoring Report (2005), the crucial policy options for the improvement of educational processes for developing countries included:

Investing in policies concerning recruitment of teachers, their salaries and conditions of service. This should also encompass remodelling of training of teachers and management of schools to embrace culture related pedagogy and language policies; Decision-making concerning teaching and learning policies need to focus on the establishment of appropriate curriculum goals, coming up with appropriate content, management of learning time and ensuring efficient pedagogy when at the same time selecting suitable language of teaching. Ideal policy of assessment, provision of learning materials and securing the physical environment with adequate facilities; To improve the creation of affiliation between the diverse stakeholders in the education sector for the enhancement of the quality of education and eliminate corruption, and; Access to quality teaching resources.

Encouragements of independence schools run by well-defined frameworks and management; Acknowledging the diversity of learners and the implementation of suitable academic approaches for the underprivileged groups; Better schools guidelines pertaining to self-government schools and enhancement of headship, and; Support resource-deprived schools in utilizing their limited materials through investment in services, networks and design of structures to assist with the sharing of local contextualized educational knowledge (Madani, 2019)

Quality education comprises of students, content, learning environments, outcome, and process. EFA Global Monitoring Report (2005) approved a context comprising of these five factors that affect the education value and also affect its core procedures of learning and teaching. This has availed an enhanced understanding of the compound education system. These scopes are inter-reliant and influence one another in ways that are not predictable. Concentrating on their relations could help with the drawing of an inclusive map to support comprehension, monitoring and improvement of the quality of education (Madani, 2019)

Although substantial consensus currently exists concerning the basic facets of quality education, quality education involves healthy learners who are prepared to learn, and are helped by their immediate families and communities in general. Quality in this context also implies safe and environments that are gender-sensitive and with enough resources and facilities. Such an environment has relevant curricula and resources for teaching and acquiring key skills in literacy and numeracy, together with basic life-skills and knowledge in critical areas such as peace, nutrition, health and gender among others (UNICEF, 2000).

Education quality involves processes that enable trained teachers to use child-friendly learning and teaching methods in an ideal classroom setting. The school should also have the requisite teaching and learning facilities and well laid down plans of assessment. In this context, the findings that include understanding, skills and attitudes, are associated with the national goals for education and significant societal participation (Motala, 2000).

As reported by Igwegbe and Omenyi (2020) education quality is a measure of the extent to which classroom instruction meets the set standards. Quality education comprises excellence learning resource inputs, teaching procedures, development of teachers' abilities, adequate and efficient management, evaluation and quality learning outcome in secondary schools. Quality assurance is one of the critical measures needed to achieve quality education in education systems. It entails the efficient and adequate management, supervision, evaluation and assessment of training and learning in the school system geared towards maintaining the right standards of education at all levels. It encompasses all functions that would ensure that quality education is attained. It is viewed as a process needed to assess the effectiveness and suitability of training and learning experiences in order to deliver high quality education. Quality assurance can also be viewed as the ability of educational institutes to meet the expectations of the uses of human labour in relation to the quality of skills acquired by their input (Chigbu & Ogboegbulem, 2018).

Total quality management (TQM) deals with continuous improvement meant to satisfy the customer's needs. It calls for better participation of employees and encourages teamwork, competitive benchmarking, continuous measurement of outcomes, and teamwork. In a school setting, TQM focuses on leadership, teamwork, strategies for continuous

improvement, commitment, learners' satisfaction and empowerment among other factors (Igwegbe & Omenyi, 2020). Quality governs the extent to which the learners learn and the degree to which their learning translate to benefits, including individual, group and developmental. The sixth goal of the Dakar Framework for Action (2000) emphasised the need for stimulatory pedagogy where the act of teaching and learning conveys life to the curriculum and influences the classroom activities and eventual quality of the outcome.

For this study's purpose, the description of quality borrowed from UNICEF (2000) and Motala (2000). In this regard, quality of education is defined as the kind of education which involves processes by which teachers employ child-centred learning and teaching methods which lead to outcomes integrating knowledge, skills and attitudes upon the learners. More importantly, such aspects are linked to national education goals that enable learners to positively participate in society. Moreover, such quality education needs to be supported by the government, parents and relevant stakeholders to afford appropriate infrastructures, adequate staffing and conducive environment for teaching and learning. This is coupled with well-maintained classrooms and schools, as well as, meticulous assessment that facilitates learning while reducing disparities. The teaching and learning processes should determine the classroom activities and the eventual quality of the learning outcomes (EFA, 2000).

2.2.2 Aspects/Indicators of Quality Education

There are various aspects that can be used to define quality of education depending on the definition purpose of the term. For the purpose of this study, indicators of education quality included national examination scores, County schools performance ranking, as well as, quality control measures such as Teacher Performance Appraisal and Development

(TPAD) and annual reports from sub-county and county education offices on KNEC examinations.

All secondary school students countrywide must sit for KCSE examinations administered by the Kenya National Examinations Council (KNEC). The council is mandated to manage all matters regarding summative evaluation of students, including setting, administering and marking of the examination scripts. It is also the responsibility of KNEC to declare the results nationwide. Indeed, these results are utilized as a key indicator of students' performance at the end of four years secondary school education. The results are also used to gauge the performance of teachers through analysis of respective subjects. Examination performance is measured in terms of mean scores per teacher on each of the seven (7) subjects considered for analysis (subject mean score). These mean scores are ranked by KNEC, from the highest to lowest, per subject. Performance in a particular subject reflects the performance of a student on one hand and that of the teachers on the other, in that subject. In addition, students' performance is measured from the mean score of the grades earned by each student from the total seven (7) subjects examined. According to KNEC guidelines, the grades are based on the marks scored per subject and these range from grade A (highest) to E (lowest). The KNEC ranks all schools according to their categories such as national, county, extra-county and day secondary schools. The school with the highest mean score in each category is ranked the highest and so forth. It follows, therefore, that school ranking by KNEC is a clear indicator of education quality in a school. Results indicate the performance of teachers and students in a school, and hence quite related to the current study.

The Ministry of Education and TSC requires field directors to prepare annual reports on the achievement of schools in national examinations at both county and sub-county levels. The reports give overall performance of schools in various subjects entered for examination as well as students' performance. In this regard, these reports are crucial indicators of quality of education in schools within the county and sub-county levels, respectively.

Performance assessment is a procedure of reviewing conducted by teachers, school heads, deputy school heads and other senior teachers on personal competency, performance and professional requirements. During the appraisal exercise, a teacher and a senior colleague collaborate in assessing the teacher's professional performance. The process looks into all the aspects of teaching such as classroom organization, management of classroom activities, time management, behaviour towards pupils and fellow teachers, school heads, community and the parents. The performance appraisal is done with the aim of getting information to allow the management make decisions regarding identification of training needs, promotions, aspects of motivation and remuneration (Werunga, 2014).

It has been observed that head teachers having strained relations with the teachers most likely opt for autocratic leadership making the staff to comply with rules and regulations out of fear and not as a matter of principles. In such cases, the professional growth of teachers end up being retarded as they devise ways of complying with the set rules due to fear just to please the leadership of the school. Such school environments would make teachers to be resistant to performance appraisal and oppose implementation of any recommendation emanating from the appraisals. Due to such, it's incumbent upon the head teacher to establish cordial relationships in schools to ensure teachers feel comfortable with the appraisal and feel part of the change expected for the school to excel in the provision

of quality education (Werunga, 2014). An ideal performance appraisal needs to be done in an environment that allows both the teacher and the employer to set measurements for evaluation of each of the established objectives.

The TPAD tool is used to evaluate and appraise the performance of a teacher, including the principal. It was introduced by the TSC in 2014, ostensibly to evaluate the teacher's performance in public primary as well as secondary schools, as well as, training colleges which utilize teachers employed by TSC. Performance appraisal for teachers and principals is carried out by TSC at least three (3) times in a term. The evaluation is done using two prescribed forms generated by TSC. All teachers are appraised using the form referenced TSC/QAS/TPAD-T/01/REV.2. On the other hand, principals are evaluated using the form referenced TSC/QAS/TPAD-HPSS/03 which integrates a section on performance contract besides normal appraisal of a teacher (TSC, 2014).

For appraisal purposes, all teachers (including principals) are evaluated on various aspects including lesson preparation, class attendance, time management and ICT integration. Besides being appraised as teachers, principals are also evaluated based on performance contract (PC) as provided in Part 2.0 of the TPAD tool for principals. Among the issues evaluated on the performance of principals includes financial management, customer satisfaction, administration and management, curriculum implementation and co-curricular activities. Other areas for evaluation cover school safety and security, environmental issues and human resource management. From the foregoing analysis, TPAD tools are very appropriate in determining the performance of teachers and principals in many aspects that indicate education quality. TPAD therefore, is a good indicator of education quality.

In Kenya, studies on the efficiency of performance appraisal have been carried out. The findings showed that the appraisal policies and practices exhibited weaknesses which needed drastic interventions if the reports are to positively impact the provision of better learning in schools. The studies have also reported that these appraisals were majorly handled by the school heads and heads of departments while teachers' involvement was dismal. The failure to engage teachers in the setting of achievement standards is viewed as a weakness affecting the whole performance appraisal system. It has been reported that performance appraisal influenced teacher development, enhanced teacher motivation and brought about innovation of methods for curriculum implementation (Wanjiku, 2013).

According to the Basic Education Act, Section 19, the Directorate of Quality Assurance and Standards in the Ministry of Education produces various inspection reports on areas such as curriculum implementation, administration and management, and school infrastructure (MoE, 2012). In this regard, the two reports are appropriate as indicators of quality of education in secondary schools and hence, are quite relevant for this study.

2.3 Factors that Influence Quality of Education in Kenya

Quality education is the total effect of the features and process or service that provide learners with the aptitudes that are required for them to be economically useful, enhance individual well-being and be productive members of the larger society. Several factors influence the quality education provided in secondary schools. These factors include; socio-economic background of the learner and parents/guardian, teacher traits, teaching conditions and work environment, school management and the school head's background. In this regard, this study will evaluate how traits of the learner, those of the teacher and their teaching conditions; school facilities; leadership and management style of the school,

affect provision of quality education in secondary schools in Kiambu County. These factors are ideal for this study because a concerted effort between the learner, teacher, school environment and support from home is essential in the provision of excellence education.

2.4 School-Based Factors

School factors have serious effects on the provision of quality education in schools. These factors include school and class size, availability of physical facilities like laboratories and learning resources like text books and learning aids, among others.

2.4.1.1 School and Class Size

In their study on schools in USA, Leithwood and Jantzi (2009) established that learners from poor socio-economic backgrounds benefited immensely by attending smaller schools. Coupé et al. (2011) as well reported that school size typically had a positive consequence on the school's performance as indicated by examination score. This effect was greater for urban schools. Moreover, the authors reported that larger schools had a higher ratio of participation. Related findings were reported by Bukowska and Siwinska-Gorzela (2010) whose study focused on the impact of school size on the education quality in Poland and there before by Kallai and Maniu (2004) in Romania. Positive and momentous correlation of the size of school was reported, both for rural and urban schools in the case of Poland and mostly for girls in the case of Romania. The impact was greater for metropolitan schools. In as much as several studies vouch for small class sizes as a way of improving education quality, several other factors, such as teacher motivation and availability of enough learning resources, are pertinent to the stipulation of quality education. Therefore, especially in cases where teacher motivation is low and instructional materials are inadequate, having smaller classes is not a guarantee for stipulation of quality education.

Ehrenberg, Brewer, Gamoran and Willms (2001) reported that it was hard to conclusively relate the impacts of class size and performance. According to their findings, other aspects including classroom, school environment, background and motivation of the student together with community influence affected the learning outcome of the students and could not be readily separated from class size. However, it needs to be observed that large classes limit the amount of interaction between learner and the teacher. It is during the interaction that learners clarify various points of issue to enhance understanding and memory. Besides, it is much easier to provide adequate learning facilities/resources to smaller class sizes than in large class sizes.

In addition, Stiefel et al. (2000) claimed that students studying in smaller schools could exhibit better academic performance due to good working connections between teachers and learners. Similarly, in a study by Bryk et al. (1993) it was observed that close and good working connections between learners and teachers form a sense of community which in turn, helps the learning process. In addition, guardians could be well engaged in student's learning processes in smaller schools as compared to larger schools. The improved parental involvement in student's education could be pre-determined by the community sense that is characteristic in small schools; thus leading to quality regulation over student's academic achievement and enhanced academic achievements (Stiefel et al., 2000).

Nye et al. (2004) hypothesized that small classes permits teachers to have more effective individualized tutoring to students. Small classes are also associated to minimal disruptions leading to effective teaching experiences. Small classes easily enhance teacher self-confidence and minimized discipline issues (Miller-Whitehead, 2003). She reported that small classes negated the important of remediation by providing opportunities for early

identification and prevention of problems that could disrupt the learning process. Miller-Whitehead (2003) also asserted that the long-term advantages of small classes include enhanced graduation rates, reduced dropout rates and minimal teen pregnancy, among others. This is because, small classes allow for closer and useful professional relationships between the teacher and the learner, provision of mentorship and guidance and early identification of learner challenges which may be dealt with easily before it is too late.

A study in South-western Nigeria by Yala (2010) focused on how class size affected students' achievement in mathematics. The study was carried out in 36 senior secondary schools spread across six states and involved 1750 students and 123 teachers of mathematics. The study established that those students in big classes performed poorly when compared to those in small classes. The difference in achievements of males and females was also observed in either of the groups. From the outcomes of this study, the study recommended that government and policy developers should work towards the construction of additional classrooms to ensure that the average size of the class is 30 students.

As reported by Giku (2018) class size affects both the learners and the teacher in that large classes provide difficulties to the teacher in terms of class control while small classes allow fir individualized attention to the learners hence leading to better academic performance. Large classes might also end up demotivating the teacher on the possibilities of the learners improving or doing well in academics. Small classes give the teachers the chance to know the learners individually because it provides avenue for the learners to closely interact with the teachers. Large classes on the other hand, provide key challenges including class

management, learner control, and difficulty in marking, planning and assessing the learners (Giku, 2018).

According to Gakure et al. (2013), class size affect how much is learnt in a classroom. The size influenced aspects including levels of classroom engagements which in turn could affect the activities that should be promoted by the teacher during a lesson. The class size also determines the amount of time that the teacher dedicates to individual learners and their particular needs. Research findings show that learners in smaller classes do perform well than those in bigger classes (Bruhwiler & Blatchford, 2011; Chingos, 2013).

According to other researchers, students could benefit from large class sizes. Pong as well as Pallas (2001) acknowledged that part of the studies established that learners perform better in bigger classes. Their assertion was based on the hypothesis that there are higher chances of experienced teachers being assigned to handle the large classes or poor-performing students being placed in smaller classes. Borland et al. (2005) reported that large classes could lead to an increase in implied associated skills from which a learner could benefit and in such instances, the peer impacts on student performance were anticipated to be enhanced positively. Moreover, the larger classes could enhance the spirit of competition, thus leading to better academic performance by the students of those classes. Afolabi (2002) on the other hand, reported no momentous correlation among the size of the class and learning results of students.

In as much as many studies have opined that large classes could be problematic, some researchers have argued that larger classes could provide unique opportunities not possible with smaller classes. For instance, the decreased teacher-to-learner interactions observed

in large classes, could provide opportunities for the learners to interact more amongst themselves, thus encouraging peer learning leading to better academic achievements (Ndethiu et al., 2017). Even though ICT could be used in the management of large classes and improvement of learning outcomes, most developing nations, Kenya included are yet to adequately deployed use of technology within the classrooms as may have been anticipated. This is in spite of the Kenyan government efforts to improve ICT use and accessibility in schools. Both teachers and the school leadership should be in the forefront regarding uptake and use of ICT in learning, especially in large classroom settings where conventional methods of content delivery would seem in adequate (Ndethiu et al., 2017)

A study on the impact of pupil-teacher ratio on academic achievement in public primary schools in Kenya established that, the ratio of Pupil-teacher had statistically momentous impact on the learner's academic performance in learning institutions. It indicated that the increasing pupil-teacher ratio led to a significant decrease in average performance of the pupils (Waita, 2012). Similar findings were reported by David (2014), who in his study in Sumbawanga District of Tanzania, reported that the low number of teachers handling many learners had influence on the academic achievement. The study reported that the teacher-to-learner ratio stood between 52:1 and 72:1. Massive increase in enrolment and transition from primary to secondary schools have led to expansion of classrooms to accommodate more students. Survey by UNICEF/UNESCO revealed that class sizes difference was between 30 learners in urban and rural Maldives, Madagascar, and Bhutan, 118 in Equatorial Guinea and 73 in rural Nepal. There is a correlation between class size and students' academic performance, though various studies haven't been conclusive (Madani, 2019).

In comparison with the foregoing discussions and findings, Kenyan secondary school education system is mostly known for overcrowded classes, where the students-teacher ratio is always high. This overcrowding has been made worse by the introduction of both FPE and FDSE, while the physical facilities have not always been expanded or improved at the same rate. Student-teacher ratio are commonly used as comprehensive indicators of the overall quality of a school or education system. The recommended class sizes according to international standards is 40 students. However, comparison in different countries reveals that in OECD member countries, class sizes range from 19 to 32 in lower secondary. In Africa, the student-teacher ratio in public secondary schools range between 11.11 and 68.13. In Kenyan secondary schools, class sizes are becoming increasingly larger leading to difficulties in class management (Waiganjo et al., 2020). This study therefore, was interested in finding out any relationship between class size and provision of quality education in secondary schools in Kiambu County.

2.3.1.2 Instructional materials

Instructional materials are any kind of materials that ease the acts of training and learning in a school environment (Bitamazire, 2005). Some of these materials comprise, visual aids, textbooks and learning tools (Musaazi, 1982). Efficient usage of teaching resources facilitates learning, capture and hold the attention of the students, improve retention and improve mastery of the theories being taught, hence enhancing academic performance (Ajuago, 2002). Learning materials comprises of both learning and teaching resources including text books, charts and physical infrastructures like library, classrooms and playing fields. The physical appearance and layout of a classroom is key to effective learning since it encourages emotional and social wellbeing of the learners. Learning

environment include the physical school environment together with all the school amenities needed for efficient learning. Availability and prudent use of facilities such as libraries and laboratories improve the learning situation leading to good quality of education (Wambua et al., 2018).

Availability of instructional materials such as textbooks and space, influence achievement (Muhiire, 2002). Ajuago (2002) noted that availability of adequate learning materials have an affirmative and significant relation on the performance of the students since they facilitate comprehension of basic concepts and assist in class management. Since the introduction of FDSE, the student-book ratio is still at an acceptably low level while teaching aids are in most cases, usually inadequate or completely lacking in some schools. It would be interesting, therefore, for this study to establish the level of availability of instructional resources in schools and establish any correlation with students' achievements.

2.3.1.3 Physical facilities

Earthman et al. (1996) reported that 11th grade learners learning in an above-standard building recorded top scores as established by Comprehensive Test of Basic Skills when compared to their corresponding learners learning in substandard amenities. Cash (1993) reported that, holding socio-economic aspects constant, conditions of the school facilities had a positive relationship with student performance. Cash (1993) expressly established that aspects of the physical facilities, including air conditioning, lack of graffiti, science laboratories' state, locker accommodations, furniture's state, wall color and audio levels had strong and significant relationships with student achievement.

Educational physical facilities encompass school space, furniture, classrooms, libraries, water toilets, and the standards and conditions of the facilities within the (Ankomah et al., 2005). Buildings are useful in providing optimum learning environment to both teachers and learners (Muguluma, 2004). The school's physical condition has an impact on the achievements of the student. Physical amenities are key in the provision of holistic education and should be at the centre of all efforts meant to enhance quality of learning offered in schools. Availability and adequacy of physical facilities enhance the achievement of students in academics. However, most schools in Africa have inadequate physical facilities needed for provision of holistic education. This in turn has resulted to heavy workload to the instructors and jeopardized necessary interactions between students and the teachers (Ndirangu et al., 2016). The quality of school facilities directly influence the learning outcomes. Studies have shown that the rates of repetition and success rates of students studying under poor classrooms and with poor physical facilities were very lower when compared to those studying in well-resourced schools (Madani, 2019).

School libraries are important in providing the requisite materials needed for teaching-learning process. They are also a source of recreational materials that arouse students' interest. Therefore, provision of a library would lead to improved retention of students in schools through increased motivation characterized by high test scores and higher graduation rates (Ng'aru, 2018). Provision of textbooks improves access to information, guided understanding of concepts and also provide balanced chronological presentation of facts. Studies have showed that Kenyan schools have insufficient teaching-learning materials, overcrowded classrooms and inadequate learning facilities such as textbooks and laboratory equipment and reagents (Ng'aru, 2018).

Schools with adequate physical facilities have continuously registered good performances in KCSE exams as reported by Bakari et al. (2012) who conducted a study on how physical facilities affected performance in KCSE in Bungoma, Kenya. The study reported that schools with limited facilities registered fluctuating academic performances in KCSE exams, thus underscoring the significance of physical facilities in influencing the learning outcomes in a school. A research by Likoko et al. (2013) that focused on how adequate the learning materials and physical amenities were in Kenyan schools, reported that a number of schools had inadequate classrooms, chairs, and desks, thus causing congestion in the classrooms, with the end results being frustrations among the learners leading to poor performances. Proper use of teaching-learning resources improve students' motivation leading to high assessment score. It's also been revealed that sharing teaching and learning materials limit students' accessibility to the materials, thus leading to low academic achievements of learners (Ng'aru, 2018).

Buildings for educational purposes should be ideal in order to support learning process; they should be comfortable and secure in order to provide inspiration, both to the teachers and the learners. The buildings should have adequate ventilation, excellent lighting, and comfortable. Such an ideal school climate would lead to higher academic outcomes and the reverse outcome would be observed in cases where school buildings and overall school climate is bad. Bad school environments are characterized with high cases of students' absenteeism leading to deteriorating quality of education (Kibuthu et al., 2016). Most schools in Kenya lack adequate school buildings to facilitate quality learning and majority of the existing structures are of poor quality and in bad state. Besides, most classes are

overcrowded thus limiting students-teacher interactions. A number of these buildings are poorly designed, planned and the quality of construction is generally poor.

In comparison, most secondary schools in Kenya are characterized by insufficient physical amenities such as, ill-equipped science laboratories, poorly constructed classrooms and dormitories and congested accommodation, among others. In most cases, schools that perform well in KCSE examinations usually boast of better physical facilities such as science laboratories that enhance and improve learning outcomes in specific subjects. It was therefore, prudent for this study to assess the conditions and levels of physical amenities in secondary schools in Kiambu County and establish any relationship with quality of education.

2.5 Teacher-Related Factors and Quality of Education

Teachers are a vital cog in the education sector of every nation. Qualified, highly motivated and supported teachers are the driving force of learning process in early childhood education, primary and secondary schools as well. Teachers are a critical education resource in every country. An effective teacher has a greater influence on what and how much content is learnt by the students and the extent of their achievements (Sephania, 2017). Teaching refers to all the activities that are carryout to impart ideas and knowledge into the students. Teachers have to arouse the interests of the learners to enable them participate actively during the learning process. Teaching therefore, is a means through which necessary changes are inculcated in human abilities and behaviour. Through teaching, learners are expected to make some desirable changes in behaviour patterns through classroom engagement with teachers and other pupils within certain defined activities. Teaching also involves guiding, stimulating and motivating together with

evaluation of the learner in an academic institution through a well-structured educational curriculum of instructions geared towards achieving favourable goals, including multifaceted development of the learner.

A teacher is viewed as a guide, stimulator/motivator and an evaluator. Based on the foregoing, a teacher is an important stakeholder in the providing quality education in schools (Ojo & Adu, 2017). It has been reported that trainers have a significant impact on students' academic performance. They play an essential role in the achievement of academic goals it's the teacher who is ultimately in charge of translating policies into action and principles, brought about by his/her interactions with the learners (Afe, 2001). Teachers are the valuable interface in the transfer of knowledge, values and skills during learning and any ineffectiveness on the side of the teacher would definitely be reflected on the student's inadequate academic progress. This is irrespective of how different the learners are based on individual characteristics in academic performance.

Conducive working environment is needed for teachers to perform their duties efficiently and successfully. Training cannot take place adequately in the absence of basic requirements vital for self-protection and survival of teachers. Such instances often lead to high drop-out rates and withdrawal of teachers out of fear of being harassed, violence and rampant cases of indiscipline (Madani, 2019). Researchers have found out that the impact of teacher characteristics like gender, academic qualifications, and teaching experience on academic achievement of the students with different outcomes. Akiri and Ugborugbo (2009) reported that there was a significant correlation among student's academic performance and teachers' gender. Teachers' experience and educational qualifications have also been reported as key indicators of students' academic performance (Yala &

Wanjohi, 2011; Adeyemi, 2010). However, Rivkin et al. (2005) concluded that teachers' teaching experience and academic qualifications had no significant correlation with academic achievements of the student. This is strange noting that teacher's qualification determines the teacher's ability to select the content to teach and communicate the same.

A study done by Etsy (2005) in Ghana, highlighted factors including cases of lateness, absenteeism and inability to complete the syllabus by the teachers, as key factors influencing academic achievement among students. According to Oredein and Oloyede (2007), the approach taken by teachers on managing the assignments given to students determines how students perform academically. Teachers who provide adequate explanations and motivation to students, coupled with review of assignments done by the students, have a higher likelihood of encouraging students to excel academically.

The number of teachers in a school, pupil/teacher ratio, qualifications of teachers and individual teacher attributes (pedagogical training, aptitude, and teaching experience) are some of the teacher factors that have been linked to have effect on academic performance of the learners (Ankomah et al., 2005). The degree to which other factors can positively influence the education quality is directly associated to the degree to which teachers efficiently use the factors to uplift learning and teaching programmes and events in a classroom setting.

The findings of Olembo et al. (2005) were corroborated by Nannyonjo (2007) who analyzed the factor influencing learning achievement in Uganda and also highlighted key teacher characteristics, including qualifications, age, experience, teaching strategies and evaluation systems as critical in influencing students' performance. Olembo et al. (2002)

set out to establish the teacher's role in school performance in the former Nyanza Province. The study concluded that the significant role of teachers in curriculum implementation and classroom management had significant role in enhancing the academic achievement of the learners. The results revealed that role of the teacher directly influenced how students performed in examinations.

2.5.1 Teacher motivation

Motivation refers to the urge to learn, perform duties effectively, and achieve set targets (Martin, 2003). Teacher motivation has direct consequences on the learners. Teachers need to take individual accountability for their professional performance and development (Alam, 2011). Teacher incentive is a key variable with strong correlation with students' motivation (Gardner, 2005). Therefore, the extent to which a teacher motivate the learners greatly depends on his or her own motivation. (Bernaus et al., 2009; Guilloteaux & Dornyei, 2008). High teacher inspiration would most likely improve effectiveness leading to enhanced performance of both the learners and the teacher (Kusereka, 2003). Low motivation on the other hand, most definitely would cause reduced effectiveness, high turn-over of teachers to other better schools or more rewarding jobs (Frederick, 2001).

Poor remuneration, excessive workload and bad work environment coupled with poor infrastructure such as inadequate learning and teaching materials all lead to poor performance by both teachers and learners. These problems are exacerbated by low teacher morale, poor working relations among staff and poor leadership by the school head teacher (Nadeem et al., 2011). Other factors that may lead to poor performance include political interference, home-related challenges, distance from workplace, and stress among others.

A report by Institute for International Economic Policy (2004) found that lack of motivating incentives and differentiation of roles amongst teachers lead to low inspiration and poor performance. According to Dinham and Scott (2000), teachers' inspiration is affected by factors that include pay, interpersonal-relationships, poor management, excessive load, lack of promotion and administrative shortcomings among others. Teachers should always look forward to availability of opportunities for self-actualization that would enable them to fully use and exploit their talents. Through this, they would also be able to succeed and reach the peak of satisfaction as reflected by achievements of their students (Nieto, 2003; Dörnyei & Ushioda, 2011). Analoui (2000) notes that deterioration of standards of professional behavior and poor professional performance are a reflection of low teacher motivation. Teacher absenteeism, less adequate time on task, limited effort in teaching practices, and devotion of inadequate time to extra-curricular activities and over-reliance on outdated teacher-centered practices, are some of the consequences of low teacher morale.

Another study in Sub Saharan Africa by Bennell (2004) noted that enticements and sanctions in schools are often weak leading to poor performance by learners and teachers. This is mostly manifested in instances where school management are unable to effect disciplinary actions against teachers exhibiting unacceptable behavior such as, absenteeism, lateness and poor teaching routines. In addition, Carron (1996) observed that in some instances, due to low teacher salaries, the school processes are planned in a way that creates room for the teachers to make extra earnings from other sources. Most school heads also engage in these 'survival' activities. As a result, such activities meant to

generate the extra income end up lowering the morale of the teachers and finally, their performance in the teaching profession deteriorates drastically.

Kasaija (1991) observed that both financial and non-financial incentives boosts teacher's morale. Money, in form of salary, allowances, wages or bonus is the greatest motivation to teachers. However, besides money, other factors, including teaching conditions, working environment, teacher involvement in decision making, and job security are also critical factors affecting teacher morale (Mumanyire, 2005).

The three principle elements of motivation include needs, drives and incentives. Physiological and psychological imbalances lead to the creation of needs even if in some instances, physiological needs arise as a result of some deficiencies. Drives are action based and provide an impetus for reaching an incentive. Since they are set up to alleviate needs, drives/motives are central to the motivational process. An incentive on the other hand is anything that alleviates a need or minimize a drive. Hence, reaching an incentive would more often than not restore psychological and physiological balances and decrease or cut-off the drive (Muchelule, 2015).

Teacher motivation embraces both the tangible and intangible conditions at the work place that have the potential to positively influence the teachers' outputs and enable them to portray desirable characteristics leading to good professional conduct. Some desirable behaviour include positive attitude towards students and teaching, positive perceptions of the employer and work conditions, and beliefs about self as a valuable professional teacher. It is vital that the basic needs of the teacher is first met before shifting focus on meeting higher order needs that include self-actualization and achievement of professional goals.

After the more intrinsic needs and environmental needs are met, the focus should then shift to the more intrinsic factors that are known to highly motivate the teachers and enhance their performance and improved professional conduct (Muchelule, 2015). A motivational strategy that aims to generate in a teacher, the drive to attain set school goals needs to be put in place. Such a strategy should be capable of making the tasks to be more fulfilling to the teachers by generating intrinsic motivation in the teacher. Such strategies could include social recognition and professional prestige, financial incentives, availing of opportunities for professional advancements, availing of adequate materials and basic infrastructure and valuing teacher's opinion when making key decisions concerning their welfare and that of the learners (Muchelule, 2015).

There is need of creating a performance enhancement culture in all schools, with clear focus on adequately providing for the needs of the teachers since this is one of the key tools of enhancing the students' performance. Particularly, teachers should know the expectations bestowed upon them, should receive feedback on their performance and should also have adequate and qualified support staff. The assessment of the teacher's performance should be based on his or her activities in the classroom since this adequately evaluates the teacher's readiness and competence. Such evaluations could take the forms of teacher tests and students' achievement gain (Muchelule, 2015).

2.5.2 Teacher quality

Quality of education majorly depends on the teachers' quality since its teachers who determine the quality of teaching and students' learning quality. Since it's never easy developing right teaching and learning competencies by teachers during their college studies, teachers need to learn to improve their competencies through regular refresher

courses and trainings. Therefore, teachers must identify their gaps in teaching competencies and go for short training meant to improve their skills in those areas where they are less competent (Wolde, 2021). According to Kempton (2013), effective professional development and learning should focus on the learning needs of the learners with on-going effective evaluation of outcomes; be appropriate and relevant to teacher's class and should be sustainable while contributing to the general growth of the school. The process should have input of external experts, be based on best practices and should continuously provide new knowledge, ideas and skills relevant to teachers.

It should also be delivered appropriately in times of content and by skilled practitioners. Efficient professional development is cyclical, on-going, and can be divided into three stages: vision building, implementation, and sustainment; creates a learning environment in which teachers continue to improve their practice to meet the requirements of their learners; and produces a learning community. However, a number of professional development practices still dwell on content delivery instead of enhancing learning (Wolde, 2021). For effective learning teachers need to look into their own learning requirements with reference to their particular school environment and should always work towards improving their own lifelong learning so as to develop and improve their understanding and skills. This is quite necessary due to the ever evolving needs of learners based on the changing trends in culture, economy and technology (Wolde, 2021).

Teacher quality is the most critical factor that determines student achievement (Mulkeen et al., 2005). According to Aneja (2015), a teacher is a person that educates pupils and

students. He is a facilitator of learning who in most cases underwent formal training in a teacher training institution in theory and in practice to become a teacher. He is a great agent of social change and he translates educational policies and programmes into practice. He spurs national development and he is the greatest tool for nation building. He does these through modifying and moulding of students' character, teaching them skills, values and attitudes that will at best make them to be self-reliant and contributory agents to their nations' development and peace. A teacher is therefore a trained person with a wealth of knowledge, experience and modified character got through formal training and engaged in classroom to implement curriculum to change the behaviour of the learners (Chigbu & Ogboegbulem, 2018).

Educational quality and reformation largely depends on availability of a good teacher. A skilled teacher should have good content mastery and be able to evaluate and assess the learners. Sadly, a number of teachers in developing nations still depend, exclusively on traditional teaching methods dependent on memorization instead of focusing on cognitive skills. The academic performance of a learner relies on the trainer's command of the subject matter and therefore, the quality of the teacher is often an indicator of the quality of education on offer. There is significant variation in teachers' qualifications, efficiency, and training across the world and this definitely is reflected in the varying quality of education offered across the globe (Madani, 2019).

Ankomah et. al. (2005) noted that insufficient number of teachers, student/teacher ratio, and extent of pedagogical training, qualifications and experience are key determinants that affect teacher performance. Kinungu-Kirindiriza (1989) defined teacher competency to encompass; preparation of the lesson, teacher proficiency, classroom management,

motivation of learners to participate during the lesson, punctuality and discipline. The definition also include participation in co-curricular activities, and in social affairs within the community. Global studies have shown that chance to be trained and duration taken on a task improves learners' performance. This is however affected by challenges experienced by teachers such as long distance from school, inadequate housing and in some instances, teachers having other secondary occupations that hinder them from being in school in time and taking adequate time with the learners (Colby et al., 2000). Similarly, Mulkeen et al. (2005) affirms that this leads to reduced contact hours for both teaching and participation in extra-curriculum activities which have been reported to be quite low in Sub-Saharan Africa. Consequently, this may cause the performance to decline (Aganze, 1998), since the actual improvement in quality is directly determined by the activities conducted in the classroom (De Grauwe & Naidoo, 2004).

Effectiveness of teaching depends on various resources functioning in tandem in achieving desired goals. It should focus on the outcomes and the institution's accomplishments. Cases of bad and inadequate teaching processes in some schools have been attributed to absence of motivation and insufficient training for the teachers to manage the routine challenges in the profession. Moreover, Secondary school education has been adversely affected due to absence of adequate skills and facilities needed by teachers to perform their duties effectively. The students graduating from secondary schools re often viewed as ill-prepared and do not demonstrate the competencies required at the workplace and in life. Due to this, they are seen as a burden to the society and teachers in secondary schools are often accused of giving inadequate attention by focusing on conceptual knowledge rather than procedural

knowledge. This is a clear sign that a number of students only focus on memorization instead of understanding the key concepts (Ojo & Adu, 2017).

In Kenya, most secondary schools are characterized by heavy workloads for teachers as a result of teacher shortage and low pupil/teacher ratio. The teachers are also rarely given an incentive to boost their motivation. Since extra tuition in schools was also banned (MoE, 2013) there are no extra ways of getting monetary rewards by the teachers, apart from the annual prize giving days when teachers are usually rewarded based on students' performance in KCSE examination results. All these factors lower the teachers' morale and therefore, most likely affect their performance, and subsequently, the performance of the learners. Low pupil/teacher ratios in most schools also prompt the school management to hire untrained teachers to help with syllabus coverage. In some instances, these untrained teachers lack the necessary pedagogical skills that are vital for adequate delivery of syllabus content to the learners. These factors, therefore, would influence the achievement of learners in secondary schools. This study sought to find out a connection between teacher factors and academic performance in secondary schools in Kiambu County.

2.6 Socio-Economic Status of the Parents

The parent's social economic status is of concern on the ability of the parent to be engaged in the welfare of their children's education. Family have significant influence in the academic life of a learner. Effective learning involves concerted efforts between the learners, parents and teachers. Family's involvement affects the emotional and motivational levels of a learner towards education. The socio-economic aspects of a family play an essential role in the academic performance of a learner since these aspects

determine whether a learner's needs such as provision of conducive learning environment, basic needs like food and learning materials are met (Gobena, 2018).

Parental contribution in the education of their children can be through six styles that encompass learning, parenting, volunteering, communication, making decisions and community partnership. Parent's contribution in the education of their children intrinsically motivate the learners leading to good academic performance (Epstein, 2011; Pavalache-Iliea & Irdiab, 2015). Parental involvement lead to improved performance, increased school attendance, fewer cases of indiscipline and increased career aspirations among learners (Epstein, 2011).

Studies have reported that involvement of parents in school activities has positive relationship with learners' academic performance and success. Parents boost the morale of both the learners and teachers through established partnerships between schools and communities. The parents also have the core responsibilities of bringing up children through setting of good examples for them to emulate. They are also responsible for instilling in them, sense of responsibility to make them better citizens (Halsey, 2004; Christie, 2005). Complementary relationship between parents and teachers is crucial and leads to a foundation for teaching-learning pedagogies that are critical both at home and at school (Guanyinmiao, 2012).

Parental background and education level plays a critical role in students' access to quality educational. A parent's socio-economic status greatly influence their decision on where the children enrol for school. Academically, children of poorly educated parents often attain lower scores and often have high repetition rates when compared with children whose

parents have at least secondary school level of education. Therefore, its prudent that parents are included in academic matters of their children, especially in developing countries. In Sri Lanka, an eight-week program was carried out to improve literacy skills of illiterate low-income mothers positively influenced the education outcomes of their children (Madani, 2019).

The socio-economic status of a family has an impact on the academic achievement of the students. As reported by Obanya and Ezewu (1988) the superior the socio-economic status of a family the more the likelihood of their being motivated to perform better. The study considered level of education of the parent, family earnings and the marital status of the parents. Nabbumba (1994) also reported a positive correlation between learners' performance and education levels of their parents.

As reported by Juma (2016) in his study on how parental marital status and education level affected academic achievements of African-American students; the revealed that students from affluent and middle socio-economic family backgrounds had access to good learning environment due to the existence of better learning facilities such as computers and TVs at home. They therefore exhibited high academic achievements. On the contrary, children from families of low socio-economic standing had no exposure to such facilities at home and were bound to register lower academic achievements. For proper social and emotional development, learners need a strong and reliable care giver providing unconditional love, guidance and support. They also require safe and stable environment (Juma, 2016).

2.5.3 Family income

Parents' occupation is a critical factor in the provision of excellence education of a learner (Schildberg-Hörisch, 2016; Usaini & Abubakar, 2015). There is significant relationship between parents' occupation and academic achievement of the student. Studies have however shown that the influence of both parent's occupations differ. A research conducted in Bangladesh by Hosque et al. (2017) reported that employment status of mothers had negative impact on learners' school work. This was attributed to the conflict between the mum's caregiver responsibilities and material provision due to the mother's occupation which created an exchange in such a way that the mothers had to give up some aspects of supervision on the children at the expense of earning some income.

On the contrary, Usaini and Abubakar (2015) in their investigation in Malaysia reported that kids whose mums had high-status professions like teaching, and banking, recorded quality performance in matriculation examinations when compared to children whose mothers had less prominent careers. In majority of these studies, fathers' occupation had positive correlation with student's educational achievement. Usaini and Abubakar (2015) and Hosque et al. (2017) confirm that the greater the status of the father, the greater the success of their children in school. Thus, this view seems to suggest that for a student to achieve high academic achievement, the father is better off as a service provider than a caregiver.

Sentamu (2003) reported that family incomes give bearing of the types of schools that the children attend. According to Sentamu (2003), family income is the total monetary gain by

a family over a certain duration of time. The income has both positive and negative outcome on learners' academic achievement. For instance, low family income has negative influence on a child's learning outcome, especially for polygamous families. This is explained by the fact that the big polygamous families burden the parents in terms of providing learning materials, paying school fees as well as providing the other basic needs for the family. And in instances where parents are separated, there is the likelihood of mistreatment of the children by stepmothers, hence leading to low academic achievements in school. In families where the marriage is stable, the collective control over the children lead to discipline since the children receive adequate parental attention, love, security and guidance. Besides, the children in such families are often well supported and motivated to achieve more in their studies. The findings of Sentamu (2003) was in agreement to that by Coombs (1985) who also reported far better academic performances for children whose parents had good occupation. The performance in this case was much better when compared to children who were equally bright, but came from poor financial backgrounds. Family income positively influences the academic outcome and opportunities of children. Richer parents are capable of enrolling their children in high-cost schools where they are more likely to perform better academically (Escarce, 2003).

Juma (2016) reported that students whose parents have formal occupation often register better academic performance when compared to those whose parents are either jobless or are in informal employment. This finding was based on a study conducted in Malaysia on "the effect of parental occupation on the academic performance of secondary school students". Parents in menial occupations earn meagre incomes characterized by long working hours and often have little or no time to engage in their children's academic

pursuits (Juma, 2016). Parents generally take part in the learning of their children through provision of ideal and secure environment, assisting with discussions on academic maters, and being a role model, thus motivating the child to work towards personal fulfilment. Parental participation in education of their children lead to significantly better effect with regards to academic performance of the children (Juma, 2016). Since Kiambu County is well endowed economically, it was important to establish the relationship of this factor with the quality of education in the County.

2.5.4 Parental level of education

Educated parents often go out of their way and adequately cater for the learning needs of their children. This kindle learning and good academic achievement by the children. Such parents are always focused on the educational status of their children and they at times create time to coach them or engage part-time coaches to help the children improve academically. Educated parents also in most cases do enroll their kids to the best-performing primary and nursery schools to provide solid foundation that serve as a gateway to better secondary schools and even universities, thus offering them the opportunity to occupy higher positions within the society (Ezewu, 1988).

As reported by Sentamu (2003) the academic attainments of guardians determine the nature of schools attended by their kids. In most instances, the schools are always similar or better than those attended by those parents. It is from such schools where the children establish strong foundations for good academic achievements. Considine and Zappala (2002) established that families having educated parents fostered greater level of academic performance due to the perceived psychological support provided to the children. Their

investigation, conducted in Australia, focused on impact of education drawbacks in the educational performance of a school.

Research has shown that more highly educated parents, especially mothers have higher likelihood of succeeding in providing their children with critical cognitive skills, thus leading to their high achievements in school. It has also been noted that parents having higher academic qualifications have the confidence in the academic abilities of their children and put higher expectations in their schooling. This acts as a motivation to the children who in turn gain confidence and work harder, hence performing well academically. However, it has also been noted that in some instances, parents' over expectations could be detrimental to a child's progress in school (Juma, 2016). Children often view their parents as role models and would always learn god study habits such as reading books, visiting libraries and all other education-related activities from their parents. Emulating such activities from parents have long term effects of motivating the children to do well in school (Juma, 2016)

2.5.5 Marital status of Parents

The impacts of marital status on the academic performance of the learner can either be positive or negative, based on the family organization. Kasirye (1995) noted that polygamous and extended families, with possible lower earnings, more often than not, have negative impact on the academic performance of the learner. For instance, a large number of children overburden the parents through provision of basic needs. Such parents fail to adequately provide for the children's education. The study also reported that in families where parents are confrontational, children are often overlooked and abandoned. This, affect children's performance both in school and at home. Penny (2001) reported that the

marital status of the parent had significant impacts on learners' performance and she observed that there was likelihood of mistreatment of children, especially those living with their stepmothers. On the other hand, children from stable households were more likely to perform better in school.

Kiambu County is characterized by a population whose socio-economic characteristics are extreme, that is, a portion of the population is of high socio-economic standing while the other portion is of low-socio-economic condition. Therefore, this study sought to establish the socio-economic status of the guardians/parents of learners in secondary schools in Kiambu County and correlate the status to academic performance of the students.

2.7 Principals' Leadership Practices and Quality of Education

Principal is the leader of the school charged with the responsibilities of overseeing the school's activities. He or she ensures that the national educational objectives are achieved through meticulous coordination, control, moderation and monitoring and evaluation of the teaching and learning processes within the school. The principal also serves as an administrator in the school environment. He/ She plans, coordinates and executes school activities aimed at provision of quality education. The principal is the curriculum and instructional supervisor whose focus is to make sure that the school achieves its objectives and goals through supervision of both human and non-human resources needed to facilitate efficient teaching and learning (Chigbu & Ogboegbulem, 2018).

Cole (1997) defined headship as a changing process at the workplace or in a team setting where a person over time and in specific institutional contexts impacts the members of the group members to willingly work towards the accomplishment of the goals or tasks of the

group. Manu (2007) as well defined leadership as the capacity to get a person to willingly perform what he or she is expected to do, at the specified time and in a satisfactory manner. On the basis of these definitions, headship plays a critical role that ensures that set academic goals are attained and output maximized with the materials available. Hoy and Miskeel (1992) noted that the school leader is the strategic figure in nurturing shared authority in a school.

Bush and Middlewood (2013) established that there are four critical components of transformational leadership. The first component encompasses individualized considerations that entails the extent to which a leader attends to the needs of the followers, through mentorship/coaching and listening to the concerns of the follower. The second aspect is intellectual stimulation, focusing on the extent the leader is willing to challenge assumptions, take risks and consult the followers. The third element focuses on inspirational motivation, highlighting how a leader appeals and inspire the followers through articulation of clear vision. The final aspect focuses on idealized influence, providing a role model for good ethics, gaining of respect and trust among the followers. Kouzes and Keams (2013) concur with these elements and opine that they positively influence students' academic achievements when adequately implemented in a school setting because all these elements directly impact on the teachers, support staff, service providers and even the students. Triandis (2013) concluded that transformational leadership provides effective avenue of dealing with challenges and responsibilities of school managers.

A study by Alessandro and Castro (2004) noted that the head teachers have the responsibility of running the schools through managing six key administrative tasks that

included curriculum implementation, school-community affiliation, business and administration, staff, learners and overall school management. According to Mworia (1993), the administrative roles of the principals are also extrapolated to encompass policy interpretation, execution of programmes, managing students' welfare, improvement of physical facilities, and maintaining warm relation with the school community. Cavallo (2013) observed that scarcity of resources lead to ineffective management of the school and is a common feature in most developing nations. The outcomes of his study noted that most of teachers reported that they had no adequate preparations to carry out their duties, thus leading to poor academic achievement. These findings were backed up by Musera et al. (2012) in their study which exposed the staff's perceptions regarding the headship existing and the way it influenced the overall productivity in a school.

The quality of learning depends on the leadership of the school, guided by the principal. The school heads have the role of managing the finances while at the same time providing institutional leadership. They are also in charge of the human resources, scheduling of school activities and represent both the TSC and Ministry of Education (MoE) with reference to monitoring ad implementation of policies (Oyugi & Gogo, 2019). The critical function of a leader is to limit the extent of alterations in the system through getting everybody towards achieving set goals of excellence. The lesser the changes, the more the likelihood of achieving the mission and vision. Therefore, adhering to good leadership principles by school administrators would lead to improvement in academic performance. The improvement of the school would positively impact on the relationship between teaching and learning processes. Key challenges faced by school administrators include

ineffective management, lack of or minimal teamwork, poor methods of communication and inadequate funding (Igwegbe & Omenyi, 2020).

The achievements of any school depend on its leadership style. The school leaders often carryout multiple functions that include managerial, instructional, curriculum implementation, counselling, arbitration and in some instances counseling roles within the society. Sala (2003) proposed that principals need to have an array of leadership skills in order to succeed in an academic environment. Research has also confirmed the relationship between quality leadership and high-quality education. Emerson and Goddard (1993) affirmed the robust correlation between superiority of a school and the leadership qualities exhibited by the school head. The school heads oversee all the activities that take place within the school. Moreover, they are also expected to provide ideal environment for teaching and learning and should also display moral and ethical uprightness. According to Lunenburg (2010), the principal's key role is promotion of learning and success of all learners. Thus, he or she should lead in the provision of accessible and quality education. Klingner Arguelles et al. (2001) in their study, reported that school heads who dwell on instructional aspects, provide adequate administrative support to learning and is supportive of teachers always lead to successful achievements of the learners.

The head teacher has to have superb knowledge on school administration and be able to provide leadership in all areas including planning, organization, facilitation and evaluation of the school programmes. He or she also has the responsibility of setting the school's vision and mission and puts in place all the measures needed to achieve the set vision (Parker, 2011; Lunenburg, 2010). In order to succeed, the head teacher has to consult key stakeholders and come up with strategies to implement the goals, visions and mission of

the school. It's the setting up that provides guidance to the school community by clear listing of tasks/activities necessary for the achievement of the overall school objectives (Oosterlynck, 2011). Planning also enable the students, teachers, and support staff to focus and be productive. Organizing, on the other hand, entails coordination of school activities aimed at effective and efficient achievement of the school objectives. The head teacher has to ensure that teachers, learners and other support staff are assigned duties based on their expertise and available resources (Argyris, 2011).

With adequate planning and organization in place, the head teacher also needs to facilitate and motivate the members of staff to achieve the school goals (Lunenburg, 2010). It is through this that the maximum potential of the staff and students is realized and this is achieved through adequate motivation, communication and management of group dynamics. The goals to be achieved must be adequately communicated to staff, learners and the entire school community in order for them to be achieved through concerted efforts of the key stakeholders (English, 2008). Monitoring and evaluation must also be done by the principal to help the school ascertain the extent to which its attaining its set objectives and goals. It offers the head teacher with the necessary feedback for improvement, redesigning school programmes for better results. The overriding goal of any school is the learning and achievements of the learners (Blankstein, 2010) and therefore, the head teacher has to work in synergy with all stakeholders to form an enabling setting of professional learning and progress (DuFour et al., 2010).

Out of the numerous factors that improve academic achievement of the learners, efforts of the head of the institution, teachers and parents are key contributing factors (Nambuba-Namusole, 2005). The roles of a head teacher directly influences the teaching and learning

processes. These responsibilities consist but are not limited to maintenance of standards and managing punctuality of both learners and their teachers (Nambuba-Namusoke, 2005).

As reported by Mulkeen et al. (2005) the head teacher is among the major determinants of provision of quality and the overall efficiency of a school. Nonetheless, it has been reported that a number of teachers often ignore instructional supervision and support of teachers, even though some of their main responsibilities should be managing of curriculum implementation, liaising with the Ministry of Education for supply of instructional materials such as textbooks, laboratory equipment, and writing materials among others. All these activities should be geared towards enhancement of academic performance of the learners (Musaazi, 1982; Colby et al., 2000).

Leadership is one of the critical factors and good management and leadership style is paramount (Nyaboga, 2011). According to Waithiegeni (2013), the two views of leadership include the transactional and transformational views. Transactional leadership involve exchange processes between leaders and their subordinates while transformational leadership gives room for people to develop and transform. According to Botha and Meyer (2000), transactional leadership lead to enhanced readiness of subordinates to perform to expectations through reward system based on acceptable performance that result to the expected outcome as spelt out by the leader. Besides, based on the traditional leadership theories, the three leadership traits focus on the characteristics of a good leader, the behaviour of the leader and the situation in which the leadership is required (Horner & Coffey, 2012). Transactional leadership is based on an individual and motivates the follower/subordinate to use their inner potential to achieve success (Bass, 2000). McColl-Kennedy and Anderson (2005) stated that transformational leadership style guides via

personalized considerations, intellectual stimulations, inspiration, and idealized impact. According to Rafferty and Griffin (2004), transformational leaders must have clear vision that is reflected through relationship and sense of identification developed by the leader leading to embracing of the leader's principles by the followers. Transformational leadership lead to inspired followers who exert themselves above self interest in favour of the overall team's achievements (Berson & Avolio, 2004).

The school managers are usually career teachers endorsed through the position by the Teachers Service Commission (TSC), based on their academic qualifications, work experience and proven performance (Martinez, 2013). Appointments based on these parameters, does not however prevent the likelihood of teachers getting appointments without any prior preparations (Mbiti, 2007). Sisungo (2002) underscores that the administrative role of the principal includes management of all aspects meant to enhance education quality in a school. In order for a school to attain quality achievements, the head teacher has to set an ideal climate and raise expectations among teachers and learners through encouraging collaborations and commitments among the key stakeholders. Malusu (2003) additionally noted that better administration in a school is a prerequisite to its better performance. These observations were also made previously by Eshiwani (1983) who noted that good leadership enabled schools to consistently perform well in national examinations.

Education quality is always determined based on the quality of teachers, students-teacher ratio, students-text books ratio and the learner's cognitive achievement in examinations. In line with this, the role of the school administrator is to be a good instructional supervisor, motivate both learners and teachers, ensure that leaning materials and physical

infrastructure are adequate and perform any other duty with the intention of achieving quality education and better academic performance by the learners. The school administrators also need to participate in class instruction, students' discipline and adequately manage funds meant for supporting the various programmes within the school. The students' cognitive abilities and school characteristics are some of the indicators of education quality in schools. How the school administrator manages the school is also key since they are the internal quality assurance and standards officers within the school and are responsible for instructional supervision (Wanyama et al., 2018).

Style of leadership comprise a leader's overall individuality, demeanour and communication patterns that he or she uses to guide others towards attaining set goals and is believed to affect performance. Even in institutions where all other factors are favourable, academic performance may be dismal due to poor leadership where the staff are not motivated to work towards achieving set targets. On the other hand, good leadership can contribute to good academic performance by a school through enhanced motivation, participation and coordination of teachers. Without requisite leadership style, good performance cannot be achieved in schools. A number of secondary schools still register poor academic performance, not just because of inadequate facilities and teachers, but due to poor leadership. The principal's leadership style have direct relationship with the overall success of the school since both teachers and learners perform under the stewardship of the principal **(**Oyugi & Gogo, 2019).

Based on the foregoing review of literature, the leadership of the school is very critical in enhancing provision of excellence of learning in schools and therefore, this study tried to find out whether there was any link between leadership style and provision of quality

education in secondary schools in Kiambu County. This research therefore, found it necessary to research the influence of leadership style on provision of quality education in secondary schools in Kiambu County, Kenya. The researcher will focus on the following democratic, autocratic, laissez-faire and transformational leadership styles.

2.6.1 Democratic leadership style and students' quality of education

Lots of studies have advocated for deployment of democratic leadership styles in schools and this style of leadership has always been associated with good academic performances by learners (Nsubuga, 2008). This style of leadership allows students to be involved in the attainment of good academic results by offering them the opportunity to be engaged in the running and management of the school. Democratic leadership style, also known as participatory or interactive leadership is manifested by collaboration and cooperation (Okumbe, 1999). Democratic leadership style allows a leader to seek for opinion of his or her subordinate on plans of action before making decisions. In some instances, the leader could also ask his subordinates to formulate plans that he would eventually use to make decisions on the best options to take. Democratic style of leadership is consultative and participatory and in this style of leadership, leaders provide guidance to the members and are involved in group activities where they any member of the group has a chance to make contributions **(**Oyugi & Gogo, 2019).

In this style of leadership, power is devolved (Okumbe, 1999) and both learners and teachers are motivated to work towards achieving set goals while at the same time, they are free to express their concerns and feelings about the school (Cotton, 2003). The leadership style is premised on the belief that people often exercise self-direction and motivation towards a course when they feel that they are engaged and participate in

decision making (Cole, 2002). Organizations practicing this style of leadership are always characterized by availability of suggestion boxes, notice boards, institution magazines and even councils (Kibunja, 2004). In a school setting, other aspects that would require teachers' involvement, thus leading to closer interaction with the students comprise setting of exams, academic days, and co-curricular activities among others. Such interactions motivate both learners and teachers to work towards common goals (Kibunja, 2004).

2.6.2 Autocratic leadership style and students' quality of education

On the basis of universal viewpoint, autocratic or authoritative style of leadership is a leadership style whereby the head provides no description when issuing orders. Autocratic style embraces being arbitrary, always in control, power-oriented, punitive and coercive. The leader takes full and individual responsibility for all the decisions made and control the performance of the subjects. The leaders emphasize obedience, loyalty and strict compliance to the rules. They are the makers and enforcers of rules and the style is impacted by McGregor's Theory X which postulates that individuals are born lazy and hence, require close monitoring (Oyugi & Gogo, 2019). Autocratic leaders exercise absolute power, while the subjects have no say on anything going on, even if their opinion would be for the common good. This style therefore, in most cases lead to high incidences of absenteeism and employee turnover.

On the flipside, this style could be effective for a number of routine and unskilled jobs where the benefits of having absolute control is beneficial. Employment of this style could also be effective in coping with new employees and those who are inherently lazy since the style ensures discipline, good time management, and respect to authority and

conformity to standards which would eventually lead to success in a school. Blending of this style and democratic practices would even result to more benefits **(**Oyugi & Gogo, 2019). Contingency theorists believe that this style of leadership is ideal during periods of crisis, but is never appreciated by subjects in everyday management of learners and their achievement while in school (Mbiti, 2007). Teachers whose Head teachers practice autocratic leadership style are often dissatisfied and less committed to duty, when compared to those working under democratic managers who have higher job satisfaction and are strongly committed to duty leading to better academic performance in the school (Igwegbe & Omenyi, 2020).

2.6.3 Laissez-faire leadership style and Quality of Education

Laissez-faire style of leadership is one in which the leader relinquishes his/her responsibilities and allow subordinates to work as they so wish without interference. Leaders who subscribe to this style allow the followers to make decisions on what needs to be done without influencing those (Hersey et al., 2008). Such leaders do not believe in having rules or regulations and believe that everyone has an inborn sense of being responsible. In *Laissez faire* leadership style, members of a group work with little or no supervision and decision making is left to team members. This style is highly effective in groups comprising of highly qualified members, even though, it often results in poorly defined duties and limited motivation. The style is based on McGregor's Theory Y principle that states that human are innately motivated, love work and have the interest of doing the work, and hence there is need coercion to perform their duties **(**Oyugi & Gogo, 2019).

Laissez-faire approach puts no boundary among the leaders and subjects, and this lead delays when making decisions. The leaders practicing this style often give opportunities to their followers to decide about their assignments **(**Oyugi & Gogo, 2019). According to Ololube (2013), this style could be effective in instances where the leaders create time to monitor whatever is being done and provide feedback to the followers. However, this is usually not the case as such leaders often avoid responsibilities and ignore the needs of their followers and never provide feedback. As reported by **(**Oyugi & Gogo (2019) in instances where leaders avoid exercising control over their followers, groups are often unproductive, a clear indication that this style of leadership encourages poor follow up on assigned activities which eventually would lead to poor performance in a school setting.

2.6.4 Transformational leadership style and Quality of Education

Transformational leadership is grounded on the principle that individual would always be dedicated and exercise self-management, self-direction and be inspired whenever they feel that they are involved in decision making processes (Cole, 2002). Such leaders most likely improve the inspiration, drive, and performance of their followers by adapting to the needs of their followers. Such leaders are considered as change agents with well laid out vision. Most critically, transformational leadership is based on the capability to inspire and encourage others. According to Mumbe (1995), this leadership style positively influences the performance of both the learners and the school and inspire the teachers to work hand in hand with the head teacher towards the attainment of the set school objectives.

Transformational leadership (TL) incorporates both the emotions, values and creativity of the subordinates, thus leading to innovations. In this style, the followers are committed leading to the accomplishment of a bigger quantity of output or work and many problem

solving skills are observed. The style allow the followers have great trust in the leadership leading to improved individual performances. Transformational leaders reinforce followers' capability to attain, by providing them with the knowhow and materials needed to accomplish their tasks. Such leaders fuel novelty through promotion of inspirational motivation, intellectual stimulation and self-confidence among the members of the team (Al-Husseini & Elbeltagi, 2016). In a school setting, a transformational leader would encourage staff participation in school programmes aimed at promoting and developing their skills and achieving exemplary performance. The leadership style enhances determination amongst workers to enable them to overcome crises and motivate them towards being innovative and generating new ideas (Al-Husseini & Elbeltagi, 2016).

Transformational leaders always work towards making changes that lead to enhanced performance and efficiency of the organization. The style is founded on the assumption that leaders should show reverence and entrust their followers with assigned tasks and by so doing, they gain the loyalty of the followers leading to the creation of an environment where everyone has a critical role to play (Al-Husseini & Elbeltagi, 2016).

There are four dimensions to TL (Al-Husseini and Elbeltagi, 2016): Idealised influence referring to the charming demeanour exhibited by transformational leaders through expression of confidence in the vision of the institution, sharing information about the risks with the subordinates, showing a sense of purpose, demonstrating elevated standards of ethics, emphasizing accomplishments and avoiding abuse of power. Such leaders inculcate faith in their followers, and promote collaboration with others. Inspirational inspiration whereby the transformational leaders motivate their subordinates through motivation so

that they be committed to the vision of the institution. The leaders identify new opportunities and clearly share the vision of the organization to the members. They also set high standards to challenge the followers while at the same time talk optimistically and enthusiastically about the vision and tasks at hand.

Transformational leaders deploy intellectual stimulation to encourage followers not to hesitate trying new approaches or challenge existing postulates. They also encourage the followers to re-examine and rephrase problems in order to find solutions. Personalized consideration where the leader establishes close personal relationship with the subordinates; provide support to them and value their skills and needs while at the same time appreciating their accomplishments. These 4 behavioural patterns influence followers in a positive way by inspiring them to attain their highest possible potentials through self-motivation for personal development (Al-Husseini & Elbeltagi, 2016).

2.8 Research Gaps

The foregoing review of literature has highlighted the several metrics in the school context that affect the quality of learning. Among these are; school-based factors, teacher-related factors, socio-economic factors of parents and principals' leadership practices. Regarding school-based factors, it emerged that most secondary schools in Kenya are characterized by insufficient physical amenities such as, ill-equipped science laboratories, poorly constructed classrooms and dormitories and congested accommodation, among others (Ndirangu et al., 2016). In most cases, schools that perform well in KCSE examinations usually boast of better physical facilities such as science laboratories that enhance and improve learning outcomes in specific subjects (Wambua et al., 2018). In addition, the availability of adequate the learning materials such as textbooks improves access to

information and correlated with academic performance (Likoko et al., 2013; Ng'aru, 2018). Class sizes was also attributed to the learning achievement in a classroom (Giku, 2018; Gakure et al., 2013). The studies done in Kenya on school-based factors, however, focused on academic performance/learning achievement as the dependent variable rather than quality education. Additionally, no study was found on the variables that focused on secondary schools in Kiambu County. Thus, on this basis, the study sought to examine the relationship between school factors and quality of education in secondary schools in Kiambu County.

In relation to teacher related factors, few local studies have examined the effect of teacher motivation (Yala and Wanjohi, 2011) and teacher quality (Muchelule, 2015). It was highlighted that poor remuneration, excessive workload and bad work environment coupled with poor infrastructure such as inadequate learning and teaching materials all demotivated most teachers leading to poor performance by teachers. All these factors lower the teachers' morale and therefore, most likely affect their performance, and subsequently, the performance of the learners. In terms of quality, Ankomah, et al. (2005) argued that insufficient number of teachers, student/teacher ratio, and extent of pedagogical training, qualifications and experience are key determinants that affect teacher quality and performance. Low pupil/teacher ratios in most schools also prompt the school management to hire untrained teachers to help with syllabus coverage. In some instances, these untrained teachers lack the necessary pedagogical skills that are vital for adequate delivery of syllabus content to the learners. However, as at the time this study was conducted, there was no existing empirical study showing the relationship between teacher factors and

quality education in secondary schools in Kiambu County, which motivated the need for the current study to examine the relationship between the two variables.

The parent's social economic status is of concern on the ability of the parent to be engaged in the welfare of their children's education. Studies have reported that involvement of parents in school activities has positive relationship with learners' academic performance and success (Usaini & Abubakar, 2015; Juma, 2016; Hosque et al., 2017). With the exception of Juma (2016) however, most of the studies on the parent's social economic status on education of children were carried out in non-Kenyan contexts and they all focused on academic performance as the dependent variable rather than quality education. Kiambu County is characterized by a population whose socio-economic characteristics are extreme, that is, a portion of the population is of high socio-economic standing while the other portion is of low-socio-economic condition. However, Kiambu County has not benefited from an empirical study investigating the relationship between socio-economic factors of parents and quality of education in secondary schools in the County. Therefore, this study sought to establish the socio-economic status of the guardians/parents of learners in secondary schools in Kiambu County and correlate the status to quality education in the schools.

Concerning principals' leadership practices, the studies confirmed the relationship between quality leadership and high-quality education. Emerson and Goddard (1993) affirmed the robust correlation between superiority of a school and the leadership qualities exhibited by the school head. The school heads oversee all the activities that take place within the school. Moreover, they are also expected to provide ideal environment for teaching and learning and should also display moral and ethical uprightness. The achievements of any

school depend on its leadership style. Studies also revealed that key challenges faced by school administrators include ineffective management, lack of or minimal teamwork, poor methods of communication and inadequate funding (Igwegbe & Omenyi, 2020). The principals typically exhibit four leadership styles; democratic **(**Mbiti, 2007; Oyugi & Gogo, 2019), autocratic (Oyugi and Gogo, 2019; Igwegbe and Omenyi, 2020), laissez-faire (Ololube, 2013) and transformational leadership styles (Al-Husseini and Elbeltagi, 2016). However, there was lack of empirical studies exploring the link between leadership styles and providing quality education in secondary schools in Kiambu County. Therefore, this research found that it is necessary to investigate the influence of leadership style on the provision of quality education in secondary schools in Kiambu County, Kenya.

2.9 Theoretical Framework

The study was guided by the Functionalist Theory of Education, the Transformational leadership theory and the Theory of all-round educational quality. These were meant to provide undergirding theoretical orientation to the study variables.

2.9.1 Functionalist Theory of Education

Functionalism is a social theory that has been used in education. The origins of Functionalism can be traced back to the French sociologist Émile Durkheim (1858-1917) who co-authored the study of sociology, and identified schools as social centers that teach children how to live together and prepare for adulthood. Roles "(Durkheim, 1898). Durkheim developed the concept of Functionalist in education which led to several major occupations associated with education. Including learning the rules and regulations of society as a whole.

Within the functionalist paradigm, society is understood to be stable and socially equal in proportion to each other. Two ideas are at the heart of the operation. First, it is possible to study the social world using the scientific methods used in science. A performance professional can expect a targeted assessment of social events to demonstrate an understanding of the rules of social behavior. The second belief is the essence of effectiveness, that society is composed of interrelated components that are professionally understood to function in a holistic system. Functionalists believe that without a shared conscience / shared values and beliefs, achieving social order is impossible and social order is necessary for the well-being of society. They believe that price consensus forms the basis of social cohesion.

School systems also transmit important national values through transparent functions such as public administration. One of the tasks of schools is to teach pupils to obey the law and respect authority. Obviously, that kind of respect for teachers and administrators will help a student cope in the school environment. The event also prepares students for international and international level where they will continue to obey the authorities. Accomplishing this task depends largely on teachers in the classroom and teachers with students throughout the day.

Education also provides one of the best ways for people to thrive in society. This function is called community placement. Colleges and graduate schools are seen as vehicles that bring students closer to jobs that will give them the financial freedom and security they need. As a result, college students are often strongly motivated to study fields that they believe will be useful on a social level. A student can appreciate business studies beyond Victorian poetry because they see the business category as a solid vehicle for financial

success. Education also fulfils hidden tasks, but it is evident that there is a lot going on in school that has nothing to do with formal education. Functionalists argue that the school, especially in recent years, is taking over some tasks that were once done by the family. It is therefore clear that formal education can be a tool for socio-economic change.

Another role of schools, according to functionalist theory, is to classify or classify students based on educational attainment or strength. The most talented students are seen early in school through grades and classroom success. Such students are placed in accelerated programs in anticipation of college success. Educational performance can also be enhanced by the provision of quality education by improving teacher traits, school-based features and school leadership so that the education provided can withstand the effects of different socio-economic backgrounds on students and potential school conditions. This could lead to better outcomes among students, and thus, reduce the negative effects of conflict in the management of schools.

All of this is contrary to the theory of conflict which argues that the purpose of education is to perpetuate social inequality and maintain the power of those who run society. Conflict theory believes that public schools reduce social inequality by providing equal opportunities. Rather, they believe that the education system reinforces and promotes social inequality resulting from differences of class, gender, race, and nationality. It is, therefore, clear that effective efforts can be thwarted by the forces of conflict against education unless other forces such as change leadership in the context are used.

From the theoretical viewpoints of functionalism and conflict theory, it is evident that quality education is important if education is to achieve its goals of producing better and

well equipped citizens. This is not only in terms of academic performance, but also other aspects that holistic education provides. For instance, the quality of education a person receives in a particular setting will ultimately shape his/her worldview over a long time together with his/her decision making and socio-economic choices. However, the Functionalism Theory of Education does not provide in-depth information on school leadership which is also an important determinant of quality education. Therefore, Transformational Leadership Theory was used complement the Functionalism Theory to address this gap.

2.9.2 Transformational Leadership Theory

The concept of transformational leadership theory was originally introduced by James, V. Downton and subsequently expanded by James Mac Gregor Burns (Zineldin, 2017). Transformational leadership encourages people to achieve unexpected or dramatic results. It gives employees independence on certain tasks as well as the authority to make decisions after they have been trained. This creates a positive change in the fans cars and in the organization as a whole. Reform leaders often practice four different practices, also known as the four I's. These behaviors are motivating, positive influences, mental stimulation, individual consideration (Zineldin, 2017).

Transformation leadership is a role model that principals and teachers can use as role models. It places a high value on creating social responsibility, which encourages both students and teachers to achieve higher levels of achievement. The technical aspect of transformation leadership in education is good management practices, which include planning. Without effective, evidence-based school management, educational transformation becomes more challenging.

A human factor is the use of social and social resources that already exist in the school environment. By building what Sergiovanni (2007) calls “interpersonal skills,” schools can improve staff behaviour. It identifies collective decision-making as an important factor in the human aspect of dynamic leadership in education. Educational capacity is based on the knowledge and application of effective teaching strategies that revolutionary leaders bring to their schools. These leaders promote change in education by examining the problems in education. Educational capacity is related to counselling, assessment, and professional development within the school environment.

The Transformational Leadership Theory was therefore used to provide insight into the processes of principal leadership within schools and how they could translate the quality of education into Kiambu County high schools. Transformational leadership theory, however, focuses on the leadership potential of school administrators who may play a key role in improving quality education by reducing the effects of conflicting forces while focusing on the larger functionalist goals. However, the theory does not explain quality education in depth. Therefore, the aspects of quality education such as school-based factors, teacher factors and socio-economic background of learners among others were addressed through the Theory of all-round educational quality.

2.9.3 Theory of All-Round Educational Quality

Ann and Zhang (2010) proposed the all-round quality education theory. The theory states that the education of our time should train the student to have knowledge, appropriate working attitudes and determination to achieve the best results. The implementation of quality management worldwide started in Western developing countries from the early 1990s and is now developing rapidly. Higher education is the use of quality management

everywhere in the education system. After dealing with the traditional qualitative "experimental" quality management and mathematical quality management for "first prevention", the third stage of development is developed, the main concept of which is the continuous emphasis on quality improvement (Lin, 2010). It means that the organization considers quality as its institution based on full participation. All members will benefit from this organization and the organization will achieve long-term success. Circular quality management emphasizes a change in management types that vary from a general one-dimensional performance perspective to a full range of quality perspectives (Yuedong, 2010). With the continuous growth of the concept of quality education, quality education not only prepares students for knowledge, but also helps them develop various other characteristics such as work attitude, sense of teamwork and competitiveness, professionalism, moral character, environmental flexibility and mental resilience capacity (Xiangyang, 2009).

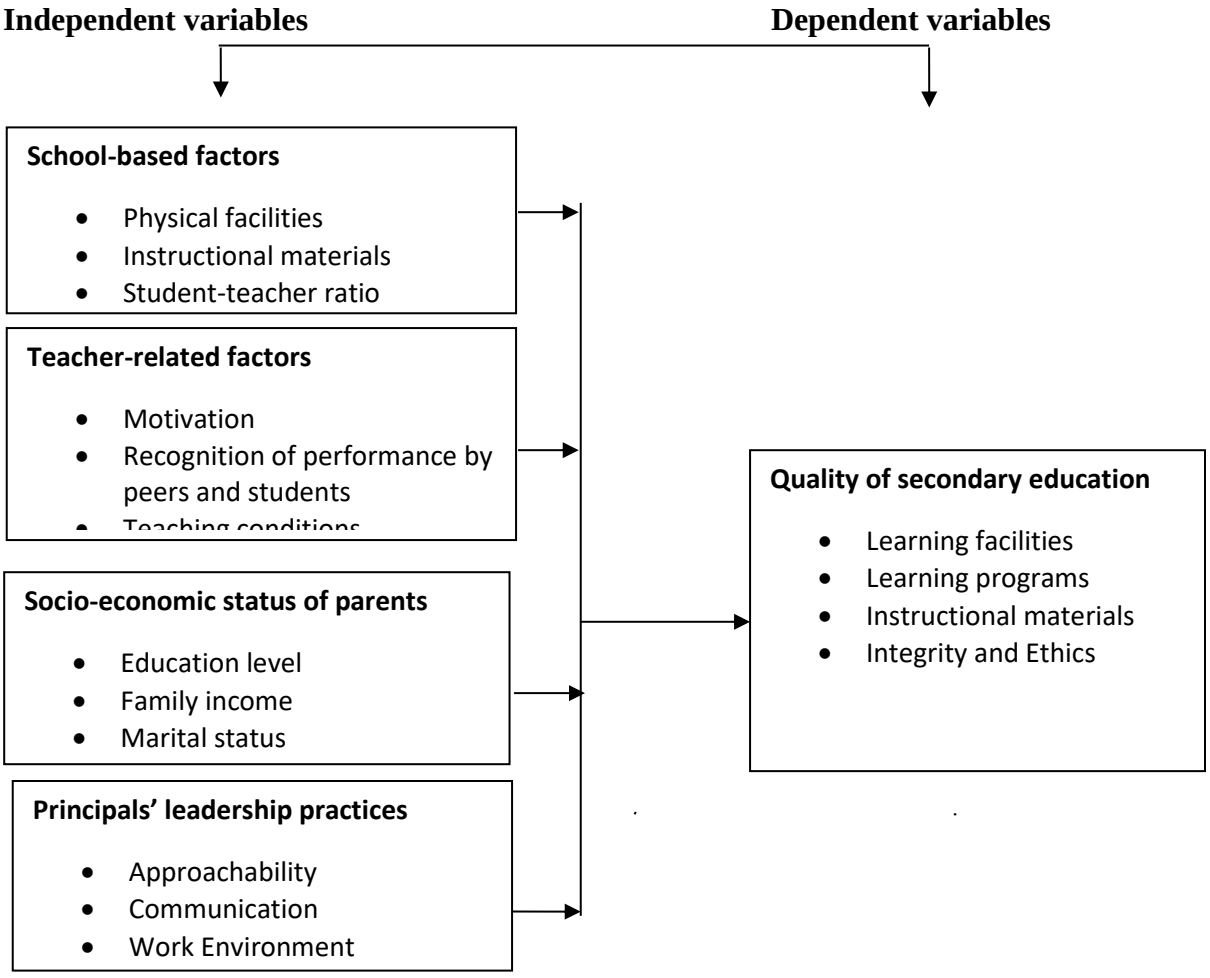
Universal quality management is therefore not just a philosophy, but a method. After applying universal quality management in the field of education, it emphasizes education as a service provided to meet the needs of students and the needs of their parents, who are considered as "consumers" and "customers". Internal and external work in schools should be evaluated in terms of services. All-around quality management covers all school activities and is relevant to everyone. Ensuring quality education with qualifications is the use of holistic management.

2.10 Conceptual Framework

A conceptual framework is a diagram that shows the relationship between variables in a study. It depicts the variables under study and how they relate. The conceptual framework enables the reader to easily identify the relationships between these variables (Nardi, 2018). The conceptual framework of the variables in this study is outlined in Figure 2.1.

Figure 2.1

Conceptual framework on variables in the study



The figure suggests that the independent variables under consideration are school-based factors, teacher-factors, socioeconomic status of parents, and the prevailing school management style. The dependent variable is quality of education in secondary schools in Kiambu County, Kenya. Literature explains that school factors have serious effects on the provision of quality education in schools. These factors include teacher/pupil ratio as evidenced in class size, availability of physical facilities like laboratories and learning resources like text books and learning aids, among others. Therefore, the study sought to

establish whether in the context of secondary schools in Kiambu County, school based factors and its constructs affected quality education.

From the conceptual framework it was also theorized that teacher related factors significantly affected quality. Teachers are the valuable interface in the transfer of knowledge, values and skills during learning and any ineffectiveness on the side of the teacher would definitely be reflected on the student's inadequate academic progress. This is irrespective of how different the learners are based on individual characteristics in academic performance. Therefore, teacher related factors are expected to influence quality education. In the present study, the influence of teacher related factors on quality education in Kiambu County were examined through; motivation, recognition of performance by peers and students and teaching conditions.

The conceptual framework also theorized that socio-economic factors of parents significantly influences education quality in schools. Parental background and education level plays a critical role in students' access to quality educational. A parent's socio-economic status greatly influence their decision on where the children enrol for school. Also, parental contribution in the education of their children intrinsically motivate the learners leading to good academic performance. Therefore, to ascertain the influence of socio-economic factors of parents on quality of education in secondary schools in Kiambu County, the present study focused on, education level, family income and marital status of the parents.

Principals' leadership practices were also expected to significantly influence quality education in secondary schools in Kiambu County. The achievements of any school depend

on its leadership style. The school heads oversee all the activities that take place within the school. Moreover, they are also expected to provide ideal environment for teaching and learning and should also display moral and ethical uprightness. In this study, the relationship between principals' leadership practices and quality of education in secondary schools in Kiambu County was examined in terms of; approachability, communication and work environment.

Finally, the concept of quality of education was taken into account as quality of learning facilities, quality of learning programs, quality of instruction materials and integrity and ethics in the school.

2.7 Summary of Chapter Two and the Research Gap

The chapter has reviewed existing literature related to the study taking cognizance of both the theoretical and empirical literature. In this regard, the chapter has dealt with various metrics which are considered to have an implication on the quality of education among the selected metrics including school based factors, teacher related factors social parent's economic status and the managerial styles of principal as applied to the school. These metrics have been analyzed in detail supported by empirical evidence from related studies. In addition, the chapter has explained the conceptual framework with diagrammatical expression showing the correlation between the dependent variable (quality of education) and the independent variable (selected metrics) which impinge on quality of education.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The objective of this study was to evaluate the quality of education in secondary schools in Kiambu County, Kenya based on selected metrics. This section describes the procedures and approaches that were used in the study under the following subsections: research design, target population, sample selection, and sampling procedures. Other aspects covered include data collection instruments, instrument validity and reliability, data collection procedures, data analysis procedures, and ethical considerations.

3.2 Location of the Study

The study was carried out in Kiambu County. Region is well endowed with both economic and educational resources. Economic wise, the county is among the richest counties in terms of involvement to the national Gross Domestic Product (GDP). In terms of demographics, Kiambu County, is the second most populous county in Kenya with a population of 2,417,735 persons out of which 1,187,146 are males, 1,230,454 females. The county also has the fifth highest population density in the country at 952 persons/km^2 and 796,241 households with an average household size of 3.0 persons per household (KNBS, 2019). According to a 2020 Inequality Report by KNBS (2020), Kiambu County has a poverty rate of 23.3% which is among the lowest rates in the country and below the national average of 36.1%. The County's main economic activities are farming and commerce and paid labour. An earlier inequality survey (KNBS, 2014) had shown that 38.5% of the residents were in paid for work employment while 14.6% worked in family business and 15.9% worked in family agricultural holding.

The County has 1,515 ECD centres, 948 primary schools, 386 secondary schools, 33 youth polytechnics, 165 adult education centers, one technical training institution, and one technical institute of technology (Kiambu CIDP 2018 – 2022). There are four universities Kiambu County had the second lowest secondary NER % of 78% in Central Kenya after Nyandarua (73%). Other like Nyeri had 86% while Murang'a had 87% and Kirinyaga (93%). This is despite having the highest average school size, high number of teachers and high teacher/pupil ratio of 1:20 compared to other counties in the Central Kenya Region (2016 Basic Education Statistical Booklet). The contrasting figures of high endowment and poor NER in the county, therefore, makes it a peculiar case of challenges in provision of quality education in secondary schools in the Central Kenya Region which the study sought to establish.

3.3 Research Design

The study adopted a mixed-model design where both the descriptive and correlational designs were used. Descriptive survey design was employed to evaluate various metrics that affect quality of education in Kiambu County. As opined by Orodho (2004) a survey is a technique that involves collection of data through interviews or administration of questionnaires to a sample or people.

3.3.1 Descriptive survey research design

Descriptive survey study was employed to acquire relevant and specific data about the present status of an issue with reference to one or more variables and where applicable, draw relevant conclusion from the facts obtained (Mugenda & Mugenda, 2003). Through information that can be analysed are obtained and patterns can then be drawn and comparisons made. It is ideal when gathering information from individual pertaining to

perceptions, attitudes, views and other variables concerning issues in education. This study covered several schools in the entire Kiambu County. The sample sizes, both for teachers and pupils were also large and since survey is ideal for data collections concerning perceptions, opinions, attitudes, practices, and suggestions, regarding the main constructs of the study.

3.3.2 Correlational research design

In addition to the descriptive survey design, the study used the correlational design as well. A correlation research design explores the relationship between variables without the researcher controlling or using one of them (Seeram, 2019). The resulting relationships are assessed in terms of power and / or direction of the between two (or more) constructs. The relationship can be both positive and negative. The advantage of the correlation structure in the study is that it is used to make the results more reflective of the entire population (Pallant, 2020). A correlation was, therefore, made between independent and dependent variables in the current study to assess their relationship and determine whether the relationship met the threshold for statistical inference.

3.4 Target Population

Since the main purpose of the study was to examine the impact of selected metrics on the quality of education in secondary schools in Kiambu County, data was, therefore, collected from a target population of 386 secondary schools (both public and private), which were broadly categorized as follows:

Table 3. 1

Category of secondary schools in Kiambu County

Schools category	Number of secondary schools
Mixed	221
Girls only	100
Boys only	65
Total	386

Considering that secondary schools were the units of analysis, the information was gathered from principals, teachers, students, and parents. The study focused on form 4 students only as they were the most experienced students in the schools and could, therefore, give more valid answers as regarding the quality of education in the schools. The population also comprised of ten (10) Sub-county Quality Assurance and Standards Officers (SCQASOs) from the Ministry of Education in Kiambu County, as shown in Table 3.2.

Table 3. 2

Total population of the respondents

Item	Population
Principals	386
Teachers	5989
Students (form 4 only)	23,849
SCQASOs	10

The principals were involved in the study since they are supervisors and administrators of school activities. They are, hence, engage in the implementation of activities geared towards improving education quality in schools. They were relied upon to provide

information on their perceptions towards various factors that influence quality of learning in secondary schools within the county. Teachers were expected to provide information regarding the various methodologies they employ in providing quality education and aspects that need to be addressed to improve education quality.

Students, particularly in form four, in the secondary schools, were involved as they had been in the schools for relatively long time, hence, they had experienced the effects of various factors affecting quality of education. They provided their perceptions on quality of education with regards to school factors and family's socio-economic status.

The SCQASOs were also involved in the study as being tasked with the monitoring of the quality education in the schools in the area, they were in a position to provide more insight into the level of quality education in the secondary schools and the reasons behind the quality gaps and inequalities observed.

3.5 Sample Size and Sampling Procedures

To obtain a representative sample size of the schools, the study employed the formula by Yamane (1967) as follows;

$$N = N/N(e)^2$$

Where,

n = Required Sample Size

N = Target population

e = Level of precision; usually 0.05

This yielded a sample size of 191 secondary schools. A further 15% of the total school population or 58 schools were added due to attrition bringing the entire sample size to 249

schools. This sample size was then distributed along the Using the formula, the Sample Size for the study will be as indicated in Table 3.3.

Table 3. 3

Sample size in relation to target population

Schools category	Number of secondary schools	Sample size
Mixed	221	143
Girls only	100	65
Boys only	65	42
Total	386	249

For the unit of observation, the stratified random sampling was used where one form 4 (head boy/girl) student per school was selected for the study while 191 teachers were selected from 386 schools using the Yamane (1967) formula. For the principals, the Nassiuma (2000) formula was used based on the probability that up to 30% of secondary principals do vail themselves for surveys in most studies of this kind in the area. Therefore, the principals sample size was obtained as under;

$$n = \frac{Nc^2}{c^2 + (N-1)e^2}$$

Where n = sample size, N = population size, c = coefficient of variation (≤30%), and e = error margin (≤5%). In this study c was taken as 30%, *e* to be 4% and N = 386, therefore, fitting this into the formula:

$$n = \frac{386*(0.3)^2}{(0.3)^2 + (386-1)*(0.04)^2} = 49.207 \approx 49$$

The right sample size for the principals was, therefore, 49 respondents. For the SCQASOs the 50% rule was used due to their relatively small number and their availability for the research where 50% could be the highest estimated based on previous studies of this kind in the area. The entire sample size was then

Table 3.3

Table 3. 4*Sample size in relation to unit of observation*

Target Group	Target Population	Sample Size
Secondary schools	386	249
Students	23,849	249
Teachers	5,989	191
Principals	386	49
SCQASOs	10	5
Total	30,234	493

3.6 Research Instruments

The tools used in this study to collect data included questionnaires for the teachers and students, and Focused Group Discussion (FGD) for the principals. An interview schedule was employed on the Sub-County Quality Assurance and Standards Officers (SCQASOs). The information for guiding the construction of the questions in the research instruments were obtained from literature reviewed in chapter two and in line with the conceptual framework. The researcher did involve two research assistants for the data collection process. The research assistants were post-graduate in education students from the University of Nairobi, Kabete Campus. Prior to collecting the data, the researcher took them through a workshop to orient them to the instrument administration techniques and retrieval methods and what to expect from the respondents. They were also trained on ethical requirements and handling of the instruments to prevent inadvertent exposure.

3.6.1 Questionnaires for teachers, students

A questionnaire was used to collect information from teachers, students and principals as they were positioned to provide important information on the demographics of the selected metrics. A questionnaire helps collect a large amount of data over a set period of time (Creswell & Clark, 2017). The questionnaires were designed to collect information on four independent variables and one dependent variable. The independent variables are; school factors, teacher-related factors, socio-economic factors, principals' leadership practices and the dependent variable quality of education in secondary schools in Kiambu County.

The questionnaire consisted of open and closed items. An open-ended questionnaire was required so that participants were free to answer the questions in their own words. This reveals hidden information, background, hidden inspiration, interests, choices and feelings that can be captured in a confined space objects. The closed-ended items comprised statements with a list of scoring options in which participants were instructed to choose answers that best describe their position with regard to the statement. As research was conducted on ideas, Likert scales were widely used. Likert scales have been used because they can measure independent and non-essential aspects in a study. Numerical scales also helped to reduce subjectivity and made it possible to use quantitative analysis. Samples of the questionnaires are given on appendices II and III.

3.6.2 Interview Schedule for the Education Officers

The researcher employed an interview schedule for the 10 Sub-County Quality Assurance and Standards Officers to obtain in-depth information. This method of data collection was chosen by the researcher because it is ideal in obtaining the views and perceptions of participants (Brennen, 2017). The interview schedule to the SQASOs was organized along

three main constructs; School-based factors and quality of education, Leadership practices and education quality and Quality of Education in Secondary Schools. It also collected the background information of the respondents. The interview was done through a face-to-face mode and was recorded in writing on the schedules. Interviews provide more correct and consistent information and gives room for clarifications in instances where there are doubts. Interviews are also applicable when the number of respondents are relatively low. A sample interview schedule is included as appendix V.

3.6.3 Focus Group Discussion Guides for the Principals

Secondary school principals from schools in Kiambu County were the respondents of the focus group discussions in the present study. Focus group discussions are used a means of collecting views on a topic of interest among persons who share similar experiences or background during an open discussion. Their views in qualitative form are then captured in focus group guides which are then analysed for themes and constructs that indicate the disposition of the respondents. Focus group discussions are important in clarifying and testing preconceived assumptions. However, in some cases they can measuring the variables were included.be biased as the respondents may not give their views freely especially on a sensitive topic. However, being at the apex of school leadership and also that the topics under discussions were not sensitive, the school principals were not expected to be inhibited in their responses. The instrument entailed questions from each variable in the study, that is; School-based factors, Teacher-factors, Social-economic factors, Leadership practices and Quality of Education in Secondary Schools. The Focus Group Discussions guide is given in Appendix IV.

3.7 Pilot Testing

Pilot testing reveals what works and what does not work in terms of the instruments. Important comments and suggestions from respondents are also captured. These allow the researcher to increase efficiency of the instruments, besides changing strategies and approaches to maximize response rates. It is used to evaluate the reliability and validity level of the instruments (Nardi, 2018). Tools were pilot tested in two schools randomly selected in Murang'a County, one public and the other private. This schools engaged in the pilot study were later not incorporated in the actual study. The pilot study involved two secondary school principals, two deputy principals, eight teachers and eight students. The respondents were able to fill out the instruments completely and confidentially after being instructed on the requirements and their rights to participate in the study. The data obtained from the pilot testing was analysed and interpreted and the findings obtained aided in the rectification of weaknesses in the data collection instruments before going out for the main study.

3.7.1 Validity of the instruments

Validity of an instrument refers to the extent to which a tool measures what it is meant to measure. The items were issued to specialists in educational research in Kenya Methodist University to make critical look at the items. Their remarks and proposals were then included in the instruments, hence making the questionnaire valid. Quality of the instruments was also verified through a pilot test in which any ambiguities were identified and corrected, accordingly. Equally, the researcher ensured that all the items were based on the stated objectives. The researcher engaged independent education experts who included 3 PhD education graduates and 1 PhD candidate from other universities in Nairobi

and Kiambu Counties and also one Ministry of Education officer based in Nairobi County who were constituted into a panel.

Through these experts, the researcher was able to conduct face validity where the layout, language, and the concepts were analysed with the target population in mind. Construct validity was first done through an assessment of the literature review (Chapter Two) for their relevance and then subjected to a voting process in a manner proposed by Lawshe (1975) as cited in Patten and Newhart (2017). From the voting system, all the four independent variables together with the dependent variable were rated as essential by more than 49% of the panel and thus retained for the study. Constructive criticisms from the panel also helped refine the content of the items, thus, ensuring content validity. Further, the instruments were subjected to a review by the researcher's thesis supervisors to ascertain the conclusions of the panellists. Additional criticisms from supervisors further ensure all the relevant items

3.7.2 Reliability of the instruments

Reliability measures the extent to which a research tool gives reliable results or information from repetitive trials on the same subjects (Wallace, 2017). The study used the internal consistency method which relies on the established psychometric methods that measures the patterns of answering the questions with the view of determining whether there is consistency in answering them among the respondents and, thus, demonstrating that there is consistency in the instrument items. The Cronbach alpha is used as the measure of internal consistency where it is proposed that a Cronbach alpha reliability index of ≥ 0.7 is sufficient to admit that an instrument is reliable and, hence, can be used for surveys (Sekaran & Bougie, 2016). The results of the pilot-test were subjected to the internal

consistency test and yielded a Cronbach alpha than 0.7, that is ($\alpha \geq 0.700$) which was deemed as acceptable in social sciences (Manerikar & Manerikar, 2015).

For the open ended items and the interview schedules, inter-rater congruence was used to assess the consistency of the interview schedules. This was achieved by applying explicitly formulated rules and procedure to systematically include or exclude relevant sign-vehicles. This ensured objectivity in the data analysis as it is intended to minimize or eliminate the researcher's bias. The raters comprised of a panel of two doctoral candidates and three master's in education students and were trained to independently assess the text as recommended by Boettger and Palmer (2015). The independent assessors were able to identify the size of the segments, density of codes, interpretation of a segment and codes independently. The raters then compared their ratings for congruence and decisions were made on the consistency of responses. This was then used to determine the reliability of the interview schedule and the open-ended parts of the questionnaire.

3.8 Data Collection Procedures

The researcher visited sampled schools after obtaining research consent from the National Council for Science, Technology, and Innovation (NACOSTI). Authorisation was also acquired from the local authorities after presenting the research permit and then from the principal of the schools that were sampled.

3.8.1 Procedures for administering questionnaires

The questionnaires for teachers were issued by the researcher after identifying the teachers and briefing them on the purpose of the study. At the same time, principals were requested

to complete their questionnaires during visits to the schools, the teachers in the 120 schools were requested to assist the researcher in selecting the 120 form three and four students. The questionnaires for students, clearly explaining the purpose of the items, were administered with the assistance of the class teachers and were gathered right away after the participants completed filling them. This improved the response rate.

3.8.2 Procedures for conducting interview

The researcher carried out interviews with the education officers in charge. The education officers were consulted for the most convenient time to be interviewed. The researcher availed herself at the agreed times and carried out the interviews. Accordingly, each interview lasted approximately 30 minutes for each respondent.

3.8.3 Procedures for conducting Focus Group Discussions

Two focus group discussions were carried out with the principals' one during the Sub-County meeting of the Education Officers and the secondary school principals before the KCSE exams in Kiambaa Sub-County in Kiambu County and another after during the principals' meeting after the KCSE results had been announced in Thika Sub-County. In each case the researcher made prior arrangements with the principals on the venue and the time for the discussions which was after their meetings. The discussions were held for 35 minutes each and the first group consisted of 7 principals while the latter group consisted of 9 principals. The researcher moderated the FGDs and only asked questions rather than contribute to the ongoing discussions. She recorded the discussions electronically using her mobile phone on audio mode after seeking the permission of the respondents.

3.9 Data Analysis and Procedures

The study used both quantitative and qualitative methods for the data analysis.

3.9.1 Analysis of quantitative data

After the data gathering exercise, questionnaires were verified for comprehensiveness, organised, and coded by the researcher. The data were then fed into the computer and analyzed with the help of SPSS, version 26 for windows (Singh & Masuku, 2012; Sekaran & Bougie, 2016). Descriptive and inferential statistics comprising means and correlation coefficients respectively, were employed in analysing the data. The relationship among the dependent and independent variables were established by means of correlation coefficient and narratives for qualitative findings. Outcomes of the quantitative data from the coded open and closed ended questionnaires were presented in form of charts and tables. Data related to each objective were evaluated and presented in form of graphs and tables.

Regression analysis and correlation methods were used to test hypotheses for quantitative data. The independent variables under this study which were considered to have implications on the quality of education in Kiambu County were; the school based factors; teacher related factors; parent related factors; social-economic factors and principal's managerial styles. These independent variables were represented in the regression model as follows;

X_1 = School based factors

X_2= Teacher-related factors

X_3 = Parents' socio-economic status

X_4 = Principal's managerial style.

While the dependent variable (quality of education) was represented by Q.

The model was specified based on Cobb-Douglas Production Function (1927-1947) which is often applied when representing the technological association between two or K more inputs (especially physical capital and labour) and the amount of production that can be produced by those inputs.

The general relationship of Cobb-Douglass function can be expressed as:

$Q = AK^{\alpha}L^{\beta}$……..(1)

Where Q is production quantity, K and L are inputs while α and β are constants.

The choice of Cobb-Douglas model was based on its versatility in accommodating any number of variables. Secondly, the coefficients of variables are interpreted in terms of elasticities when the equation is log-linearized.

Following the above analysis, the model for this study was expressed as follows:

$Q = AX_1^{\alpha}X_2^{\beta}X_3^{\rho}X_4^{\Lambda} + e$..... (2)

Equation (2) can be transformed into double-logs as follows:

In QI=In A +αlnX_1 +βlanX_2 +lnX3 +lnX4 +U ..... (3)

Equation (3) is a multiple regression equation which is log linearized and was used for the purpose of this study. Where structured this way, coefficients were interpreted as elasticities.

3.9.2 Analysis of qualitative data

The data obtained from the interview schedules were cleaned, arranged, coded, interpreted and discussed according to the themes emerging from the study. As coding was involved

in the analysis of the content, it was also possible to use quantitative techniques to observe the general trends and criticality of the themes.

Table 3. 5

Summary of Data Analysis

Objectives	Independent Variable	Dependent Variable	Method of analysis
Objective 1	School based factors	Quality	Correlation Regression Means Frequency counts Percentages
Objective 2	Teacher factors	Quality	Correlation Regression Means Frequency counts Percentages
Objective 3	Social Economic Status of Parents	Quality	Correlation Regression Means Frequency counts Percentages
Objective 4	Managerial styles	Quality	Correlation Regression Means Frequency counts Percentages

3.10 Ethical Considerations

Ethical considerations are quite critical when carrying out any research. According to Walliman (2017), ethical research involves the acquisition of information and approval from participants without infringing on their autonomy while at the same time should not

harm the respondents. Besides, ethical research considers sensitivities to cultural variations, gender, privacy, confidentiality and the principle of anonymity. The researcher complied with these ethical considerations while undertaking the study.

The researcher sought for a permit from NACOSTI to authorize her carry out the study. Permission was also acquired from the County Director of Education, as well as, the County Commissioner. This permission was sought before collection of data. For confidentiality aspect, the researcher made a deliberate move to interview all respondents in privacy, more so in an office. To ensure anonymity of the respondents, questionnaires for specific target groups were assigned serial numbers instead of names for traction as they were not required to indicate their names on the instruments. The SCQASOs had their interview schedules coded so as to reduce the incidences of duplication. This safeguarded the respondents from any undue leakage about the ownership of information contained in any questionnaire. The researcher also included a written statement in the letter of introduction, assuring the respondents that any information given in the questionnaire was for the purpose of research and that such information was given from informed consent free from any undue influence. Moreover, the purpose of the study was verbally and also outlined in writing to the respondents.

The respondents were informed of their rights to voluntary participation in the study and their freedom to withdraw at any time they felt like, only they were required to inform the researcher about their decision. The respondents were also assured of the confidentiality of their participation in the study and that their filled instruments and their reactions will in no way be traced to them and their institutions. They were assured that the filled instruments will be kept under the safe custody of the researcher during and after the study.

The researcher also ensured that data integrity was upheld during entry, analysis, and interpretation and reporting to ensure that it remained as original as it was collected from the field. Therefore, any distortion of the data to conform to a particular disposition was not permitted. This was done to ensure that the data reflected the voice of the respondents as they expressed themselves. The researcher also duly acknowledged all the support given by all involved in the study and also the secondary sources of information used were duly acknowledged through citing and referencing using APA.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The outcomes and discussions of the study are presented in this chapter. The process of data analysis and discussion of results involved putting together related data, examining the results using appropriate statistical techniques, summarizing, and comparing results with previous studies to provide solutions to the research problem and arrive at conclusions (Bryman, 2012). The rationale of this study was to research on the impact of the selected metrics on the quality of education in secondary schools in Kiambu County.

4.1.1 Response Rate

The study had initially aimed to collect data from 493 subjects who included Sub-County Quality Assurance Officers (SCQASOs), principals, teachers and students. However, only 380 (77%) subjects were available for responding to the questionnaires and interviews.

Table 4.1

Response rate

Target group	Sample size	Response	Response rate
Secondary schools	249	224	90%
Students	249	224	90%
Teachers	191	114	60%
Principals	48	39	81%
SCQASOs	5	5	100%
Total	493	382	77%

Out of the 249 secondary schools that had been sampled, 224 (90%) schools responded accordingly. As for the questionnaires, the study recorded a good response rate, that is, 224 (90%) and 114 (60%) from students and teachers' respondents. All the SCQASOs who had been sampled for the interview were available, while 39 (81%) of principals turned for the focused group discussion. According to Willott (2019), 50% or higher rate of response is acceptable in survey research. Consequently, the overall response rate of 77% in this study was considered adequate for further analysis. Information on reliability and demography are presented first followed by results based on each construct of the study.

4.1.2 Reliability Test

Before the main study was carried out, pretesting was conducted as described in chapter three. A summary of results on reliability is presented in Table 4.1.

Table 4.2

Results on Reliability Test

Constructs	Cronbach's Alpha based on data from students	Cronbach's Alpha based on data from Teachers
School-based factors (X_1)	0.822	0.727
Teacher-related factors (X_2)	0.902	0.781
Social economic factors of parents (X_3)	0.930	0.752
Principals' leadership practices (X_4)	0.862	0.817
Quality of education (Y)	0.702	0.730

The Cronbach's coefficient alpha values in Table 4.1 were more than 0.7, that is ($\alpha \geq 0.700$) which according to Manerikar and Manerikar (2015), is within the allowable range in social

sciences. This further implied that all the constructs and their measurements used in the study were reliable hence fit for the actual data analysis.

4.2 Demographic Information of the Sampled Schools

It was important to establish the general demographic trends of the schools and nature of respondents across different categories. Information was summarized in Tables 4.3.

Table 4. 3

Background Information of Secondary Schools in Kiambu County

Secondary School Category			
	Frequency	Percent	Cumulative Percent
Day	105	46.9	46.9
Boarding	92	41.1	87.9
Day and boarding	27	12.1	100.0
Total	224	100.0	
Type of secondary school			
	Frequency	Percent	Cumulative Percent
Mixed	128	57.1	57.1
Girls only	58	25.9	83.0
Boys only	38	17.0	100.0
Total	224	100.0	
Status of secondary school			
	Frequency	Percent	Cumulative Percent
Public	214	95.5	95.5
Private	10	4.5	100.0
Total	224	100.0	

Information in Table 4.3 shows that many secondary schools in Kiambu County were day schools. Out of the 224 secondary schools, 214 (95.5%) were public while only 10 (4.5%) were private. This shows that most secondary schools in Kiambu County were predominantly public. Information from Table 4.3 further shows that most secondary school were mixed, although there were more girls' schools (9 %) than boys' schools (17

%). Two related studies by Wangari (2015) and Muchena (2015) in Kenya indicated that most secondary schools in Kiambu were public, mixed and few were single-streamed. The current results also showed that there were more day secondary schools (46.9 %) than boarding schools (41.1%) in Kiambu County. This information was confirmed from Sub-county Education Officers who noted that Kiambu County had the highest number of original national schools, and many day secondary schools. As such, the performance in national examinations showed extremely good results posted by national and extra-county secondary schools, while poor results were posted by day schools. In addition, most schools were reported to be having three streams as shown in Table 4.4.

Table 4. 4

Information on Streams and Number of Students per Stream

Number of streams in the school			
	Frequency	Percent	Cumulative Percent
Three	80	35.7	35.7
Two	74	33.0	68.8
One	46	20.5	89.3
More than seven	18	8.0	97.3
Five	5	2.2	99.6
Four	1	.4	100.0
Total	224	100.0	
Average number of students per class in a stream			
	Frequency	Percent	Cumulative Percent
Above 50	111	49.6	49.6
41-50	57	25.4	75.0
20-30	28	12.5	87.5
31-40	28	12.5	100.0
Total	224	100.0	

The study noted that approximately one-half of high schools in Kiambu County had above 50 students per stream. Information gathered from principals indicated that each school had an average of 442 students who were being served by 52 teachers. This was likely to compromise quality of education in these schools and hence implies the need to re-address infrastructures and related resources. According to a study by Wangari (2015), the average number of students per class were ranging between 50 and 60, hence, the teachers had a burdening workload as compared to the required teacher-student ratio, 1:45. The findings of this study regarding more than 50 students per stream, concurs with those of Wangari (2015). The average enrolment of 442 students in a school is high and is likely to lead to other social-economic related problems. A statement from one of the Sub-county Quality Assurance Education Officers concurred saying, *"The Kiambu County has a huge enrolment but the social-economic factors have led to high rate of drop-out. Examples of social-economic factors are the boda boda business, tea picking, small-scale businesses and the effect of urbanization and proximity to Nairobi City*".

Furthermore, the study aimed to determine the work experience of principals and teachers in terms of years of service with an aim of assessing their familiarity with quality issues in secondary schools. The responses were summarized and presented in Table 4.5.

Table 4. 5

Length of Service of Teachers and Principals

Years of service	Teacher		Principal	
	Frequency	Percent	Frequency	Percent
Below one year	27	23.7	2	5.1
1 - 5 years	56	49.1	13	33.3
6 - 10 years	18	15.8	12	30.8
11 - 15 years	6	5.3	10	25.6
Above 15 years	7	6.1	2	5.1
Total	114	100	39	100.0

Most teachers 56 (49.1%) and principals 13 (33.3%) had between one and five years of teaching experience, respectively. For principals, 61.5% had experiences of 6 years and above as principals. The results show that both teachers and principals had requisite working experience and were therefore, better placed to provide information on education quality in secondary schools.

Effective implementation of quality of education in secondary school requires that the involved stakeholders be experienced and knowledgeable. The knowledgeability aspect was established through views on academic qualification obtained from both teachers and the principals. The study's findings are summarized in Table 4.6.

Table 4. 6

Current Academic Qualifications of Teachers and Principals

Academic qualification	Teachers' current academic qualification		Principals' current academic qualification	
	Frequency	Percent	Frequency	Percent
Bachelor degree	86	75	23	59
Master's degree	28	25	16	41
PhD	0	0	0	0
Total	114	100	39	100.0

With 86 (75%) of teachers holding bachelor degree and 23 (41%) of principals holding masters 'degree, it was right to conclude that both had sufficient educational background and thus, they were most suited in understanding issues surrounding attainment of quality learning in secondary schools within the county. This concurs with the studies conducted by Wangari (2015) who found that most teachers in secondary schools in Kiambu County had at least a Bachelors' degree in their areas of subject specialization. These findings are in line with the requirements that the least qualifications of teachers in high schools shod be at Bachelors' degree in education.

Experience allows teachers to gain skills which are applied in the teaching activities. This leads to the realization of quality of education. Muchena (2015) supports this argument in her study that sought for factors which led to student selecting agriculture subject in public secondary schools. Although Muchena's study focused on teachers of agriculture, the study could be relied upon and generalized with reference to the current study. The demographic characteristics of the population in the current study thus provided a fair cross section of the entire population under consideration and could, therefore, be generalized to the study

population and also used to determine the status of education quality in the area. The section that follows, provides results regarding the main constructs of the study.

4.3 Descriptive Statistics Results on Quality of Education

This study's dependent variable was quality of education. Information regarding quality of education was gathered from both students and teachers. Thus, some aspects of quality of education were investigated through presentation of various statements to sampled group in a five-point Likert rating scale. Among the aspects of quality of education covered in the statements included: learning facilities, equipment and furniture; teachers, extra-curriculum activities, school programme, library, classrooms, and hostels among others. All statements were stated positively and measured in ordinal scale ranging from 5-strongly agree; 4 – Agree; 3 – Neutral; 2 – Disagree; 1- Strongly Disagree.

4.2.1 Students' responses on aspects of quality of education in secondary schools

Students are the main beneficiaries of the standardisation of education. If attributes of quality are compromised, students suffer to a very great extent. If standards on provision of quality are upheld in secondary schools, students enjoy the process and systems which are meant to ensure a holistic citizen is moulded and well-grounded, and prepared to contribute to nation building; economic, social and human development. The views from students were very crucial in assessing how high school students perceived the different aspects of education quality. To kick off the study, the degree to which students concurred with diverse features of determining quality of education in secondary schools was investigated. Summarization of their responses was done and tabulated as shown in Table 4.7.

Table 4. 7

Students' Responses on Aspects of Quality of Education in Secondary Schools

	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Quality of academic performance	4.60	.918	-2.734	.163	7.202	.324	.748
Quality of teachers	4.58	.810	-2.473	.163	6.455	.324	.551
Quality of learning facilities (e.g. laboratories, classrooms, workshops, etc.)	4.39	.660	-1.374	.163	4.079	.324	.626
Quality of equipment and furniture	4.32	.991	-2.134	.163	4.752	.324	.826
Quality of school programme	4.21	.811	-1.412	.163	3.007	.324	.707
Quality of leadership	4.19	.938	-.502	.163	-.627	.324	.669
Quality of involvement of stakeholders	4.15	1.051	-1.516	.163	1.738	.324	.695
Quality of incentives and motivation for teachers and students	4.13	.866	-.964	.163	1.069	.324	.770
Quality of school library	4.08	.929	-.939	.163	.593	.324	.808
Quality of washrooms	4.00	.970	-.713	.163	-.205	.324	.611
Quality of dormitories	3.95	.955	-.578	.163	-.334	.324	.693
Quality of facility inspection done by County Education Office	3.92	.962	-.630	.163	-.248	.324	.809
Quality of auxiliary services and amenities	3.75	1.083	-.524	.163	-.511	.324	.595
Quality of extra-curriculum activities	3.59	1.121	-.466	.163	-.539	.324	.740
Quality of learners admitted in the school	3.56	1.078	-.336	.163	-.621	.324	.645
Quality of dining hall	3.51	1.148	-.401	.163	-.645	.324	.725

KMO = .829

Bartlett's Test of Sphericity = .000

The study's findings from Table 4.7 indicated that, the average mean score of students' responses on aspects of determining the educational quality in high school was 4.05, and which was above the median value of 3.4. A factor analysis indicated that all the determinants of quality loaded very well where each aspect of quality had a factor Eigen value which was above 0.5. This study adopted the guidelines by Tabachnick and Fidell (2007) who stipulated that a factor loading of 0.45 is a fair measure of real life data. The results show that all sixteen aspects posed to students were essential in determining education quality in secondary schools. Although all the aspects of determining quality of education were essential, the order of their importance and magnitude varied as indicated by the mean values (see Table 4.7). From students perspectives, the quality of academic performance in the school had the highest rating (mean = 4.60). Many students viewed a school which had impressive results in national examinations as being of good quality, hence, academic performance of a school attracted a high ranking in this study.

The other key aspect that had high ranking mean value was quality of teachers (mean = 4.58). Studies by Bonney et al. (2015) and Xu and Qi (2019) have linked quality of teachers to academic performance of students. In a study to find out the correlation that links the teachers' quality and student's academic achievement in Junior High Schools of the Western Region of Ghana, Bonney et al. (2015) reported that there was no relevant association between the quality of a teacher and the achievement of a learner. This may be because learners needed to study hard for them to understand content being taught in classrooms. This contrast in findings could have meant that learners had a role to play apart from the guidance provided by their instructors. There is a direct and statistically

significant affiliation between the performances of a teacher and the achievement of a learner.

Unlike the study by Bonney et al. (2015) and Xu and Qi (2019) noted that in the schools where learners did well, teacher respondents had recorded good teacher-student relationship, professional development, innovative skills and other teaching competence standards in their teaching job. Quality of teachers is characterized by mastery of subjects, instructional delivery methods, and pedagogical skills, nature of training, as well as, conduct and behavior (Barnett, 2019). There is therefore, a clear connection among high quality training and placement of a number of learning approaches, the capability to involve learners in learning procedures, the setting of clear and maintenance of classroom anticipations and the use of higher order questioning as a training strategy. Clear and coherent communication also facilitates school and home collaborations and facilitate a greater level of passion for content in the professionalism display. These results rhyme well with the findings of Kidwell (2015) where clear communication and feedback to subordinates was noted to have stimulated strong relations among co-workers; hence leading to a good cohesion. This possibly allowed teachers to work together towards achieving the organizational goals (Kidwell, 2015).

Another aspect that had a high ranking mean values was the quality of learning facilities. These facilities included, laboratories, classrooms, and workshops among others (mean = 4.39). The results indicated the need for schools to pay attention to the availability and nature of these learning facilities owing to their significance in determining quality of education in secondary schools. Information obtained from SCQASOs, indicated infrastructures as a key challenge towards the provision of excellent education in many day

high schools in Kiambu County. SCQASOs-04 lamented about the high congestions in classrooms especially in many day secondary schools following the government's directive of 100% transition of learners from primary to high schools. Notably, the learning facilities were not enough, and not well-equipped with quality equipment and furniture (mean = 4.32).

Students also regarded quality of school programs as being a key aspect in finding out the quality of education (mean = 4.21). The study by Naz and Murad (2017) regarding the influence of innovative teaching procedure on the achievement of diverse students from secondary schools reported the existence of a substantial impact on the performance of different students where innovative programs were implemented. According to Naz and Murad, secondary schools which were excelling in national examinations had innovative programs and activities which encouraged and motived high performance among learners. With consultation and agreement with stakeholders, a secondary school in Kenya has liberty of introducing special academic programme to heighten the focus, determination and performance of learners and teachers. According to SCQASOs-05, many schools in Kiambu County that registered good performance in national examinations had special programmes which enabled teachers to complete the syllabuses in good time, assisted the weak students, had adequate time with students in the laboratories, and carried out many continuous assessment tests.

4.2.2 Teachers' responses on aspects of educational quality in high schools

The views from teachers on aspects that determine quality of education in secondary schools were sought. Teachers usually spend a lot of time with students in secondary school, hence quality of the environment, resources, facilities and equipment matter to a

great extent. They are also important components in driving quality in some aspects. Teachers too, largely depend on quality of facilities in the school in order to deliver their expectations. Their views were critical in assessing various attributes of quality of education in high schools. Their answers were summarised and tabulated as shown in Table 4.8.

Table 4. 8

Teachers' Responses on Aspects of Quality of Education in Secondary Schools

	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor loading
Quality of academic performance in the school	4.56	.704	-2.232	.226	6.968	.449	.629
Quality of school programs	4.37	.779	-1.553	.226	3.367	.449	.669
Quality of learning facilities	4.35	.841	-1.742	.226	3.902	.449	.709
Quality of leadership	4.32	.815	-1.265	.226	1.854	.449	.673
Quality school library	4.32	.768	-1.327	.226	2.750	.449	.535
Quality of equipment and furniture	4.30	.808	-1.110	.226	.880	.449	.601
Quality of teachers	4.28	.936	-1.844	.226	3.883	.449	.856
Quality of extra-curriculum activities	4.28	.936	-1.844	.226	3.883	.449	.856
Quality of incentives and motivation for teachers and students	4.24	.744	-.808	.226	.525	.449	.506
Quality of involvement of stakeholders in the school	4.22	.880	-1.239	.226	1.115	.449	.659
Quality of learners admitted in the school	4.17	.930	-1.078	.226	.715	.449	.417
Quality of classrooms	4.16	.898	-.990	.226	.684	.449	.564
Quality of washrooms	3.99	.945	-1.198	.226	1.838	.449	.769
Quality of dormitories	3.98	.902	-.333	.226	-.969	.449	.547
Quality of dining hall	3.96	1.051	-1.309	.226	1.312	.449	.322
Quality of auxiliary services and amenities	3.93	1.037	-.779	.226	-.307	.449	.582
Quality of facility inspection done by County Education Office	3.63	1.041	-.358	.226	-.653	.449	.521

The overall teachers' ratings on aspects of determining quality of education in secondary school (mean = 4.16) was slightly higher than the rating from students (mean = 4.05). The mean score indicate that all aspects were important in determining educational quality in high schools in Kiambu County. A factor analysis was carried out to assess how each aspect loaded in the hypothesized model. Results indicate that all determinants of quality loaded very well where each aspect of quality had a factor Eigen value which was above 0.5. This confirmed that all the sentimental aspects presented to teachers were essential in determining education quality in secondary schools.

Although all the aspects of determining quality of education were essentially the same as those of students, the order of their importance and magnitude varied as indicated by their respective mean values. However, information from Table 4.8 and 4.9 shows that students and teachers do not perceive quality of education the same way. Incongruence in the perception of quality of education among stakeholders can be disastrous, and exposes gaps in the awareness.

When asked for comments on awareness and sensitization of stakeholders on quality of education, SCQASOs consensually indicated that education quality officers as well as the entire staff at the Education Office get involved in the sensitization of communities through stakeholders' forums such as parents' meetings, where parents, teachers, students' managers, church and community interact. These avenues seemed to be insufficient in addressing the lack of understanding on what quality education is and its essence. SCQASO-03 pointed out how misconception of quality by parents was disheartening due to ignorance and lack of awareness, saying that many parents who had children in day secondary schools just wanted a child to grow and get a certificate, that meant*, "the quality*

of the certificate is a non-issue". This points to a great need to communicate what quality education is and institutionalize congruent perception of quality among stakeholders. Certainly, information about poor quality on the education system should be communicated and shared by principals of secondary schools and the Ministry of Education.

A study by Telli (2013) answers the question on how education quality could be defined differently for education accomplishments in Tanzania through the involvement of stakeholders' opinions. Telli argued that stakeholders cannot provide opinions on improvement of quality of education if they have not been made aware of the same. The study by Telli showed that students, parents, teachers and policy makers did not have similar views on aspects of quality of education. Some of the forums used by SCQASOs and principals to promote quality awareness in secondary schools included Parents-Teachers Association (PTA), Board of Management (BoMs), Kenya Secondary School Heads Association (KESSHA), and Kenya Private Schools Association (KPSA). Principals of secondary schools however admitted during the focused group discussion that the awareness programs lacked structured and standardized approach. When asked to offer solutions, most SCQASOs recommended a multi–agencies approach which include the church, NGOs, local administration such as chiefs and county commissioners in monitoring and controlling the quality education and creating a whole person – well rounded in secondary schools.

In promoting quality among students, the principals of secondary schools admitted during the focused group discussion to have been using inter-school competitions, symposiums, education days, career fairs, and benchmarking tours among others. However, only a few secondary schools were able to engage in these good practices due to shortage of finances,

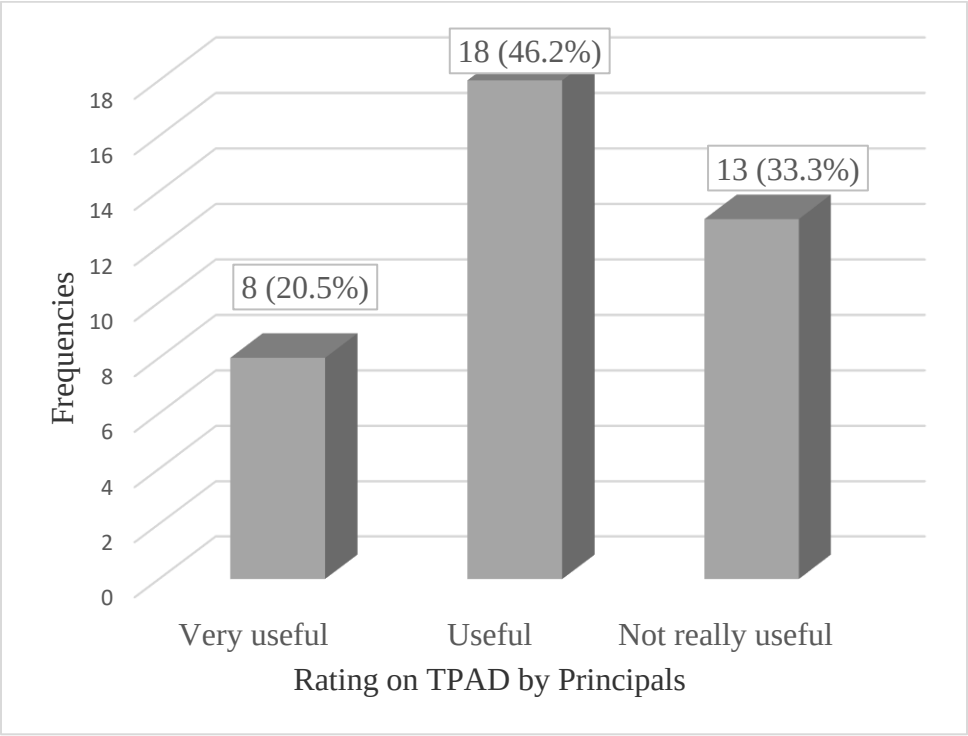
that forced them to only focus on fulfilling the basic needs such as hiring of BoM teachers, paying support staff and putting up essential facilities. Focused group discussion number one principal noted that most day-secondary schools however found benchmarking exercises too expensive.

In the current study, teachers related and attributed quality of education to the availability of resources, infrastructure and facilities while the students related quality with their performance in their studies. Information gathered through interview clearly indicated that policy makers, in this case SCQASOs, had much knowledge on the quality of education, but cited lack of human capacity and shortage of finances as serious drawbacks.

Similar to students' responses, teachers also ranked the quality of academic performance in the school the highest, (mean = 4.56). Obviously, everyone including teachers wants to be associated with success. Practically, national examinations outcome is one of the key indicators of teachers' performance (TSC, 2019). According to TSC (2019), performance average score in examination of a given subject usually accounts for the overall performance appraisal score of a teacher. Confirmatory responses obtained from the principals in a question where they were requested to rate the usefulness of teachers' performance assessment and development and the findings are as shown in Figure 4.1.

Figure 4.1

Usefulness of TPAD towards achieving quality education as viewed by principals of secondary schools



Findings in Figure 4.1 show that most principals of secondary schools in Kiambu County (46.2%) viewed teachers' performance appraisal and development as useful towards achieving quality education in secondary schools. However, approximately a third of them, had contrary views and believed that teachers' performance appraisals were not useful. The performance of a teacher is regarded critical by the employer (TSC) and is believed to contribute to academic achievement of learners (TSC, 2019).

According to teachers, the quality of school programme (mean = 4.37) was the second most important aspect of determining educational quality in high schools (see Table 4.7). Special school programmes are mostly a creativity of teachers and administration which enable

them to achieve their goals effectively. Such programmes are in most cases, introduced in collaboration with BoM, parents' representatives, and students' governments. According to Sleeter (2018), teachers should develop multicultural programs that facilitate learning among students in secondary schools. These programs would help capture the attention of students in the classroom and motivate students' participation in the learning process. The similarity in results and implications boosts the significance of school programs as an aspect of education quality in high schools. Moreover, the vibrancy of school programs usually boosts the morale of teachers and students (Sleeter, 2018).

Other aspects of quality of education that had high ranking mean values, almost similar to those of students were the quality of learning facilities (mean = 4.35), and the quality of equipment and furniture (mean = 4.30). Some studies such as Chepkonga (2017) have also linked quality of education to predictors such as quality of learning facilities, and quality of equipment and furniture. Saga (2014) conducted a study on accessibility and high-level challenges facing public high schools in Tanzania. The results showed that the biggest challenge was that limited access to quality education was limited school infrastructure and poor living conditions. The Saga's study also noted lack of enough laboratories, libraries and classrooms. It is also noted that reference books were used only by teachers and kept in the principals' offices which is why students could not use them in their private lessons. Therefore, inadequate and crumbling furniture in the classroom directly affects students' achievement (Saga, 2014). Imbahala et al. (2019) conducted a study which indicated that laboratories in many schools lacked equipment, chemicals and storage facilities, and further indicated that virtual sessions were not conducted at all. This is an implication that resources that were available in schools were insufficient to effectively carry out practical

sessions in science subjects. This caused most teachers fail to conduct demonstrations and experiments as expected hence less practical learning.

Unlike students, the teachers ranked both quality of leadership and quality of a school library high (mean = 4.32 for both indicators). The leader of a secondary school (the principal) is a figurehead and usually determines the strategic direction of the entire school. The principal usually sets the pace and marshal effort of both students and teachers towards achieving the desired goals. He/she sets the tone, discipline, influences standards, expectations and morale teachers and pupils. The school leadership displays a direct relationship with students' academic performance as noted by SCQASOs-03. The leadership style of a principal is therefore core in determining quality of education. Kiprop (2016) investigated on the principal's leadership practices in Kenya and found that a principal plays a big responsibility in the academic achievement of students. He/she impacts a positive learning culture, ensure safety, and instils discipline, collegiality and reflective professional development of teachers. The principal's role was therefore described by focused group discussion number three as key in quantifying the quality of education. Another study by Abreha (2014) showed a clear correlation linking the leadership of a school head with the both teachers' and students' attainment in secondary schools. This is because, the principals have a direct responsibility of managing the entire education process within the school as emphasized by focused group discussion number three. This can be realized through lobbying for addition of competent teaching staff, providing conducive working environment, ensuring allocation of funds and stirring up commitment of workers in the school.

On the ranking of a school library, it is expedient to note that teachers have exposure and knowledge which may explain why they ranked quality of a school library in determining the education quality in high schools. Undoubtedly, library is a resource centre which is expected to provide conducive learning environment and access to resources for supporting learning and teaching in a secondary school. It plays a key role in mentoring academic character and excellence. Some scholars such Mutungi et al. (2014) and Benard and Dulle (2014) have linked a school library to academic performance in secondary schools and underscored its significance. However, most school libraries were found lacking policies and the majority of secondary schools lacked a purpose-built school library, while the existing ones lacked information materials. The study by Benard and Dulle (2014) conducted in Morogoro, reported that the most commonly used library information sources by secondary school learners were novels and books. Other library materials like atlases and dictionaries, maps, poetry, and audio-visuals materials were not available to students, and were not up to date. In addition, many school libraries had restricted reading hours, lacked adequate seating facilities, and lacked trained informational professional/ librarian. This was largely attributed to lack of financial support and absence of legislative framework on establishment of school libraries in Kenya. This implies that the Quality Audit Committee for secondary school under the Ministry of Education should include school library facility as one of the quality indicators. The same should be strengthened by appropriate legislations and policy.

Responses obtained from teachers, indicated a low ranking on quality of facility inspection done by the County Education Office in charge of quality. Probably, teachers were less involved in the inspection process of facilities, hence, they ranked it lowest (mean = 3.63).

The mean value was however high and indicated great need for quality audit by County Education Office to ensure that the provision of quality education in high schools. Njagi (2018) conducted research on issues affecting the delivery of quality education in newly recognized high schools in Kenya. The key findings from the study included the lack of adequate infrastructure to provide quality education. Consequently, the study's findings also indicated that many schools that were newly founded were understaffed. In the current study, poor follow-up programmes was attributed to assessment costs where many upcoming secondary schools were not able to meet the costs associated with assessment. This also affected private secondary schools. SCQASO-01 said,

> *"Most of the private secondary schools cannot afford the assessment costs. Most are only assessed as a firefighting strategy during crisis such as the collapse of a building, for example, as the one that happened at talent academy in 2019 in Dagoretti."*

As such, the role of quality audit in secondary schools cannot be overlooked given its essence and contribution to social-economic development (Njagi, 2018). Information obtained from principals of secondary schools through focused group discussion three that most schools in Kiambu County had been inspected for quality at least once during the previous 7-12 months. A clarification on frequency of monitoring was hence sought from SCQASOs. Most SCQASOs blamed the lack effective quality monitoring on inadequate staff and unavailability of reliable means of transport to facilitate the inspections. the SCQASO-02 explained,

"There is only one Quality Assurance and Audit Officer in each of the Sub Counties, and very many schools, both primary and secondary. That being the case, priority of monitoring is given to primary schools and few secondary schools". This implies weak monitoring and follow-up practices.

4.4 Diagnostic Tests

In this study, quality of education was the dependent variable hence, checking of normality and linearity of the data on its indicators was very important in informing whether to conduct parametric or non-parametric tests during further assessment of predictors and their relationship with the outcome. Results of P-values based on Kolmogorov-Smirnov and Shapiro-Wilk tests are presented in Table 4.9.

Table 4. 9

Tests of Normality on Education Quality Based on Students' and Teachers' Data

	Students' data					
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y	.073	221	.007	.979	221	.002
	Teachers' data					
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y	.066	95	.200*	.987	95	.477

*. This is a lower bound of the true significance.

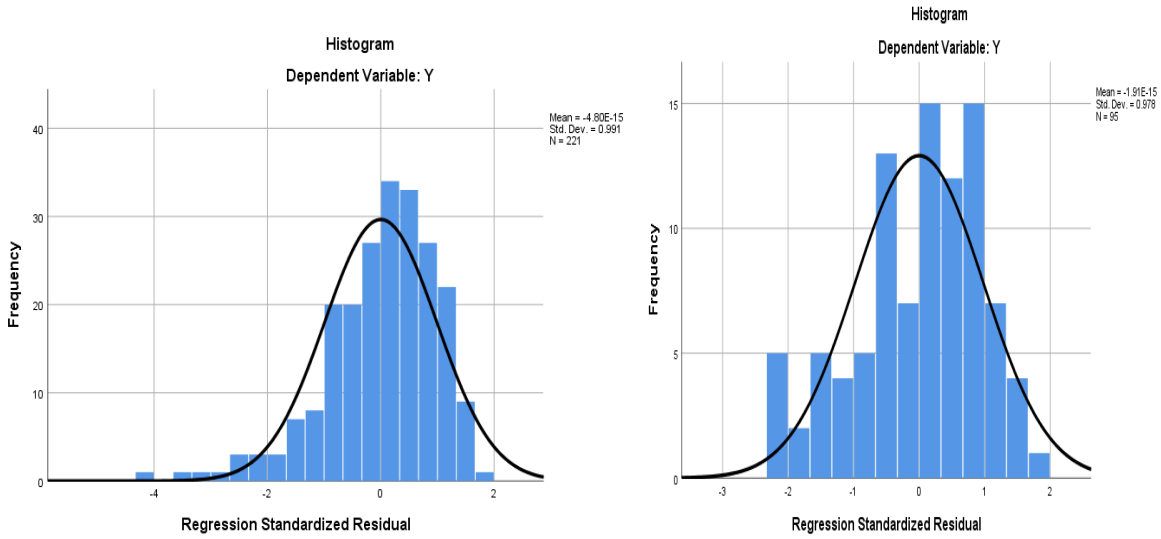
a. Lilliefors Significance Correction

Data from students showed a significant P-value which meant that the population was not normally distributed. However, data from teachers had insignificant P-value which

indicated a normal distribution. The study sought to further investigate the data using, Q-Q plots, histograms and box plots. The outcome was presented in Figures 4.2, 4.3 and 4.4 based on data from both students and teachers, respectively.

Figure 4.2

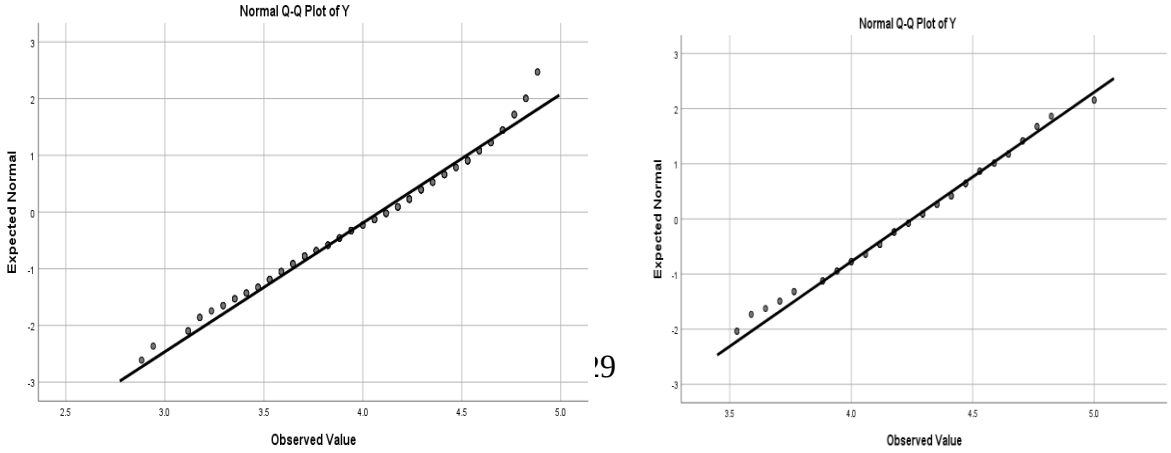
Histograms showing normality of data on quality of education - students' and teachers'



The same was demonstrated with standard Q-Q plots found in Figure 4.3.

Figure 4.3

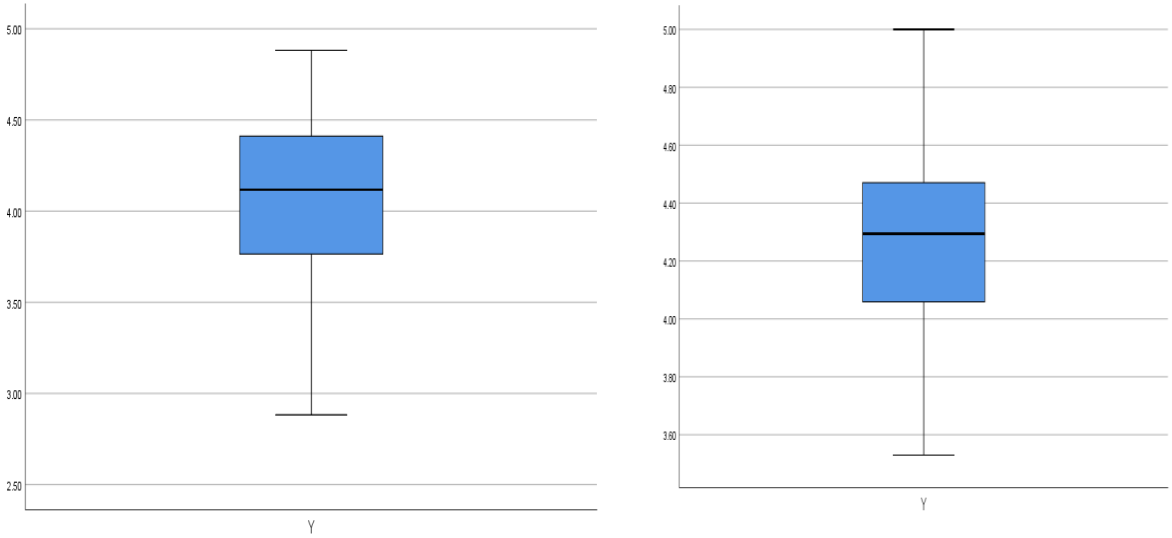
Q-Q showing normality of data on quality of education - students' and teachers'



Whisker box plots were generated after removing outliers. The resulting outputs were presented in Figure 4.4.

Figure 4.4

Box plot from students' and teachers' responses on quality of education



The One-Sample Kolmogorov-Smirnov test was, hence, conducted and the findings are shown in Table 4.10.

Table 4.10

Normality Status Check across Study Variables

One-Sample Kolmogorov-Smirnov Test – based on Students' data						
		X_1	X_2	X_3	X_4	Y
N		221	221	221	221	221
Normal Parameters[a,b]	Mean	3.9548	3.5009	4.1611	3.4072	4.0849
	Std. Dev.	.68786	.58012	.72496	.47656	.44024
Most Extreme Differences	Absolute	.081	.075	.130	.072	.073
	Positive	.064	.047	.124	.041	.041
	Negative	-.081	-.075	-.130	-.072	-.073
Test Statistic		.081	.075	.130	.072	.073
Asymp. Sig. (2-tailed)		.001[c]	.005[c]	.000[c]	.007[c]	.007[c]
One-Sample Kolmogorov-Smirnov Test – based on Teachers' data						
		Y	X_4	X_3	X_2	X_1
N		95	95	95	95	96
Normal Parameters[a,b]	Mean	4.2520	4.0293	4.1453	3.2794	3.6222
	Std. Dev.	.32556	.58080	.60736	.39051	.47418
Most Extreme Differences	Absolute	.066	.078	.089	.128	.082
	Positive	.040	.078	.089	.128	.082
	Negative	-.066	-.072	-.089	-.064	-.054
Test Statistic		.066	.078	.089	.128	.082
Asymp. Sig. (2-tailed)		.200[c,d]	.190[c]	.059[c]	.001[c]	.119[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

The other key diagnostic test carried out was checking of multicollinearity amongst the independent variables. Findings are shown in Table 4.10. This agrees with results presented in Table 4.10. The study further checked for a multicollinearity problem in the study variables. Results of multicollinearity are tabulated as shown in Table 4.11.

Table 4.11

Multicollinearity Results of Selected Metrics Based on Students' and Teachers' Data

Model		Collinearity statistics based on students' data		Collinearity statistics based on teachers' data	
		Tolerance	VIF	Tolerance	VIF
	X_4	.425	2.353	.416	2.402
	X_3	.992	1.008	.962	1.039
	X_2	.962	1.039	.992	1.008
	X_1	.416	2.402	.425	2.353

Dependent Variable: Y

Results showed that all the independent variables had no multicollinearity problem as indicated by a Variance Inflation Factor (VIF) value which was more than 0.2 and less than 5 in each case.

4.5 School-based Factors Affecting Quality of Education among Secondary Schools in Kiambu County

The first objective aimed to investigate on the sufficiency of items that constituted the school-based factors in the provision of quality education. Information was gathered from students, teachers and principals. Sub-County Education Quality Assurance Officers were also instrumental in providing information that helped to clarify on key issues with regards to quality standards in secondary schools. Some aspects on school-based factors were presented to students and teachers in a tabular form which were in Likert scale (ranging from 1–5). Summation of descriptive results is presented in Table 4.12 and Table 4.13.

Table 4.12

Students' Responses Adequacy of School-based Factors and Quality of Education

Items related to school-based factors that affect quality of education (N = 114)	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Support staff	4.13	.866	-.964	.163	1.069	.324	.665
Recreation facilities	4.11	1.012	-1.223	.163	1.194	.324	.623
Toilets/latrines	4.04	1.036	-1.065	.163	.679	.324	.729
Average number of students per stream	4.02	1.082	-1.117	.163	.756	.324	.686
Instructional materials	4.00	.898	-1.310	.163	2.389	.324	.607
School compound spaces	3.91	.879	-.985	.163	1.632	.324	.714
Classrooms	3.90	1.085	-1.026	.163	.577	.324	.665
Dormitories	3.90	1.243	-1.047	.163	.104	.324	.669
Teaching staff (teacher-student ratio)	3.85	1.179	-1.019	.163	.210	.324	.575
Library	3.77	1.127	-.925	.163	.313	.324	.717
Furniture	3.73	1.072	-.848	.163	.479	.324	.527
Summated mean	3.94	1.04					
KMO = .869							
Bartlett's Test of Sphericity = .000							

The study's results from Table 4.11 presented a mean summation of 3.94 and a standard deviation of 1.04 on adequacy of various school-based factors in facilitating the provision of education quality in high schools in Kiambu County as perceived by students. An analysis factor pinpointed that all school-based factors affecting the quality of education

loaded very well where each had Eigen value which was above 0.5. Although all the aspects of school-based factors were essential in facilitating the provision of quality education in secondary schools, the order of their adequacy varied as indicated by their respective mean values. From students' perspectives, the support staff, recreation facilities, toilets/latrines, number of students per stream, and instructional materials in the schools – all had a mean value of 4.00 and above.

Safe and neat classroom settings and the school amenities are strongly correlated to academic achievement of learners. Small classes and teacher quality are necessary for the improvement of learning environment. Uneven allocation of learning resources to schools and the existence of poor school infrastructure are all associated with poor academic performance of learners (Wambua et al., 2018).

The last three less adequate items were the teaching staff (teacher-student ratio), mean = 3.85, library (mean = 3.77), and furniture (mean = 3.73). This meant that, although the three items were critical in enhancing the quality of education (KMO = .869, which was more than 0.6 and a Bartlett's test of sphericity, P= .000, which was significant), students noted that the items were not enough as compared to other items. The government of Kenya strives for full hand-over of learners from primary to high schools. This has implications on facilities such as classrooms, teacher-student ratio, and furniture and dormitories (for boarding schools). The teacher-student ratio for example, is a critical indicator of the quality of education provided in a given school, and if it is below the required standards, the teaching effectiveness would be affected to a large extent. This finding is consistent with the study by Koc and Celik (2015) who assessed the impact of students-teacher ratio on students' achievement. A negative influence on the academic performance of students

was indicated by a low ratio. This is attributed to, high students numbers in class lead to reduced teacher attention and individual contact hours, thus significantly affecting the performance of pupils in national examinations (Waita et al., 2016). According to the opinions of most SCQASOs**,** the low student-teacher ratio came about after the introduction of government's policy on 100% passage from primary to high schools which came with no commensurate employment of teachers. To solve the teachers' shortage, principals of secondary schools had a consensus that the parents are encouraged and sensitized on the need to bridge gaps where a school may be having a shortfall by employing teachers through BoM. This points out to a serious discrepancy which should be addressed in order to ensure quality education in government high schools.

However, the order of their adequacy varied as indicated by their respective mean values as shown in Table 4.13.

Table 4. 13

Teachers' Responses on Adequacy of School-based Factors and Quality of Education

Items related to school-based factors that affect quality of education (N = 114)	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Instructional materials	3.71	.909	-.899	.226	.252	.449	.734
Average number of students per stream	3.68	1.116	-.825	.226	-.321	.449	.715
Classrooms	3.67	1.053	-.821	.226	-.023	.449	.712
Recreation facilities	3.66	1.225	-.814	.226	-.437	.449	.647
Furniture	3.47	1.305	-.525	.226	-1.013	.449	.752
School compound spaces	3.39	1.235	-.460	.226	-.850	.449	.748
Teaching staff (teacher-student ratio)	3.18	1.384	-.321	.226	-1.357	.449	.521
Dormitories	3.00	1.160	.173	.226	-1.245	.449	.690
Support staff	2.92	1.195	.181	.226	-.871	.449	.723
Toilets/latrines	2.65	1.363	.363	.226	-1.151	.449	.548
Library	2.55	1.324	.408	.226	-1.192	.449	.583
Summated mean	3.26	1.21					

KMO = .779

Bartlett's Test of Sphericity = .000

From teachers' perspectives, five indicators had mean above the median of 3.4. These were, instructional materials (mean = 3.71), average number of students per stream (mean = 3.68), classrooms (mean = 3.67), recreation facilities (mean = 3.66), and furniture (mean = 3.47). The adequacy of instructional materials as indicated by teachers was valid considering that government's policy and commitment to supplying books and other teaching aids to all government secondary schools in Kenya. Chirchir et al. (2018) conducted a study which was closely related to the current study and it examined the effects

of constructs such as availability of adequate qualified teachers, leadership role of principal and the adequacy of books and other instructional materials on academic performance. These findings are very relevant to the current study considering that academic performance is a key indicator to quality of education (Kimosop, 2015). One key recommendation noted by these studies is the need to ensure adequate teaching aids and instructional resources due to their contribution to quality of education.

Students-teacher ratio is a key challenge affecting many schools, not only in Kiambu County, but across the country. A study by Imbahala et al. (2019) confirmed that teachers are overwhelmed by workload and had less interactions with learners. Due to teaching of 21-30 lessons per week, majority of teachers were strained and could not effectively manage their lessons. This negatively affected education quality due to limited teacher-student interactions. According to Imbahala et al. (2019), there is need for higher employment rate of teachers by TSC for improvement of the students-teacher ratio to the recommended ratio as this would lead to improvement in education quality in secondary schools. It would also reduce the funds spent by BoM in recruiting temporary teachers and these funds could be used to finance other aspects such as infrastructural developments that would enhance education quality. The fund could also be used to recruit other critical support staff such as laboratory technicians and librarians.

Instructional materials including text books are vital for teaching and learning and in their absence, teaching becomes abstract and non-exciting. The significance of instructional materials is usually reflected in the performance of learners. The more the teachers use instructional materials, the better the achievement of students; therefore, schools with more and better instructional materials often exhibit higher academic performance, unlike those

with scarce instructional materials. It's therefore, imperative that schools acquire adequate instructional materials for the benefit of the learners (Tety, 2016). Tety (2016) reported that a focus on enrolment rather than learning facilities has led to students completing the secondary school education without adequate mastery of key life skills. The study also reported that community schools do register poor performance as a result of lack of adequate learning facilities including books, laboratory equipment, and furniture among others. Most rural schools in Africa are characterized by endemic lack of enough learning materials leading to provision of low quality of education (Tety, 2016).

The last three indicators on adequacy of resources were on support staff (mean = 2.92), toilets/latrines (mean = 2.65), and library (mean = 2.55). This meant that, although the three items were critical in enhancing quality of education, teachers felt that these items were not adequate in their schools. Notably, both teachers and students indicated library as being inadequate. This raised the question on availability of purpose-built library in most public secondary schools in Kiambu County. Considering that library is a critical information resource centre and in view of its significant role in contributing to academic achievement, then structures and policies are required to support and provide a guide to their establishment in all government high schools in Kenya. These results are supported by the findings of Mutungi et al. (2014) who underscored the need for policy framework and adequate financing for school libraries. These outcomes are also alike to the study by Benard and Dulle (2014). The study by Imbahala et al. (2019) also found out that most schools had ill-equipped libraries and this affected the learners' academic performance. The study by Imbahala also noted that most rooms designated as libraries lacked basic facilities including chairs, reading tables and book shelves. Besides, adequate time was not

set aside for adequate utilization of library facilities. A library occupies a central position in any school set up and should be up to date with both current and old materials. A well-equipped library promotes good learning and achievement of higher quality of education. School libraries would be considered ineffective if they have inadequate books and if the students only have limited time to utilize the books in the library. It therefore goes without saying that a school without a well-equipped library limits the academic achievements of learners and level of exposure to current affairs (Imbahala et al., 2019).

It also clear from the results that a number of schools had inadequate housing for the teaching staff, shortage of permanent classrooms, dilapidated structures that are poorly maintained and poor sanitation which affect learners and hinder the provision of quality education. To bridge these gaps and improve on infrastructure, focused group discussion agreed that key stakeholders including parent, BoMs and the principals need to team up in finding ways of expanding the school infrastructure to levels that would enhance education quality offered in such schools. Previous studies have reported that most schools lack laboratory equipment and regents as well as adequate stationeries. The observed shortages have been attributed to the school heads' reluctance to providing these materials that are key in the provision of quality of education in schools (Wanyama et al., 2018).

Findings of this study also showed inadequacy of support workers in secondary schools in Kiambu County. Effective teaching and learning requires the support from subordinate staff. Support staffs offer essential services without which the delivery of quality education would suffer serious setback. A study by Ong'ola (2019) sheds more light on the issue of subordinate staff. It established challenges often faced by non-teaching staff which included salary, house allowance promotion, job security and, conditions of employment.

Ong'ola recommended the need for better remuneration and training programmes, and adoption of effective coping strategies such as good communication, welfare programs and bereavement support systems and job security for support staff. Such staff work in various critical areas which include and not limited to laboratories, finance, kitchen, maintenance, library, and housekeeping. Therefore, concerned stakeholders need to address the need to support non-teaching staff in order to boost their performance which further improves the quality of education.

Funds and provision of enough physical amenities are important in the development and sustenance of effective educational system at secondary school level. For a school to achieve quality in teaching and learning, funds aid in procuring support services in the system. The extent of funding directly correlates with the attainment of the objectives set out by the school. The physical facilities in the school serve as a motivation to the learners and even the quality of education offered by teachers depends on many factors that include funding and available school facilities. Inadequate funding lead to inadequate accommodation of staff, congestion in the classrooms; lack of adequate recreational and boarding amenities for learners, poorly equipped libraries and laboratories. To improve high excellence of education at the secondary school level, enough physical facilities including standard classrooms, libraries and well-equipped laboratories are needed to support teaching and learning (Kalagbor, 2010; Ibrahim et al., 2017). According to Wanjiku (2013), government and households are the primary of financiers of secondary education; though the financing is usually inadequate in providing enough educational resources. Most physical amenities that are critical to efficient education and academic achievement of learners are insufficiently provided in public secondary schools and as a

result most public secondary schools are in terrible state of disrepair due to inadequate funding. (Ezeaku et al., 2021).

The funds for free day secondary education is entrusted to the BoM as per the Basic Education Act (2013) and they have the authority to spend the received funds in order to achieve set goals. These funds have to be used based on the stipulated guidelines. On this basis, the BoM and the head teachers are presumed to having sound knowledge on legal matters, management of human resource, procurement, accounting for funds and management of projects (Nyakoe, 2020). However, previous surveys on the BoMs' quality in high schools revealed that both the BoMs and the principals lacked the requisite school management skills, often leading to misappropriation of funds and/or misuse of resources. The initiative of training school managers on financial matters as promoted by the MoE is geared towards improving monetary and resource management to recognize the key objectives of FDSE. Due to the perceived socio-economic benefits related to secondary education, sponsored education in secondary schools is viewed as a possible approach to allow the poor access quality learning which would improve academic achievements in schools. Through funding from the government, learners from disadvantaged and poor backgrounds have managed to access secondary education as evidenced by the increase in the enrolment rates witnessed, especially in Day secondary schools. The FDSE funds have enabled a number of schools to improve their infrastructure leading to improved academic performance. Moreover, the government funding has led to increased retention of learners in schools by enabling economically disadvantaged learners to attend classes regularly without being sent home for fees, thus enhancing academic performance. In spite of all these positive aspects of government funding, there is still need for the government to

address issues associated with insufficient allocations and delayed disbursements and misuse of funds by BoMs. Insufficient allocations and delays in funds disbursements lead to interrupted planning and procurement of vital resources that schools need to offer quality education (Nyakoe, 2020).

4.5.1 Testing of hypothesis on the relationship between the school-based factors and quality of education in secondary schools in Kiambu County

Following the results in and conclusion for adoption of non-parametric test, the ordinal logistic regression analysis was employed to establish the association school-based factors and education quality in high schools in Kiambu County.

Wald test statistic was employed to test the hypotheses at a significance level of 5%. In this study, a decision was made where, if p-value was less than or equal to 0.05 ($p = \leq 0.05$), the null hypothesis was rejected, However, if the p-value was greater than 0.05 ($p = \geq 0.05$), then, there was enough evidence to agree with the null hypothesis. Analysed information from both categories of respondents on fitness of the model and goodness-of-fit is presented in Tables 4.14.

Table 4. 14

Model Fitting Information for School-based Factors and Quality of Education

Students' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	908.874				.739
	Final	608.918	299.957	1	.000	
Teachers' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	478.541				.055
	Final	472.054	6.487	1	.011	
	Link function: Logit.					

The study's findings in Table 4.14 showed p = 0.000 from both students and teachers, which was less than 0.05, hence, the rejection of the underlying null hypothesis that, there is no substantial link between the baseline model and the final model. The null hypothesis state that the observed data is having goodness of fit with the fitted model. Table 4.15 shows the result on goodness-of-fit based on responses from both students and teachers.

Table 4. 15

Goodness-of-Fit for School-based Factors and Quality of Education

		Chi-Square	df	Sig.
Students' responses	Pearson	777.905	895	.998
	Deviance	366.160	895	1.000
Teachers' responses	Pearson	554.331	593	.870
	Deviance	343.960	593	1.000
Link function: Logit.				

The results in Table 4.15 show: $\chi 2$ (df 895) = 777.905; p= .998 and $\chi 2$ (df 593) = 554.331, p= .870 for students and teachers respectively. The estimates are critical in showing how the independent variable is influencing the dependent variable.

Table 4. 16

School-based Factors Parameter Estimates on Quality of Education

Responses from students							
						95% Confidence Interval	
	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Location X_1	5.115	.356	206.328	1	.000	4.417	5.812
Responses from teachers							
						95% Confidence Interval	
	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Location X_1	.943	.364	6.714	1	.010	.230	1.656
Link function: Logit.							

The study's results from Table 4:16 implied that an increase in school-based factors results to a corresponding increase education quality. This is because having qualified teachers, enough textbooks, supportive non-teaching staff and superb principal's leadership style improves performance of learners, hence leading to better education quality. Previously, examined studies such as those by Chirchir et al. (2018) and Njagi (2018) support these findings. Examples of the school-based factors that posed a substantial relationship with the educational quality were instructional resources, teacher competencies, and entry-behaviour of students in high schools and leadership of secondary school heads.

Subsequently, the study had to check the results of the parallel lines based on the outcomes and response categories. The test of parallel lines is related to the proportional odds. The key assumption of the ordinal logistic regression in the test of parallel lines is that the location parameters (slope coefficients) are the same across response categories. The results on the test of parallel lines are shown in Table 4.17.

Table 4. 17

Test of Parallel Lines for Outcomes and Response Categories

	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Students' Responses	Null Hypothesis	608.918			
	General	600.145[b]	8.772[c]	31	1.000
	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Teachers' Responses	Null Hypothesis	472.054			
	General	447.141[b]	24.913[c]	26	.524

a. Link function: Logit

The null hypothesis stated that the location parameters (slope coefficients) were the same across response categories, hence, the conclusion on predictive capacity of the school-based factors on the education quality in Kiambu County was valid and reliable.

4.6 Findings on Teacher-related Factors Affecting Quality of Education

The second study objective aimed to investigate the relationship between teacher-related factors and quality of education in high schools in Kiambu County. Data was collected from students, teachers and principals. Sub-County Education Quality Assurance Officers

were also critical in providing clarity of the information on important issues regarding quality standards on teachers' factors in secondary schools. Various sentiments on teachers-related factors which were in Likert scale (ranging from 1–5) were presented to respondents in a tabular form requiring them to indicate the degree to which each aspect affected the provision of quality education in secondary schools. Summary of the results are presented in Table 4.18 and Table 4.19.

Table 4.18

Students' Responses on Teacher Factors Affecting Quality of Education

	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Teacher's proficiency in subject instruction	4.13	.866	-.964	.163	1.069	.324	.643
Teaching experience	4.08	.929	-.939	.163	.593	.324	.655
Pedagogical skills of a teacher	4.00	.970	-.713	.163	-.205	.324	.549
Teachers level of motivation	3.95	.955	-.578	.163	-.334	.324	.681
Teacher's academic qualifications	3.92	.962	-.630	.163	-.248	.324	.701
Integrity of teachers	3.75	1.083	-.524	.163	-.511	.324	.566
Teacher's absenteeism	3.59	1.121	-.466	.163	-.539	.324	.547
Punctuality of teachers	3.56	1.078	-.336	.163	-.621	.324	.605
Summated mean	3.90	0.9955					

KMO = .866

Bartlett's Test of Sphericity = .000

Table 4.18 indicated a mean summation of 3.90 and a standard deviation of 0.9955 on the extent to which teacher-related factors affected the provision of education quality in high schools in Kiambu County as evaluated by students. A factor analysis indicated that all teacher-related factors purported to be affecting the quality of education loaded very well, where each had Eigen value, which was above 0.45. The order of impact of each teacher-related indicator varied as indicated by their respective mean values. From students' perspectives, teacher's proficiency in subject instructions (mean = 4.13), teaching experience (mean = 4.13), pedagogical skills of a teacher (mean = 4.00), teachers level of motivation (mean = 3.95), teacher's academic qualifications (mean = 3.92) – all had a high mean as compared to others; mean value > 3.90. Undoubtedly, the proficiency in subject instructions coupled with teaching experience was viewed as important aspects towards quality education. Their significance towards education quality in high schools cannot be overemphasized. It is evident that both competencies are acquired with time. Abucayon et al. (2016) investigated the proficiency levels among the pre-service teachers of the college of education as a teaching skill. The study established that no significant correlation between the cumulative grade point average and the level of proficiency of the pre-service teachers on the essential teaching skills although competencies such as collaborative skills, ICT, instructional delivery and teaching styles can be acquired in professional development schemes (Abucayon et al., 2016). The results call for educational stakeholders to unleash policies that support in-service training of teachers to foster experience and development of the teaching skills. According to Ayeni (2012), students prefer instructors who exhibit high level of clarity, actively engage learners during the

lessons, have good learner-teacher relationships and encourage the learners to achieve their full potential academically and in general life.

The last three teacher-related aspects which were rated least by students were, integrity of teachers (mean = 3.75), teacher's absenteeism (mean = 3.59), and punctuality of teachers (mean = 3.56). This meant that, although the three items were critical drivers of quality education in secondary schools (KMO = .869, which was more than 0.6 and a Bartlett's test of sphericity, P= .000, which was substantial), their perceived impact on the quality of education was not very weighty from students' point of view. The aspects were more inclined to teachers' behaviour and hence, with the TPAD in place, such detrimental behaviour are expected to be controlled (TPAD, 2019). Although teachers conduct was not found being weighty in determining quality of education, it is poignant mentioning that other studies have not concurred with this idea. Munje (2019) noted that teacher's conduct affected students' achievement in school communities in South Africa. The study further noted that lack of teachers' professionalism impacted adversely the learners' experiences and achievements, especially in poor communities. Teacher laziness, absenteeism, and physical abuse of students are regular occurrences. These vices have their origin in policy placements, teacher training practices, inadequate school materials, contextual challenges, student backgrounds and dysfunctional school executive systems (Munje, 2019). Tyessi (2015) also concurred by highlighting issues such as absenteeism, phone etiquette, decency and learner's abuse and disrespect as behavioural aspects that affect the quality of education. These behavioural aspects are highly likely to affect the quality of teachers' delivery, which would ultimately affect education quality in a given school. This

accentuates the need to come up with conduct policies that would create harmonious living among education stakeholders.

Views from teachers on the factors were also sought. Their responses were summarized and a summated mean was computed along with other descriptive statistics as shown in Table 4.19.

Table 4. 19

Teachers' Responses on Teacher Factors Affecting Quality of Education

	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Pedagogical skills of a teacher	4.66	.592	-2.588	.226	11.606	.449	.660
Teachers level of motivation	4.56	.704	-2.232	.226	6.968	.449	.739
Teacher's proficiency in subject instruction	4.35	.841	-1.742	.226	3.902	.449	.672
Teaching experience	4.30	.797	-1.764	.226	4.793	.449	.618
Teacher's academic qualifications	4.28	.936	-1.844	.226	3.883	.449	.511
Punctuality of teachers	3.96	1.051	-1.309	.226	1.312	.449	.358
Teacher's absenteeism	2.18	1.133	.892	.226	-.156	.449	.821
Integrity of teachers	1.99	1.125	1.232	.226	.729	.449	.719
Summated mean	3.79	0.8974					
KMO = .820							
Bartlett's Test of Sphericity = .000							

From Table 4.19 showed a mean summation of 3.79 and a standard deviation of 0.8974 was indicated on the extent to which teacher-related factors affected the provision of quality education in Kiambu County high schools as evaluated by teachers. Findings from factor analysis indicated that all the aspects that constituted the latent variable (teacher-related factors affecting quality of education) loaded very well with an Eigen value being above 0.45 in each case. This showed that, from teachers' perspectives, all indicators attached to the composite variable (teacher-related factors) were important in determining the quality of education in high schools in Kiambu County.

Although all the aspects on the teacher-related factors played a key role in establishing educational quality in high schools, the order of the impact of each indicator varied as indicated by their respective mean values. From teachers' perspectives, four teacher-related aspects had mean value above 4. These were, pedagogical skills of a teacher (mean = 4.66), teachers level of motivation (mean = 4.56), teacher's proficiency in subject instructions (mean = 4.35), teaching experience (mean = 4.30), teacher's academic qualifications (mean = 4.28). All these aspects except teacher's qualifications were also rated highly by students. This underscores the significance of pedagogical skills of a teacher, the teacher's proficiency in subject instructions, and teacher's level of motivation in contributing to quality education in secondary schools.

The last three indicators in terms of adequacy were, support staff (mean = 2.92), toilets/latrines (mean = 2.65), and library (mean = 2.55). This meant that, although the three items were critical in enhancing quality of education (KMO = .779, which was more than 0.6 and a Bartlett's test of sphericity, P= .000, which was significant), teachers felt that

these items were not adequate in their schools. Notably, both teachers and students indicated library as being inadequate.

Although teachers 'motivation is critical in contributing to quality education as reflected in Table 4.20, a deeper interrogation into teachers' motivation revealed that teachers were less motivated (mean = 2.028 and standard deviation = 1.1418).

Table 4.20

Responses on Teachers' Motivation Affecting their Contribution on Quality of Education

	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Money (allowances, bonuses, etc.)	2.14	1.151	.571	.226	-1.126	.449	.994
Domestic travels	1.99	1.125	1.232	.226	.729	.449	.744
Foreign travels	2.18	1.133	.892	.226	-.156	.449	.817
Tangible gifts such as, laptops, clothing, phones, beddings, furniture, electronics	1.87	1.164	1.256	.226	.596	.449	.764
Facilitation to attend professional meetings and forums	1.96	1.136	1.175	.226	.435	.449	.778
Summated mean	2.028	1.1418					
KMO = .793							
Bartlett's Test of Sphericity = .000							

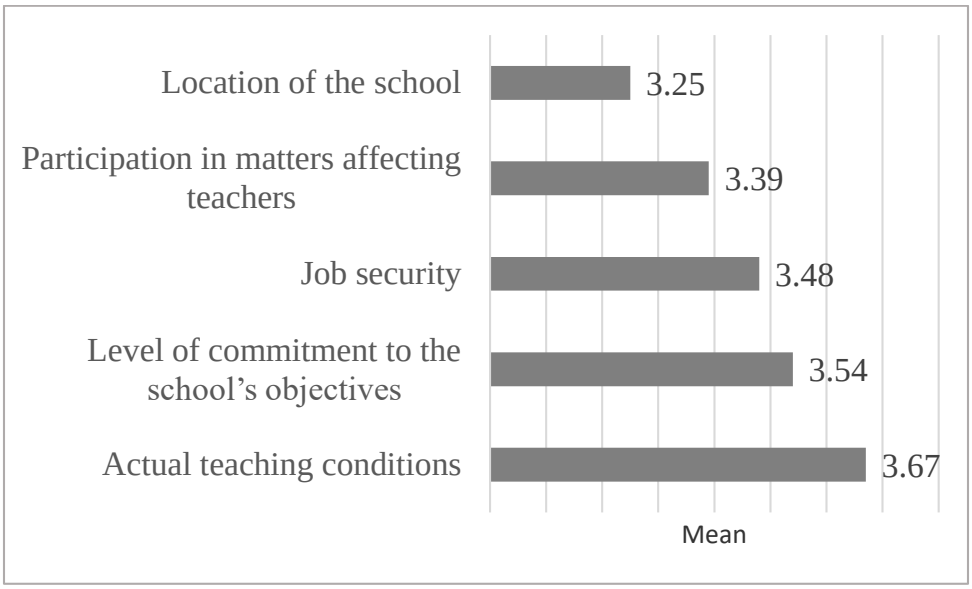
The study's results further showed that only a few of the teachers (mean = 2.14) received some money in form of allowances/bonuses as a form of motivating them at their schools.

It was also very clear that, only a handful of teachers were facilitated by their schools to attend professional meetings and forums (mean = 1.96). A demotivated teacher may fall short in achieving the desired targets, because motivation is closely correlated with productivity. A study by Tehseen and Hadi (2015) on the factors that influence teacher performance and retention found that administrative support, working conditions and student behaviour have the most influence in affecting teacher performance. The findings of Tehseen and Hadi (2015) confirm the results of the present study which concluded that teacher motivation was positively correlated with the quality of education in Kiambu County high schools. This state of motivation among teachers may create a kind of quality of education offered in secondary schools in Kiambu County. This highlights the great need for a new management approach to development of teachers through training, placement, satisfactory salaries, professional development and other promising strategies such as recognition to improve their productivity which ultimately affect quality of education in high schools (Tehseen & Hadi, 2015). According to Imbahala et al. (2019), parents in high schools should also be enlightened and encouraged to support school programs, such as the motivation of teachers and students and by purchasing basic learning resources. This will help to improve the education quality in the school.

The performance appraisal tool largely focuses on achievement outcomes and does not mirror the effect of motivation of the teachers. The study requested teachers to indicate the degree to which given aspects affected their contributions to quality of education at their schools. The results in Figure 4.5 indicated actual teaching conditions (mean = 3.67) in secondary schools was a great drawback and inhibited teachers' contribution to quality education at their schools.

Figure 4.5

Various aspects and how they affect contributions to quality of education in secondary schools



Findings in Figure 4.5 showed that location of a school was less of a drawback in determining teachers' contribution to quality education at their schools. However, the level of commitment to school's objective, as well as the job security seemed to matter a lot in enhancing how teachers contributed to quality education. If a teacher was not feeling secure in the job, the level of commitment would be low. This finding correlates with Dhuryana and Hussain (2018) who in their study aimed at exploring how workload and job security affected the job satisfaction of teachers in education institutions in southern Punjab. This study's results showed that teachers had high workload and they felt insecure in their jobs. Similarity of the results could be due to the weight of the sentiment because, job security and satisfaction are key elements that affect the education quality. This stresses on the need to address internal environment of teachers through policies and clear hierarchy of authority. This is because of the critical role in contributing to quality education in

secondary schools has numerous benefits accrued from teachers with job security. The benefits are not limited to improved classroom management, safe working environment, student performance and improved social relationships.

4.4.1 Testing of hypothesis two on the relationship between the teacher-related factors and quality of education in Kiambu County secondary schools

Analysed information from both categories of respondents on fitness of the model and goodness-of-fit is presented in Tables 4.21 and 4.22.

Table 4.21

Model Fitting Information for Teacher-related Factors and Quality of Education

Students' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	908.874				.739
	Final	608.918	299.957	1	.000	
Teachers' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	489.316				.049
	Final	483.542	5.774	1	.016	

Link function: Logit.

Results in Table 4.21 showed p = 0.000 for data based on students and p = 0.016 for data based on teachers responses. The P-value in both cases is less than 0.05, hence, the rejection of the underlying null hypothesis that, there is no substantial disparity between the baseline model and the final model. This showed that the model had statistically significant predictive capacity, which meant that, teacher-related factors statistically and substantially explained the variations in the quality of education.

Table 4.22 shows the result on goodness-of-fit based on responses from both students and teachers.

Table 4. 22

Goodness-of-Fit for Teacher-related Factors and Quality of Education

		Chi-Square	df	Sig.
Students' responses	Pearson	777.905	895	.998
	Deviance	366.160	895	1.000
Teachers' responses	Pearson	679.375	701	.714
	Deviance	364.864	701	1.000

Link function: Logit.

The results in Table 4.22 showed: $\chi 2$ (df 895) = 777.905; p= .998 and $\chi 2$ (df 701) = 679.375, p= .714 for students and teachers, respectively. The estimates were critical in showing how independent variable was influencing the dependent variable.

Table 4. 23

Teacher-related Factors Parameter Estimates on Quality of Education

Responses from students							
						95% Confidence Interval	
	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Location X_2	5.115	.356	206.328	1	.000	4.417	5.812
Responses from teachers							
						95% Confidence Interval	
	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Location X_2	.747	.299	6.248	1	.012	.161	1.333

Link function: Logit.

The findings from Table 4:23 indicated that an increase in teacher-related factors increased the logit of the education quality. Schools in Kiambu County was rejected, and concluded that the teacher-related factors had statistically significant correlation with the quality of education in Kiambu County. Subsequently, the study had to check the results of the parallel lines based on the outcomes and the response categories. The test of parallel lines is related to proportional odds. The key assumption of the ordinal logistic regression in the test of parallel lines is that, the location parameters (slope coefficients) are the same across response categories. Results on the test of parallel lines are shown in Table 4.24.

Table 4. 24

Test of Parallel Lines for Outcomes and Response Categories

	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Students' Responses	Null Hypothesis	608.918			
	General	600.145[b]	8.772[c]	31	1.000
	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Teachers' Responses	Null Hypothesis	608.918			
	General	600.145[b]	8.772[c]	31	1.000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

The results in Table 4.24 show that the distribution of students and teachers opinions on school-based factors towards quality of education was inform. Since the significance value, p value = 1.000 in both cases (students and teachers); was more than the alpha significance value, P>0.05, the study deduced that the location parameters across response categories

were uniformly distributed. A study by Murunga (2019) on the impact of chosen factors on students' academic achievement in Kiswahili composition in government high schools in Kenya supports this argument. Murunga noted that teacher related factors like teaching experience, attitudes, the wage, the working environmental conditions and professional qualifications predicted quality of education based on the learners' performance. Moreover, the study showed that an increase in school-related results to a corresponding unit increase of a value more than 0.5 in students' Kiswahili composition achievement. The similarity in the findings concluded that the school-related factors possessed a significant correlation in the academic achievement of students, hence, affecting the quality of education to certain extent. Narayan (2016) also conducted a closely related study on the factors affecting teacher's job satisfaction, teacher collaboration and challenges they face in their profession. Narayan argued that teacher's satisfaction brought about job security and that school related factors improved their performance. In the study by Narayan, response categories were uniform hence similar results were arrived at from the parameters representing teacher related factors.

4.7 Results on Socio-Economic Factors of Parents Affecting Quality of Education

The third objective aimed to explore the link between parental socioeconomic factors and the education quality in Kiambu County high schools. Information was collected from students, teachers and principals. The District Education Quality Assurance officials were also consulted to clarify policy issues regarding the socio-economic status of parents and their extent in influencing the quality of education in secondary schools. Different views on the socio-economic aspects of parents were presented to respondents on Likert's scale (from 1–5) requiring them to indicate how each factor has affected the provision of quality

education in high schools. A summary of the results is presented in Table 4.24 and Table 4.25.

Table 4.25 shows a summated mean of 4.124 and a typical standard deviation of 0.8888 in terms of the extent to which the socio-economic factors of parents were related to the provision of education quality in Kiambu State high schools as assessed by students. Result shows that all the social and economic aspects of parents allegedly affecting the education quality were very well loaded, with each having Eigen values above 0.45. The validity of these factors was also confirmed by a high KMO value of .869, which was more than 0.6 and Bartlett's significant test of sphericity, $p = .000$.

Table 4. 25

Students' Responses on Socio-economic Factors of Parents Affecting Quality of Education

	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Education level of the parents	4.22	.875	-1.140	.163	1.332	.324	.731
Nature of occupation of parents / guardian	4.14	.890	-.930	.163	.575	.324	.807
Economic status of parents	4.13	.873	-.835	.163	.427	.324	.819
Marital status of the parents	4.09	.926	-.873	.163	.275	.324	.757
Size of the family	4.04	.880	-.637	.163	.055	.324	.800
Summated mean	4.124	0.8888					

KMO = .866

Bartlett's Test of Sphericity = .000

Although all the aspects of socio-economic factors of parents were affecting education quality provision in high schools, the impact of each indicator varied as indicated by their respective mean values. The students' perspectives, three factors had highest mean values, these were, education level of the parents (mean = 4.22), nature of occupation of parents/guardian (mean = 4.14), and economic status of parents (mean = 4.13).

The results underscore the belief that the education quality, the type of work, and the economic status of parents have a substantial impact on the education quality in high schools (Osei-Owusu et al., 2018; Gobena, 2018). The results of Osei-Owusu et al. (2018) was based on a study on the socio-economic status of parents and educational achievement among Ghanaian students. It revealed the quality of education, employment, income and parental care affected students' academic achievement. Notably educated parents tend to

guide and counsel their children to embrace education as well as secure fees and other basic needs of their children to support education, and hence, the contribution in the education of children is linked to the quality as exhibited by good academic performance. Bright students from needy families require support through scholarships, free textbooks and stationery. These features are largely associated with social empowerment which largely affects the quality of education. For example, facilities in most of the day schools where the less economically endowed parents took their children as noted by Sub-County Education Quality Assurance Officers, were in needy conditions. However, in contrast, these findings differ with findings by Gobena (2018) in her research, which aimed to assess the impact of family's socioeconomic status on student performance in Ethiopia. The study found that family income or the type of work the parent is involved in, as well, the economic situation lack a significant effect on student performance which is why the level of education as students from poor backgrounds appear to be doing well in support of free textbooks, bursaries.

Results ascertaining the level of parent's level education (Table 4.26) was obtained from students.

Table 4. 26

Education Level of Parents /Guardians

Education level of parents and guardians	Father		Mother		Guardian		Average frequency	Average percent
	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Primary	65	29	69	30.8	62	27.7	65	29.2
Secondary	67	29.9	50	22.3	63	28.1	60	26.8
Diploma	38	17	43	19.2	46	20.5	42	18.9
Undergraduate	38	17	40	17.9	32	14.3	37	16.4
Postgraduate	16	7.1	22	9.8	21	9.4	20	8.8
Total	224	100.0	224	100.0	224	100.0		

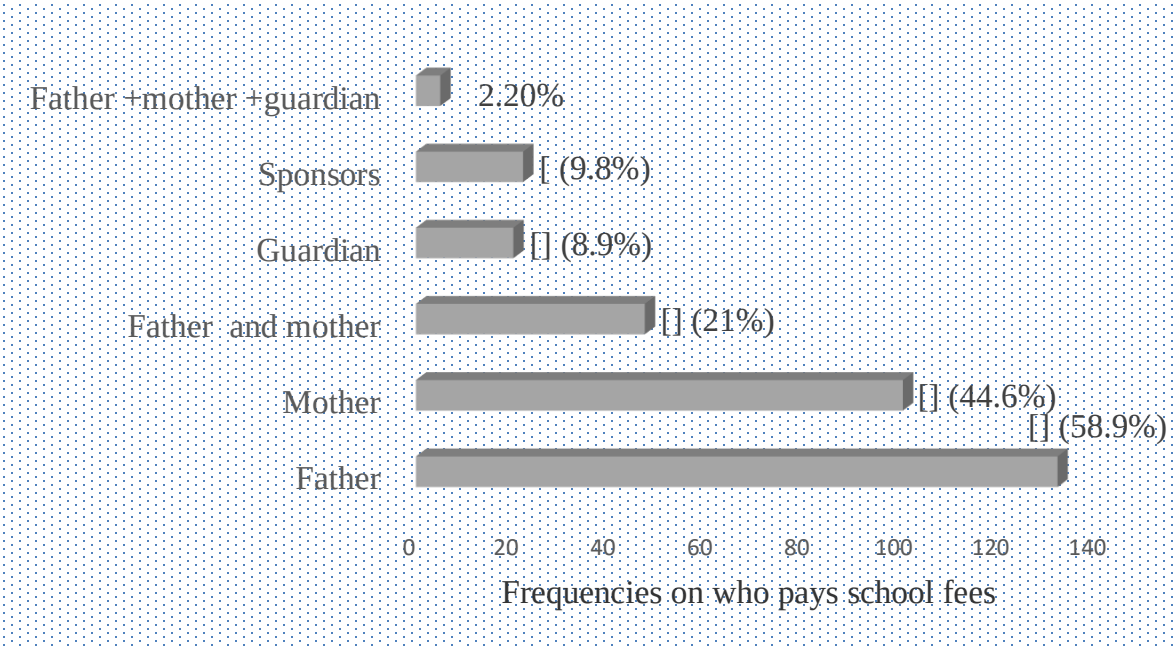
The results showed that on average, most parents had primary school level of education (29.2%) while 26.8% had secondary school level of education. Only 25.2% had at least a university degree. Education is a critical driver of employment and is closely linked to economic empowerment (Wakiuru, 2016). Parents with higher education levels become good role models for their children. In addition, parents who are educated are perceived as being knowledgeable and can hence push for better compliance with the set education standards since they understand the educational needs and requirements. Moreover, it is educated parents who are usually elected to serve as parent's representatives and as members Board of Management (BoM) where key decisions about the schools are made.

A study on the impact of parents' socio-economic status on their contribution in children's pre-school education in Nairobi County reported that education level and earnings of the parent positively related with the extent of participation in pre-schools (Wakiuru, 2016). This is because they were in a better position to be part of parents' representatives and BoM hence influenced direction and decisions in the school. There is therefore a statistically substantial relationship between the quality of education students attain and the educational level of parents since it plays a key role in improving achievement of their children.

When asked about payment of school fees, 58.9% of students reported that the fees were always paid by their fathers, while 44.6% started that their mothers were responsible for the fees payment. 18.7% of the respondents indicated that their fees were paid by either guardians or sponsors (Figure 4.6).

Figure 4.6

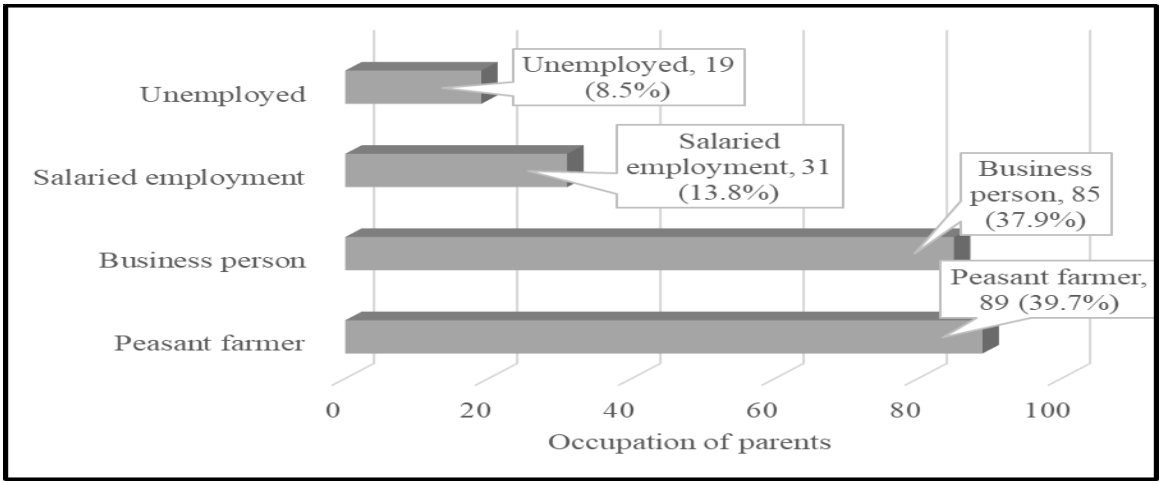
Payment of student's fees in secondary schools



Results showed that the burden of paying fees was largely a responsibility of either father, mother or both hence, their economic status is critical in facilitating pursuance of quality education of their children. Information about economic activities of parents is presented in Figure 4.7.

Figure 4.7

Economic status of parents who have children in secondary schools



The study's findings in Figure 4.7 indicate that most parents (39.7%) are peasant farmers and 37.9% are in business. Only 13.8% are in salaried employment. The occupation of parents and guardians proved to be very significant in the quality of education received by their children. For example, some students may be affected by absenteeism. The majority of Principals of secondary schools lamented that absenteeism is not considered by some parents as a serious drawback to quality learning and achievement. One principal from the focused group number four said, *"Parents in business would prefer their children to be in their premises on market days".* Child labour is very common and a major issue especially in agricultural rich area, in urban centres and construction sites. The main aim is to overcome poverty. Along the same veins, focused group discussion number one lamented

that parents are busy in a cosmopolitan Kiambu County, hence less contact time with their children. Worse off, SCQASO-02 added *"some students are in their own businesses such as motor bikes, chicken rearing, dania growing and the concept of 'Sponsor' is also live".* According to students' responses in Table 4.24, marital status of the parents (mean = 4.09), and size of the family (mean = 4.04) had less means as compared to the rest, although they were also equally important in determining education quality in Kiambu County high schools. The two factors have a bearing on economic muscles. People who are single could be struggling financially to keep their children in school and their children are regularly sent home to collect school fees as revealed by Okaka (2012) in her study on the impact of single parenthood on adolescent children's academic achievement. The study noted that students who are raised by single parents seem to be involved frequently in indiscipline cases as compared to students with both parents. This explains why many underperform in their studies. Moreover, Tobishima (2018) conducted a study which resembled that of Okaka on structure of the family and children's academic performance in Japan. Results underscored that the academic performance of students with both parents and those with one parent had a big difference. Comparing the performance of those with a mother only against those with a father only, poor performances were recorded by those ones who only had a father. These results suggested that low academic performance of children in single-mother families could be associated with the mothers' low education levels and associated income. For the children from single-fathers, underperformance could be because the children lack mother's care and attention rather than the fathers' educational level. Single parenting therefore caused negative performance of children unlike in the USA, where single parenthood has not been found to influence the school performance of children

(Amato et al., 2015). These results are, therefore, valid given that related studies support this argument that the marital status of parents contribute to the quality of children's education. Results on marital status of parents is shown in the figure below (Figure 4.8).

Figure 4.8

Marital status of parents

The study's findings from Figure 4.8 indicate that most parents were married (67%). However, approximately 10% were separated, 8.5% were single, while 6.7% were divorced. The 33% who were not married is a cause for concern since their children were likely to be affected. In addition, the ability to pay fees could also be affected by the size of the family in terms of number of children in the family considering the financial burden. Table 4.27 shows that most households had between 6 and 8 members (47.3%) while the least had between 9 and 12 members (4 %).

Table 4. 27

Number of Family Members Including Parents

Number in the family members	Frequency	Percent
6 to 8	106	47.3
3 to 5	67	29.9
Less than 3	28	12.5
More than 12	14	6.3
9 to 12	9	4

The results show that the five selected social and economic factors of parental education, type of parent / guardian status, parental economic status, parental marital status, and family size had the potential to affect the quality of secondary school education. A study conducted by Khan et al. (2015) examined the effects of parental educational level on student performance. The results indicated that the education level of parents possessed a significant relationship and impact on the child's achievement. Parents who are educated are likely to work in professional occupations where they are paid well to afford all school requirements of their children. They are most likely to have few children whom they can manage caring for. This may be because the nature of occupation determines the time a parent devotes participating in guiding and showing direction to a child. These findings therefore agree strongly with other previous findings. Opinions of teachers on the key social-economic factors of parents were also sought. Results are shown in Table 4.28.

Table 4.28

Teachers' Responses on Socio-economic Factors of Parents Affecting Quality of Education

	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Education level of the parents	4.28	.857	-1.179	.226	1.286	.449	.597
Economic status of parents	4.18	.878	-1.009	.226	.827	.449	.553
Nature of occupation of parents / guardian	4.15	.980	-1.168	.226	.942	.449	.324
Size of the family	4.02	.872	-.279	.226	-1.093	.449	.562
Marital status of the parents	3.63	1.041	-.358	.226	-.653	.449	.519
Summated mean	4.052	0.9256					

KMO = .750

Bartlett's Test of Sphericity = .000

Responses from teachers shown in Table 4.28 had a mean summation of 4.052 and a standard deviation of 0.9256 on the extent to which socio-economic factors of parents was related to the provision of education quality in high schools in Kiambu County. Similar to results gotten from students, teachers' responses had a factor analysis indicating that all the socio-economic factors of parents postulated to be affecting quality of education loaded very well where each Eigen's value was above 0.45. The relevance of these factors was also confirmed by a high KMO value of .750, which was more than 0.6 and a significant Bartlett's test of sphericity, P= .000. From teachers' perspectives, and just like students, three factors had highest mean values, these were, education level of parents (mean = 4.28), economic status of parents (mean = 4.18), and nature of occupation of parents/guardian (mean = 4.15). This confirms that the three factors have implications on social-economic

empowerment of parents and guardians; something that enables them to actively advocate for measures that would lead to education quality in high schools.

The findings on teachers' perceptions on marital status of the parents and size of the family were also similar to those of students. This also confirmed that although these two factors recorded a slightly lower mean than other factors, they were equally very essential and played a key role in determining the education quality in Kiambu County secondary schools. The results have implications on measures for addressing family ties in order to encourage cohesiveness and less separations and divorces. If parents are together and united, they're likely to push for better education for their children and the opposite is also true. Studies by Akida et al. (2018) and Okaka (2012) on the impact of single mother parenting on the academic performance of children in Islamic faith-based schools concurs with the findings of the current study, that, there exists a high significant disparity on academic performance between children from single mother parenting and those from unbroken families. Large family sizes are also likely to stress and drain family income; something that may ultimately affect the quality of education. This similarity of results may be so because, parents may lack enough income to cater for their needs which is likely to be due to the illiteracy of the single parent. Parents could therefore lack finances that might be required to put up school structures, and this would curtail provision of quality education in a given school.

4.5.1 Testing of hypothesis three on relationship between the social-economic factors of parents and quality of education in secondary schools in Kiambu County

Analysed information from both categories of respondents on fitness of the model and goodness-of-fit are presented in Tables 4.29 and 4.30.

Table 4. 29

Model Fitting Information for Social-economic Factors of Parents and Quality of Education

Students' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	676.354				.318
	Final	590.601	85.753	1	.000	
Teachers' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	516.258				.093
	Final	505.157	11.100	1	.001	

Link function: Logit.

Results in Table 4.29 show a p value = 0.000 for students and a p value = 0.001 for teachers, which was less than 0.05 in both cases, hence, the underlying null hypothesis that there was no substantial disparity between the baseline model and the final model was rejected. The rule of thumb is to reject the basic null hypothesis if the p value is less than 0.05. The null hypothesis states that the observed data had the same suitability as the included model. Table 4.30 shows the goodness-of-fit result based on feedback from both students and teachers.

Table 4.30

Goodness-of-Fit for Social-economic Factors of Parents and Quality of Education

		Chi-Square	df	Sig.
Students' responses	Pearson	1506.481	511	.000
	Deviance	331.931	511	1.000
Teachers' responses	Pearson	852.188	836	.341
	Deviance	387.599	836	1.000

Link function: Logit.

The results in Table 4.30 show: $\chi 2$ (df 511) = 1506.481; p= .000 and $\chi 2$ (df 836) = 852.188, p=. 341 representing students and teachers respectively. The estimates were critical in showing how independent variable influenced the dependent variable.

Table 4. 31

Social-economic Factors Parameter Estimates on Quality of Education

	Responses from students						
						95% Confidence Interval	
	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Location X_3	1.591	.176	81.817	1	.000	1.246	1.935
	Responses from teachers						
						95% Confidence Interval	
	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Location X_3	.941	.270	12.162	1	.000	.412	1.470

Link function: Logit.

In Table 4:31, it is worth noting that a slight incensement in the socio-economic factors of parents increases the quality of education.

The key assumption of ordinal logistic regression in the test of parallel lines is that the location parameters (slope coefficients) are the same across response categories. Results on the test of parallel lines are shown in Table 4.33.

Table 4. 32

Test of Parallel Lines for Outcomes and Response Categories

	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Students' Responses	Null Hypothesis	590.601			
	General	575.591[b]	15.010[c]	31	.993
	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Teachers' Responses	Null Hypothesis	505.157			
	General	455.688[b]	49.469[c]	26	.004

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

The findings in Table 4.32 show that the distribution of students' and teachers' opinions on social-economic factors of parents towards quality of education was inform. The results showed p value = .993 for students and p value = .004 for teachers. This showed that the significance value for students was more than the alpha value, p>.05, hence it could be deduced that the location parameters across response categories for students were uniformly distributed. As for teachers, the results showed a significant p value = .004. This show that the significance value for teachers is less than the alpha value, P<.05, hence, concluded that there was no uniform distribution of location parameters across response categories for teachers.

Having considered the results of the tests, the study concluded that there was sufficient evidence that the predictive capacity of socio-economic factors of parents on the quality of secondary education in Kiambu County was valid and reliable. This was strengthened by other studies (Khan et al., 2015; Wakiuru, 2016; Gobena, 2018; Osei-Owusu et al., 2018) which underscored the effects of parents' educational level, economic status and single parenthood on performance of students. The results of these studies indicated that the single parenting, education level and social economic status of parents significantly influenced the child's performance, hence had a direct impact on the education quality offered in high schools in Kiambu County.

4.8 Results on Principal's Leadership Practices Affecting Quality of Education in Secondary Schools

The last objective in this study aimed at examining the relationship between principals' leadership practices and quality of education in high schools in Kiambu County. Information was gathered from students, teachers, principals and the SCQASOs. Various sentiments in Likert scale (ranging from 1 – 5) were presented to students and teachers in a tabular form requiring them to indicate their responses against each aspect regarding the provision of quality education in high schools in Kiambu County. Summarisation of the results was done and presented in Table 4.33 and Table 4.34.

Table 4.33

Students' Responses on Principals' Leadership Practices towards the Provision of Quality Education in Secondary Schools

Principals' leadership practices	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Observation of punctuality of teachers and students	4.22	.875	-1.140	.163	1.332	.324	.634
The school administration includes teachers, parents and learners when making decisions concerning quality of education	4.14	.890	-.930	.163	.575	.324	.822
The school administration has put up mechanisms for enforcing school rules and policies	4.14	.917	-.922	.163	.524	.324	.755
Decentralization of decisions making is evident in ours school	4.13	.873	-.835	.163	.427	.324	.777
The school administration has created an enabling working and learning environment	4.12	.932	-.880	.163	.206	.324	.752
The administration is bothered by students' issues	4.09	.926	-.873	.163	.275	.324	.680
The school administration has outlined clear roles for teachers, supportive staff and students	4.04	.880	-.637	.163	.055	.324	.733
The school administration has put mechanisms for supervising curriculum delivery	4.04	.963	-.872	.163	.396	.324	.775
There is quick communication of issues in the school	4.00	1.016	-.778	.163	-.070	.324	.690
The nature of rewards and recognition used in the school motivates both students and teachers	3.98	.925	-.744	.163	.422	.324	.761
The school believes in honest and open communication	3.91	.879	-.985	.163	1.632	.324	.459

Principals' leadership practices	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
The school administration support and encourage new ideas from teachers and students	3.87	.975	-.460	.163	-.417	.324	.705
The school administration usually punishes any wrong doing from staff and students	3.70	1.057	-.332	.163	-.738	.324	.669
The school administration involves all stakeholders in decision making	2.92	1.228	.037	.163	-.917	.324	.644
The systems and structures in our school promote transparency and accountability	2.81	1.285	.035	.163	-1.116	.324	.593
We frequently hold students' meetings with the school administration to discuss issues affecting students	2.54	1.155	-.108	.163	-1.432	.324	.583
The school administration has strict codes of ethics	1.85	.977	.862	.163	-.389	.324	.671
The school administration has embraced honesty and integrity	1.80	.861	.816	.163	-.143	.324	.628
The school administration support teachers to attend seminars, conferences and workshops	1.74	.886	1.040	.163	.252	.324	.656
The school administration emphasizes and has adopted quality and standards in all operations in the school	1.63	.966	1.484	.163	1.573	.324	.575
Summated mean	3.40	0.9733					
KMO = .928							
Bartlett's Test of Sphericity = .000							

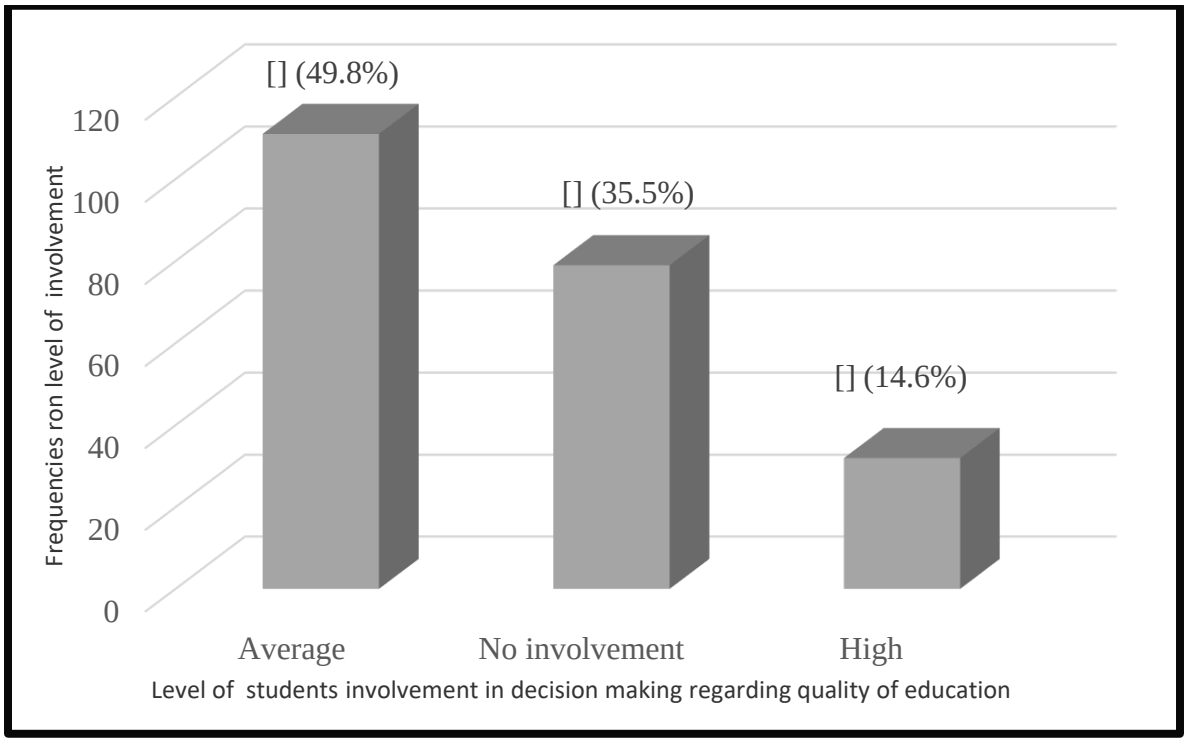
As shown in Table 4.33, principals' leadership practices recorded a mean summation of 3.40 and a standard deviation of 0.9733 on how they are related to the provision of quality

education in secondary school in Kiambu County as evaluated by students. A factor analysis indicated that all principals' leadership practices suggested to be affecting quality of education loaded very well where Eigen value in each case was above 0.45. The relevance of these principals' leadership practices was also confirmed through a high KMO value of .928, which was more than 0.6 and a significant Bartlett's test of sphericity, P= .000.

From students' perspectives, four factors had high mean values, these were, observation of punctuality of teachers and students (mean = 4.22), the school administrative function involves teachers, consultation of students and parents when arriving at decisions concerning quality of education (mean = 4.14), the school administration has put up mechanisms for enforcing school rules and policies (mean = 4.14), and decentralization of decisions making is evident in our school (mean = 4.13). These showed the most prevalent principals' leadership practices in secondary schools. Although stakeholders were involved in decision making (mean = 4.14), students described the level of their involvement as average as shown in Figure 4.9.

Figure 4.9

Students' response on the level of involvement in decision making regarding provision of quality education in secondary schools in Kiambu County



The findings also show that approximately 35.5% of students felt that they were not being engaged in making decisions regarding the provision of education quality in their schools. This falls short of the directive from the Ministry of Education which emphasizes on stakeholders' involvement. The new policy dispensation in secondary schools requires that students are engaged in every level of decision making. A study conducted by Kiprop (2016) elaborated on the principal's leadership role of instilling discipline among secondary school teachers and students. Kiprop advocated for democratic leadership model saying that it fosters involvement and cooperative decision making by all stakeholders, hence critical in addressing discipline issues in the school in the long-run.

Necessary cooperation and support is ignited through active involvement of students in making decisions of quality (Kiprop, 2016). The results of the current study has same spirit; they are pointing to the need of embracing educational policies that foster participatory decision making by not only students but also parents, teachers and the BoM members.

The students seemed to have disagreed sharply on the four leadership practices by the principals in schools. These included; the school administration has strict codes of ethics (mean = 1.85), the school administration has embraced honesty and integrity (mean = 1.80), the school administration support teachers to attend seminars, conferences and workshops (mean = 1.74), and that the school administration emphasizes and has adopted quality and standards in all operations in the school (mean = 1.63). These revelations indicated serious gaps in principals' leadership practices and could derail the achievement of quality education in secondary schools. Undoubtedly, any organization that has not embraced code of ethics, honesty, and integrity in its operations may face difficulties in complying with set regulations and standards. As a result, it could be challenging to attain the desired organizational outcomes. In this study, it was also shocking to note that school administration in most secondary schools reported less emphasis in adopting quality and standards in all their operations. This kind of disconnection and deviation largely affected the provision education quality in Kiambu County secondary schools. These results corroborate with a study by Abreha (2014) on the principals' instructional role in enabling realization of education goals and objectives. Abreha noted that some principals had integrity issues and others were not honest in providing feedback on appraisal performance of teachers. This was termed as retrogressive and would adversely affect the education quality (Abreha, 2014). Quality of education requires total compliance and commitment to

the prescribed standards of operations without which, deviation and non-compliance would be prevalent.

Opinions from teachers on principals' leadership practices were also sought. Teachers are usually supervised by principals of secondary schools in performing their duties. Principals are expected to work closely with teachers in achieving quality of education in the school. The leadership practices of a principal are therefore significant in setting the pace; creating conducive environment, providing unit of direction, and mobilizing and energizing everyone towards the realisation of vision and mission of the school. In that connection, the study first sought to establish the teachers' understanding of the responsibilities of principals towards achieving quality education in secondary schools by requesting them to indicate the extent to which suggested roles of principals were significant in the provision of quality education in the school. Their responses were summarized and presented in Table 4.34.

Table 4.34

Teachers' Responses on Roles of Principals in the Provision of Quality Education in Secondary Schools

Roles (N = 114)	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Creating an enabling working environment	4.37	.779	-1.553	.226	3.367	.449	.652
Supervising curriculum implementation	4.32	.768	-1.327	.226	2.750	.449	.427
Ensuring adequate infrastructure e.g. classrooms	4.30	.808	-1.110	.226	.880	.449	.509
Ensuring observation of punctuality by teachers & students	4.24	.744	-.808	.226	.525	.449	.503
Ensuring provision of adequate instructional materials	4.22	.880	-1.239	.226	1.115	.449	.638
Motivating staff & students	3.93	1.037	-.779	.226	-.307	.449	.465
Summated mean	4.23	0.836					

KMO = .804

Bartlett's Test of Sphericity = .000

An overwhelming number of teachers (mean = 4.23, and a standard deviation of 0.836) which translated to (96 teachers, 84.6%), indicated high extent to the suggested roles of principals in the delivery of education quality in high schools. A factor analysis on the suggested roles indicated that all were relevant in the delivery of education quality in high schools; where, all sentiments loaded very well with Eigen value being above 0.45. The

relevance of these roles in influencing the provision of quality education in secondary school was also confirmed by a high KMO value of .869, which was more than threshold of 0.6 and also as indicated by a substantial Bartlett's test of sphericity, P= .000.

The top most critical roles were creating an enabling working environment (mean = 4.37), supervising curriculum implementation (mean = 4.32), and ensuring adequate infrastructure such as classrooms (mean = 4.30). Other key roles were ensuring observation of punctuality by teachers & students; ensuring provision of adequate instructional materials, and motivating staff and students in that order. Creating an enabling working environment turned out to be the most critical role which underscored the need for effective leadership in secondary schools. Results by Cisler and Bruce (2013) indicated principals' role in managing personnel. This included giving strategic directions and guidelines towards achieving the desired goals and objectives. This provides a common ground that principal's role significantly reflect on education quality. Noticeably, creation of atmosphere where things are flowing, requires appropriate structures, adherence to policy, rules and standards. It also requires setting up of processes and systems that assure quality in all facets of a secondary school (Cisler & Bruce, 2013).

Supervising curriculum implementation and all the other activities taking place in the school are critical to the of quality education delivery in high schools. The principals of high schools need to lay strong emphasis on internal supervision to enable the students to access and use school libraries effectively. This would improve the reading culture and performance in examinations (Imbahala et al., 2019). Instructional supervision of teachers enhances teaching competency of teachers and leads to quality education in schools. Indicators of efficient teaching supervision in school include instructional supervisory

skills, human relationships, effective instructional practices and the extent to which the school's instructional report and recommendations are implemented by the key stakeholders. Effective instructional supervision enhance education quality offered in a school. According to the principals of secondary schools, the aspects of quality education in the school include enhanced pedagogical skills, prudent use of available teaching materials, and enhanced assessment of learners. Teachers who possess sufficient instructional competencies together with good instructional supervision, would definitely deliver quality education in the school (Gitonga, 2019). Gitonga noted that effective instructional supervision of teachers contributed 92% towards offering of quality education while aspects such as paper qualifications and personal attributes, gender, experience and universities attended, contributed a paltry 8%. Instructional supervision is vital since it addresses the teacher's professional development; and helps teachers reflect on their practices as they also learn more concepts that range from pedagogical skills, effective utilization of instructional materials, keeping of records to enhanced methods of assessing and evaluating learners (Gitonga, 2019).

Instructional supervisors should exhibit desirable supervisory competencies. These include knowledge in public relations, leading by example, integrity and good mastery of the teaching subjects. In that connection Gitonga (2019) noted gaps for improvement by the instructional supervisors in Kenya. The improvement areas noted were on leadership skills and prudent management practices. This calls for the Directorate of Quality Assurance and Standards (DQAS) to be strengthened for ensuring that the quality of education offered in schools is improved and maintained at the highest levels of standards. The results implicate on training needs of principals. When consulted for comments regarding their supervisory

role on matters of quality, the SCQASOs consensually admitted being not effective due to limited number of staff, inadequate budget and weak structures for implementing instructional supervision reports.

Principals of secondary schools are the accounting officers who are held accountable for supervision of effective implementation of curriculum to ensure all aspects are covered adequately. Failure to execute this role by the principals may compromise quality of education in secondary schools. SCQASO-01 concurred saying, "*the results achieved in the schools are directly proportional to the leadership practices of the principal".* Another SCQASO-05 agreed that principals who have good leadership practices produce better results than their counterparts. Most SCQASOs recommended collaborative leadership style in secondary schools.

The results in this study are consistent with those of Tusianah et al. (2019) who examined the role of the principal in curriculum change and development. They noted that curriculum preparation, development, review and implementing, led to improved quality of education. This may be because, principals are in frontline in implementing programmes, allocating resources, improving the performance of staff and students by motivating and guiding them, hence, good quality of education. The crucial role played by principals in curriculum implementation significantly affect the quality of secondary school education (Tusianah et al., 2019).

Similarly, quality of education would hardly be achieved without adequate infrastructure in a secondary schools. Principals consensually agreed during the focused group discussion that they were expected to work closely with BoM and PA in championing infrastructural

development in the schools. King'oina et al. (2017) contended that involvement of BoM members in development programs results into improved infrastructure in the school. The study concluded that adequate infrastructures were key aspects in the delivery of quality education in high schools. School BoMs should therefore collaborate with other stakeholders in seeking funds for expanding infrastructure such as libraries and laboratories (Imbahala et al., 2019).

Saga (2014) conducted a study that aimed to explore the possible reasons that influenced the quality of secondary education in Tanzania. Among the possible reasons, the findings ranked the school infrastructure the highest. Barrette et al. (2019) also carried out a comparative study that explored the significance of infrastructure in enhancing education quality. Their results reported significant differences in student's academic performance across secondary schools that had different level of infrastructures. These results therefore rhyme well with the results of the current study that concluded that infrastructure had a substantial relationship with the education quality offered. Adequate infrastructure such as classrooms, laboratories, and library amongst other facilities, create an enabling learning environment for doing practices for easy remembrance and mastery, hence improving performance of education which has a direct links with the quality of education.

Having understood the crucial roles played by principals towards achieving quality education in secondary schools, it was essential to assess teachers' opinions on several principals' leadership practices with a view to understanding the extent to which teachers agreed with the stated sentiments regarding the principals' leadership practices. Results are shown in Table 4.35.

Table 4.35

Teachers' Responses on Principals' Leadership Practices towards the Provision of Quality Education in Secondary Schools

Principals 'leadership practices (N = 114)	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Factor Loading
Friendly and easy to approach	4.33	.816	-1.283	.226	1.869	.449	.671
Encourage staff to initiate and create ideas	4.20	.914	-1.122	.226	.886	.449	.445
Genuinely share information	4.19	.881	-1.022	.226	.821	.449	.691
Concerned with staff welfare	4.15	1.075	-1.305	.226	1.082	.449	.575
Set and display high values and reinforce them	4.15	.914	-1.009	.226	.650	.449	.585
Consult with other staff	4.13	1.000	-.917	.226	-.051	.449	.703
Patient with progress made by staff towards	4.12	.789	-.332	.226	-.994	.449	.657
Initiate and direct goals for the staff	4.09	.898	-.697	.226	-.334	.449	.681
Express confidence in employees	4.04	.872	-.313	.226	-1.067	.449	.617
Guides rather than control teachers in their work	3.98	1.022	-1.029	.226	.834	.449	.551
Allow members of staff to air their ideas	3.88	1.032	-.832	.226	.388	.449	.648
Open to criticism by members of staff	3.84	.992	-.507	.226	-.510	.449	.470
Motivating	3.62	1.059	-.329	.226	-.746	.449	.565
Suppress new ideas from members of staff	2.92	1.235	.181	.226	-.871	.449	.778
Summated mean	3.97	0.9642					
KMO = .844							
Bartlett's Test of Sphericity =		0.000					

s presented in Table 4.35, principals' leadership practices recorded a mean summation of 3.97 and a standard deviation of 0.9642 as evaluated by teachers. A factor analysis indicated that all aspects of principals' leadership practices loaded very well where Eigen value in each case was above 0.45. The relevance of these aspects on principals' leadership practices was also confirmed through a high KMO value of .844, which was more than 0.6 and a significant Bartlett's test of sphericity, P= .000.

Results indicate that teachers perceived their principals as being approachable and friendly (mean = 4.33); and that they encouraged employees to start and create ideas to help the school community (mean = 4.20); genuinely share information with staff (mean = 4.19); were concerned with staff welfare (mean = 4.15); set and displayed high values and reinforced them (mean = 4.15); and consulted with other staff towards improving education quality (mean = 4.13). These findings indicated a positive perception on principals' leadership practices, and had implications on working atmosphere that was created in the schools. A conducive working atmosphere would motivate and influence teachers to devoting more time and being concerned with various aspects and components that facilitate quality education in secondary schools. Such atmosphere creates sense of ownership and belonging, and suppresses feelings of alienation among teachers. It also changes teacher's mood and behaviour, and ultimately leads to high productivity among employees (Rawahi et al., 2018).

Teachers further described their principals as open to criticism by members of staff (mean = 3.84), and disagreed that they suppressed new ideas from staff (mean = 2.92). This was true because the majority of teachers said that principals in their schools allowed members

of staff to air their ideas before making decisions (mean = 3.88), and further expressed confidence in employees even when they disagreed on some issues (mean = 4.04). These virtues are highlighting a progressive leader who is approachable, focused and open to new ideas. Certainly, quality education requires versatile leaders who are capable of influencing the best out of subordinate staff in order to achieve results with and through teachers. Democratic leaders give room to their followers to give opinion to enhance efficiency in the performance. The principals exhibited open door policy and always sought opinions of other members of staff concerning school activities and projects. When probed for hints on how they practised leadership in their schools principals noted they have been able to provide avenues for staff to own and manage projects and often exercised commitment and self-direction. It was clear that the principals regularly put into consideration the vision of staff members and allowed them to set priorities as guided by objectives of the school.

However, the above results are in contrast with the findings by Alam (2017) who found out that principals become more vibrant in different situations and phases and therefore different styles of leadership could be applied. This is largely true because, although the principals allowed criticisms, and gave teachers time to air out their views, they provided the ultimate decisions. Consequently, the principal is the executive and administrator, pedagogical leader, instructional leader, curriculum leader and a coach as well (Alam, 2017). This may be as a result of the different situations leaders find themselves in. Despite the good ratings on principals' leadership practices, teachers found them less motivating (mean = 3.62). Unlike the results by Alam (2017) who said that teachers had sense of

belonging as they were always involved in making decisions concerning planned activities and this ignited their morale at work.

The foregoing results are generally underscoring the essence of leadership and governance practices in pursuit of education quality in high schools. Aligning, configuring and coordinating the efforts of all stakeholders towards achieving quality education in secondary schools is a key duty of every principal and is paramount. When concurring with this information SCQASO-01 asserted,

> *"The provision of quality education is not a one-man show; it is a team activity which requires the concerted efforts of all stakeholders. It requires multi- sectorial efforts and involvement, hence, leadership skills and styles of principal are very important".*

The government has put up guidelines on how stakeholders should be involved in assuring quality in high schools in Kenya. According to the information acquired from two Sub-county Quality Assurance Education Officers, efficient execution of quality measures in secondary schools is largely dependent on principals' leadership practices and ability to coordinate other stakeholders like teachers, students and parents and BOM. This shows that there is great potential in enhancing the education quality offered in schools. In that connection, policies need to be inclusive and should be responsive to the diversity needs and circumstances of all students in the school. Priorities should be given to the extremely needy cases due to constrained resources. The policies developed towards improvement of education quality should not be beyond the reach of the schools in disadvantaged regions and should easily be implementable to achieve the desired outcomes (Madani, 2019).

4.6.1 Testing of hypothesis four on relationship principal's leadership style and Provision of quality of education in secondary schools in Kiambu County

Analysed information from both categories of respondents on fitness of the model and goodness-of-fit is presented in Tables 4.36 and 4.37.

Table 4.36

Model Fitting Information for Leadership-Related Factors and Quality of Education

Students' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	995.517				.290
	Final	918.881	76.637	1	.000	
Teachers' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	516.258				.093
	Final	505.157	11.100	1	.001	

Link function: Logit.

The study's findings from Table 4.36 show p = 0.000 and p = .001 for students and teachers respectively. The P value in the two cases is less than 0.05, hence, the underlying null hypothesis that there were no substantial differences between the baseline and final model was rejected. This showed that the model had statistically significant predictive capacity, which meant that, leadership-related factors statistically and substantially explained the variations in the quality of education.

Table 4.37 shows the results on goodness-of-fit based on responses from both students and teachers.

Table 4. 37

Goodness-of-Fit for Leadership-related Factors and Quality of Education

		Chi-Square	df	Sig.
Students' responses	Pearson	3240.721	1439	.000
	Deviance	650.834	1439	1.000
Teachers' responses	Pearson	852.188	836	.341
	Deviance	387.599	836	1.000

Link function: Logit.

The results in Table 4.37 showed: $\chi 2$ (df 1439) = 3240.721; p= .000 and $\chi 2$ (df 836) = 852.188, p= .341 for students and teachers, respectively. In this case therefore, we fail to reject the null hypothesis and instead accept the alternate hypothesis, that, the observed data has goodness of fit with the fitted model in the teachers' case. Consequently, the study had to examine the log odds (logit) regression coefficient values as shown in parameter estimates in Table 4.38. The estimates are critical in showing how independent variable is influencing the dependent variable.

Table 4.38

Leadership-Related Factors Parameter Estimates on Quality of Education

Responses from students								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Location	X4	2.295	.263	76.177	1	.000	1.780	2.810
Responses from teachers								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Location	X4	.941	.270	12.162	1	.000	.412	1.470

Link function: Logit.

From Table 4:38, it was observed that a marginal increase in leadership-related factors increased the logit of the quality of education.

Subsequently, the study had to check the results of parallel lines based on the outcomes and response categories. The key assumption of ordinal logistic regression in the test of parallel lines is that the location parameters (slope coefficients) are the same across response categories. Results on the test of parallel lines are shown in Table 4.39.

Table 4. 39

Test of Parallel Lines for Outcomes and Response Categories

	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Students' Responses	Null Hypothesis	918.881			
	General	905.881[b]	12.999[c]	31	.998
	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Teachers' Responses	Null Hypothesis	505.157			
	General	455.688[b]	49.469[c]	26	.004

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

The results in Table 4.38 show that the dissemination of opinions from students and teachers on leadership-related factors of parents towards quality of education was uniform. The results show p value = .998 for students and p value = .004 for teachers. This shows that the significance value for students was more than the alpha value, P>.05, hence it could be deduced that the location parameters across response categories for students were uniformly distributed.

As for teachers, the results show a significant p value = .004. This indicated that the significance value for teachers was less than the alpha value, p<.05, hence, concluded that the location parameters across response categories for teachers were not uniformly distributed. Having considered the results of the other preceding tests, the study concluded that there was sufficient evidence that the predictive capacity of leadership-related factors of principals on the education quality in Kiambu County was valid and reliable. Previous

studies such as Kiprop (2016), Okaka (2012) and Tusianah et al. (2019) concur with the findings of the current study. These studies pointed critical virtues of a leader such as transformative approach, communication, coordination skills, figured-head role and mentorship.

4.9 Correlations Analysis Results Based on Teachers and Students' Data

Having checked how each independent variable was affecting the dependent variable, a correlations analysis was further conducted which helped to confirm the underlying relationship. In determining the relationship, a Spearman's correlations analysis technique was adopted. This was because data on the key variables were found not normally distributed (see section 4.3). The Spearman's correlations analysis helped to count-confirm the testing of each hypothesis, as summarized in Table 4.40 and 4.41 for students and teachers data respectively. The Spearman's correlations analysis results based on teachers and students' data were discussed together since there was no conflict in the findings.

Table 4.40

Correlations analysis results on main constructs of the study based on students' data

Spearman's rho based on students' data		Y	X1	X2	X3	X4
Y	Correlation Coefficient	1.000				
	Sig. (2-tailed)	.				
	N	221				
X1	Correlation Coefficient	.550**	1.000			
	Sig. (2-tailed)	.000	.			
	N	221	221			
X2	Correlation Coefficient	.862**	.570**	1.000		
	Sig. (2-tailed)	.000	.000	.		
	N	221	221	221		
X3	Correlation Coefficient	.579**	.460**	.577**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.	
	N	221	221	221	221	
X4	Correlation Coefficient	.531**	.487**	.588**	.855**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.
	N	221	221	221	221	221

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

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

The Spearman's correlations analysis based students data was summarized in Table 4.41.

Table 4.41

Correlations analysis results on main constructs of the study based on teachers' data

Spearman's rho based on teachers' data		Y	X1	X2	X3	X4
Y	Correlation Coefficient	1.000				
	Sig. (2-tailed)	.				
	N	95				
X1	Correlation Coefficient	.261*	1.000			
	Sig. (2-tailed)	.011	.			
	N	95	96			
X2	Correlation Coefficient	.216*	.128	1.000		
	Sig. (2-tailed)	.036	.215	.		
	N	95	95	95		
X3	Correlation Coefficient	.446**	.011	-.039	1.000	
	Sig. (2-tailed)	.000	.914	.706	.	
	N	95	95	95	95	
X4	Correlation Coefficient	.357**	.762**	.058	.039	1.000
	Sig. (2-tailed)	.000	.000	.577	.711	.
	N	95	95	95	95	95

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

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

The results in the correlation analysis Tables 4.40 and 4.41 show a Spearman's correlation value and corresponding coefficient; r = .550** and a P value that is less than 0.05 and r = .261** and a P value that is less than 0.05 based on students and teachers' data respectively. This indicates a statistically significant positive link between school-based factors and education quality, ($r= .550$, $p < 0.05$; $r= .261$, $p < 0.05$) based on students and teachers' data respectively. Consequently, the first null hypothesis was rejected and in conclusion the study indicated that there is a statistically substantial positive relationship between school-based factors and quality of education in Kiambu County. The positive association implies that an increase in the school-based factors, causes an increase on the quality of education.

The second null hypothesis ($H0_2$) predicted that teacher-related factors do not affect quality of education in Kiambu County high schools. The results in the correlation analysis Tables 4.40 and 4.41 show a Spearman's correlation value and corresponding coefficient; r = .862** and a P value that is less than 0.05 and r = .216** and a P value that is less than 0.05 based on students and teachers' data respectively. This indicates a statistically positive substantial relationship between teacher-related factors and quality of education, (r= .862, $p < 0.05$; r= .216, $p < 0.05$) based on students and teachers' data respectively. Consequently, the null hypothesis was rejected and the study concluded that there is a statistically substantial positive relationship between teacher-related factors and education quality in Kiambu County. The positive association implies that an increase in the teacher-related factors, causes an increase on the quality of education.

The third null hypothesis ($H0_3$) predicted that parents' socio-economic status did not significantly influence education quality in high schools in Kiambu County. The results in the correlation analysis Tables 4.40 and 4.41 show a Spearman's correlation value and corresponding coefficient; r = .579** and a P value that is less than 0.05 and r = .446** and a P value that is less than 0.05 based on students and teachers' data respectively. This indicates a statistically positive substantial link between parents' socio-economic status and quality of education, (r= .579, $p < 0.05$; r= .446, $p < 0.05$) based on students and teachers' data respectively. This led to the rejection of the null hypothesis hence concluding that there is a statistically substantial positive relationship between parents' socio-economic status and quality of education in Kiambu County. The positive association implies that an increase in the parents' socio-economic status, causes an increase on the quality of education.

The fourth null hypothesis ($H0_4$) predicted that principal's leadership practices do not significantly influence education quality in Kiambu County high schools. The results in the correlation analysis Tables 4.40 and 4.41 show a Spearman's correlation value and corresponding coefficient; r = .531** and a P value that is less than 0.05 and r = .357** and a P value that is less than 0.05 based on students and teachers' data respectively. This indicates a statistically significant positive relationship between principal's leadership practices and quality of education, ($r= .531$, $p < 0.05$; $r= .357$, $p < 0.05$) based on students and teachers' data respectively. Consequently, the null hypothesis was rejected and concluded that there is a statistically positive substantial relationship between principal's leadership practices and quality of education in Kiambu County. The positive association implies that an increase in the principal's leadership practices, causes an increase on the quality of education.

4.10 Assessment of Combined Effect of Four Selected Metrics on Education Quality in Kiambu County Secondary Schools

In order to assess the overall effects of the combined effects of the four selected metrics on the education quality in Kiambu County Secondary Schools, a multivariate ordinal logistic analysis was conducted and fitness of the model and goodness-of-fit is presented in Tables 4.42.

Table 4.42

Model Fitting Information on Combined Selected Metrics on Quality of Education in Secondary Schools in Kiambu County

Students' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	1474.877				.755
	Final	1160.713	314.164	3	.000	
Teachers' responses	Model	-2 Log Likelihood	Chi-Square	df	Sig.	Pseudo R-Square (Nagelkerke)
	Intercept Only	709.797				.141
	Final	692.472	17.325	3	.001	

Link function: Logit.

Results in Table 4.42 show P value was 0.000 for students and .001 for teachers, which was less than alpha value, $p < 0.05$ in the two cases. As a result, the study rejected the null hypothesis that stated that there was no significant differences between the baseline model and the final model. The results showed that the model had statistically significant predictive capacity, which meant that, the combined selected metrics statistically and substantially explained the variations in the quality of education. Further, the model summary in this result showed that the combined selected metrics predicted 75.5% and 14.1% (students and teachers responses, respectively) of the variations in the quality of education as indicated by the Nagelkerke R square value.

Table 4.43 shows the result on goodness-of-fit based on responses from both students and teachers.

Table 4.43

Goodness-Of-Fit on Combined Selected Metrics on Quality Of Education in Secondary Schools in Kiambu County

		Chi-Square	df	Sig.
Students' responses	Pearson	6870.938	6749	.147
	Deviance	1145.464	6749	1.000
Teachers' responses	Pearson	2912.751	3021	.919
	Deviance	692.472	3021	1.000

Link function: Logit.

The study's findings from Table 4.42 show: $\chi 2$ (df 6749) = 6870.938; p= 0.147 and $\chi 2$ (df 3021) = 2912.751, p= 0.919 for students and teachers, respectively. Therefore, the study accepted the null hypothesis in this case and concluded that the observed data had goodness of fit with the fitted model. This implies that the data on combined selected metrics was fit for predicting quality of education in Kiambu County high schools. Results are shown in Table 4.44.

Table 4.44

Parameter Estimates and Odd Ratios on Combined Selected Metrics on Quality of Education in Secondary Schools in Kiambu County

Results based on students' data											
							95% Confidence Interval				
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound	Exp_B	Lower	Upper
Location	X_1	.252	.198	1.618	1	.203	-.136	.641	1.287	.872	1.899
	X_2	4.814	.387	154.414	1	.000	4.055	5.573	123.245	57.677	263.354
	X_3	1.180	.334	12.451	1	.000	.524	1.835	3.253	1.689	6.263
	X_4	-1.215	.513	5.616	1	.018	-2.219	-.210	.297	.109	.811
Results based on teachers' data											
							95% Confidence Interval				
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound	Exp_B	Lower	Upper
Location	X_1	.277	.612	.205	1	.651	-.923	1.476	1.319	.398	4.377
	X_2	1.025	.477	4.618	1	.032	.090	1.959	2.787	1.094	7.096
	X_3	1.637	.330	24.548	1	.000	.989	2.284	5.139	2.689	9.819
	X_4	1.218	.486	6.298	1	.012	.267	2.170	3.382	1.306	8.759

Link function: Logit.

From the data obtained from students and teachers shown in Table 4.44, three independent variables that were substantial on education quality were selected and combined, that is, (X_2 [teacher-related characteristics], X_3 [social-economic factors of parents], and X_4 [principals' leadership practices). Consequently, the following conclusive logistical statements were made based on the students 'opinions:

i. An increase in teacher-related characteristics was responsible for an increase in the odds of quality of education, with an odds ratio of 123.245 (95% CI, 57.677 to 263.354), Wald $\chi 2$ (1) = 154.414, $p < .005$.

ii. An increase in social economic factors of parents was connected with an increase in the odds of quality of education, with an odds ratio of 3.253 (95% CI, 1.689 to 6.263), Wald $\chi 2$ (1) = 12.451, $p < .005$.

iii. An increase in principals' leadership practices of parents was linked with an increase in the odds of quality of education, with an odds ratio of .297 (95% CI, .109 to .811), Wald $\chi 2$ (1) = 5.616, $p < .005$.

Furthermore, the following conclusive logistical statements were made based on teachers 'opinions:

i. An increase in teacher-related characteristics was linked with an increase in the odds of quality of education, with an odds ratio of 2.787 (95% CI, 1.094 to 7.096), Wald $\chi 2$ (1) = 4.618, $p < .005$.

ii. An increase in social economic factors of parents was linked with an increase in the odds of quality of education, with an odds ratio of 5.139 (95% CI, 2.689 to 9.819), Wald $\chi 2$ (1) = 24.548, $p < .005$.

iii. An increase in principals' leadership practices of parents was allied with an increase in the odds of quality of education, with an odds ratio of 3.382 (95% CI, 1.306 to 8.759), Wald $\chi 2$ (1) = 6.298, $p < .005$.

The above results show that although school-based factors had substantial influence on education quality, when other predictors were held constant (based on data from students and teachers), its magnitude ceased to be significant when all predictors (selected metrics) were combined in one model. Subsequently, the study had to check the results of parallel lines based on the outcomes and response categories. The test of parallel lines is related to proportional odds. The key assumption of ordinal logistic regression in the test of parallel lines is that the location parameters (slope coefficients) are the same across response categories. Results on the test of parallel lines are shown in Table 4.45.

Table 4. 45

Test of Parallel Lines for Outcomes and Response Categories

	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Students' Responses	Null Hypothesis	1160.713			
	General	1129.506[b]	31.206[c]	93	1.000
	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Teachers' Responses	Null Hypothesis	692.472			
	General	618.831[b]	73.641[c]	78	.619

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

The results indicated that the opinions of students' and teachers' were disseminated in inform manner across the four selected metrics. Since the significant value, p value = 1.000 for students and p value =0.619 for teachers; which in both case was more than the alpha value, P>0.05, it was concluded that the location parameters were distributed uniformly across response categories. The social economic circumstances of parents may mat very restrictive and may have far reaching effects on children education achievement. It is

undisputable that social economic factors dictate the quality of life where some students may fail to raise the required fees, buy basic necessities, and lack money to contribute academic tours and other education-related needs. This scenario may in turn affect students 'response to educational programmes and activities held in the school. The situation would ultimately, affect quality of education achieved by such students. Gideon (2014) addressed the issue of fees arguing that principals are often forced to send students home to collect schools fees and that the government grant to secondary schools is inadequate. The issue of school fees was of a great concern and it dearly affected students' performance because of lost time occasioned absences when they are sent home for fees, 3-4 times per term.

This study has placed the leadership practices of principals at the centre of providing quality education in secondary schools. Effective implementation of their roles goes a long way in influencing education quality found in a given secondary school. Prudent leadership practices and ability to marshal and coordinate resources as well as creation of conducive environment in the school are some of the critical functions of a principal towards achieving quality of education. The act of leading is very significant when determining education quality in a high school. It also encompasses how stakeholders are involved, motivation programmes, culture of working and reading and unity of purpose and direction in the school.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This thesis is on the "Assessment of Quality of Education in Secondary Schools in Kiambu County, Based on Selected Metrics". The purpose of the study was to investigate the impact of these selected metrics on the quality of education in the said county. This chapter, therefore, summarizes how the study was conceptualized, implemented, the findings obtained. It also provides conclusions arrived at and subsequent recommendations.

5.2 Summary of the Study

A summary of the study is presented in this section from the conceptualization to the results of the data analysis.

5.2.1 Conceptualization of the Study

Education is a vital human activity that assists the society to model persons to operate appropriately in their environment as the individuals shape the nature and status of the society's socio-economic well-being. This idea has been well espoused by education Functionalists and explains why many countries and the world at large invest immensely in education. For example, the Government of Kenya has greatly financed education due to its role in promoting national development and this has resulted in increased access to education at virtually all levels with secondary education being the focus of the present study. However, quality of education still remains a challenge in the country's education reform agenda.

To deal with the issue the researcher selected four factors that were relatively very embracing for investigation. These included school-based, teacher related, socio-economic factors and leadership practices. The factors (metrics) formed the basis of statement of the study objectives. Having conceptualized the study, an investigation on the theories on which the study could be anchored was done. The conceptualization of the study was finally summarized into a conceptual framework in which the correlation between the independent variable (quality of education) was designed.

5.2.2 Summary on the methodology

The study was conducted through a descriptive survey of secondary schools in Kiambu County, Kenya where socio-economic potential was considered good enough to support an effective secondary school programme but this was not being realized. Data was collected from 77% of the intended sample size of 372 subjects comprising of school principals, teachers, learners, as well as, Sub-county Quality Assurance and Standards Officers. All the instruments were pilot tested using test re-test method. The reliability results indicated that the lowest reliability index was 0.702 while the highest was 0.930. Consequently, the reliability indices were considered acceptable since the lowest index in educational research should be ≥ 0.7000. Primary data was collected from all the respondents after obtaining the needed research authorization. The data obtained was subsequently examined for completeness, organized and then quantitatively, as well as, qualitatively analysed using the help of SPSS version 20. Descriptive and inferential statistics were employed in the results presentation. Ethical principles of honesty, confidentiality, anonymity amid others were observed throughout the study.

5.2.3 Summary of the findings

The purpose of this study was to examine the influence of selected metrics on the quality of education in Kiambu County secondary schools. The process of data analysis of the results involved putting together related data, examining the results using appropriate statistical techniques summarizing and then comparing these results with previous results in order to respond appropriately to the purpose of the study.

5.2.3.1 Summary of the findings on background information

The background information showed that there were 224 secondary schools in the district of which 105 were Day, 92 were boarding, while 27 were both day and boarding. It was also observed that of the 224 secondary schools, 128 were mixed boys and girls while 58 and 38 boys only and girls only, respectively. In addition, only 10 of the schools were private secondary schools. Schools also differed in terms of the number of streams in a school and number of pupils per stream. This information was important because the category, type and status of a school can easily influence the quality of the school due to differences in their allocations. All the principals and the teachers who participated in the study had the requisite teaching qualifications and experience. Consequently, these participants were in a better position to understand the issues surrounding achievement of quality education in secondary schools within the country and therefore able to respond accordingly.

5.2.3.2 Summary of the findings on quality of education (dependent variables)

In terms of descriptive statistics on the results on the quality of education in Kiambu County, both students and teachers were given an opportunity to respond to respective statements pertaining to the quality of education. The statements required each of the two

groups to rate the agreement statements in a Likert scale ranging from 5 – Strongly Agree, 4- Agree, 3- Neutral, 2- Disagree, to 1- Strongly Disagree. In total, the students had 16 statements which were considered to be reasonable determinants of quality of education in secondary schools. The average mean score of the students' responses was 4.05 which was above the median value of 3.4. These results indicated all the 16 aspects posed to the students, were essential in determining quality of education. On the other hand the teachers were presented with 17 statements as possible indicators of the quality of education. The overall teachers' rating of the 17 indicators was 4.16. This was higher than the overall students rating of 4.05. Once again, as per the teachers, all 17 aspects were important in determining quality of education in secondary schools in Kiambu County. These findings were confirmed by the principals and the SCQASOs, although the areas of emphasis differed, even between students and the teachers as indicated by the mean values of the various responses to the statements and interview questions. For example, the students were more concerned with their academic performance, while the teachers were more concerned with the accessibility and quality of teaching and learning resources. On the other hand, quality assurance officers were more concerned with school quality and inspection, while the principals were more concerned with the quality of school management. The results from the different responses were consistent with various literature reviewed.

5.2.3.3 Summary of the findings on the selected metrics (factors)

The first objective was to establish the adequacy of the school-based factors in the provision of quality education. Eleven indicators of the school-based factors were rated by students using a rating scale ranging from 5- Strongly Agree through 3 – Neutral to 1-

Strongly Disagree. The analysis of the responses yielded a summited mean of 3.94 with a SD of 1.04 with the mean of the last item being 3.73. As for the teachers' indicators of school-based factors (11), the summated mean was 3.26 with a SD of 1.21. The highly rated indicator was 3.71, while the lowest was 2.55.

Factor analysis of the two sets of responses indicated that the two sets of school-based indicators contributed very well to the quality of education. However, the order of the influences on the quality of education was not the same as indicated by the teachers and students. The highest cause of influence was, support staff and recreational facilities, while for the teachers it was instructional materials. This implied that the perception of what contributed highest to the quality of education was different as per the responses. The first null hypothesis of the study that, *there is no significant relationship between the school-based factors and quality of education in secondary schools in Kiambu County* was rejected on the basis that the test for significance indicated that the school-based factors statistically and significantly explain the variations in the quality of education ($p<0.05$ for both students and teachers)

The second objective sought to determine the correlation between teacher-related factors and quality of education in Kiambu County secondary schools. Eight indicators of the teacher related factors were rated by the students on a rating scale of 1-5. The analysis of the ratings yielded a summated mean of 3.90 with the highest and lowest rating being 4.13 and 3.56, respectively with SD 0.9955. As for the teachers, the indicators of the teacher-based factors (8) the summated mean was 3.90, with the highest and the lowest means being 4.66 and 3.79, respectively. The SD for the teacher's ratings was 0.8974. Factor analysis of the two sets of responses (students' and teachers' responses) indicated that the

indicators contributed very well to the quality of Education in Kiambu County secondary schools.

However, as indicated in the foregoing, the order of the contributions as rated by both the students and the teachers, were not the same. For example, for the students, the second highest cause of influence was teaching experience, whereas for the teachers it was teachers' level of motivation. Once again, this implied that the order of perception of what teacher-based factors that contributed to the quality of education in Kiambu County secondary schools was different as for the category of respondents. The second null hypothesis; *there is no relationship between the teacher-related factors and the quality of education in Kiambu County secondary schools* was also rejected after testing because the relationship between the variables was found to be statistically significant ($p<0.05$) for both students and teachers. Consequently, it was inferred that the teachers-related factors significantly explained the variations in the quality of education in Kiambu County secondary schools.

The third objective of the study was to assess the correlation between socio-economic status of parents and quality of education in Kiambu County secondary schools. In order to address this objective, data was gathered from the students, teachers, principals and SCQASOs. To start with, five indicators of the socio-economic factors were presented to the students in form of statements. The students were expected to rate the statements from 5-Strongly Agree through 3- Neutral to 1 – Strongly Disagree. Analysis of the ratings yielded a summated mean of 4.14 with 0.8888 as the SD. The highest rated statement (parents level of education) was 4.22 and the lowest rated statement was 4.04 (family size). As for the teachers' indicators of socio-economic factors, the summated mean was 4.052

with 0.9256 as the SD. The highest rated statement (parents' level of education) and the lowest rated statement (marital status of the parents) had means of 4.28 and 3.63, respectively.

Consequently, there was an agreement between the teachers and the students as to the first priority indicator of socio-economic factors. This was consistent with earlier observations, that indicated that the family income or type of parents' occupation and economic status, did not possess any signifying relationship to the students' academic achievement, hence, the quality of education since students from poor backgrounds seemed to perform well through provision of free books, scholarship and CDF funds. This was consistent with CDQASOs and principals responses in relation to availability, adequacy and quality of teaching/learning facilities as well as, parental support and irregular school attendance. The third null hypothesis of the study; *there is no significant relationship between socio-economic factors of parents and quality of education in Kiambu County secondary schools* was similarly rejected after testing the relationship between the variables and establishing that it was statistically significant for both students ($p<0.00$) and teachers ($p<.001$), respectively. As a result, the study also inferred that socio-economic factors significantly explained the variations in the quality of education in Kiambu County secondary schools.

The fourth objective that guided the study was to find out the correlation between principals' leadership practices and quality of education in Kiambu County secondary schools. Twenty and fourteen indicators of principals' leadership practices were presented to the students and teachers, respectively. Each category of the respondents was expected to rate its indicative statements on a scale of 1-5 with 5 indicating strongly agree. An analysis of the students ratings yielded a summated mean of 3.40 with the highest

(punctuality of students and teachers) having a mean of 4.22 and the lowest (emphasis on quality and standards in all school operations) having a mean of 1.63. The SD was 0.9733. As for the teachers, the summated mean was 3.97 with the highest rated statement (friendly and easy to approach and talk to) having a mean rating of 4.33 and the lowest rated (suppress new ideas from members of staff) having a mean rating of 2.92. The SD was 0.9642. Prior to this the teachers had rated statements on whether they understood the role of the principals towards achieving quality of secondary schools. The teachers had generally agreed on the understanding with a mean rating of 4.23 out of a maximum of five (5). The fact that the lowest rating by students was 1.63 implied that there were a number of principals' leadership practices which the students were not convinced that they were associated with quality of education. Each of the last four statements had a mean rating of less than 2.50 out of a maximum of five (5).

The foregoing results from the students and teachers responses underscored the importance of leadership and managerial practices in pursuit of education in Kiambu County secondary schools. These observations were consistent with the SCQASO observations on the need for good quality principals' leadership practices and abilities of a school to realize expected high quality education. The fourth null hypothesis; *there is no significant relationship between the leadership-related factors and quality of education in Kiambu County secondary schools* was rejected too after testing for the relationship between the variables which was found to be statistically significant for both students (0.000) and teachers (0.001), respectively. Thus, the study inferred that principals' leadership and management practices (factors) significantly explained variations in the quality of education in Kiambu County secondary schools.

The selected metrics (factors) that were studied were, school-based, teacher related characteristics, parents socio-economic factors, as well as, principals' leadership and management practices in relation to their contributions to quality education (dependent variable) in Kiambu County secondary schools. These four independent variables were assessed independently. However the four are aspects of what would be referred to as indicated of school climate. They do not contribute to quality education independently. An analysis was therefore, done to estimate their combined effect on the quality of education in Kiambu County secondary schools. The findings of the regression analysis indicated that teacher-related characteristics, parents socio-economic factors and principals' practices were statistically significant (0.0000, 0.000 and 0.18 for students 0.032, 0.000 and 0.012 for teachers) in their contribution to the quality of education in Kiambu County secondary schools.

The school-based factors p-value was at 0.203 for students and 0.651 for teachers therefore, >0.05. This lack of significance may not be a surprise because the other three independent variables can, to a great extent and together constitute school-based factors.

5.3 Conclusions

The study set to investigate the impact of four selected metrics (factors) on the quality of education in Kiambu County secondary schools in Kenya. These metrics are a combination of what happens in secondary schools including the inputs, processes and products of education. The conviction was that appropriate inputs, appropriate and well thought out processes would yield quality products, in this case, quality education. Relevant data was collected. Various aspects of the data analysis were pursued to achieve the set objectives. The conclusions regarding the results are now presented with respect to each objective.

5.3.1 Conclusion based on Objective One

To examine the correlation between school-based factors and quality of education in Kiambu County secondary schools.

The results obtained indicated that there was a statistically significant correlation between school-based factors and the quality of education in Kiambu County secondary schools. It was, therefore, concluded that school-based factors, may to a great extent explain variations in the quality of education. In considering these factors, priority should be given to quality of school academic performance, quality of school programmes, quality of teaching and learning facilities, and quality of teachers among others. However, it needs to be noted that school-based factors are significant inclusions of other metrics and consequently do not act on their own.

5.3.2 Conclusion based on Objective Two

To determine the correlation between teacher-related factors and quality of education in Kiambu County secondary schools.

The results obtained indicated that there was a statistically significant correlation between teacher-related factors and the quality of education in Kiambu County secondary schools. It was therefore, concluded that teacher-related factors, to a great extent, explain variations in the quality of education. However, contrary to theoretical assumptions of the Functionalism theory on factors militating against the education provision, teacher-factors such as teacher absenteeism and teachers' integrity, which are conflict forces, were found not to contribute much to the explanation of quality of education as compared to teachers' professional skills, teachers-qualification and teaching experience.

5.3.3 Conclusion based on Objective Three

To determine the correlation between socio-economic factors of parents and quality of education in Kiambu County secondary schools.

After the analysis of the data, the results indicated that there was a statistically significant relation between parents' socio-economic factors and the quality of education in Kiambu County secondary schools. It was pragmatic that for all the rated statements by both the teachers and the students, the summated mean was above 4.00 out of five. The two categories of the respondents, rated the education level of the parents to be the best indicator of the relationship. This meant that increases education of the parents itself was an important socio-economic construct that could be depended on to promote education Functionalism in the area. It was thus, concluded that the socio-economic characteristics do, to quite a great extent, explain variations in the quality of education in secondary schools.

5.3.4 Conclusion based on Objective Four

To examine the correlation between principals' leadership practices and the quality of education in Kiambu County secondary schools.

Students and teachers were used to provide data that after analysis, was used to confirm or dismiss the correlation between indicated independent variable and the dependent variable. The obtained results, after the analysis, indicated that there was a statistically significant correlation between principals' leadership practices and the quality of education in Kiambu County secondary schools. This significance was observed after the analysis of both the students and teachers responses. It, therefore, concluded that the principals' leadership and

management practices, to a great extent, explain variations in quality education. It was also concluded that teachers clearly understand the roles of the principals' leadership and management practices in school. This was after the teachers' rating of this understanding yielded a mean rating of 4.23 out of a maximum of five (5). It was therefore concluded that not all apparent aspects of principals' leadership practices contribute significantly to the explanation of variations in quality of education. Examples of aspects include emphasis and adoption of quality and standards of operations, support of teachers to attend seminars, conferences and workshops, as well as, adherence to strict codes of ethics (as per the students' perceptions) and suppressing of new ideas from members of staff (as per the teachers' perceptions). This implied that the principals were not necessarily practicing transformational leadership in the schools at all times.

A final test was on the combined effects of the four selected metrics on the quality of education in secondary schools in Kiambu County. It was observed from the students and the teachers, that an improvement on the teacher-related characteristics, socio-economic factors and principals' leadership practices were all associated with an improvement of quality of education. However, contribution of the school-based factors to the quality of education was insignificant, as far as the perception of the two main categories of respondents (students and teachers) were concerned. It was therefore, concluded that when all the four categories of factors, that is; teachers' characteristics, parents' socio-economic factors and principals' leadership practices were simultaneously considered they were jointly associated with quality of education, unlike school-based factors whose association with quality education diminish with the multiple consideration. Theoretically, the findings suggest that the lack of robust transformational leadership by the principals in the schools

exposed the schools to elements of conflict in the school setting that gradually eroded the quality of education in the area.

5.4 Recommendations

5.4.1 Recommendations based on the findings of the study

The findings indicated that the quality of education was low. The study therefore recommends that key stakeholders in schools, including principals, teachers, students and parents, establish clear and comprehensive criteria for measuring the quality of school education. The criteria should include expected standards in the delivery of all teaching and learning resources, both material and human, as well as, the points of engagement/ involvement by all stakeholders and standards expected of each of them. The school management in the area should adopt principles of constant improvement for quality attainment such as those espoused by the Gemba Kaizen principles.

School-based factors were found to greatly explain the variations in the quality of education in schools in the area. The school-based factors were those related to ensuring that the teaching and learning environment are conducive to effective teaching and learning. This is mainly the responsibility of the principal. It is, therefore, recommended that the principals should prioritize quality of school academic performance, quality of school programmes, quality of teaching and learning facilities, and quality of teachers among others.

Teacher related factors examined included qualifications, competency, discipline and experience of the teaching staff. In this respect, the principal and the school Board of Management must ensure that the calibre of staff recruited is qualified, competent and

disciplined. In addition, it is recommended that in case such calibre of staff is lacking, both the principal and the BoM should deliberately look for opportunities for the staff to develop such skills through in-service training, seminars and workshops, including constructive inspections by the relevant bodies.

Research results and literature reviewed has demonstrated that students' academic performance and various aspects of social behaviour are very much influenced by their parents' socio-economic factors. Such factors include parents' education level, economic status, marital status, including stability. Children are born in families differentiated by these factors. It is in such families where children grow until they enrol into schools. Students from well-educated parents will get a lot of encouragement from their parents and vice versa.

In order to boost the socio-economic level of the parents it is suggested that the principals, BoMs, teachers and education officers should; Hold strategic meetings with parents/guardians to motivate them on their need to encourage their children to perform well in school; prioritize provide temporary employment for the parents within the schools whenever opportunity arises; Provide opportunities for the school to understand the children's backgrounds and hence, be able to seek ways to assist such students and parents for example, by identifying needy students for bursaries and scholarships.

In relation to the principals' leadership practices it is recommended that; The Teachers Service Commission should promote teachers with potential leadership and management skills. Those selected for appointment to the position of principals should be given a comprehensive induction courses before they take over as principals. There should be

definite comprehensive criteria for determining those qualified to be principals. The Teachers Service Commission should organize strategic meetings for principals to be updated on changing and new policies in educational management. Principals should ensure that they honestly engage/involve teachers, students and parents in their leadership and management practices (principle of participation and constructive engagement). Principals should cultivate confidence and courage in themselves, always aspiring to do better through self and others constructive criticism.

5.4.2 Implications of the findings on policy and practices

The findings have important implications for policy and practice. They first suggest that the education policies are not being well implemented towards the provision of quality education in the area and if the implementation gaps are not addressed, the functionalist goal of education in the area will continue to be degraded leading to poor socio-economic outcomes. Concerning practice, it is evident that education stakeholders in the area need closer collaboration to address the challenges affecting their learners in public secondary schools in the area especially in providing them with quality education.

5.5 Recommendations for further studies

As a result of the experiences gained in this study, it is recommended that; The study be replicated in other counties to validate further the results observed. Review the criteria used to examine the selected metrics and repeat the study. This study was carried out in a relatively high economically potential area. It would be a good idea to repeat the study in an economically low or medium area and compare the results from the three regions. There is a need to conduct a similar study with the aim of finding out why all the four metrics

were statistically significant in explaining their relationship with quality of education but when the four were combined, school-based factors were not significant.

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APPENDICES

Appendix I Letter of Introduction

Dear Respondent,

I am a student at Kenya Methodist University conducting a study in which your help is very imperative. My study involves *Assessment of Quality of Education in Secondary Schools in Kiambu County*. Attached please, find a questionnaire for you to fill. Please help out by providing the significant information. Your answers will be handled with utmost privacy and confidentiality. You are advised to provide the needed information out of your own freewill devoid of any undue influence. The responses will only be used for the above study for statistical analysis, planning and reporting of aggregated information.

Thank you in advance.

Nancy W. Kihang'a (0723969756)

Appendix II Questionnaire for Teachers

Dear Respondent,

Place a tick (√) in the bracket of the most appropriate response and where comments are required, use the spaces provided.

SECTION A: Demographic Data for Students

1. Name of school ……...

   Gender: Male [ ] Female [ ]

2. Indicate your current academic qualification

   BA/BSC [ ]

   BED [ ]

   Masters [ ]

   M. Ed. [ ]

   Any other [specify] …….

3. What is the type of your school?

   Day [ ]

   Boarding [ ]

   Day and boarding [ ]

4. What category is your school?

   Girls only [ ]

   Boys only [ ]

   Mixed [ ]

5. What is the status of your school?

Private	[ ]
Public	[ ]

6. How long have you been a teacher in this school?

a) Below one year	[ ]
b) 1 - 5 years	[ ]
c) 6 - 10 years	[ ]
d) 11 - 15 years	[ ]
e) Above 15 years	[ ]

7. Overall, for how many years have you been a secondary school teacher?

Less than 1Year [ ] 1-4 years [ ] 5-10 years [ ] More than 10 years [ ]

SECTION B: School-based factors and education quality

8. What is the average number of streams per class are there in your school?

One [ ] Two [ ] Three [ ] [ ] Four [ ] Five [ ] Six Seven [ ] More than Seven [ ]

9. What is the average number of students per stream in your school?

20-30 [ ] 31-40 [ ] 41-50 [ ] Above 50 [ ]

10. In a scale of 5-1, how do you rate the adequacy of the following school-based factors in facilitating the provision of quality education? Key: 5- Very adequate; 4 – Adequate; 3- Moderately adequate; 2- Inadequate; and 1- Very Inadequate)

Item	**Very adequate**	**Adequate**	**Moderately adequate**	**Inadequate**	**Very inadequate**
	5	**4**	**3**	**2**	**1**
Instructional materials					
School compound spaces					
Classrooms					
Furniture					
Library					
Toilets/latrines					
Dormitories					
Recreation facilities					
Average number of students per stream					
Teaching staff (teacher-student ratio)					
Support staff					

11. Provide your comments on what you feel should be done on school-based factors in order to improve quality of education in your secondary school.

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SECTION C: Teacher-factors and quality of education

12. How do you rate the levels of commitment of your teachers towards provision of quality education to the students?

Very committed [ ] Committed [ ] Non-committed [ ]

13. In a scale of 1 - 5, indicate the extent to which the following aspects affect teachers 'contribution to quality of education at your school. Key: 5 - To a very High extent; 4 – High extent; 3- Moderate extent; 2- Low extent; and 1- To a very low extent.

Aspects affecting teachers' contribution to quality of education	**To a very High extent**	**High extent**	**Moderate extent**	**Low extent**	**To a very low extent**
	5	**4**	**3**	**2**	**1**
Teacher's academic qualifications					
Teacher's proficiency in subject instruction					
Teaching experience					
Pedagogical skills of a teacher					
Teachers level of motivation					
Punctuality of teachers					
Integrity of teachers					
Teacher's absenteeism					
Teacher's lateness					
'Teacher's abusive behaviour towards students					
Teachers devoting less time to teaching					

14. Provide your comments on what you feel should be done on teacher-related factors in order to improve quality of education in your secondary school.

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SECTION D: Social-economics factors of parents and quality of education

15. What is the highest level of education of your father, mother or guardian? (Tick Appropriately)

Parent/guardian	**Level of education**				
	Primary	Secondary	Diploma	undergraduate	Postgraduate
Father					
Mother					
Guardian					

16. What is the marital status of your parent?

Married [ ] Single [ ] Separated [ ] Divorced [ ] Widowed [ ]

17. How many are you in your immediate family including your parents

Less < 3 [ ] 3-5 [ ] 6-8 [ ] 9-12 [ ] More than 12 [ ]

18. Who is the head of your household?

Father [ ] Mother [ ] Other (Specify).....

19. In the table provided below, tick appropriately to indicate the occupation of your parents or guardian.

	Occupation			
	Farmer	Salaried employment	Business person	Others
Father				
Mother				
Guardian				

20. How would you personally classify the economic status of your family?

Very poor	[ ]
Poor	[ ]
Moderately poor	[ ]
Rich	[ ]
Very rich	[ ]

21. In a scale of 1-5, how do you rank the extent to which the following home-based factors influence the quality of education in your school? Key: 5- To a very high extent; 4 – High extent; 3- Moderate extent; 2- Low extent; and 1- To a very low extent

Item	**To a very High extent**	**High extent**	**Moderate extent**	**Low extent**	**To a very low extent**
	5	**4**	**3**	**2**	**1**
Education level of the parents					
Marital status of the parents					
Size of the family					
Economic status of parents					
Nature of occupation of parents / guardian					

22. Provide your comments on what you feel should be done on social-economics factors of parents in order to improve quality of education in your secondary school.

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SECTION E: Leadership practices and quality of education

23. What can you estimate to be the level of teachers' involvement in decision making regarding the provision of quality education at your school?

    High [ ] Average [ ] Low [ ] No influence [ ]

24. How would you rate your relationship with the school management?

    Cordial [ ] Average [ ] Poor [ ]

25. What would you say is the leadership style of your head principal?

    Democratic [ ] Autocratic [ ] Laissez-faire [ ] Others (specify)_____

In a scale of 1-5, indicate the extent to which you agree with the following statements about leadership practices of principals in your school? Key: 5 - Strongly Agree; (SA); 4- Agree (A); 3- Neutral (U); 2 -Disagree (D); 1 - Strongly-Disagree (SD).

Statement on leadership practices of principals	**SA**	**A**	**N**	**D**	**SD**
	5	**4**	**3**	**2**	**1**
The school believes in honest and open communication					
There is quick communication of issues in the school					
We frequently hold students' barazas with the school administration to discuss issues affecting students					
The school administration involves teachers, parents and students when making decisions concerning quality of education					
The administration is bothered by students' issues					
The nature of rewards and recognition used in the school motivates both students and teachers					
The school administration has put mechanisms for supervising curriculum delivery					
The school administration has created an enabling working and learning environment					
The school administration has put up mechanisms for enforcing school rules and policies					
Observation of punctuality of teachers and students					
The school administration support teachers to attend seminars, conferences and workshops					

Decentralization of decisions making is evident in ours school					
The school administration support and encourage new ideas from teachers and students					
The school administration usually punishes any wrong doing from staff and students					
The school administration has outlined clear roles for teachers, supportive staff and students					
The school administration emphasizes and has adopted quality and standards in all operations in the school.					
The school administration has strict codes of ethics					
The school administration involves all stakeholders in decision making					
The school administration has embraced honesty and integrity					
The systems and structures in our school promote transparency and accountability					

26. Provide your comments on what you feel should be done on leadership practices in order to improve quality of education in your secondary school.

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Quality of Education in Secondary Schools

27. Using a scale of 1-5, indicate the extent to which you agree with the following aspects of determining quality of education in your school?

Key : 5- strongly agree; 4 – Agree ; 3 – Neutral; 2 – Disagree; 1- Strongly Disagree

Aspects of determining the quality of education in secondary schools	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
	5	**4**	**3**	**2**	**1**
Academic performance in the school					
Quality of learning facilities					

Nature of leadership practices in the school					
Quality of learners admitted in school					
Quality of equipment and furniture in school					
Quality of teachers in school					
Teachers characteristics					
Quality of extra-curriculum activities in school					
Quality of school programs and activities					
Involvement of stakeholders in the school					
Quality of library in the school					
Adequacy and quality of classrooms in the school					
Quality of auxiliary facilities and services					
Quality of dormitories in school					
Availability and quality of amenities such as hospital / health centers					
Quality of dining hall in school					
Quality of books in the school library					
Quality of instructional delivery					
Quality of incentives and motivation for teachers and students in the school					
Integrity and observance of ethics in the school					
Students' home-based factors					
Quality of facility inspection done by education quality assurance authority in the school					

28. Provide your comments on what you feel should be done to improve quality of education in your school.

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THANK YOU FOR YOUR PARTICIPATION AND CO-OPERATION

Appendix III Questionnaire for Students

Dear Respondent,

Place a tick (√) in the bracket of the most appropriate response and where comments are required, use the spaces provided.

SECTION A: Demographic Data for Students

Name of school _____

1. Gender: Male [ ] Female [ ]

2. Which class are you in? Form three [ ] Form four [ ]

3. What is the category of your school?

   Day [ ]

   Boarding [ ]

   Day and boarding [ ]

4. What is the type of your school?

Girls only [ ]

Boys only [ ]

Mixed [ ]

5. What is the status of your school:

Private [ ]

Public [ ]

SECTION B: School-based factors and education quality

6. In a scale of 5-1, how do you rate the adequacy of the following school-based factors in facilitating the provision of quality education? Key: 5- Very adequate; 4 – Adequate; 3- Moderately adequate; 2- Inadequate; and 1- Very Inadequate)

Item	**Very adequate**	**Adequate**	**Moderately adequate**	**Inadequate**	**Very inadequate**
	5	**4**	**3**	**2**	**1**
Instructional materials					
School compound spaces					
Classrooms					
Furniture					
Library					
Toilets/latrines					
Dormitories					
Recreation facilities					
Average number of students per stream					
Teaching staff (teacher-student ratio)					
Support staff					

7. Provide your comments on what you feel should be done on school-based factors in order to improve quality of education in your secondary school.

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SECTION C: Teacher-factors and quality of education

8. How do you rate the levels of commitment of your teachers towards provision of quality education to the students?

Very committed [ ] Committed [ ] Non-committed [ ]

9. In a scale of 1 - 5, indicate the extent to which the following aspects affect teachers 'contribution to quality of education at your school. Key: 5 - To a very High extent; 4 – High extent; 3- Moderate extent; 2- Low extent; and 1- To a very low extent.

Aspects affecting teachers' contribution to quality of education	**To a very High extent**	**High extent**	**Moderate extent**	**Low extent**	**To a very low extent**
	5	**4**	**3**	**2**	**1**
Teacher's academic qualifications					
Teacher's proficiency in subject instruction					
Teaching experience					
Pedagogical skills of a teacher					
Teachers level of motivation					
Punctuality of teachers					
Integrity of teachers					
Teacher's absenteeism					

Teacher's lateness					
'Teacher's abusive behaviour towards students					
Teachers devoting less time to teaching					

10. Provide your comments on what you feel should be done on teacher-related factors in order to improve quality of education in your secondary school.

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SECTION D: Social-economics factors of parents and quality of education

11. What is the highest level of education of your father, mother or guardian? (Tick Appropriately)

Parent/guardian	**Level of education**				
	Primary	**Secondary**	**Diploma**	**undergraduate**	**Postgraduate**
Father					
Mother					
Guardian					

12. What is the marital status of your parent?

Married [ ] Single [ ] Separated [ ] Divorced [ ] Widowed [ ]

13. How many are you in your immediate family including your parents

Less < 3 [ ] 3-5 [ ] 6-8 [ ] 9-12 [ ] More than 12 [ ]

14. Who is the head of your household?

Father [ ] Mother [ ] Other (Specify).....

15. In the table provided below, tick appropriately to indicate the occupation of your parents or guardian.

	Occupation			
	Farmer	**Salaried employment**	**Business person**	**Others**
Father				
Mother				
Guardian				

16. How would you personally classify the economic status of your family?

Very poor [ ]

Poor [ ]

Moderately poor [ ]

Rich [ ]

Very rich [ ]

17. In a scale of 1-5, how do you rank the extent to which the following home-based factors influence the quality of education in your school? Key: 5- To a very high extent; 4 – High extent; 3- Moderate extent; 2- Low extent; and 1- To a very low extent

Item	**To a very High extent**	**High extent**	**Moderate extent**	**Low extent**	**To a very low extent**
	5	**4**	**3**	**2**	**1**
Education level of the parents					
Marital status of the parents					
Size of the family					
Economic status of parents					
Nature of occupation of parents / guardian					

18. Provide your comments on what you feel should be done on social-economics factors of parents in order to improve quality of education in your secondary school.

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SECTION E: Leadership style and quality of education

19. What can you estimate to be the level of students' involvement in decision making regarding the provision of quality education at your school?

High [ ] Average [ ] Low [ ] No influence [ ]

20. In a scale of 1-5, indicate the extent to which you agree with the following statements about leadership practices of principals in your school? Key: 5 - Strongly Agree; (SA); 4- Agree (A); 3- Neutral (U); 2 -Disagree (D); 1 - Strongly-Disagree (SD).

Statement on leadership practices of principals	**SA**	**A**	**N**	**D**	**SD**
	5	**4**	**3**	**2**	**1**
The school believes in honest and open communication					
There is quick communication of issues in the school					
We frequently hold students' barazas with the school administration to discuss issues affecting students					
The school administration involves teachers, parents and students when making decisions concerning quality of education					
The administration is bothered by students' issues					
The nature of rewards and recognition used in the school motivates both students and teachers					
The school administration has put mechanisms for supervising curriculum delivery					
The school administration has created an enabling working and learning environment					
The school administration has put up mechanisms for enforcing school rules and policies					
Observation of punctuality of teachers and students					
The school administration support teachers to attend seminars, conferences and workshops					
Decentralization of decisions making is evident in ours school					
The school administration support and encourage new ideas from teachers and students					
The school administration usually punishes any wrong doing from staff and students					
The school administration has outlined clear roles for teachers, supportive staff and students					
The school administration emphasizes and has adopted quality and standards in all operations in the school.					
The school administration has strict codes of ethics					
The school administration involves all stakeholders in decision making					
The school administration has embraced honesty and integrity					
The systems and structures in our school promote transparency and accountability					

21. Provide your comments on what you feel should be done on leadership practices in order to improve quality of education in your secondary school.

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Quality of Education in Secondary Schools

22. Using a scale of 1-5, indicate the extent to which you agree with the following aspects of determining quality of education in your school?

Key : 5- strongly agree; 4 – Agree ; 3 – Neutral; 2 – Disagree; 1- Strongly Disagree

Aspects of determining the quality of education in secondary schools	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
	5	**4**	**3**	**2**	**1**
Academic performance in the school					
Quality of learning facilities					
Nature of leadership practices in the school					
Quality of learners admitted in school					
Quality of equipment and furniture in school					
Quality of teachers in school					
Teachers characteristics					
Quality of extra-curriculum activities in school					
Quality of school programs and activities					

Involvement of stakeholders in the school					
Quality of library in the school					
Adequacy and quality of classrooms in the school					
Quality of auxiliary facilities and services					
Quality of dormitories in school					
Availability and quality of amenities such as hospital / health centers					
Quality of dining hall in school					
Quality of books in the school library					
Quality of instructional delivery					
Quality of incentives and motivation for teachers and students in the school					
Integrity and observance of ethics in the school					
Students' home-based factors					
Quality of facility inspection done by education quality assurance authority in the school					

23. Provide your comments on what you feel should be done to improve quality of education in your school.

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THANK YOU FOR YOUR PARTICIPATION AND CO-OPERATION

Appendix IV Focused Group Discussion for Principals

Every Principal of a secondary school who participated in the Focused Group Discussion was first asked to respond to few structured questions after they were invited to the group discussion. The questions were as follows.

Instructions

Place a tick (√) in the bracket of the most appropriate response and where comments are required, use the spaces provided.

SECTION A: Background Information

1. What is your Gender: Male [ ] Female [ ]
2. What is your current academic qualification

   Diploma [ ]

   Bachelor / B.ED [ ]

   Masters /M. Ed. [ ]

   Any other [specify] _____
3. Overall, for how many years have you been a secondary school head principal/deputy principal?

   Below one year [ ]

   1 - 5 years [ ]

   6 - 10 years [ ]

   11 - 15 years [ ]

   Above 15 years [ ]
4. What is the average number of students per stream?

   Less than 20 [ ] 20-30 [ ] 31-40 [ ] 41-50 [ ] Above 50 [ ]

5. What is the total number of teachers in the school?

   Male _____ Female_____

6. What is the total number of students in the entire school? _____

7. What is the average pupil/book ratio in the school? _____

8. What was your school KCSE mean score for 2017?

   A-TO A ----------

   B- TO B+ ----------

   C- TO C+ ----------

   D- TO D+ ----------

   E ----------

9. How long ago was your school rated for quality assurance?

   Less than 6 months ago [ ]

   7-12 months ago [ ]

   More than 12 months ago [ ]

10. How was your school rated as indicated in the quality audit/ inspection report of previous year?

Excellent	[ ]
Good	[ ]
Average	[ ]
Low	[ ]
Below average	[ ]
Have not received a rating report	[ ]

11. How often do you submit a report on the status of the school to the county education office?

    Once per month [ ]

Once every six months [ ]

Once every 12 months [ ]

Once every 2 years [ ]

Questions for Focused Group Discussion Session

SECTION B: School-based factors and quality of education

12. Describe how the school-related factors affect the provision of quality education in secondary school?

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SECTION C: Teacher-factors and quality of education

13. Describe how teacher-related factors affect the provision of quality education in secondary schools in Kiambu County.

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SECTION D: Social-economic factors and quality of education

14. Describe the ways in which the following social economic factors of parents affect the provision of quality education in secondary schools in Kiambu County?

a) Education level of the parents

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b) Marital status of the parents

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c) Size of the family

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d) Economic status of family

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e) Nature of occupation of parents

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SECTION E: Leadership practices and education quality

15. Describe the leadership practices that makes a principal to be effective in providing quality education in secondary schools in Kiambu County?

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SECTION E: Quality of Education in Secondary Schools

16. State here the challenges that hinder the effective provision of quality education in secondary schools in Kiambu County?

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17. Provide your comments on what you feel should be done to improve quality of education in secondary schools in Kiambu County.

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……

Appendix V Interview Schedule for SCQASOs

a) Date of interview_____

b) Time Start_____ Stop_____ Duration_____

Background Information

1. What is your current academic qualification and how does your qualification affect your responsibility as a County Education Official?

2. How long have you been at the current position in this county? What has the experience in this position taught you about the provision of quality education in the county?

School-based factors and quality of education

3. Describe how the school-related factors affect the provision of quality education in secondary school?

4. Describe how teacher-related factors affect the provision of quality education in secondary schools in Kiambu County.

5. Describe the ways in which the social economic factors of parents affect the provision of quality education in secondary schools in Kiambu County?

Leadership practices and education quality

6. Describe the leadership practices that makes a principal to be effective in providing quality education in secondary schools in Kiambu County?

Quality of Education in Secondary Schools

7. State here the challenges that hinder the effective provision of quality education in secondary schools in Kiambu County?

8. Is there in the county of Kiambu a deliberate public campaign on awareness of quality education development?

9. How and when does sensitizations on quality of education done among the stakeholder in Kiambu County?

10. How would you describe the impact of sensitization?

11. Describe how the Ministry of Education is promoting good practices in quality education.

12. In what ways does the quality of education impacts of the country?

13. How does the inspectorate of quality assurance in the ministry of education carry out surveillance and monitoring for quality education in secondary schools?

    a) Does it happen at school level or sub-county level?
    b) What are the methods and frequency used in monitoring and controlling quality education in secondary schools?
    c) How are stakeholders involved in the process? Do you think engaging an inter-agency approach would be appropriate in monitoring quality of education in secondary schools?
    d) Comments on the capacity of the human resources in the directorate, that is, the adequacy of the officers involved, their skills, knowledge could work or
    e) Comment about the adequacy of resources for supporting inspectorate quality assurance activities

14. Provide comment regarding the capacity building programs of staff in the directorate, principals and other key stakeholders in the provision of of quality education in secondary schools in Kiambu County.

15. Provide your comments on what you feel should be done to improve quality of education in secondary schools in Kiambu County.

Appendix VI: Letter of Introduction from KeMU

KENYA METHODIST UNIVERSITY

P. O. Box 267 Meru - 60200, Kenya
Tel: 254-064-30301/31229/30367/31171
Fax: 254-64-30162
Email: info@kemu.ac.ke

Our ref: NAC/PHD/6/2018/4

9TH AUGUST 2018

Commission Secretary,
National Commission for Science, Technology and Innovations,
P.O. Box 30623-00100,
NAIROBI.

Dear Sir/ Madam,

RE: NANCY WANGECHI KAIRUKI KIHANG'A (EDU-4-2614-1/2014)

This is to confirm that the above named is a bona fide student of Kenya Methodist University, undertaking Ph.D. in Education Leadership and Management. She is conducting a research titled **"Assessment of Quality of Education in Secondary Schools in Klambu County based on Selected Metrics."**

We confirm that her thesis proposal has been defended and approved by the university.

In this regard, we are requesting your office to issue a permit to enable her collect data for her Ph.D. dissertation.

Any assistance accorded to her will be appreciated.

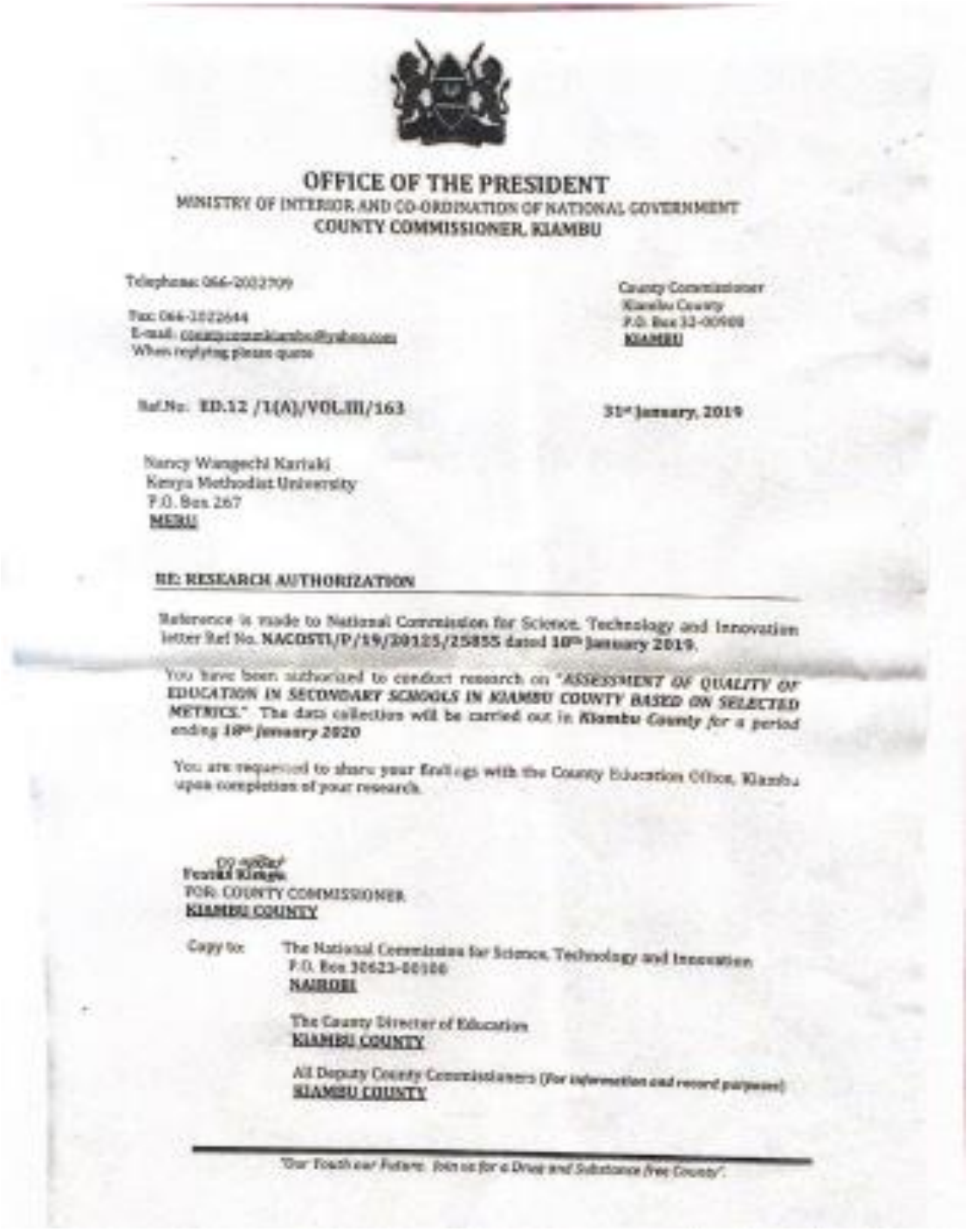
Yours faithfully,

09 AUG 2018

DR. JOHN MUCHIRI, PhD.
DIRECTOR POSTGRADUATE STUDIES

End.

Appendix VII: Research Authorization Letter from County Commissioner, Kiambu



OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT
COUNTY COMMISSIONER, KIAMBU

Telephone: 066-2022709
Fax: 066-2022644
E-mail: ckiambu@yahoo.com
When replying please quote

County Commissioner
Kiambu County
P.O. Box 32-00900
KIAMBU

Ref.No: ED.12 /1(A)/VOL.III/163

31st January, 2019

Nancy Wangechi Kariuki
Kenya Methodist University
P.O. Box 267
MERU

RE: RESEARCH AUTHORIZATION

Reference is made to National Commission for Science, Technology and Innovation letter Ref No. **NACOSTI/P/19/20125/25855** dated **10th January 2019.**

You have been authorized to conduct research on "*ASSESSMENT OF QUALITY OF EDUCATION IN SECONDARY SCHOOLS IN KIAMBU COUNTY BASED ON SELECTED METRICS.*" The data collection will be carried out in ***Kiambu County*** *for a period ending* ***10th January 2020***

You are requested to share your findings with the County Education Office, Kiambu upon completion of your research.

Fredrick Kiragu
FOR: COUNTY COMMISSIONER
KIAMBU COUNTY

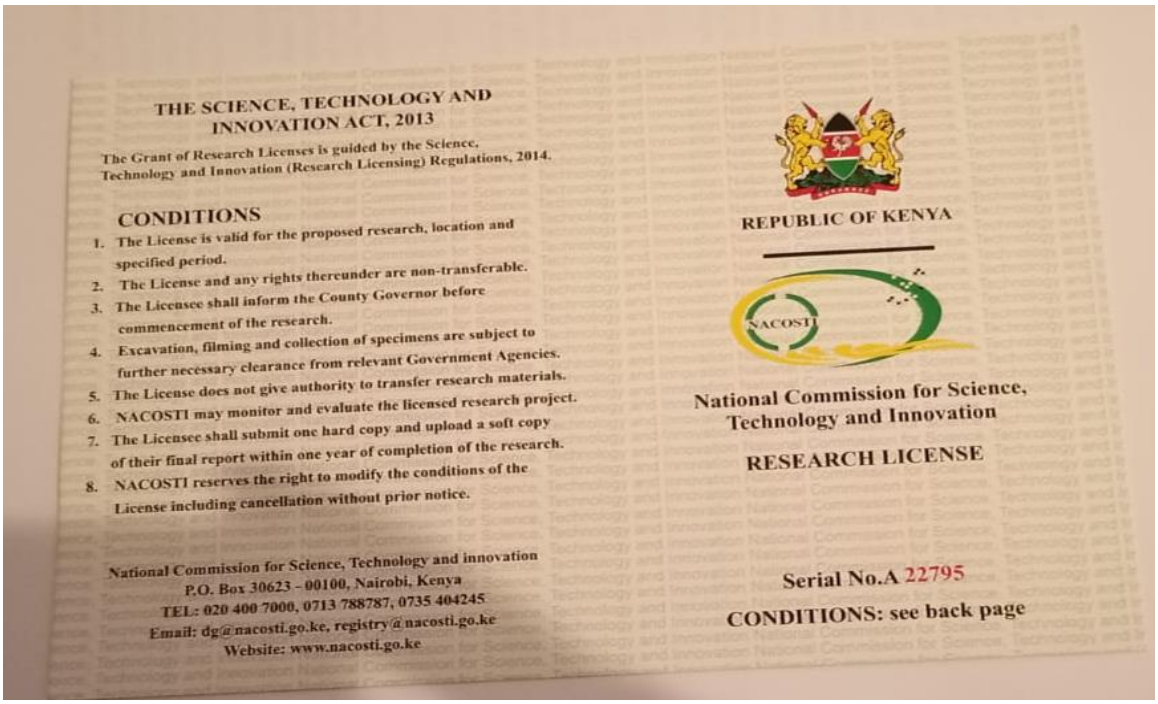
Copy to: The National Commission for Science, Technology and Innovation
P.O. Box 30623-00100
NAIROBI

The County Director of Education
KIAMBU COUNTY

All Deputy County Commissioners (*For information and record purposes*)
KIAMBU COUNTY

"Our Youth our Future: Join us for a Drug and Substance free County".

Appendix VIII: Research Authorization from NACOSTI



THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and innovation
P.O. Box 30623 – 00100, Nairobi, Kenya
TEL: 020 400 7000, 0713 788787, 0735 404245
Email: dg@nacosti.go.ke, registry@nacosti.go.ke
Website: www.nacosti.go.ke

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH LICENSE

Serial No.A 22795

CONDITIONS: see back page

Permit No : NACOSTI/P/19/20125/25855
Date Of Issue : 18th January,2019
Fee Recieved :Ksh 2000

THIS IS TO CERTIFY THAT:
MS. NANCY WANGECHI KARIUKI
of KENYA METHODIST UNIVERSITY,
2060-902 KIKUYU,has been permitted to
conduct research in Kiambu County

on the topic: ASSESSMENT OF QUALITY OF EDUCATION IN SECONDARY SCHOOLS IN KIAMBU COUNTY BASED ON SELECTED METRICS

for the period ending:
18th January,2020

Applicant's Signature

Director General
National Commission for Science, Technology & Innovation