RELATIONSHIP BETWEEN SUBSIDIZED SCHOOL FUNDING AND STUDENT PARTICIPATION AMONG PUBLIC SECONDARY SCHOOLS IN KENYA

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Award of the Degree of Doctor of Philosophy in Educational Management and Policy Studies of Masinde Muliro University of Science and Technology

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DECLARATION

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

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CERTIFICATION

The undersigned approve that they have read and hereby recommend acceptance of Masinde Muliro University of Science and Technology a Thesis entitled: "**Relationship Between Subsidized School Funding and Student Participation among Public Secondary Schools in Kenya"**.

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DEDICATION

This work is dedicated to my Dad and Mum; Nehemiah and Agnes Mbayah whose love for education encouraged me to pursue these studies.

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MBAYAH, J.T

ABSTRACT

Education being the key to socio-economic development of any nation has prompted the government of Kenya to subsidize secondary school education, as a way of ensuring maximum students' participation. However, there is growing concern that this initiative may not be yielding the expected outcome, as is evident from the current relatively low transition and completion rates. Unexpectedly so, the country continues to record surging numbers of school drop outs since the subsidization programme was first rolled out. The study sought to establish the relationship between subsidized school funding and students' participation in public secondary schools. Specifically, the study investigated the trends in enrolment rates and subsidized school funding by school category, evaluated the relationship between subsidized school funding and textbook to student ratio, analyzed the association between subsidized school funding and transition rates from public primary to secondary school and assessed the relationship between subsidized school funding and completion rates in public secondary schools in Vihiga County. The study was based on the Von Thunen's Production Function Theory, which postulates a linear relationship between educational inputs and outputs. The study was implemented using the descriptive survey research design and targeted the 5 Sub-County Directors of Education, 5175 form three students, 115 principals and 1023 teachers, all drawn from the 115 public secondary schools in the research area. A sample of 518 form three students, 102 teachers, 12 principals and 5 Sub-County Directors of Education was selected by saturated sampling for the directors, simple random sampling for the Principals, then purposive sampling for the students and teachers. Data were collected using questionnaires, interview schedules and document analysis guides. Piloting was conducted three weeks to the actual study in 5 secondary schools in the research area, to assess the suitability of these instruments for collecting the required data. Validity of the research instruments was assessed using data from the pilot study, via the Rasch model, while their reliability was assessed at the same stage using the test-retest method. Both measures were found to meet the minimum threshold as stipulated by various educational research experts with respect to the research instruments that were developed by the researcher. Data were analyzed by use of descriptive and inferential statistics thus; frequency counts, means and percentages. Pearson's Product Moment Correlation Coefficient was used to test the null hypotheses at the 0.05 alpha level of statistical significance. Findings revealed that there was a steady rise in the average number of students enrolled in form one in boarding schools as compared to those who enrolled in day schools. Moreover, the study established that a significant positive relationship exists between subsidized school funding and completion rates. However, a there was no significant association between subsidized school funding and both student to text book ratio and primary to school transition rates. It was concluded an increase in the funds allocated towards subsidizing secondary school education would significantly improve students' participation. It is therefore recommended that the government of Kenya should allocate more funds towards subsidization of secondary education, so as to increase students' participation in all Kenyan public secondary schools.

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ACRONYMS AND ABBREVIATIONS

ASAL	-	Arid and Semi Arid Lands
BOM	-	Board of Management
CREATE	-	Consortium for Research on Educational Access, Transition and Equity
EFA	-	Education for All
EPF	-	Education Production Function
FPE	-	Free Primary Education
FSE	-	Free Secondary Education
GOK	-	Government of Kenya
KCPE	-	Kenya Certificate of Primary Education
KCSE	-	Kenya Certificate of Secondary Education
KESSP	-	Kenya Education Sector Support Programme
KNBS	-	Kenya National Bureau of Statistics
KNEC	-	Kenya National Examinations Council
MDGs	-	Millennium Development Goals
MOE	-	Ministry of Education
MOEST	-	Ministry of Education Science and Technology
MOET	-	Ministry of Education and Training
MOOC	-	Massive Open Online Courses
NACOSTI	-	National Commission for Science, Technology and Innovation
OECD	-	Organization for Economic Co-operation and Development
ROK	-	Republic of Kenya
SCDE	-	Sub- County Director of Education
WEU	-	World Education University
USSR	-	Union of Soviet Socialist Republic

SDGs	-	Sustainable Development Goals
SFDSE	-	Subsidized Free Day Secondary Education
SPSS	-	Statistical Package for Social Sciences
SSE	-	Secondary School Education
TQM	-	Total Quality Management
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
UPE	-	Universal Primary Education
USA	-	United States of America
USE	-	Uganda Secondary Education

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter highlights on the study's; background, statement of the problem, purpose, assumptions, scope, limitations, justification, theoretical framework, conceptual framework and operational definition of key terms used.

1.2 Background to the study

Education is viewed as a basic human right in the present day world because it provides the foundation on which peace and other forms of sustainable development can be laid (UNESCO, 2017). Globally, education is a basic human development indicator that is crucial in determining the quality of life as it improves the quality of life by imparting knowledge, skills and attitudes which enable individuals to be self reliant. It is no wonder therefore that good education is one issue that all politicians and citizens in Kenya tend to agree on, regardless of their tribal, religious and even cultural differences (Uwezo, 2015).

In addition to the general arguments, specific reasons for the continuous focus on good education can be cited. The latest statistics suggest that approximately 30% of the national budget is spent on education services (Lakin & Kinuthia, 2015). This translates to around 200 US dollars per citizen aged between 5 and 19 years old. These statistics broadly reflect and reiterate the preferences of society as a whole and that the achievement of public policy targets in education should always be a matter of major concern by the government of the day (Wangila, 2018).

According to World Bank, (2005), demand for Secondary education is soaring worldwide due to the fact that; many countries achieve universal primary schooling and the demand for education is moving to higher levels of education. On the other hand, Earthman, (2002) argues that poor performance of students is largely attributed to inadequate student to textbook ratio while Fafunwa, (2010) indicates that there is a big gap in quality resulting from; large number of students in crowded classrooms, using obsolete equipment and disillusioned teachers. However, it is common to find that test score variations within schools is much larger than across schools making learning among individual students so varied and hard to establish (Kim, 2006).

Since its inception in the mid 19th century, formal education in Kenya has taken root and developed systematically over the years during both the colonial and independence eras. Improved access to education has been very significant and quality has also been emphasized on providing formal education in line with the declaration of Human Rights and Jomtien resolutions. Formal education system has been confronted with many constraints which include high dropout rates, rampant illiteracy and financial constraints which make education not accessible to all (MOEST, 2000).

Secondary education has the greatest ability to enhance an individual's potential to participate effectively in nation building improved health care and also lower fertility (Bou, Njoki & Chuiri, 2005).

Still on the benefits of education to the society, Atieno, et al., (2015), state "Education lays the foundation upon which socio-economic and political development of a nation is founded. Elsewhere, Achoka, Odebero, Maiyo & Mualuko, (2007) as well as Chabari, (2010) separately observed that social inequalities tended to decline whenever the level of educational participation increased. On the benefits of education to an individual, most scholars are in agreement that secondary education in particular tended to produce the greatest payoff in casing upward social mobility.

The aforementioned benefits of education seem to have informed decisions by various governments worldwide to increase public expenditure on the education sector with a view to promote access to secondary education. In countries that have enacted progressive laws; Kenya included access to quality education has been enshrined in the constitution as a basic human right. In this regard, some countries have even gone further to make basic education free and compulsory (OECD, 2010).

In several countries, quality secondary education is indispensable for individual and national development. In England for instance, education up to secondary school level is fully financed by the government (Moon & Mayes, 1994). Parents are only required to ensure that children attend school. The education authority and central government are required by section 7 of the 1994 Act to make education facilities available. Parents are seen as the school's prime legal clients until the child is 16 years of age. Section 36 of the children's' act stipulates that it is the duty of the parent of every child of compulsory

school going age to ensure their children access full time education suitable to their age, ability and aptitude, either by regular attendance or otherwise (Earthman, 2002).

In the USA, considered probably as the most developed country of the times; the academic achievement has also been noted to be a big challenge despite basic education being fully funded by the government. The Coleman Report on Equal Educational opportunities (Coleman, 1966) posited that although the USA had made significant efforts to provide wide access to quality basic education, disparities still existed in academic achievement. Following the findings and recommendations of the Coleman report, efforts by the USA government were focused towards improving the quality of learning outcomes among all children regardless of their socio-economic backgrounds, type of school attended or community in which they belong through funding in basic education.

In many other developed countries of the world, governments have also generously invested in education so as to improve teaching and learning resources, infrastructure and to provide qualified and experienced teaching staff in an attempt to improve students' academic achievement. For instance in Canada, it has been reported that heavy public expenditure in education has resulted to improved students achievement at international test compared to students from other countries. UNESCO, (2014) reported that the reforms agenda in public education in Canada have centered on government commitment to financing education.

In Africa, it has also been reported that many countries have made significant efforts to increase access to basic education in line with the world declaration of education for All (Jomtien, 1996) and the world education forum of the year 2000. There is evidence indicating that government has increased public expenditure in education. In Nigeria, Oruonye, (2015) acknowledged that secondary education plays a fundamental role in preparing young people for labour market, especially for those leaving secondary education to seek employment.

In South Africa, Freepong, Red & Kanjie, (2013) noted that the general education policy was to increase educational resources with the view to provide opportunities for learning and significantly improve learning that the heavy expenditure on education may not have translated to better academic achievement.

In Lesotho, the payment of schools fees is different at different levels of education for instance, creches, are primarily private owned and parents have to pay fees of varying amounts. At primary level; from standard 1 to standard 7 fees, varies from school to school. Some parents cannot afford the school fees at those schools and there are organizations and government departments which identify needy students and pay for their school fees. Examples of such bodies are the National Manpower Development Secretariat, Social Welfare and the Ministry of Education and Training (MOET) (Motsamai, 2009).

According to Chapman *et al,* (2009), with the success of UPE policy in Uganda the government introduced free Universal Secondary Education (USE) policy in the year 2007. Uganda was the first Sub-Saharan African country to adopt this kind of policy. According to the Ministry of Education in Uganda, parents may send their children to other secondary schools that do not take part in USE policy if they can afford to pay the fees. Although students are free of paying tuition fee in USE schools, they still have to pay boarding fees, scholastic materials and medical care among others (Chapman *et al,* 2009).

According to the Ministry of Education in Uganda, there are more than a half a million secondary school children who are studying under the USE policy in some 1471 schools. This is a vast improvement in terms of access to secondary education. However, the quality of education provided to Uganda students is still questionable even as the government tries to offer new subsidies to cover the education related costs (Chapman *et al,* 2009).

According to Benavot, (2004), secondary education provides a bridge between primary, the labour market and tertiary education. As a bridge, decision makers face a basic choice of whether secondary education is to be the weakest link of the education system or its cornerstone. Quality of education tends to be evaluated in terms of the number of students passing and the expectation of parents is that their children perform well in national examination (MOEST, 2014). In addition, Kivuva, (2005) summarized the role of education as establishment of human resource base for the generation of wealth and improvement of quality of life.

The Government of Kenya introduced subsidized secondary school funding in 2008 with the aim of increasing enrolment and completion of secondary schools and raise the transition from primary to secondary schools to 70% (MOEST, 2008). The launch of the funding was meant to address illiteracy, improve quality of education, low transition rate from primary to secondary schools and low completion rates at the secondary level. This launch was guided by the sector policy guidelines articulated in sessional paper number. one of the year 2005, the Kenya education sector support programme (KESSP) and vision 2030 (Republic of Kenya, 2007). The Government of Kenya was informed by the conviction that secondary education plays a critical role in providing the link between academic and practical knowledge, skill development and the job market (Ministry of Education, 2007). Those of school going age have no option other than attend school to acquire education that is fully funded by the government (Nyaga, 2005).

According to Ndiku & Muhavi, (2013), the implementation of free secondary education saw many parents withdraw from paying additional levies to supplement the FSE due to misconception. This compromised internal efficiency in quality of education and encouraged drop-outs. High levels of corruption in government departments as well as some school administration have been accused of misappropriation of funds meant for free education. In the year 2011, the British government, which is one of the major donors in the Kenya Education Sector Support Programme (KESSP) hired independent consultants who worked with the Ministry of Education to audit the programme.

The audit was completed in December, 2011 but the findings were revealed much later by the then finance minister. The findings revealed that Ksh. 4.6 billion could not be accounted for, prompting the British Government to cut down its aid to education by 300 million in the following financial year and opting to channel their aid through Non-Governmental Organizations until the MOE adopted prudent financial management systems (Muindi & Wafula, 2011). Lack of confidence by donor agencies in the financial management of government departments has had great budgetary implications leading to delays and shortfalls in disbursement of funds for education programmes.

Financing of education in Kenya is a partnership of the government of Kenya and donor agencies. According to MoEST, (2015), education financing is highly decentralized and 87% of the total education budget is sent directly to schools. Sometimes due to bureaucracies in the processing of the funds, delays are experienced causing panic and outcry among the school stakeholders (Wafula, 2012). The magnitude of this delay has been at its climax in second term of each year, with the Permanent Secretary in the Ministry of Education writing to the treasury seeking urgent allocation of fund to save the twin learning programmes (Siringi, 2012). While confirming release of the delayed funds, the minister for education stated that the funds could not be disbursed to schools immediately due to the constitutional requirement under article 221, which requires that budget making process undergoes wider consultation (Anami, 2012). Compounded by delays are cases of students who are unable to pay for education due to poverty. According to Odebero *et al.* (2007), lateness, absenteeism, unfinished assignments, lack

of proper school uniform and untidiness among students were caused by a deprived background and therefore the need for support to finance education.

The poverty level in Vihiga County is not any different from other counties and students in both day and boarding schools benefit from the government subsidy. An interesting scenario however is that there are more students in boarding schools than day school. According to Vihiga County Director of Education, (2014), the boarding schools have an average of 65 students per stream while day schools have an average of 30 students per stream. The standard enrolment per stream is 45 students. The Government subsidy is Ksh. 10,265 per student. Each student in day school is expected to pay an additional Ksh. 3,000 while boarding school student is expected to pay an additional Ksh. 40,000 as at 2015. This clearly shows that Kenyan parents keep on sending their children to boarding secondary schools despite the high school fees charged.

1.3 Statement of the Problem

It is at the end of secondary education that students sit for examinations that decide what kind of courses they qualify to undertake at tertiary level. This makes secondary education a very crucial stage in every learner's academic development cycle, as it is critical in preparing learners for further training and entry into the job market as earlier mentioned. It is against this backdrop that the government of Kenya, through the Ministry of Education, introduced subsidized education at secondary school level in the year 2008, with the hope of attaining maximum student participation on the educational front, for the benefit of all its citizens. This noble objective is however yet to be fully realized in

Vihiga county, because the statistics held by the county director of education's office show dwindling enrolments, especially in day schools as compared to boarding schools, despite the fact that student who enroll in the latter receive less government subsidy.

The preference of boarding schools over day schools by most parents has consequently put extensive pressure on the available resources in the few boarding schools within the county, compared to the day secondary schools, whose resources remain under utilized. This has in turn led to relatively low completion rates and dismal academic performance by the said schools in the annual Kenya Certificate of Secondary Education (KCSE) examinations, to the disappointment of all investors and stakeholders in the education sector. This worrying scenario puts to direct question, whether the government of Kenya is getting good returns from their heavy investment in the education sector, through subsidization of education at secondary school level.

It is against this background that the study investigated the subsidized secondary school education programme and how it influences students' participation in education among public secondary schools in Kenya, with the aim of obtaining facts and figures on whether the introduction of subsidized secondary education initiative by the Ministry of Education indeed enhances student participation in both day and boarding schools, as was hoped for by the government of Kenya when it introduced the subsidization programme in the first place.

1.4 Purpose of the Study

The purpose of this study was to determine the relationship between subsidized school funding and student participation among public secondary schools in Kenya.

1.4.1 Objectives of the Study

The study was guided by four objectives. These were to;

i. Investigate trends in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga County, Kenya, from 2009 to 2015.
ii. Determine the relationship between subsidized school funding and student to textbook ratio in public secondary schools in Vihiga County, Kenya.
iii. Establish the association between subsidized school funding and transition rates from public primary to secondary schools in Vihiga County, Kenya, from 2008 to 2015.
iv. Establish the relationship between subsidized school funding and completion rates in public secondary schools in Vihiga County, Kenya.

1.4.2 Research Question

The first objective was addressed using the following research question:

> *"What is the trend in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga County, Kenya, from 2009 to 2015?"*

1.4.3 Research Hypotheses

The second, third and fourth objectives were addressed by testing the following three null hypotheses at 95% confidence level;

H_{O2}: There is no statistically significant relationship between subsidized school funding and student textbook ratio in public secondary schools in Vihiga County, Kenya

H_{O3}: There is no statistically significant association between subsidized school funding and transition rates from public primary to secondary schools in Vihiga County, Kenya, from 2008 to 2015

H_{O4}: There is no statistically significant relationship between subsidized school funding and completion rates in public secondary schools in Vihiga County, Kenya

1.5 Significance of the Study

This study provides valuable insights on subsidized secondary education to researchers in the education sector, who could use the research findings to analyze the contribution of subsidized secondary school funding in enhancing educational participation in secondary schools in Kenya. This knowledge may also be used in evaluating the success of the subsidized secondary school funding programme and provide important facts and figures to policy makers and implementers, who could use the information to come up with strategies that could be used to ensure 100% student participation in secondary education. The findings of the study will also provide stakeholders in the Kenyan education sector with data on how secondary schools are implementing subsidized secondary school funding programme and in turn, the Government through the Ministry of Education

should be in a position to analyze these strategies and establish their effectiveness, strengths and weaknesses for future improvement of the programme. Additionally, findings of this study may contribute to the development of new knowledge on levels of completion rates, transition rates and viability of the current funding for learning resources which the teachers, principals and other education stakeholders can use to deal with the emerging challenges in the course of the implementation of free secondary education programme across the country.

1.6 Justification of the Study

In spite of the vital role played by subsidized secondary education funding, the challenges affecting its implementation have a bearing on enrollment rates, availability of textbooks, completion rates and academic performance in the schools, which applies to both day and boarding secondary schools. There have been deliberate efforts to strengthen education sector as a major contributor to the achievement of the Kenya Vision 2030. Sessional paper number 1 of 2005 greatly informed the education policy change, through the enactment of Basic Education Act of 2013.

Despite these efforts however, passion still dominates public debates as to whether subsidized secondary school funding programme is addressing the key challenges that emanate from provision of education to majority of Kenya's school going age bracket and more importantly, those graduating from primary to join secondary schools. Available literature points to a confusing scenario as to whether the impact of subsidized secondary school funding is being felt by the poor and needy fraction of Kenya's population. It is against this background that the current study was instigated, to provide

insight, identify and document the relationship between subsidized school funding on levels of student participation in public secondary schools in Vihiga County, Kenya.

1.7 Scope and Limitations of the Study

The study had the following scope and limitations.

1.7.1 Scope of the Study

Geographically, the study was carried out in Vihiga county Kenya. This was because the county is one of the regions in the country in which completion and transition rates are lowest, which therefore compromises the attainment of the national goals of education. Vihiga is one of the 47 counties in the Republic of Kenya. The study examined subsidized school funding programme for a trend between the 2008 and 2015, the study period. This was because it is within this time frame that the government of Kenya initiated the subsidization of secondary school education in all public secondary schools in the country.

Conceptually, this study investigated the relationship between subsidized school funding programme and students' participation in public day and boarding secondary schools in Kenya. The reason for selection of public schools is that they receive funding directly from the exchequer. This implies that all private secondary schools were not included in any part of this study. Specifically, the study examined enrollment trends, student to textbook ratios, transition rates and school completion rates as the main research variables. The study also focused on schools because the implementation of subsidized school funding programme is school and learner based.

1.7.2 Limitations of the Study

There are a number of factors which worked against the implementation of this study in a smooth manner. These included; (i) Since the study investigated the government policy on access to education, some respondents may have been unwilling to give information and others may have been suspicious of the outcome of the study and therefore remained guarded in giving sensitive information.

However, the researcher assured respondents that the information sought for was purely for academic purposes and that their sincere responses would remain totally confidential. For this reason, no respondent was required to indicate his or her name on any part of the research instruments.(ii) Most of the instruments used to collect data in this study were self-reporting instruments. This implies that the study findings largely depended on data dependent on information given by students, teachers, principals and education officials, presented as the true picture in Kenyan schools, some of which might have been subjective or exaggerated in one way or the other. However, the researcher made efforts to overcome this limitation by incorporating similar items in multiple research instruments and administered them to different respondents i.e. the teachers, principals and education officials, in an attempt to avoid or minimize biased reporting.

Additionally, the researcher ensured that all respondents provided information independently and in confidence. (iii) Some documents like class registers throughout the year could have been missing in some schools or quality of the information in the documents could have been compromised. To control for this eventuality, the researcher

made efforts to overcome this by incorporating several research instruments and administered to teachers, principals and education officers through the use of questionnaires interviews and document analysis guides to shed more light on issues.

By doing this, the researcher was able to check credibility and consistency of all the responses that was given. (iv)The study found the analysis of the relationship between SSF and transition rates in Vihiga County complicated. This was because the unit of analysis for funding was number of students in secondary schools while transition rate was from primary to secondary schools. It is very much possible that not all students who sat their KCPE examinations from primary schools in Vihiga County proceeded to enroll in secondary schools in the same county, because of different reasons. However, this was not expected to be a major hindrance towards interpretation of the research findings, because the government uses the quota system of allocating students to secondary schools, where the home county gets the largest share of students from primary schools within the same county. This limitation was taken care of by looking at the overall transition from primary to secondary and computed at sub county level. Some schools did not have up-to-date record of the number of textbooks available for every subject, due to lack of enough manpower (librarians) to manage the records, which made it difficult to get the accurate student to text book ratio for all the subjects. It is for this reason that the researcher used interviews to give a clear picture of the status of the number of books available in all secondary schools in Vihiga County.

1.8 Assumptions of the Study

The study assumed that the information provided by all respondents was a true reflection of the situations under investigation, honest and accurate. It was also assumed that principals who are involved in the implementation of free secondary education would be able to provide a good and detailed account of the implementation of the programme so far. Furthermore, it was assumed that County education officials would provide the necessary advice to principals for effective implementation of Free Secondary Education in the country. It was also assumed that all secondary school teachers involved in implementing Free Secondary Education across the country have the relevant knowledge on its provision and legal requirements. Finally it was assumed that inter-county transition of pupils from primary to secondary school has no effect on the overall transition rate in Vihiga county.

1.9 Theoretical Framework

The study was guided by the production function theory developed by Von Thunen in 1826. Initially Von Thunen developed the basics of the theory of marginal productivity explaining that a piece of land when put into use is a function of the cost of transport to the market and the land rent that the farmer can afford to pay. It is also generally believed that Von Thunen was the first to formulate the relationship between output and the inputs. This concept was later advanced by Cob & Dougas in 1927 as an education production function (EPF) expressed as;

$$Q = \beta_0 + \beta_{1x} + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 \cdots \cdots \cdots \cdots \beta_n x_n$$

Where: Q is the expected output

β_0 is a constant

$\beta_1 - \beta_n$ are regression co-efficients

X_1- X_n represent various production inputs

The production function theory therefore denotes that there is a linear relationship between outputs and inputs. The education production function on the other hand is the application of economic concepts in the study of education. Abdinoor, (2012) noted that the original study that prompted the application of the production function was conducted by James Coleman. The Coleman study of 1966 demonstrated the effect of various school inputs such as enrolment trends, textbook ratio, transition rates and completion rates on students' participation in public secondary schools.

This theory shows the interaction of financial inputs to realize improved student scores and increased students' participation. Different measures of financial utilization produce different levels of output. This study employed the production function theory which shows maximum amount of output capable of being produced by a specific level of input to assess the subsidized secondary school funding on student participation in public secondary schools in Kenya. The applicability of the theory in this study can be seen in the fact that interactions of financial inputs produce output in terms of student enrollment, Student to textbook ratio, transition rates and increased completion rates. The desired

outcomes of subsidized secondary education funding are students' participation for improved human development. Using this theory, the study assessed the relationships of subsidized secondary school funding on the students participation in public secondary schools in Vihiga County, Kenya.

1.10 Conceptual Framework

A conceptual framework depicts a researcher's pictorial understanding of how research variables interact with each other (Pernecky, 2016). Relationships between variables in this study were as summarized in Figure 1, which indicates that subsidized school funding was the sole independent variable.

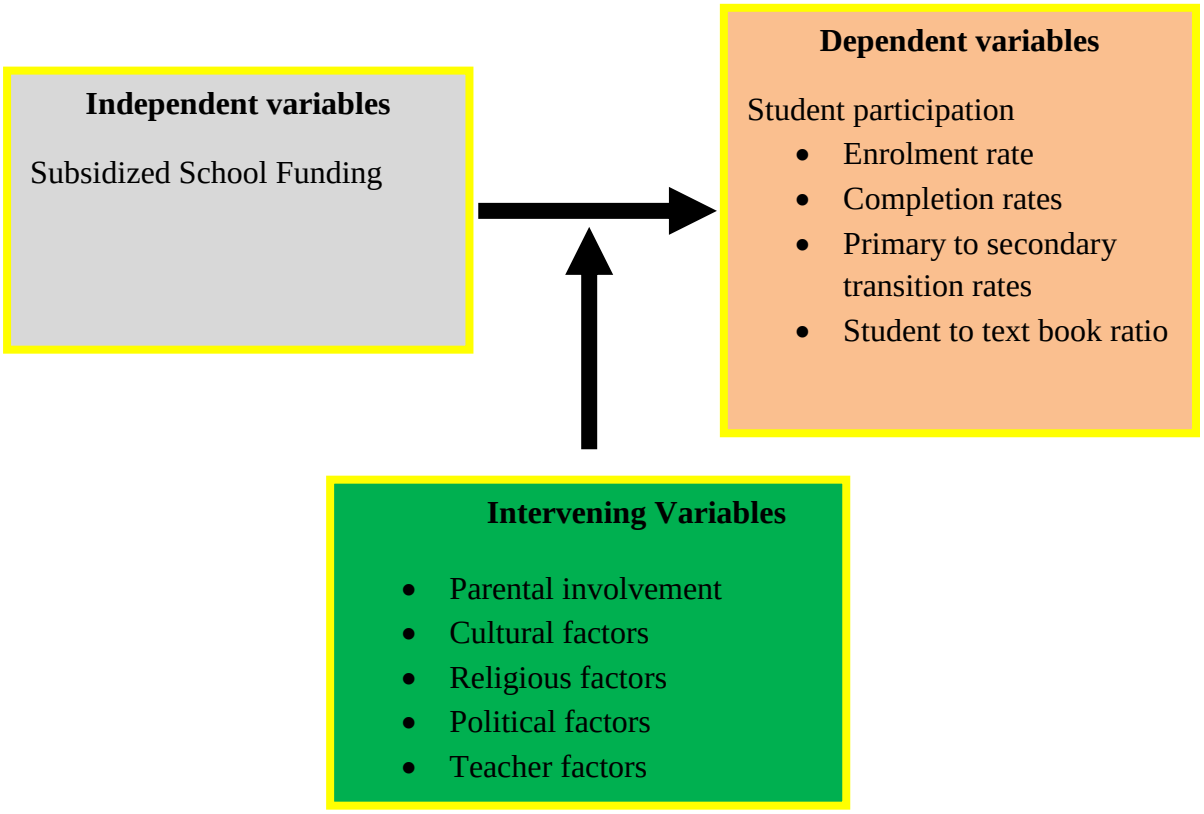


Figure 1: Conceptual Framework of the Study.

(Source: The researcher)

Figure 1 displays the interaction of subsidized school funding and students' participation in Kenya. The indicator of this variable is Ksh. 10,265 per student disbursed by the Kenyan Government as at the year 2015. On the other hand, Figure 1.1 shows that the dependent variable was participation levels of students in Kenyan secondary schools. Student participation was measured in terms of students' transition rates i.e. from primary to secondary schools, completion rates i.e. completing secondary school education by sitting for the KCSE after a four year learning cycle, and finally the student to textbook ratio among public secondary schools in the country. It was postulated by the researcher that subsidized secondary education funding would have a direct and indirect relationship with students' participation in Kenya, as investigated under the first objective of the study.

Where the relationship was positive, enrollment was to be enhanced according to the researcher and so was the case with students' enrollment rate but the reverse should be the case with dropout rate, since the students would have been empowered to join and complete the secondary education. The funding was also expected to increase provision of textbooks. This was ultimately expected to lead to increased number of students able to register for KCSE examinations. Prior to this study, many students dropped out of school because they could not raise fees towards purchase of learning resources. According to the researcher, this situation was however expected to be reversed through the subsidization of education, which is the main independent variable. This interaction of variables was nevertheless investigated under the second objective of this study.

As Figure 1 further illustrates, the independent and dependent variables do not operate in a vacuum. There are therefore other factors, herein referred to as intervening variables, which might have competed with the independent variable in one way or the other, to influence the observed changes in the dependent variable, which was student participation as earlier mentioned. To this end, factors such as parental involvement, religious, political and cultural factors were thought to have come into play and indirectly influenced the success of subsidized secondary education, but were however not investigated due to scope of the study.

Parental involvement as featured in the conceptual framework comes in play in the sense that most schools in the research area usually organize for 'book harvest' initiatives, in which parents and other stakeholders are asked to help the schools and the government to raise money towards buying text books and other revision materials for the learners, which in turn is expected to boost the student to text book ratio in the county.

Cultural factors on the other hand come into play in the sense that during the circumcision season, some male students in Vihiga county stay away from schools for purposes of fulfilling the rituals that go along with this initiation stage, which lasts for up to two months. Due to the strong cultural beliefs held by the *Maragoli* and *Tiriki* people, who form the largest population in Vihiga county, the circumcision period results in school absenteeism by boys being initiated into adulthood, which therefore leads to low participation levels by the affected male students.

Political factors on the other hand were expected to also play a negative role in affecting the student to text book ratio in the sense that the research area comprises of leaders from diverse political affiliations. As a matter of consequence, a section of these political leaders incite parents not to buy text books for their children, claiming that education should be totally free, citing the manifesto of the current government before it came to power. As a result, a section of parents and other stakeholders in the county have fallen victim to this propaganda, which has negatively affected the student to text book ratio and general students' participation.

Religious factors were also thought to have affected students' participation in the sense that there are a number of churches in the research area that discourage their faithful from paying attention to matters education, citing the proximity to the end of the world, arguing that focus should therefore be on prayer and fasting instead of schooling. As a consequence, believers in this kind of rhetoric have discouraged their children from attending school, leading to low school enrollment rates in the research region.

Lastly, teacher factors were also thought to have affected students' participation in one way or the other. These factors include; teachers' highest academic qualifications, teachers' professional qualification i.e., number of in-service courses undertaken among others. The researcher could however do nothing about these factors due to ethical considerations.

The intervening variables were controlled for by selecting the participating schools and respondents randomly and also by collecting the relevant data using self-reporting instruments and an appropriate research design as will be discussed in chapter three of this work.

1.11 Operational Definition of Key Terms

There a number of terms frequently mentioned in this work, whose meaning may not be as the English defines them and therefore their meaning as used in this research are as follows:

Completion Rates	The number of students who sit for KCSE examinations in a given year, expressed as a percentage of those who enrolled in form one in the same school four years earlier
Student Participation	Trends in enrolment rates for day and boarding students, students to textbook ratio and transition from primary to secondary and completion rates.
Subsidized Secondary Funding	A system of financing secondary school education in Kenya, where, the government pays Ksh. 10,265 for each Kenyan student enrolled in any public secondary school within the country, as the parent takes care of the other charges or expenses
Textbook to Student Ratio	The number of textbooks available in a given subject in a school, divided by the number of students assigned by the school to use it for daily learning
Transition rate	The total number of students admitted to form 1 in a given year, expressed as a percentage of the total number of pupils who sat for KCPE in the previous year
Trends in Enrolment rates	Used to refer to gross enrolment projections expressed as a percentage of the total between 2007 to 2015

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter analyzes related literature based on themes derived from the objectives of the study. The chapter focuses on subsidized secondary school education in developed countries, subsidized secondary education in Sub–Saharan Africa, subsidized secondary education in Kenya, relationship of subsidized funding on enrolment and transition rates, relationship of subsidized funding on student to textbook ratio relationship of subsidized funding on completion rates and academic performance then knowledge gaps identified in the reviewed literature.

2.2 Subsidized Education

Free education is education funded through taxation or charitable organizations rather than tuition funding (Goldrick-Rab, 2016). Many models of free higher education have been proposed. Primary school and other comprehensive or compulsory education is free in many countries, for example, and all education is mostly free, but often not including text books from primary school and a number of administrative and sundry fees in university, including post-graduate studies in the Nordic countries (Goldrick-Rab, 2016).

Article 13 of International Covenant on Economic, Social and Cultural Rights ensures the right to free education at primary education and progressive introduction of it at secondary and higher education as the right to education. (CESCR, 2006). In University of Oslo for instance, there is no tuition fee except minimal affordable semester fee of 74

US dollars. From the year 2013 in Northern Europe, Estonia started providing free higher education as well. Sweden, until the early 21st century, provided free education to foreign students but changes have been introduced to charge fees to foreign students from outside the European community. Denmark also has universal free education, and provides a monthly stipend, popularly known as, “Statens Uddannelsesstotte” or “SU”, to students over 18 years of age or students who are under 18 and are attending a higher education (UKA, 2017). Bachelor and master's degree programmes in Denmark are offered in either Danish or English, depending on the programme or university. Brazil, Czech Republic, Greece, Turkey and Argentina provide free education at all levels, including college and university for its citizens (UKA, 2017).

In Brazil, free education is offered by the Ministry of Education, which offers scholarships for graduate degrees, masters, doctoral and post-doctoral studies for Brazilians and immigrants who have Brazilian citizenship. The best universities and research centers are public institutions, financed by either the local state (state universities) or the federal government (federal universities). Graduate students can get paid if they qualify for the incentive but competition is extremely fierce. There has been a proliferation in the last 10 years of private universities, which are interested in providing professional training to their undergraduates. These private colleges are not interested in nurturing research centers, since it is not part of their business model to get involved with research (UKA, 2017).

In Iran, most prestigious universities are called governmental universities, which offer free education for students who pass a very competitive entrance exam with high scores. Graduates from these universities are obliged to serve the country for as many years as they studied for their degree, in order to get their diploma (Mazawi & Sultana, 2010). Uruguay on the other hand adopted free, compulsory, and secular education in 1876, after a reform led by José Pedro Varela during the Lorenzo Latorre dictatorship. All universities of in this republic follow the same principles, although graduates must pay a yearly contribution (Schriewer, 2000).

In Fiji, the government announced in the year 2013 that it would cover the costs of primary and secondary school education, equivalent to 250 Fiji dollars per year per student (UKA, 2017). In Sri Lanka, however, free education is provided by the government at different levels. Government funded schools such as national schools, provincial schools and *piriven* provided primary and secondary education for free, while assisted schools and semi-governmental schools provided the same at subsidized rates (IPS report, 2010). At the university level, the universities provide undergraduate courses free of charge. However, this totals to only about 10% for those who qualify for university entrance. Grants and scholarships are however provided but only for a limited number of study allowances.

Hon. C.W.W. Kannangara, who was the Minister of Education made education free for all Sri Lankan students in 1940s. Kannangara's significant achievements in areas of education have led to him being commonly referred to as the Father of Free Education in Sri Lanka (Schriewer, 2000; IPS Report, 2010).

Elsewhere, free education usually comes to students in the form of scholarships and grants, if they cover all or most of students' expenses. Individuals, institutions, and advocacy initiatives are examples of providers of grants and scholarships. They may have economic (e.g. tax-reduction), humanitarian, charitable or religious motivations (Bray, Adamson and Mason, 2007). There are examples of steps towards free education being undertaken across the world, primarily in those nations developing rapidly, such as China. In Mauritius for instance, the government provides free education to its citizens from pre-primary to secondary levels. On top of this, the government also introduced free transport for all students since the year 2005.

In New Zealand, the Labour party government intends to introduce three years of free post-school study or training. Their plan is that starting 2018, new students will have one year free for enrolling for study or training. From 2021 those starting tertiary education would get two years free, and from 2024 three years. The overall cost of the package is $6 billion. The Labour party has also pledged to increase student allowances by $50 a week, and to restore post-graduate students' eligibility for student allowances (Michael, 2018).

In European countries such as France and Malta, tuition is usually free for European students, while in Germany, tuition is free for all European and international students. The case is similar in Scotland, where university tuition is free for all Scottish nationals and is discounted for all European students, except from students coming from other parts of the United Kingdom (Bresler, 2006).

In Russia, prior to the destruction of the USSR, tuition was free for everyone obtaining quality grades. Since 1991, if a student obtains sufficient grades, he or she is still eligible for free education (on a competitive basis) in state or private universities, but he or she can also pay for studying if grades are above minimal threshold, but not enough to be enrolled into their university of choice for free (Pearce, 2017; Postlethwaite, 1995).

Trinidad and Tobago offers free tertiary education to its citizens up to the undergraduate level at accredited public and select private institutions. Postgraduate degrees are paid up to 50% by the government at accredited institutions. This privilege is given to the citizens under a programme called Government Assisted Tuition Expenses Programme and it is managed by the Funding and Grants Administration Division of the Ministry of Tertiary Education and Skills Training (Bray, Adamson & Mason, 2007).

In the United States, President Obama released a proposal to allow students to attend two years of community or technical colleges for free as long as they maintain a GPA of at least a 2.5 and attend college at least half of the time (Mazawi and Sultana, 2010).

Taiwo, (2005) investigated and described the status and quality of secondary science teaching and learning in Lagos State, Nigeria. Quantitative and qualitative methods were used for gathering research data in his study. Quantitative data were obtained from the surveys of 78 junior secondary science teachers and 500 junior secondary students from three Local Education Districts of Lagos State. Qualitative data on the other hand, were gathered from analysis of national and state curriculum documents and from focus groups

of science teachers, school principals, parent association representatives, education officers, teacher educators, representatives of the professional association for science teachers and representatives of examination bodies in Lagos State, Nigeria.

Other key stakeholders including scientists in a government establishment and those working in industry were also interviewed. Quantitative data were coded and analyzed using the SPSS statistical package to produce descriptive statistics. Qualitative data on the other hand were transcribed and categorized into emerging themes. Triangulation of data from various sources was used to reveal pictures of actual science teaching and learning and an ideal science for junior secondary schools in Lagos State, Nigeria. Findings from this study indicated a gap between actual science teaching and learning and an ideal school science with regards to curriculum, pedagogy and learning, class sizes and resource allocation, teacher knowledge and skills, attitude and professional development, and community support. These findings are in tandem with the case of subsidization of secondary education in Kenya in the sense that student participation is not at the level expected by the government, which is churning out millions of shillings in their annual budgetary allocation towards this initiative.

2.3 History of Subsidized Education

Free education has long been identified with "sponsored education". This has evoked images of advertising campaigns, but in the past, especially during the Renaissance period, it was common practice among rich dignitaries to sponsor the education of a young man as his patron (Wolhuter, 2008). Thomas Jefferson proposed the establishing

free schools to teach reading, writing, and arithmetic, and from these schools those of high intellectual ability, regardless of their background or economic status, would receive a college education, all paid for by the state. Critics have however advocated that free college education reduces students' success and research has shown that free college education reduces college completion rates significantly (Steyn and Wolhuter, 2010).

In the United States of America, the first free public institution of higher education, the Free Academy of the City of New York (today the City College of New York), was founded in 1847, with the aim of providing free education to the urban poor, immigrants and their children. Its graduates went on to receive 10 Nobel Prizes, more than at any other public university in the world. During the late 19th century, the government's compulsory education was introduced as free or universal education, and was extended across the country by the 1920s (Pearce, 2017). Compulsory education is typically funded through taxes. Under this arrangement, aggravated truancy can be prosecuted. Homeschooling, private or parochial schooling is usually a legal alternative. As of the start of many free internet-based learning institutions such as edX and mitX, education is now free to anyone in the world, thanks to wide internet access. In many countries, the policy for the merit system has not yet caught up with these recent advances in education technology.

Through the Internet, online education has become an option in recent years, particularly with the development of free MOOCs (Massive Open Online Courses) from providers such as Khan Academy and Higher Education, through providers such as Udacity, World

Education University (WEU) and Coursera. Free education has also become available on the internet through several websites, with some courses of study resembling those offered in various accredited universities. Online education however faces barriers such as institutional adoption, licensing or copyright restrictions, incompatibility and educator awareness of available resources (Pearce, 2017).

Due to the many requirements and resources for online education, many open community projects have been initiated. Specifically, the Wikimedia Foundation has developed a project devoted to free online educational resources, Wikiversity, and recently, several other sites for specific topics have been developed. Christian Leaders Institute offers tuition for free at the college level ministry education. Under this system, students are able to take any classes available free of charge, but are encouraged to help support the mission of the institution by making donations to this for charity purposes (Kaplan and Haenlein, 2016).

Free education does not only take the form of publicly funded institutions like state universities. In France for instance, philosopher Michel Onfray created the first non-governmental free education university since antiquity in 2002, with his *Université populaire de Caen* in Normandy. His decision was triggered by the accession of far-right party Front National to the second round of the 2002 French presidential elections. Onfray stated that people need more political, historical and philosophical background education to be more conscious citizens (Wolfgang, 2006).

This comprehensive history of subsidized education clearly highlights its importance in terms of ameliorating various aspects of development as it has been reported in the many parts of the world in which it has been implemented, going by the numerous success stories reported herein. It is because of the many SSE success stories that made it a key variable in the present study, especially because the government of Kenya has so far not obtained good returns, despite its inception in the year 2008. This has consumed billions of Kenya shillings from the exchequer.

2.3.1 Subsidized Secondary School Education in Developed Countries

In developed countries, education beyond the compulsory level was usually financed in part and sometimes wholly by the state. In Britain, education up to secondary schools level was fully financed by the government (Moon & Mayes, 1994). Parents are only required to ensure that children attend school. The education authority and central government are required by section 7 of the 1994 Act to make education facilities available. Parents are seen as the school's prime legal clients until the child is 16 years of age. Section 36 of the Act states that it shall be the duty of the parent of every child of compulsory school going age to cause him to receive full time education suitable to his age, ability and aptitude, either by regular attendance or otherwise (Earthman, 2002)

In Japan, the government fiscal policies provide for free education up to secondary school level. Those of school going age have no option other than attend school to acquire education that is fully funded by the government (Nyaga, 2005). In the United States the government is empowered to levy taxes and collect revenues for support of education but the congress decides the extend of such support (Benavolt, 2004). The situation is a bit

different in Canada, where parents are asked to contribute to their children's education through payment of fees (Kim, 2006). Though the government recognizes that some parents are sincerely not able to pay so it makes provisions to ensure that some children are not denied access to education because of a honest inability to pay the fees.

As observed in the literature above, secondary education forms part of basic education for an individual and therefore is compulsory. However in Kenya, poverty has been a major barrier to access to education for many school going children. It led to the government of Kenya introducing subsidized secondary school education in 2008.

2.3.2 Subsidized Secondary Education in Sub –Saharan Africa

In the review of science education in Nigeria, Okebukola, (1997) identifies the following five factors as inhibiting science education in the country; (i) Student-related factors; such as poor attitude to work, apprehension that science is naturally difficult to learn, difficulty associated with learning science symbols and difficulty in learning the language of science, (ii) teacher-related factors; such as poor preparation of science teachers, lack of motivation of many science teachers, inadequate knowledge of subject matter by teachers, and lack of skills/competence required for teaching, (iii) school-related factors such as overcrowded classrooms, overloaded examination syllabus, lack/inadequate laboratory and workshops, poorly equipped library and lack of vital instructional materials such as textbooks, teacher's guide and audio-visuals, (iv) home-related factors; such as imposition of science subjects by parents on children despite poor attitude to science especially at the secondary level, non-monitoring at home of students'

progress in science and lack of provision in many homes for the educational needs of students in science; and (v) curriculum-related factors; such as overloaded syllabus and insufficient time allotted to teaching of science in schools. It is on this basis that the present study focused on subsidization of secondary education as it directly addresses the key issues mentioned to how it impacts on students' participation.

According to Agkeampong, (2006), at least 140 million children are excluded from secondary schools of which 107 million are in South Asia and 32 million in Sub-Saharan Africa. They indicate that secondary schooling is very unequally distributed where enrolment is low. World Conference on Education for all (EFA) in Jomtien in March 1990 focused on improvement in learning outcomes. This means that improvement of quality education should assume high priorities, implying that education reforms have to be initiated to address the problem.

EFA has thus drastically increased the demand for secondary education while compelling with the resources necessary to respond to that demands (World Bank, 2008). Another international trend pushing on SSA countries is the move towards compulsory secondary education. Longer basic education allows more time for the consolidation of learning (Holsinger & Cowell, 2000). In Mali, basic education is going from six to nine years, Senegal and Zambia, it lasts for eight years. In Kenya the introduction of subsidized secondary education is a move towards compulsory secondary education.

In Lesotho, the payment of schools fees is different at different levels of education. Creches, are primarily private owned and parents have to pay fees of varying amounts. At primary level, this is from standard 1 to standard 7 education fees, which vary from school to school. Some parents cannot afford the school fees at those schools and there are organizations and government departments which identify needy students and pay for their school fees. Examples of such bodies are the National Manpower Development Secretariat, Social Welfare and the Ministry of Education and Training (MOET) (Motsamai, 2009). In Nigeria free secondary education policy was implemented in 1980. While contributing to the free education programme in Oyo States Longe, (1981), Oni, (1985) and Lawal, (1994) noted that the free secondary education policy resulted in the astronomical enrolments in all the schools and colleges between 1979 and 1983. On the cost of subsidized, Longe, (1981) Adesina, (1988) and Lawal, (1994) noted that this programme was very expensive in nature and that recurrent cost of education was constantly increasing in the face of inflation, high cost of living and lack of social services. Okunola, (1985) observed that classroom blocks, pupil chairs and desks as well as other resources were hurriedly and inadequately provided by the government to cater for increase in the school's enrolment.

Chapman *et. al.* (2009), notes that with the success of UPE policy in Uganda the government introduced Free Universal Secondary Education Policy in 2007. Uganda was the first East African country to adopt this kind of policy. According to the Ministry of Education in Uganda, parents may send their children to other secondary schools that do not take part in Universal Secondary Education (USE) policy if they can afford to pay the

fees. Although students are free of paying tuition fee in USE schools, they still have to pay boarding fees, scholastic materials and medical care among others. According to the Ministry of Education in Uganda, there are more than a half a million secondary school children who are studying under the USE policy in some 1471 schools.

This is a vast improvement in terms of access of secondary schools. However, the quality of education provided to Uganda students is still questionable even as the government tries to offer new subsidies to cover the education related costs. Even the school head teachers who are one of the important factors to succeed this policy are still confused of their ability and knowledge to implement it.

Lewin, (2008) observed that, projections of the financing required for a significant expansion of access to secondary education including progress towards a basic education cycle indicate that enrolment in secondary education cannot be expanded at present unit cost levels. Constrained by limited public resources and in the absence of significant policy reforms, countries in SSA have responded to the increase demand for secondary places by spreading the same resources over large numbers of students (Verspoor, 2008). This has resulted in overcrowded classrooms, inadequate teaching and student textbook ratio poor and inadequate physical facilities and consequently poor performance academically.

Secondary education development in Kenya is guided by the section of policy guide lines articulated in Sessional paper Number. 1 of 2005, Kenya Education Sector Support programme (KESSP) and vision 2030. These are in tandem with the international commitments on attainment of EFA and MDGs by 2015. Policy priorities relevant to secondary education relate to improving quality, relevance, equity and reducing gender disparities in education provision at all levels, improving efficiency in resource utilization and expanding access to secondary education (MOE, 2007). Secondary education plays a critical role in providing young people to lay a foundation and develop skills to meet demands of the labour market. Hence it is a link between academic and practical knowledge, skills development and the job market, including self employment and entrepreneurship (MOE, 2007).

The subsidized secondary school funding programme was started in January, 2008. This was in line with the Government's policy of EFA. Kenya is a signatory to the Jomtien Convention (1990) and Dakar Forum (2001) on EFA. It is also committed to the United Nations MDGs on the achievement of Universal Primary Education (UPE).The key concerns for the Government were access, retention, equity, quality, relevance and internal and external efficiencies within the education system (Achoka, 2009).The introduction of Free Primary Education (FPE) led to a surge in enrolment, pushing the gross enrolment rate to just over 100% (World Bank, 2004). It has been responsible for the recent upsurge in the secondary school enrolment since 2003, with 860,000 students in 2003 and to over 1 million in 2006 (Munavu, Ogutu and Wasanga, (2008).

However, accessibility to quality, relevant secondary education has remained elusive to many Kenyans as is evident from the low primary to secondary transition rates (MOE, 2004). This has been compounded by inaccessibility of education opportunities, inadequacy of available facilities in different categories of secondary school as well as in regions. Public boarding schools are the most affected in this regard, as Kenyan parents still continue to prefer enrolling their children in such schools, leading to overburdening the few resources therein, yet quality education could still be obtained in day schools, which the Kenyan government has tried to equip with the required learning facilities and infrastructure. It is on this basis that the study was carried out in both day and boarding schools, so as to obtain facts and figures about students participation in all these types of schools, for purposes of coming up with recommendations that would be important towards setting up policies that would popularize public day schools, hence decongesting the few but overstretched public boarding schools.

2.3.3 Subsidized Secondary Education in Kenya

In the year 2007, the government of Kenya launched Vision 2030. This was a blue print for the developments of the country aimed at transforming Kenya into a newly industrializing middle income country by the year 2030.To realize this Vision, several anchor areas with several flagship projects were identified. One such anchor was Human resource Development and the Ministry of education was given the responsibility to strive to make Kenyans literate. The ministry was to reduce illiteracy by increasing access to education and improves the transition rate from primary school to secondary school. In partnership with the private sector, Kenya was to increase funding to support

the schools in increasing their enrolment and retaining learners (GOK, 2013). According to Sarah Cameron, Chief Communications officer of UNICEF's Nairobi office, few countries have made a breakthrough into middle income status without the majority of their citizens having access to secondary education (Oyaro, 2008).

In launching Free Secondary Education in Kenya, the Ministry of Education appreciated the fact that fees' paying was responsible for the low transition rate from primary to secondary schools. With this recognition, the GoK made a commitment through sessional paper number one of 2005 to increase transition to 70% by providing Free Basic Education (Sessional Paper No. 1 of 2005 and MOE Circular NO. MOE/G1/9/1/44). The first step in implementation of the policy was a stakeholders' forum which led to the formation of the National Taskforce on Affordable Secondary Education. Their key mandate was to examine the costs of secondary education as indicated in Form One joining instructions and thereafter identify modalities for the implementation of FSE. The guidelines on FSE issued by the Ministry were based on the recommendations of this taskforce (MOE/G1/9/1/44).

Allocation of funds to public secondary schools is based on the formula of budgeting that is, allocated based on the number of learners in the school at the rate of Kshs. 10,265 per learner. This is one of the formulas used in local school financial management in the United Kingdom government funding of education (Downes, 1988). This gross numbers method advantages the schools which are already well established as they get more funds and develop faster (Economies of scale). To give a hypothetical example: if each child is

allocated ksh.100 for laboratory equipment, in a single stream school with an average of forty learners per class, it translates to ksh.16, 000 only. In a school of six streams it comes to ksh.96, 000, giving a range of ksh.80, 000. Given that the six stream school is likely to have most of the basic facilities such as laboratories, microscopes etc, they are likely to advance more than the one stream school. This system perpetuates the prevalent inequalities between schools. Soon after the launch of Free Secondary Education in Term One of 2008, head teachers meeting in Mombasa during their Annual General Meeting, praised the programme and promised to fully support and implement it. They noted that enrolment had already increased by 300,000 learners in the first term of FSE. From the onset they noted that delay in the release of funds and failure to fund all activities by the GoK would pose challenges to the efficient implementation (Jibril, 2008).

According to the Ministry of Education (MOE), one of the most immediate challenges was classrooms to accommodate the extra learners attracted by FSE. Professor Karega Mutahi, the then Permanent Secretary in the Ministry of Education said that the Country needed 250 new schools or 4,000 new classrooms in existing ones to cater for this increase (Oyaro, 2008). As a stop gap measure, the MOE raised the class capacity from 40 to 45 learners and pegged funding for schools on this threshold. Another challenge would definitely be teacher student ratio, already stretched by freezing of teacher employment in 1998.

According to Knight, (1993), there are three key concepts in effective financial management of schools. They include Economy or the careful use of resources, Efficiency or the fullest possible attainment of set goals, objectives or standards and lastly effectiveness or the cost incurred versus what it attains. These are called the three Es. He goes on to say that money coming into schools from sources such as the government is treated as 'their money and spent with a light heart free from the tedious concerns'(Knight, 1993). This attitude definitely limits the attainment of set goals as it means principals are likely to use FSE funds in Kenya with such 'a light heart'. A research carried by Kilonzo, (2007) found out that 92.5% of the parents felt that they should not contribute anything to the free primary education in Kenya since it was 'free'. Since the same are parents in secondary schools, the chances of full and committed parental support to free secondary education cannot be guaranteed.

Boards of Management (BOMs) are the custodians of school funds and property Basic Education Act- 2013. They are mandated to audit and regulate expenditure by the school principals to ensure income received is applied for the intended purpose to achieve desired goals. According to Wanderi (2010) the Education Act presumes that BOMs and principals are knowledgeable in matters such as law, human resource management, supplies and procurement, contracting, accounting and project management. A casual survey of the quality, caliber and appointment procedure of both BOMs and Principals reveals alarming limitations in meeting the standards above. Most of them are usually politically motivated appointments with scanty reference to credentials. The politics vary from the village to the clan, constituency and tribe. Usually the clarion call is that 'we

want one of our own' or a councilor or Member of Parliament rewards a confidant with an appointment. The MOE officials will usually be bullied into sanctioning such appointments.

Kilonzo, (2007) quotes Olanko who says that most of the head teachers are picked from the classroom and therefore face an uphill task in management. In his research Kilonzo found out that 97% and100% of primary school head teachers said that they needed training on management in general and financial management in particular respectively. The same situation obtains in secondary schools pointing to incapacity in management of the FSE funds. In her research, Chepkonga, (2006) found out that 80.9% of the principals said that they needed training in accountancy procedures, 63.8% in auditing, 57% in management and 93% in preparing budgets.

In his research, Cheruiyot, (2006) found out that only 50% of the principals served as deputy principals before appointment as principals. Even so, they did not gain the requisite knowledge and experience. In her study, Chepkonga, (2006) found out that 72% had no interview before appointment and 72% had no induction course before starting to serve as principals. This affects on the efficient and effective implementation of FSE. Cheruiyot, (2006) recommends that attendance of education management conferences, workshops and seminars be made compulsory and closely monitored by the Ministry of Education's Quality assurance and standards division.

According to Kuria and Onyango, (2006), BOMs are not giving necessary leadership that would promote Total Quality Management (TQM) practices necessary for schools continuous improvement. According to Wangatho, (2007), most of the BOM members have inadequate education, training and commitment to manage schools properly. Implementation of FSE is also likely to be affected by disharmony between the BOMs and the principals. According to Kilemi and Osita, (1999), principals of schools can overrule decisions by the BOMs and vice versa. This will definitely end up in a haphazard and unsystematic implementation of any projects or utilization of the school funds sent by the FSE programme for that matter.

Going by the findings of Kilonzo, (2007) and Cheruiyot, (2006), it is apparent that for SSE to work successfully, good management is of importance too. This study was therefore carried out, so as to come up with recommendations that would help the implementation of SSE more flawless. If this happened, the government of Kenya would definitely get better returns for investing in SSE, as compared to what is being witnessed currently.

2.4 Relationship between Subsidized Funding and Enrolment Rates

According to a report given by Consortium for Research on Educational Access, Transition and Equity (CREATE), secondary enrolment rates in SSA continue to be the lowest in the World (UNESCO, 2008). One of the greatest challenges of gaining access to secondary education in Sub-Saharan Africa is affordability. This is because secondary education in the majority of the countries is part of a free-paying sector. According to the

CREATE study, this means that parents are required to meet some operational costs such as tuition and maintenance and they may be required to foot many other things including food, uniform, learning materials and special equipments. Consequently, children from poor households whose parents cannot meet the costs are less likely to participate in secondary education.

A study by Mutegi, (2015) investigated the influence of unit cost of education on students' enrolment rates in public secondary schools in Tharaka South sub county, Kenya. The study investigated the extent of average household expenditure on education of every student and how it influenced enrolment in secondary schools in Tharaka South Sub-county. The study also assessed the extent to which average government expenditure on every student's education influenced enrolment in secondary schools in Tharaka South Sub-County. Furthermore, the study established unit cost differentials by age and gender in Tharaka South Sub-County.

The study used correlational survey research design to establish the relationship between unit cost of education and students' enrolment rates in public secondary schools. The data were collected from household heads and principals of secondary schools and also from Ministry of Education offices. The target population comprised all the 23,275 household heads and 26 principals of secondary schools in Tharaka South Sub county. The Yamane's formula was used to get a sample of 393 household heads, while census was used to get the number of school principals who participated in the study. Questionnaires, interview schedules and education document analysis by interviewers were the main tools that were used for data collection. The data were analyzed using both SPSS and STATA

softwares whose results revealed that most of households had more girls in secondary school than boys.

The study also established that there was high correlation between parents' level of education and children enrolment in secondary schools with r=0.891and $p<0.05$. On transport cost, the average distance from home of student to school is 24km, with day schools being closer at 12km and boarding schools being 28km away. The study revealed that the cost of girls' school uniform is 12% higher than that of boys, and there was evidence of a high correlation between uniform cost and a student's gender ($p<0.05$).

Regarding the household average expenditure on education for children in public secondary schools, the study established that the unit cost of education for girls is higher than that of boys in boarding schools (the average cost for girls was Ksh 52, 474 while that for boys was Ksh 49,194). However, the situation was opposite in day schools, where the unit cost for boys was higher than that of girls. The study also established that the average government expenditure per student was Ksh 27,189. Furthermore, the study established that a child was less likely to enroll in a secondary school if the household expenditure was higher than the government expenditure. Thus, government education subsidies may have been promoting enrollments in secondary schools in the region (Mutegi, 2015).

A study by Aroni, (2013) assessed the effects of subsidized secondary education in Nyamache Division, Kisii County. The specific objectives of the study were; to determine the gross enrolment rates in public secondary schools in Nyamache Division in

the last five years, to determine the impacts of subsidized secondary education on access to the existing educational resources in public secondary schools in Nyamache Division, to determine how access has been achieved by the subsidized secondary education in relation to teaching and learning resources in public secondary schools and to propose solutions to the problems of subsidized secondary education in relation to access on the educational resources in public secondary schools in Nyamache Division.

The study adopted the descriptive survey design to investigate the various effects of subsidized secondary education in Kenya. The target population comprised of 28 public secondary schools in Nyamache Division with 2,536 students who are under the Subsidized Secondary Education Programme, from which a sample size of 14 Head Teachers and 48 class teacher were used which made a total of 62 respondents. Data were collected, coded and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS). The collected data were analyzed using both inferential and descriptive statistics such as frequency tables, bar graphs, pie charts and measures of central tendency using SPSS. From this research, it was found out that there was scarcity of learning resources, delay in disbursement of funds to schools by the government and shortage of teachers in the public schools in Nyamache Division. The enrollment trend was also on the upward trend hence there was need to make early plans to carter for the expected learners seeking secondary education.

Objectives of a study IPAR, (2013) included documentation of patterns of student enrolment by province and gender; status of the teaching force; availability and adequacy of physical resources; efficiency in utilization of the specified teaching period; students.

performance in key subjects; and causes of regional inequalities in student access to and participation in secondary school education. The study adopted an exploratory approach, with a descriptive design. Four provinces were randomly selected, with one district purposively selected from each of the provinces. The key respondent sources included the Ministry of Education, Science & Technology (MoES&T) staff and opinion leaders at the community levels.

Personal interviews based on unstructured interview schedules; group discussions and direct observation were used to complement the secondary data. The Statistical Package for Social Science (SPSS) computer programme was used in data analysis. Findings of this study revealed major regional and gender disparities, with best performing districts in the non-ASAL regions. Among the first 14 best performing districts in the country (ranked by GER), five were in Central Province, four in Rift-Valley, two in Western, two in Nyanza and only one in Coast Province.

None of the districts with GER above the national mean figure of 20.5% were either from Nairobi (urban) or the predominantly ASAL North Eastern and Eastern Provinces. The poorly performing districts were concentrated in the ASAL regions of North Eastern, Eastern and Coast Provinces. The districts with severe gender disparities as of 2000 included Wajir (GER: girls 2.7%, boys 8.8%); Mandera (GER: girls 3%, boys 6.9%) and Garissa (GER: girls 4.7%, boys13.1%) in North Eastern Province. In contrast, the districts with overall high GER and near gender parity were Kiambu, Nyeri, Nyandarua, Muranga, and Kirinyaga in Central Province; Taita-Taveta in Coast Province and Kakamega in Western Province.

Similar studies on access and retention in primary and lower secondary education in Ghana show that although Free Compulsory Universal Basic Education (FCUBE) made an overall enrollment increase, children from poor households continue to be under represented in enrolments (Akyampong, 2009; Rollestoh, 2009). They made it explicit that not only indirect costs hinder access of the poor but also opportunity costs substantially affect the chances of poor children to enroll in and complete basic education.

A study of access patterns in Malawi also concluded that access to education continues to reflect household wealth (Chimombo, 2009). These studies clarify that the abolition of fees has not been enough to ensure access to education for the poor. In Uganda it was observed that only one in five children who completed primary school had access to secondary education and majority of those were from wealthy households (UNESCO. 2007). Although Uganda introduced USE parents are still required to pay boarding and medication costs (MOET, Uganda). During the launch of Free Secondary Education in 2008, the president of Kenya explained the reasons for the government's introduction of subsidized education as follows:-

Primary Education alone is not sufficient to provide the quality skilled human resource necessary for one country's sustainable development. Moreover, primary school pupils complete 8 years of schooling when they are still too young to engage in productive activities and contribute meaningfully to nation building. In addition, children from poor families who fail to join secondary schools because of lack of fees often revert back to

illiteracy, thus reversing 8 years of investment in their primary education. It is for these reasons that my Government undertook to implement the Free Secondary Education programme beginning this year speech by president in February, 2008.

Subsidized secondary education funding has in general increased opportunities for secondary schooling. Secondary enrolments increased from 779,000 in 2002 to 1.2 Million in 2007 to over 1.4million in 2008 (speech by President Kibaki in February 2008. However, increase in poverty levels discourages parents from investing in their children's education since the parents are unable to meet costs of education. According to the study carried by the MOE, economic profile of dropout and repeaters show that this phenomenon is common among students from low social economic background. These finding reinforce the findings by Wachiye, (2000) who says;

> *"Education plans of children decrease with social economic status to the extent that students with ability but low economic status background aspire to, but do not frequently expect higher education. This is worsened when the community is required to contribute part to the funds"*

A report by Interim National Poverty Eradication plan (ROK, 2007) identifies hidden costs as further costs that have hindered access to secondary Education. The costs include uniform among others. Bishop, (1989) says that the main task facing developing countries including Kenya is giving basic essential right to education which is relevant due to massive capital and recurrent remains a deterrent factor due to additional costs for books, boarding and other materials. The question is, in reality to what extent will the abolition of secondary fees enable the poor to gain access to secondary education? This study therefore will compare enrollment rates in day and boarding public secondary schools in Vihiga County, Kenya.

A study by Amisi, (2016) sought to establish the Socio-Economic factors influencing pupils' transition rates from primary to secondary schools in Kisumu East Sub-County. Four objectives guided the study to establish the influence of family structure on transition rates; the influence of parental level of education on transition rates; the influence of pupils' parental income on transition rates and finally the influence of pupils' participation in domestic chores on transition rates from primary to secondary schools. The study was influenced by the fact that transition rates in Kisumu East Sub-County was low, at an average of 48.74 compared to the neighboring Sub-Counties such as Kisumu West Sub-County at an average of 50.31 and Kisumu North Sub-County which is also at an average of 51.40.

The study employed a descriptive survey research design, where the target population consisted of 68 head teachers of the public primary schools and 500 primary school teachers in Kisumu East Sub-County. The study findings indicated that some of the socio-economic factors had the highest influence on the transition of pupils from primary to secondary schools. These included; family structure, parental level of education, parental income level and participation of pupils in domestic chores. When looking at orphaned children sixty seven percent were found not to transit to secondary school. Parental level of education equally determined the transition rate, seventy four percent of the teachers agreed that most of the parents have primary education.

2.5 Relationship between Subsidized Funding and Student to Textbook Ratio

The adequate and use of teaching and learning materials affects the effectiveness of a teacher's performance. Schneider, (2003) found out that school facilities have a direct relationship in teaching and learning. Text books enable the students to follow the teacher's (Ubogu, 2014). The teacher's working conditions also affect their ability to provide quality education. The condition of infrastructure, available of text books and other learning materials and class size (Ubogu, 2014). The presence and heterogeneous uses of technology in schools are one manifestation of how school organizations can become more diversified to meet the needs, interests, experiences and realities of individuals and groups i.e., how schools can become more student centered.

As schools respond to the needs of diverse and excluded groups, facilities and practices will need to be diversified to respond to specific needs to different areas. For example opening reading centered at schools can make school resources more available that traditional models that assume only one kind of student will participate (Cannon & Chau, 1996).

According to Craig *et al,* (1998) in Guetemala the physical environment in Nueva Escuela Unitaria Schools supports participatory learning in many ways. Classrooms are structured so that student can easily work cooperatively in small groups dispersed around the room. Development and use of learning materials leads to active participation. Practicing teachers write most textbooks, workbooks and teachers guides, resulting in materials that are grounded in the classroom realities faced by rural teachers. In Nigerian,

Ojobo, (1995) lamented that "Laboratories and libraries are ill-equipped. Text books are neither available nor affordable". Classrooms are in shortage. Even teacher's tables and chairs have disappeared in some schools. Many secondary schools have no workshops and science materials. During inspections, proprietors and principals, teachers and students run here and there to borrow materials from neighboring schools to meet with the demand of the inspections. As soon as the inspectors more out of the school compound the materials are removed and sent to their original owners.

According to a report by World Bank, (2002) in Uganda even the best and most prestigious secondary schools were seriously short of basic text book in their core subjects of Mathematics and English. Where text books were available, they were typically old. The most significant sources of subject information for students came from notes copied from the black board on dictated by teachers from cheaply produced pamphlets written by teachers based on their own lecture notes from University.

In Kenya, Eshiwani, (1984) observed that most schools whose students perform poorly spend less money on the purchase of textbooks. Lack of adequate text books and teaching materials makes teaching difficult as students are unable to do their oral or written work during class lessons. Confirming this view Kombo, (1988) affirmed that availability and the use of teaching resources in schools are among the factors which explain why poor performance in examinations is a characteristic of secondary schools. According to him, schools with adequate resources such as text books would stand a better chance of having better results than poorly equipped ones.

Availability and the use of teaching and student: textbook ratio could contribute high quality of education and performance of students. According to Maundu, (2000) good performance demands that every school should equipped with relevant Student: textbook. According to a report on text book and test scores in Kenya; sharing text books is common in Kenya and two or three students typically share a work place. This problem has to be addressed if quality education is to be realized. This study therefore will establish relationships of subsidized school funding on student textbook ratio in public secondary schools in Vihiga County, Kenya.

> *"Active and collaborative pedagogical approaches; and books, other learning materials, open educational resources and technology that are nondiscriminatory, learning conducive, learner friendly, context specific, cost effective and available to all learners – children, youth and adults."*

These internationally negotiated texts recognize that teachers need textbooks to help guide what they do in the classroom, just as children need textbooks that support their learning experiences. Policy makers also need textbooks to convert overarching educational aims to concrete activities in the classroom. The quality and effectiveness of textbooks vary for many reasons including, for example, the clarity of curricular intentions and content details and issues related to printing quality and timeliness of distribution. But millions of students suffer from a very basic problem: they do not have access to textbooks at all (GER, 2016).

Although systematic data are lacking, and generally exist only for core textbooks, existing information shows that in many countries, students at all levels either lack textbooks altogether or are required to share them with their peers. For example, as of

2012 in Cameroon, there was only 1 reading textbook for 12 students and only 1 mathematics textbook for 14 students in grade 2. Mathematics textbooks are often scarcer (GER, 2016). In Togo, in grade 2, there were 3 students for every reading textbook, compared with 8 students for each mathematics textbook In some developing countries, elements of the Gavi model exist in the textbook market with some success (GER, 2016).

In Rwanda, in order to address large variations in textbook availability by location, a computerized system for managing textbooks now exists similar to the UNICEF procurement system for vaccines under the overarching Gavi structure. Head-teachers are in charge of ordering textbooks from an approved list with funding provided on the basis of school enrolment. Publishers deliver books to schools directly. Since being set up, 98.6% of schools have submitted accurate orders and 98.3% of schools had teaching and learning materials delivered directly to their schools, including off-road schools, by publishers at no cost to the schools (Global Partnership for Education, 2013; Read and Bontoux, 2015).

A survey of primary schools in eleven developing countries shows that, on average, 15% to 20% of grade 4 pupils do not have a textbook or they have to share one. In some countries, the percentage is much higher: only 31% of pupils in Paraguay and 51% of pupils in the Philippines had sole use of mathematics textbook (UIS, 2008). The provision of books for the early grades should be the highest priority; this is when well designed teaching materials have a large impact on learning. Students in the early grades need a wide variety of books for reading instruction and practice.

In Chad, where very few students speak French, the language of instruction, when they come to school, the PASEC 2010 survey found that only 20% of students had a French textbook in grade 2 compared with 40% of students in grade 5 (Chad Ministry of Primary and Civic Education and CONFEMEN, 2012). In Burkina Faso, in 2007, 48% of grade 5 students had access to a mathematics textbooks compared with 8% of their peers in grade 2 (Burkina Faso Ministry of Basic Education and Literacy and CONFEMEN, 2009). Textbooks are also scarce in secondary education. The SERCE 2008 results showed that in Paraguay, only one-quarter of sixth graders had their own mathematics textbook. Half of the students reported sharing their textbook with other students. In the Dominican Republic, 43% of students had their own mathematics textbooks, and 37% shared a book with their peers (LLECE, 2008). In an analysis of 19 sub-Saharan African countries, only Botswana had adequate textbook provision, close to a 1:1 ratio for all subjects and all secondary grades.

In the other 18 countries, including Lesotho, Mozambique and Zambia, secondary textbooks, particular in non-core subjects, were in very short supply (World Bank, 2008). In 2014, in Rwanda, while the global target of 1:1 ratio was close to being reached for all subjects at the primary level, much remains to be done at the secondary level. There were three pupils for every history book at the lower secondary level, and five pupils for every literature book at the upper secondary level (Rwanda Ministry of Education, 2015). Besides this general low level of textbook availability, there is marked variation by location. In Liberia, in 2013, the pupil-to-textbook ratio in the county of Margibi was nearly 7:1, more than double the national average (Liberia Ministry of Education, 2013).

In South Sudan, the ratio ranged from 2:1 in Central Equatorial State to 11:1 in Unity State (South Sudan Ministry of General Education and Instruction, 2012).

In several countries, textbook shortages became even more acute between 2000 and 2007, Kenya, Malawi and Namibia experienced rapid increases in school enrolment, but the availability of textbooks did not keep pace (GER, 2016). In Malawi for instance, the percentage of students who either had no textbook or had to share with at least two other pupils increased from 28% in 2000 to 63% in 2007. Swaziland, by contrast, witnessed an increase from 74% to 99% in the percentage of students having sole use of a reading textbook, while at the same time seeing enrolment rates in grade 6 increase by around 20%. It should also be noted that the availability of textbooks does not necessarily mean that they are used in the classroom. Textbooks may be kept in storage units for fear of damage or loss if they are given to students. In Malawi, it was reported that teachers were reluctant to give textbooks to children because they were concerned that they would either not take care of them or would be absent and not use them (World Bank, 2010). In Sierra Leone, uncertainty over future supplies has led to hoarding of textbooks and their not being used (Sabarwal *et al.*, 2013).

The importance of appropriate textbooks in improving the quality of education has been increasingly highlighted since the 1990s (Braslavsky and Halil, 2006). In developing countries, where there are limited resources, textbooks in appropriate languages and at appropriate levels of difficulty are shown to be relatively low-cost inputs with high returns in terms of student achievement (Boissiere, 2004). A growing body of evidence

confirming the critical role of textbooks in improving student achievement has influenced education policies. Swaziland has provided free textbooks to all primary school pupils since 2003 (SACMEQ, 2011).

Other countries, including Guatemala and Nicaragua, have also introduced free textbook programmes targeting the most disadvantaged (Porta and Laguna, 2007). In Ghana, an impact evaluation of a programme supporting basic education found that progress in mathematics and English test scores between 1988 and 2003 were partly due to the increased availability of textbooks (White, 2004). In South Africa, students, especially girls, do better on reading tests when they have their own copies of textbooks (Zuze and Reddy, 2014).

A cross-country analysis based on data from regional assessments in 22 sub-Saharan African countries shows that pedagogical resources, especially textbooks for the core subjects of reading and mathematics, are effective in improving learning; providing one textbook to every student in a classroom increased literacy scores by 5 to 20% (Fehrler *et al.*, 2009). With such a high proportion of public education expenditure in low income countries spent on teachers' salaries, there is less predictable funding available for non-salary recurrent expenditure such as textbooks and other teaching and learning materials.

In spite of the increased importance of domestic public resources, many low income countries continue to rely heavily on donor funding for a large part of funding for textbooks, outside of parental contributions. While the share of aid amounts to 14% of

total government and donor spending on education in low and lower middle income sub-Saharan African countries, the share for textbooks and teaching and learning materials is likely to be much higher. However, reliance on donor aid alone fails to address the issues of sustainable and predictable financing for textbook provision. And while donors have tried to improve materials provision by supporting government financing and increasing the capacity of local publishers, their efforts are currently fragmented and a lack of financing for materials persists (GER, 2016).

In some developing countries, elements of the Gavi model exist in the textbook market with some success. In Rwanda for instance, in order to the address large variations in textbook availability by location, a computerized system for managing textbooks exists, similar to the UNICEF procurement system for vaccines under the overarching Gavi structure. Head-teachers are in charge of ordering textbooks from an approved list with funding provided on the basis of school enrolment. Publishers deliver books to schools directly. Since being set up, 98.6% of schools have submitted accurate orders and 98.3% of schools had teaching and learning materials delivered directly to their schools, including off-road schools, by publishers at no cost to the schools (Global Partnership for Education, 2013a; Read and Bontoux, 2015).

In Kenya, it was only until the year 2018 that the government followed suit and also started supplying textbooks to all public secondary schools in the country directly from publishers. However, the effectiveness of this policy has not been determined yet and therefore findings of the present study will provide data that might be useful in

developing policies that might help fill any gaps in the new system of supplying text books to public secondary schools across the country. This is expected to boost students' participation and hence provide a solution to the problem that instigated this study in the first place.

2.6 Association between Subsidized Funding and Transition Rates

Transition rate is the number of pupils admitted to form I in 2009 from primary school and expressed as a percentage of the total number of pupils who enrolled for KCPE in 2008 (Mbayah. 2018). This section focuses on various studies that have looked at subsidized education and how it affects transition rate as herein defined.

Katiwa, (2016) conducted a study to establish factors influencing pupils' transition rates from primary to secondary schools in Kitui central sub-county, Kitui County. Specifically, the study was set to establish how availability of Secondary school spaces affect transition rates from public primary schools to secondary schools, influence of gender on transition rates from public primary schools to secondary schools, how Parents and Teachers' Association (PTA) levies affected the transition rates from public primary to secondary schools as well as finding out the influence of parental level of education on the transition rate from public primary to secondary schools. The study was influenced by the fact that transition rates in Kitui central sub-county were low as compared to the neighbouring counties such as Kitui rural, Matinyani, Kitui West, Kisasi and Mwingi North.

There were also limited researches done in Kitui central sub-county on factors influencing transition rates between primary and secondary schools. The study employed a descriptive survey research design, where the target population consisted of 101 school heads of the public primary and secondary schools in Kitui central sub-county, 468 primary and secondary school teachers and Sub-County Director of Education Kitui central sub-county. From the study it was established that; transition from primary school to secondary schools was majorly determined by the availability of secondary school spaces as indicated by 91% of the respondents, gender of a child as indicated by 62%, PTA Levies as indicated by 53.1% as well as parental level of education as indicated by 86.2% of the respondents.

Given that the Kenyan education policy provides for free primary education as well as a subsidized secondary education, the study recommended that the government of Kenya should initiate effective mechanisms to ensure that no learner is blocked from transiting to secondary school due to inadequate secondary school spaces, gender, PTA levies and parental level of education. The present study a methodology similar to that of Katiwa (2016), to ascertain whether these findings apply to Vihiga county, which faces the same problem of low transition rates.

Kikechi, Musera and Sindabi, (2011) investigated the factors affecting transition rates from primary to secondary school in Taita Taveta district, Kenya. Their study involved sample of 144 respondents consisting of 88 parents and 56 primary school head teachers in the district. The main tools of data collection were a questionnaire and interview

schedule. Data analysis involved the use of percentages arid a Chi- square. Their results indicated that an average of 40% of pupils fail to move to secondary schools every year after completing their primary school education and the most affected were girls. The main reasons for non-transition were noted to be; lack of funds to pay school levies, early marriages, long distance to school and lack of interest in schooling. The researchers saw the need for the government of Kenya to introduce several incentives among them subsidization of secondary education.

A Kenyan study by Amisi, (2016) sought to establish the Socio-Economic factors influencing pupi1s transition rates from primary to secondary schools in Kisumu East Sub-County. Four objectives guided the study to establish the influence of family structure on transition rates; the influence of parental level of education on transition rates; the influence of pupils' parental income on transition rates and finally the influence of pupils participation in domestic chores on transition rates from primary to secondary

schools. The study was influenced by the fact that transition rates in Kisumu East Sub-County was low, at an average of 48.74 compared to the neighbouring Sub-Counties such as Kisumu West Sub-County at an average of 50.31 and Kisumu North Sub-County which is also at an average of 51.40. The study employed a descriptive survey research design, where the target population consisted of 68 head teachers of the public primary and 500 primary school teachers in Kisumu East Sub-County.

The study findings indicated that some of the socio-economic factors had the highest influence on the transition of pupils from primary to secondary schools. These included; family structure, level of education, parental income level and participation of pupils in domestic chores. When looking at orphaned children sixty seven percent were found not to transit to secondary school. Parental level of education equally determined the transition rate, four percent of the teachers agreed that most of the parents have primary education.

Karimi and Ndirangu, (2016) on the other hand investigated why there had been low transition of pupils from primary to secondary schools in Ruiru District, despite the implementation of Free Primary Education in Kenya. Their study was guided by the Theory, which according to them, is basically concerned with problems of relationships, of structures and of interdependence, rather than with the constant attributes of objects. The study established that funds released by the government were not adequate to cater for human resource, physical facilities and teaching / learning resources.

However, to ensure that all learners graduate in class eight (primary school) and proceed to secondary schools, their study concluded that some schools introduced school feeding programmes to enhance retention and that the government of Kenya should allocate adequate funds to schools to ensure that Free Primary Education programme runs smoothly, without compromising quality of education, which eventually influences learners' transition rate from one level to another. Their study further concluded that parents and community members should fully support pupils education and school development projects among other recommendations.

Dzombo, (2015) conducted a study to find out why most children in Kilifi County were not enrolled in school yet education was free, by looking at the factors that affected and influence enrolment, attendance and transition. The study sought to answer the following questions: What are the trends in enrolment, retention and attendance in Kilifi County since 2002? What factors affect enrolment, attendance, retention of pupils in primary schools in Kilili County? What opinions do the parents/caregivers in Kilifi County have on the factors affecting enrolment, attendance and retention? The study was a survey research guided by Human capital theory and Robert Merton's goal means gap The Target population of the study comprised of all school age children who were in school and those not in schools, the teachers in the schools, Parents and education officials.

A total of 4 schools were purposively selected, comprising of 2 schools located in the urban areas and two other schools located in the rural areas within the research location. The Class 8 and 5 students were purposively selected to participate, in the study. A sample of class teachers of the respective classes was also selected as respondents of the study. The head teachers for the respective schools were also selected to be interviewed. Purposive sampling technique was also used to select 2 education officials to participate in the research these officials were the District education officer and the Zonal education officer. Snowballing technique was used to get whose children are not in schools and the children themselves. Proportionate random sampling was used to select 125 pupils from the selected schools. Proportionate random sampling was also used to select the number of students per class and the gender distribution. Structured interviews were used to collect data from the respondents. Key informant guides were used to collect data from the key informants.

The study established that the schools still charged other levies apart from the school fees and these levies were charged to the parents. From the interviews with the respondents, it was established that the main factor affecting education in Kilifi County even with the introduction of Free Primary Education was the inability of the parents to afford the levies charged by the schools. This inability was confirmed by the respondents to be as a result of Poverty in the area. The study also found out that factors like truancy, deviancy, lack of knowledge on importance of and lack of monitoring were also major factors affecting education From the research findings, it was concluded that the parents were not involved in the implementation of Free Primary Education in schools to a large extent. It was also concluded that the community had not internalized the importance of education. Recommendations were made to look into the levies charged and the sensitization on importance of education to the community.

2.7 Relationship between Subsidized Funding and Completion Rates

Within countries, there is extensive research on the determinants of students' performance and educational quality. Almost all studies show that student performance has a strong association with individual background characteristics (Hanushek & Laque 2003; World Bank, 2003). It is common to find that test score variations within schools are much larger than across schools (Lee & Beyk, 1989; Kim, 2006). Exactly why learning among individual students is so variable is much harder to establish. In the

United States (US) research points to a casual role of family which is characterizes in explaining the differences in performance Liuthea and Pollack (2004). Yet another

research in the US points to the link between social economic status and quality of school resources including teachers (Peske & Haycook, 2006). That such inputs matter to learning is fairly well established. Lee and Smith (1997) found that school size mattered. In India a report by World Bank, (2009), analysis of key factors affecting student achievement confirms that school plays a very important role in determining 50% of students' achievement.

Analysis of these key factors and international research more generally indicate some consensus regarding the elements of educational quality, which include quality and availability of teacher, the curricular and pedagogical process applied to master it, the quality and availability of learning materials, learning assessment and examination and quality assurance. As reported in the International Journal on Research Studies in Management (2012) in Nigeria results of senior school certificate examination were extremely poor between 2007 and 2010. The poor performance of students was largely attributed to inadequate Student: textbook (Earthman, 2002).

According to Fafunwa, (2010), there is a big gap in quality resulting from large number of students in crowded classrooms, using indequate and absolute equipment and with disillusioned teacher. Basing on research carried out in Adjumani district in Uganda, many schools in the district lack basic resources to foster good academic performance at secondary school level. In Monitor 20th Jan, 2006) Bukenya lamented that 31.5% of secondary schools have no functional laboratory, basic equipment and chemicals which was the cause of poor performance in science subjects. It was also noted in the same research that inadequate finances need to be properly managed for effective performance.

In Kenya, the quality of education tends to be evaluated in terms of the number of students passing national examinations (Eshiwani, 1993). The expectation of parents is that their children perform well in national examinations in any secondary school they attend as long as the criteria for admission in these schools are the same. This is not however the case as the perception among many parents is that some schools although of the same category, seemingly perform better than others.

According to a report by Review of the Progress, Challenges and Potential Solutions on access and quality in the Kenya education systems overall student performance in KCSE was poor in 2008. The performance was weakest in district schools where only 11% of the students scored at least a C+ compared to 43% in provincial schools and 90% in national schools. The difference in performance across their types of schools partly reflects the different levels of academic preparation of students admitted to these schools and the outcome of the process.

The KNEC annual report (2010) titles Education stated that K.C.S.E 2010 had 213,438 out of 337,488 candidates, scoring C- and below i.e. 60% those who sat for the exam. Only 27% obtained a mean grade of C+ and above which was considered the minimum university entry bench mark. Only 8,131 students obtained the A and A- mean grades nationally. This was due to lack of equipped laboratories and where such facilities were found they were not adequately used. About 55% of schools had no libraries and where it existed, it had inadequate books, Mwangi and Nyaga (2010). Has subsidized secondary education fund had any relationship with KCSE performance in Vihiga County public schools?

Asena, Simiyu and Riechi, (2016) carried out a study to establish the factors affecting subsidized free day secondary education in enhancing learners' retention in secondary schools in Kenya. Their specific objective was to determine the effects of adequacy of school finances and teaching/learning resources in enhancing learners' retention in secondary schools in Kenya. The target population of the study comprised of 3,993 stakeholders in the education sector in Bungoma County, Kenya. A sample size of 340 respondents was selected purposively for the study. Cross-sectional survey research and proportional stratified sampling were adopted to obtain the Educational Officers, Principals, Board Of Governors (BOG) chairpersons, Parents and Teachers Association (PTA) chairpersons and Parents from each Sub County in Bungoma County.

Questionnaires and interview schedules were used to collect data from the respondents. Qualitative data collected were analyzed using content analysis while quantitative data analyzed using descriptive statistics. Their results indicated that enrollment and transition rates of learners had increased since the introduction of Subsidized Free Day Secondary Education (SFDSE) by the government of Kenya in the year 2008. The study also revealed that there was an acute shortage of teachers despite the expansion of various secondary schools in Bungoma County to three streams per class.

Kinaro, (2015) conducted a study to establish the influence of free day secondary education in enhancing internal efficiency, particularly the completion rates in public secondary schools in Mvita Sub county, Mombasa. The factors investigated included cost of education (direct and indirect), parents economic activities, school characteristics

including physical facilities, teacher resource, discipline, school type and category, family background which included parents‟ standard of living, and finally the parents‟ level of education in enhancing students‟ completion rates in public secondary in Mvita Subcounty. The study adopted a descriptive research design. The theoretical framework was based on systems theory of management.

The sample size of this study was 12 head teachers, 64 teachers and 189 students. The study utilized questionnaires for the respondents to collect data. Reliability of the instrument was done by performing Spearman's rank order correlation. The validity was done by conducting a pilot study on two schools that were not included in the study. Both qualitative and quantitative techniques were used to analyze data. The Statistical Packages for Social Scientists (SPSS) software package were utilized in analyzing data. The analyzed data was presented in frequency tables. Findings showed that there was a high enrolment rate into secondary schools, which was not consistent with completion rates. Reasons were that the physical facilities in the schools were not adequate to allow smooth learning sessions.

The schools were also not very well developed to meet the increasing demand by the learners pursuing secondary education. Additionally, the schools did not have adequate instructional materials, which affected the educational outcomes. Furthermore, the school funds were a major challenge as the research found out, because parents were still expected to meet educational costs, in spite of the subsidized education by free day secondary education by the government (Kinaro, 2015).

2.8 Knowledge Gaps Identified in the Reviewed Literature

It is apparent from review of related literature that SSF and student participation has been and is still an area of great interest to many educational researchers. However in as much as many aspects of educational management have been addressed extensively, many gaps still exist, some of which this study hopes to fill. One major gap in this Literature review is that most of the prior studies dealt with transition rate from secondary to university. However, this study focused on transition from primary to secondary, so as to bridge this gap.

Secondly, no study known to the researcher hitherto had investigated relationship between student to text book ratio and SSF in Vihiga county, which is a very important area that directly affects the academic performance of students. The present study was carried out to provide knowledge that might help to fill this gap. Finally, all the studies that have been reviewed in this chapter were all implemented using qualitative research designs, but in some, quantitative data were obtained as part of the results. In such a case, a mixed methods approach is best suited (Cresswell and Plano, 2011). The present study will fill this gap by taking a mixed methods approach.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section describes the research design and methodology that was used in the study under the following sub topics: research design, location of study, sampling procedures, data collection instruments, validity and reliability of the instruments, data collection procedures, data analysis and ethical considerations.

3.2 The Research Design

By combining qualitative and quantitative research methods, the weaknesses of one method can always be taken care of by strengths of the other. This is according to Creswell and Plano, (2011) who explained:

> *"A problem exists when the quantitative results are inadequate to provide explanations of outcomes, and the problem can best be understood by using qualitative data to enrich and explain the quantitative results in the words of the participants. In other words, mixed methods research helps answer questions that cannot be answered using only qualitative or quantitative methods alone. Mixed methods provide a more complete picture by noting trends and generalizations, as well as in-depth knowledge of participants' perspectives." (Page 33)*

For this reason, a mixed methods approach was used in this study to obtain both quantitative and qualitative findings. Research data were collected sequentially, because this approach demands integration of the data in one or more stages of a research process (Guest, 2013). In this regard, quantitative data were collected first, followed by qualitative data in quick succession. Quantitative data provided the study's primary findings, which were corroborated by the qualitative findings. The qualitative phase of

the study was accomplished through oral interviews, which were conducted immediately after the last stage of the quantitative phase, on principals and education officers who participated in the study, to capture their views about emerging issues with respect to students' participation since inception of subsidized school funding. The quantitative phase was implemented through descriptive survey research design, where quantitative instruments were used to capture data about enrolment, completion, transition and text book ratio among public secondary schools in the research area.

3.3 The Location of the Study

The study was carried out in Vihiga County which is located in Western Kenya. The County is geographically located between 1^0 15" North and 30^0 03" North latitude. To the West, it extends to 33^0 15" West longitudes and to the East 35^0 12" East longitude. The county covers an area of 530.9 Km^2 bordering Kakamega County to the North, Kisumu County to the South, Nandi County to the East and Siaya County to the West. The county has 2 National Schools which are Bunyore Girls High School and Chavakali Boys High School. It has five constituencies, namely, Emuhaya, Hamisi, Sabatia, Luanda and Vihiga (IEBC, 2013).

The county has an annual average rainfall of between 1,800mm and 2,000 mm with an average temperature of 24^0C. According to the national census carried out in 2009, the county has a total population of 555, 000 people comprising of 47% males and 53% females. The population density is 1,045 people per Km^2 with a national percentage of 1.44%. Her annual growth rate is 3.3% with an age distribution of 0 -14 years (44.2%), 15-64 years (49.4%), 65 and above years (6.1%) (KNBS, 2010).

The poverty level of the county is 62% with an Age Dependency Ratio of 100:102. The resources in the county include a forest, sand, rivers and stone quarry. One of her tourist attraction is the "Hill of Vision." The main economic activities include small scale farming of the following crops like tea, maize, millet and cassava. Dairy farming is practiced too. The crops are consumed locally and some, like tea are processed in local industries within the county (GOK, 2OO7). On the education front, the county has 412 public primary schools and 115 public secondary schools. The secondary school enrolment is 136,082 students, with a teacher to pupil ratio of 1:31 in public schools. It has more than 10 tertiary colleges (VCDE's Report on Staff Establishment, 2013).

This study was carried out in public secondary schools receiving government subsidy for secondary school education in the accessible population of Vihiga County of Kenya. There are 40 boarding schools and 75 day schools. Therefore, all the school principals totaling to 115 of secondary schools were targeted for the study. Distribution of the schools in the 5 sub-counties in Vihiga counties are as shown in Table 1 that follows.

Table 1: Distribution of Schools in Vihiga County per Sub-County

Sub-County	Day	Boarding	Total
Hamisi	23	11	34
Sabatia	22	12	34
Emuhaya	12	6	18
Luanda	10	6	16
Vihiga	8	5	13
Total	75	40	115

(Source: County Director of Education's Office)

Vihiga County was preferred for this study because the issue that instigated this study in the first place i.e. student participation is widely manifested in this region, due to several factors including; cultural beliefs, religious beliefs and poverty as mentioned earlier.

3.4 Study Population

Study population refers to an entire group of individuals, events or objects having common observable characteristics from which a sample which is a smaller group is obtained. It defines the universe of the study (Mugenda & Mugenda, 2003; Mugenda & Mugenda, 1999). The target population was included 5 sub-county directors of education, 115 principals, 1023 teachers and 5,175 Form 3 students totaling to 6318. Form 3 class was specifically selected because they had used FSE funds for at least three years which was long enough to be able to make a reasoned judgment on how the funds had benefitted them. The form 4 class was left out because they were busy preparing for the KCSE examinations. Form 1 and 2 had not been in the school long enough to clearly determine the benefits of FSE.

3.5 Sample Size and Sampling Techniques

Sample size refers to the actual number of subjects chosen as a sample to represent the population characteristics (Ghauri and Gronhaug, 2005). A number of sampling techniques were used to arrive at the required number of respondents that were needed for this study.

According to Kerlinger, (1983), 10% of the population if sampled, is sufficient to represent the target population. For this reason, 12 schools were used in this study, which is 10% of the 115 public schools available for selection from the research area.

Moreover, since the researcher wanted to use both day and boarding schools as demanded for by the research objectives, with none of the categories under or over-represented, 8 day schools and 4 boarding schools were used. These numbers were arrived at after mathematical computations were done as shown below to ensure equal proportion of each school category;

$$\text{No. of day schools required} = \frac{no.of\ public\ day\ schools\ in\ Vihiga\ county\ (75)}{total\ no.of\ public\ sec.schools\ in\ vihiga\ county\ (115)} \times 12 \approx 8$$

$$\text{No. of boarding schools required} = \frac{no.of\ public\ boarding\ schools\ in\ Vihiga\ county\ (40)}{total\ no.of\ public\ sec.schools\ in\ vihiga\ county\ (115)} \times 12 \approx 4$$

Principals of the specific schools that were to be used were selected by simple random sampling technique, which was executed by the balloting method.

Purposive sampling was then used to select all teachers and form 3 students in each of the 12 schools whose principals had been selected by the previously mentioned criteria.

Finally, saturated sampling was used to select all the 5 sub-county directors of education in the research area. This technique was used for this group of respondents because they were few and all accessible. Table 2 displays the study sampling frame, which gives a summary of the sampling techniques used on each group of respondents, and their corresponding numbers.

Table 2: Sampling Frame

Category of Respondents	Population (N)	Percentage (%)	Sample (n)	Sampling Technique
SDE's	5	100	5	Saturated sampling
Principals	115	10	12	Simple random sampling
Teachers	1,023	10	102	Purposive sampling
Form 3 Students	5,175	10	518	Purposive sampling
Total	6,318	-	637	Multi-stage sampling

3.6 Instruments for Data Collection

This study used both primary and secondary sources of data. Thus, the following instruments were used to collect data. These included; questionnaires, interview schedules and document analysis guides.

3.6.1 Questionnaire

Hague, (1993) points out that primarily, the role of questionnaires is to draw accurate information from the respondents. Bell, (1999) noted that questionnaires are a good way of collecting certain types of information quickly and relatively cheaply. The questionnaire is therefore an ideal instrument to gather categorical data from a large sample in a fairly short time (Kothari, 2004). It can also be answered at the convenience of the respondent and picked at a later date.

The self designed questionnaire (Appendices 4 and 5) with both open ended and closed items was used for teachers and students respectively. The subjects responded to questions that placed on a five-point Likert- type scale. This scale allowed the respondents to rate the relationship between subsidized school funding and students participation in secondary in Vihiga County. The respondents were assured that the information given were only for the purposes of research and would be treated with utmost confidentiality. To enhance return and completion rates of these questionnaires, a non-monetary incentive (Appendix 14) was provided to all the selected respondents.

3.6.2 The Interview Schedule

An interview is a face to face interpersonal role situation in which one person, the interviewer, asks the person being interviewed to respond to some questions (Kerlinger, 1993). The Interview Schedule (Appendix VI & VII) was used for the principals and directors of education, respectively. The questions reflected the objectives of the study.

3.6.3 Document Analysis Guide

The instrument was used to check records from the principals on subsidized school funding. The records on Government subsidy, students' fees payment, students' enrollment, completion, education resources inventory and KCSE examination results were perused and important data captured. The document is presented as Appendix VIII.

3.7 Piloting

A pilot study was carried out three weeks prior to the actual study, in 5 secondary schools one from each of the 5 sub-counties of Vihiga County, Kenya. The pilot schools and respondents were expunged from the study sampling frame before the actual study, so as to avoid redundancy and *hallo* effect in the actual study (Long-Crowell, 2015). Data collected from the pilot study were used to assess validity and reliability of the research instruments as explained in the subsequent subsections of this chapter.

3.7.1 Validity of the Research Instruments

An instrument is said to be valid if it measures what it purports to measure (Creamer, 2017). Mugenda and Mugenda, (1999) refer to validity as the extent to which the instrument measure what it is supposed to measure or designed to measure. According to Bell, (1999), validity indicates whether an item measures or describes what it is supposed to measure or describe.

The instruments for this study for instance, the questionnaire, interview schedule and document analysis guide were validated using the RASCH Model. It was expected that content validity of the items in the instruments was ensured following consultation with peers and supervisors from the department of Educational Planning and Management, Masinde Muliro University of Science and Technology.

To implement this, the researcher supplied the three research experts with a rating scale and scoring guide (see Appendix 8) for this purpose. The experts were requested in writing to scrutinize, critique and assess the content validity of the three instruments, whose results were as presented in Table 4, the validity score sheet.

Table 3: Validity score Sheet

Instrument	VALIDITY SCORE *(on a scale of 1 - 10)*			
	Expert 1	**Expert 2**	**Expert 3**	**Average**
Questionnaire for Teachers	7	9	8	8
Questionnaire for Students	7	7	8	7.3
Interview Schedule for Principals	5	8	7	6.7
Interview Guide for SDE	9	9	7	8.3
Document Analysis guide	6	7	8	7

(Source: researcher)

It can be observed from Table 4 that the average validity scores that were awarded to each of the five research instruments by the three research experts were above the minimum recommended score of 60%, for educational researches (Kahn and Best, 1998). These validity scores were construed to mean that the instruments used had a strong ability to measure the variables that were investigated in this study.

3.7.2 Reliability of Research Instruments

A research instrument is said to be reliable if it can produce consistent results when administered repeatedly on the same subjects (Creamer, 2017). Quality of research is dependent on the consistency with which observations are made. Consistency is in turn dependent on the precision with which an observable is specified (Keeves, 1997). On reliability, Fink and Kosecoff, (1998) explain that, a ruler is considered to be a reliable instrument if it yields the same results every time it is used to measure the same object

assuming the object itself has not changed. A reliable survey provided a consistent measure of important characteristics despite background fluctuations. It reflects the true score-one that is free from random errors.

Reliability is the degree of consistency between measures obtained from a subject under similar conditions at different times. Test- retest method of estimating reliability was used to determine the reliability. This method administers the same instrument twice to the same group of subjects at different times. A pilot study was done in one school per sub-county totaling to 5 schools that were not part of the sample. The researcher administered the instruments to the students, teachers and the principals from both day and boarding schools. After a period of two weeks, the researcher administered the instruments again to the same respondents. Responses from the respondents were thus checked for consistency. From their responses, some changes were made to the structure and some of the questions.

A quantitative analysis of the inquiry was performed using the SPSS computer programme to statistically test the reliability of the research instrument. In the analysis, the sum variables were compared to a single variable (Bryman & Cramer, 2001). A correlation co-efficient was worked out using Pearson's Product Moment Correlation. It had been stipulated that an instrument whose calculated alpha coefficient would be equal to or greater than 0.7 would be deemed fit for use in this study, as it would have met the threshold set by George & Mallery, (2003), who came up with the following rules of thumb;

> *"Greater than 0.9 would be Excellent, greater than 0.8 would be Good, greater than 0.7 would be Acceptable, while greater than 0.6 would be Questionable, greater than 0.5 would be Poor, and less than 0.5 would be Unacceptable" (p. 231).*

Going by these standards, items in all the research instruments, whose calculated Cronbach's alpha coefficients were found to be less than 0.7 were assumed to be defective, and were consequently modified. The reliability analyses indicated that all the three quantitative instruments eventually surpassed the minimum acceptable reliability coefficients *[questionnaire for teachers: r=0.746, questionnaire for students: r=0.846, Document analysis guide: r=0.818]*. These results implied that the quantitative research instruments that were used to collect data in this study were of good scholastic quality and if used again under the same research conditions, they would produce a similar set of results.

3.8 Data Collection Procedures

A letter was sought from the School of Graduate Studies of Masinde Muliro University of Science and Technology. This letter was taken to the National Commission for Science, Technology and Innovation (NACOSTI) in Kenya where a research permit was issued to carry out the research in Vihiga County. The research instruments were piloted in two schools per each sub-county that were not part of the sample. The researcher then moved to the sampled schools where questionnaires were administered to the sampled teachers and students. Interviews were conducted to SCDE and principals. Two research assistants were trained to be conversant with the instruments and involved in the collection of data under guidance of the researcher. To address ethical and courtesy issues, confidentiality was upheld at all times.

3.9 Data Analysis

This being a mixed methods study, both qualitative and quantitative data were collected. To facilitate analysis, the raw data were coded in SPSS version 23.0 and analyzed descriptively to generate frequencies, percentages, means and standard deviations. These descriptive measures were used to supplement inferential statistics by giving explanations to the observations arising from the inferential statistics. Quantitative data were analyzed using Pearson's Product Moment Correlation Coefficient (PPMCC) to establish the relationships between the variables under investigation in this study. PPMCC was used to test the hypotheses because apart from the fact that the data collected with respect to this hypothesis met assumptions of this parametric test, the researcher wanted to establish the direction and strength of association between the dependent and independent variables, which qualified PPMCC to be the most suitable test, given that the data collected was assumed to be normally distributed and on a continuous ratio scale.

Results of both descriptive and inferential data analyses were presented in tables, pie charts, histograms and line graphs. Hypothesis testing was carried out at $\alpha = 0.05$. A summary of objectives, variables under examination and the statistical tools of analysis that was used are outlined in Table 4.

Table 4: Statistical Analysis Tools Used

Research Objective (To establish…)	**Independent Variable**	**Dependent Variable**	**Analytical Technique**
1. Trends in enrolment rates and subsidized funding by school category in public secondary schools in Vihiga county from 2009 to 2015	Trends in enrolment and subsidized school funding (Ksh. 10, 265 per student)	Categories of secondary schools (Boarding an day)	Trend analysis, means, cross tabulations
2. Relationship between subsidized school funding and student: textbook ratio in public secondary schools in Vihiga county	Subsidized school funding programme (Ksh. 10, 265 per student)	Student: textbook ratio in decimals	Ratios, Pearson's correlation
3. Association between subsidized school funding and transition rates from public primary to secondary schools in Vihiga county from 2008 to 2015	Subsidized school funding programme (Ksh. 10, 265 per student)	Primary to secondary school Transition rates in %	Trend analysis, percentages, cross tabulations
4. Relationship between subsidized school funding and completion rates in public secondary schools in Vihiga county	Subsidized school funding programme (Ksh. 10, 265 per student)	Completion rates in %	Percentages, Pearson's correlation

(Source: Researcher)

3.10 Ethical Considerations

Several measures were put in place by the researcher, so as to ensure that the rights of all participants of this study were not violated in any way. The researcher has acknowledged all sources of information used to develop this work, so as to avoid plagiarism. The researcher also obtained a research permit (Appendix 11) and authorization letter (Appendix 12) from NACOSTI, before going to the field to collect data, so as to ensure that the study was legal under Kenyan Law.

The researcher also sought consent from all respondents before using them in the study. This was done by asking them to sign informed consent forms (Appendix 10), one week to the actual study. This ensured that no respondent felt coerced or forced in any way to give information for this study against their wishes. To build confidence in the respondents, the researcher assured them of their anonymity and confidentiality of all sensitive information they provided. Only pseudo names were used instead of actual names of respondents and their institutions for this reason. This ensured maximum participation of respondents, who as a result, "opened up" fully without fear of arousing controversy or being reprimanded.

Where applicable, the researcher selected respondents of this study randomly to ensure that none of them would feel left out unfairly or for no justifiable reasons. Additionally, letters of appreciation were written (Appendix 9) and dispatched to all respondents of this study, to thank them for the various roles they played in this study. Finally, the researcher has ensured that the findings of this study are reported accurately, without any changes, exaggerations, alterations or falsifying them.

Finally, though teachers' gender, academic and professional qualifications are some of the factors that may affect students' academic participation, the researcher did not discriminate the participating teachers along these lines, as they were not the main variables of interest in this study.

CHAPTER FOUR

RESEARCH FINDINGS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter highlights presents the results of all the statistical analyses that were done on the research data, together with their interpretation, followed by a discussion of these results with respect to the research objectives. Data were used to meet the four objectives of the study as outlined in chapter one, which were; (i) to investigate trends in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga county, Kenya from 2007 to 2015, (ii) to determine the relationship between subsidized school funding and textbook to student ratio in public secondary schools in Vihiga county, Kenya (iii) to establish the relationship between subsidized school funding and transition rates from public primary to secondary schools in Vihiga county, Kenya from 2007 to 2015 and (iv) to establish the relationship between subsidized school funding and completion rates in public secondary schools in Vihiga county, Kenya.

4.2 Data Screening

Prior to the actual analysis, several steps were undertaken to screen for accuracy and quality of all data that were collected by the research instruments of this study. The "Missing Value Analysis" program in SPSS version 23 was used to check out for any missing values. Data were also screened by running descriptive statistics and examining the range of values on all variables after coding all responses in each research instrument. This process revealed some erroneous data entry. Given this, all values in the data sets were compared to the values on the hardcopies of questionnaires, interview schedules and

document analysis guides i.e. any cases in the data set that had a value beyond the allowable range for a given variable was reviewed in its entirety to pinpoint the errors. After the data screening, no cases out of the 637 remained in the programme for further analyses.

Finally, data were examined for consistency checks to ensure logical relationships among variables, for example, no students in the "teacher's" ID column and vice-versa. Variables with questionable values were chosen for closer examination by reviewing the instruments' filled hardcopies. The values on the document analysis guides, interview guides and questionnaires were compared to the values entered in the data file. This revealed that some of the questionable values were also due to erroneous data entry. All inconsistent values were eventually located and rectified accordingly hence prior to analysis, 100% of the cases were available and logically consistent.

4.3 Preliminary Data Analyses

Prior to the actual data analyses, several preliminary analyses were performed to establish the research instruments' completion rates, return rates and all the relevant demographic characteristics about the principals, teachers, sub county education officers and students, all of whom were the respondents of this study.

4.3.1 Unit of Analysis

Unit of analysis is the major entity being analyzed in a study. It is the "what" or "who" is being studied (Bailey, 2008). With respect to this study, the units of analysis of data with respect to each research objective were as shown in Table 5.

Table 5: Units of Analysis

Objective	Variable	Unit
First	Enrolment rate	Number of students joining form 1 in a particular year
Second	Text book ratio	Number of students using one text book in a given subject
Third	Transition rate	Number of pupils moving from class eight in a given year to form one the next year
Fourth	Completion rate	Number of students who sit for KCSE in comparison to those who joined form one in the same school

The first objective was to investigate trends in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga county from 2009 to 2015. The variable under scrutiny in this objective was enrolment rate and hence the unit of analysis under this objective was the number of students who joined form one in public secondary schools within Vihiga county between years 2009 and 2015 as Table 5 shows.

The second research objective was to determine the relationship between subsidized school funding and textbook to student ratio in public secondary schools in Vihiga county. The variable under investigation was text book to student ratio and therefore the unit of analysis with respect to this objective was the number of students sharing or using one text book in a given subject.

The third research objective was to establish the association between subsidized school funding and transition rates from public primary to secondary schools in Vihiga county from 2007 to 2015. The variable under investigation was transition rate, and therefore the unit of analysis with respect to this objective as Table 5 further reveals was the number of form one students in Vihiga county in a given year in comparison to the number of pupils who sat for KCPE the previous year.

The fourth research objective was to establish the relationship between subsidized school funding and completion rates in public secondary schools in Vihiga county. The variable under investigation was completion rate, and hence the unit of analysis with respect to this objective as Table 5 reveals was the number of students who sat for KCSE in a given year, as compared to the number that enrolled in form one in the same school.

4.3.2 Demographic Characteristics of Principals

The principals' interview schedules were first analyzed descriptively to establish the gender and educational background of all the principals that were involved in this study and the results were as presented in Figure 2.

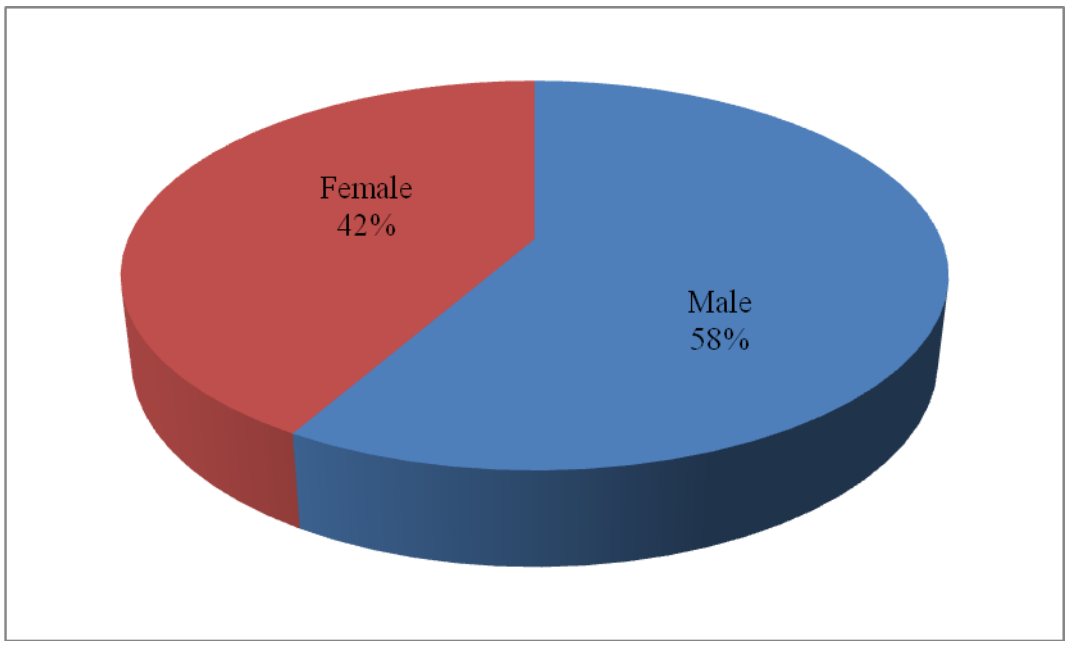


Figure 2: Distribution of Principals by Gender

Results in Figure 2 indicate that most of the principals were male comprising 7 (58.0%) while the rest 5 (42.0%) were female. The findings show that this study included both female and male principals, who gave information on the study topic. At the same time, the study established academic qualification of the principals as presented in Figure 3.

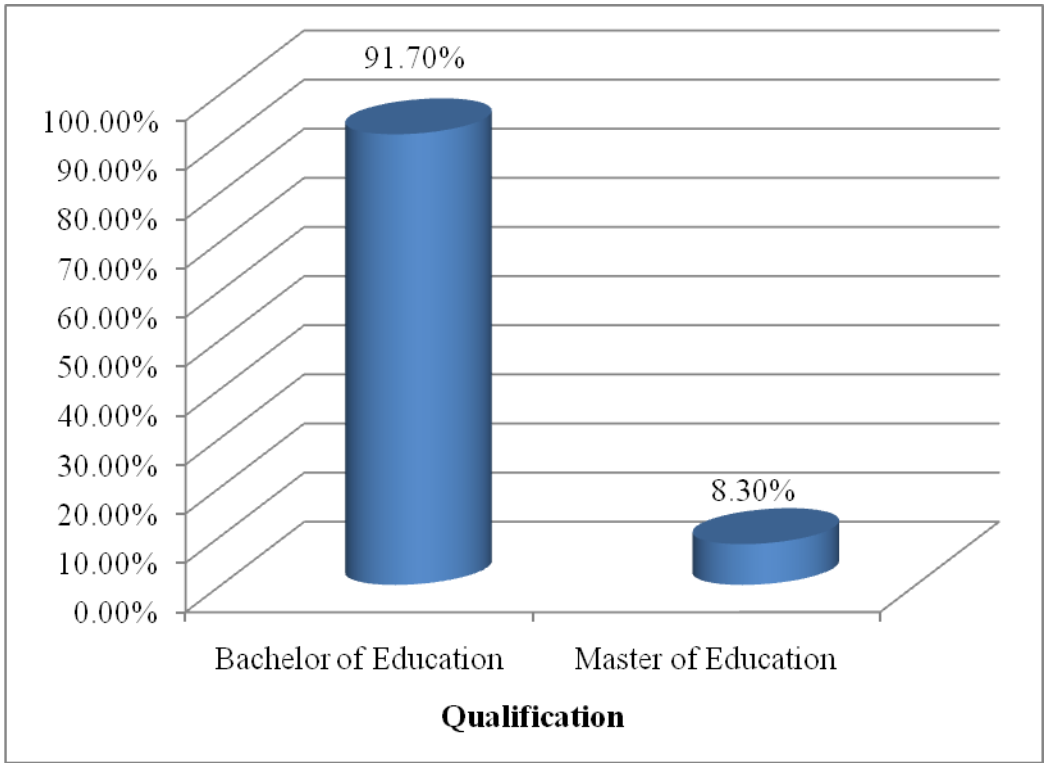


Figure 3: Academic Qualifications of Principals

Results in Figure 3 show that most of the principals were bachelor of education (B.Ed) holders comprising 11 (91.70%) while the rest (8.30%) were Master of Education holders. These results clearly show that principals had the required academic qualifications and therefore able to provide the necessary information for this study although the Teachers Service Commission, the employer requires principals to have a Masters degree in Education Management. Majority therefore fall short of the employers requirements. In addition, the study established the category of schools that the principals came from. Results are in Figure 4

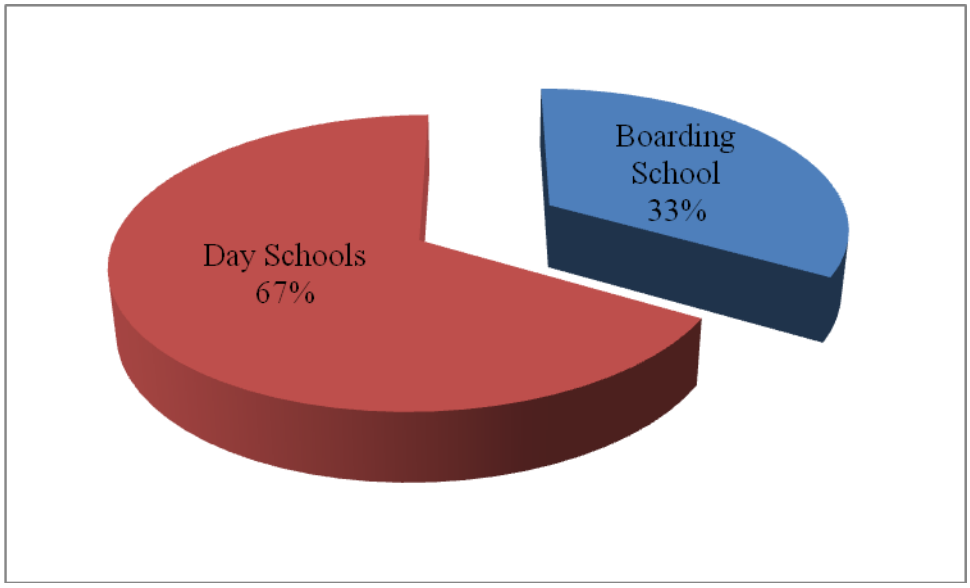


Figure 4: Principals' School Type

Results in Figure 4 indicate that 4 (33.0%%) of the principals were from boarding schools while the other 8 (67.0%) were from day schools. This shows that principals were able to provide information on the study topic from both day and boarding schools. The views from respondents catered for the school categories in Vihiga and therefore eliminating possibilities of bias.

4.3.3 Demographic Characteristics of Teachers

Questionnaires for teachers were also analyzed descriptively to establish the gender of teachers and the findings were as presented in Figure 5.

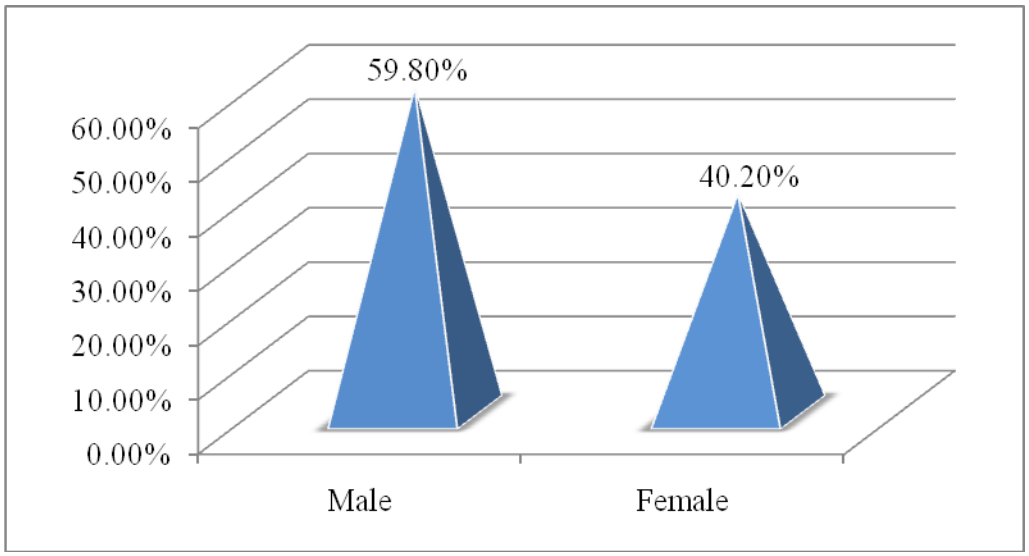


Figure 5: Distribution of Teachers' by Gender

Results in Figure 5 show that 61 (59.8%) of the teachers were male while 41 (40.2%) of them were female. This clearly indicates that teacher respondents included both genders. Like it were for principals, the trend in gender remains inclined towards male. There are more men than female teachers in Vihiga schools. Furthermore, this study established that professional qualification of the teachers. Figure 6 presents the results.

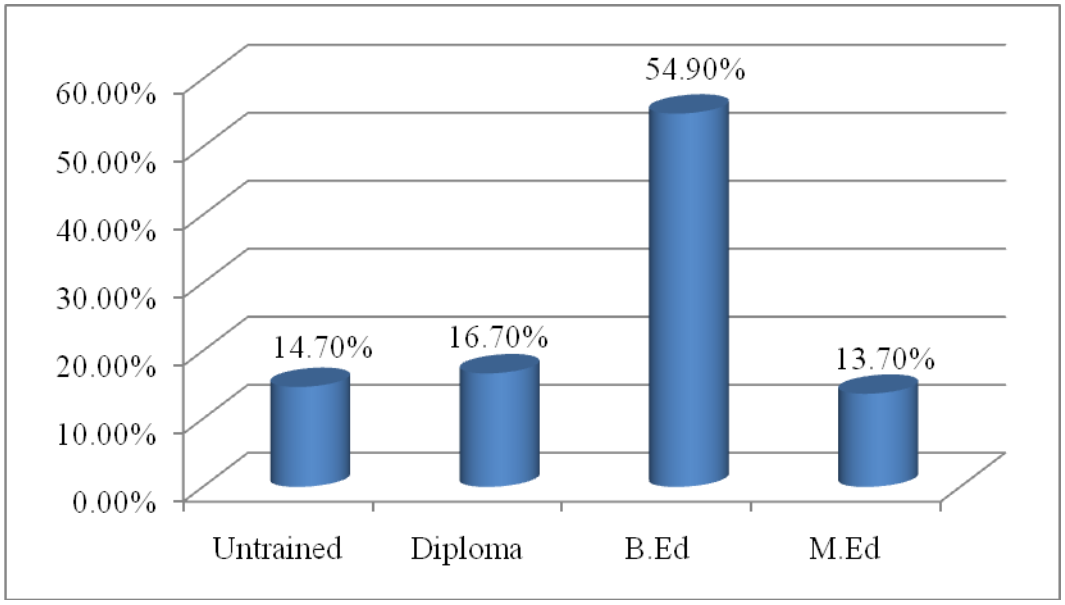


Figure 6: Teachers' Professional Qualifications

Findings in Figure 6 indicate that 15 (14.7%) of the teachers were untrained. On the other hand, 17 (16.7%), 56 (54.9%) and 14 (13.7%) of the teachers were diploma, bachelor of education and master of education holders respectively. The big percentage showing untrained teacher only brings the acute shortage of staffing in schools. In addition, this study established the school categories that the teacher respondents came from and the findings were as shown in Figure 7 that follows.

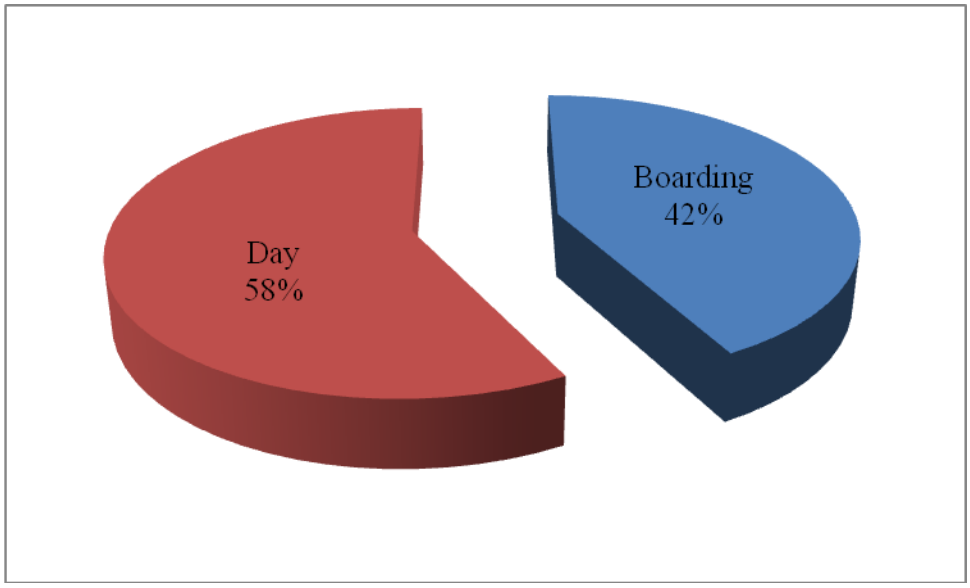


Figure 7: Distribution of Teachers' by School Type

Data from Figure 7 shows that 43 (42.0%) teacher respondents were from boarding schools while another 59 (58.0%) were from day schools. This data indicates that the respondents were from both day and boarding schools thus able to provide information from both experiences.

4.3.4 Demographic Characteristics of Students

The students' questionnaires were analyzed descriptively to establish the gender and type of school in which the sampled students were enrolled in and the results were as presented in Figure 8.

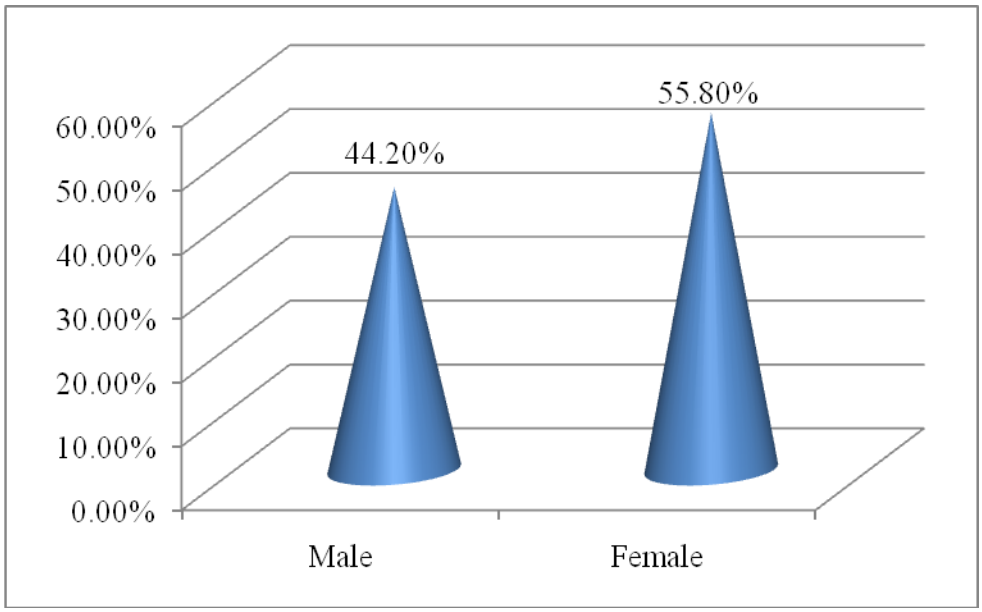


Figure 8: Distribution of Students' by Gender

It can be observed in Figure 8 that majority of the student respondents were female comprising of 289 (55.8%) while the rest comprising of 229 (44.2%) of them were male. These findings show that students of both genders were used in this study to provide information on the topic. Furthermore, the study established students' school categories as shown in Figure 9.

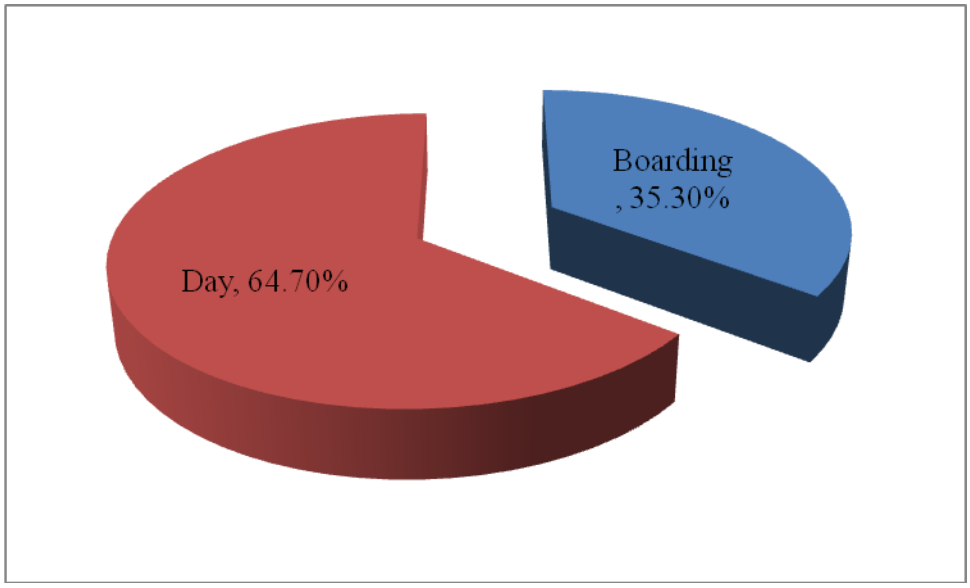


Figure 9: Distribution of Students by School Category

Results in Figure 9 indicate that most of the students comprising of 335 (64.7%) were from day schools while another 183 (35.3%) were from boarding schools. this clearly shows that this study included students from both day and boarding schools with those from day schools being majority.

4.3.5 Completion and Return Rates of Research Instruments

Return rates of all the research instruments were calculated to determine whether there was any loss of data or inefficiency on the part of research assistants. Results were as presented in Table 6, which indicates that no instruments were uncollected by the end of the data collection exercise.

Table 6: Return Rates for the Research Instruments

Instrument	No. Administered	No. Returned	Return Rate (%)
Students' Questionnaire	518	518	100
Teachers' Questionnaire	102	102	100
Principals' Interview Schedule	12	12	100
Officers' Interview Schedule	5	5	100
Document Analysis Guide	12	12	100
Totals	**649**	**649**	**100**

This was especially so because taking the teachers' and principals' questionnaires for instance, they both had maximum possible return rates of 100%. Return rates of the students' questionnaires and document analysis guides were also established to be 100% since all the copies administered were returned within the stipulated time frames. Return rates for the interview guides were also 100%. Going by these ideal return rates, no data was lost in this study. This important milestone was achieved as a result of several measures that the researcher put in place, which included (i) supervision of the whole exercise of administering the research instruments, where both the researcher and his research assistants were physically present to invigilate and take care of anything that demanded immediate attention, (ii) sensitization of respondents about the importance of their responses and how future policy action by the ministry of education might depend on the information they were about to give and (iii) production of colored copies of these

instruments , (iv) use of a sufficient number of effective research assistants, who had earlier been given extensive training on how to conduct the data collection exercise and (v) careful packaging and safe custody of all the hard copies of the research materials. It took 45 minutes on average to administer and collect the questionnaires.

Completion rates for all research instruments that were administered and returned were also computed prior to actual data analysis, to determine whether any significant amounts of data were lost in the course of the study. This was done by dividing the number of items fully responded to in each instrument by the corresponding total number of items therein and multiplying the quotient by 100. Table 7 presents the completion rates that were obtained for each of the research instruments used in this study.

Table 7: Completion Rates for the Instruments

Instrument	**No. of Items**	**No. Completed (Average)**	**Completion Rate (%)**
Students' Questionnaire	35	32.8	93.7
Teachers' Questionnaire	38	36.2	95.2
Principals' Interview Schedule	5	5	100
Officers' Interview Schedule	25	24.2	96.8
Document Analysis Guide	6	5.8	96.7
Totals	**109**	**104**	**95.4**

As Table 7 reveals, the completion rate was highest in the principals' interview schedule at 100%, followed by the sub county education officers' interview schedule at 96.8%. The Document Analysis Guide, teachers' Questionnaire and students' Questionnaire, followed with completion rates of 96.7%, 95.2% and 93.7% respectively.

These relatively high completion rates imply that very little hence insignificant amounts of data were lost in the course of data collection. This was a very important milestone in research (Fan and Yan, 2010), which was achieved because of a raft of measures that the researcher put in place to guard against any loss of significant amounts of data. These included; (i) assurance of anonymity of the respondents, through the use of pseudo names instead of actual names, (ii) assurance of confidentiality of information given prior to administration, (iii) production of coloured copies of these instruments, (iv) allocation of sufficient amounts of time needed for most respondents to respond to all items in each instrument.

This decision was informed by the researcher's observations from the pilot study, (v) frequently reminding the respondents about the amount of time available for completing the exercise, (vi) clear articulation of the importance of this study beforehand, (vii) provision of simple and clear instructions on how each instrument was to be filled and (viii) minimal use of jargon and instead, using language commensurate to the respondents' level of education.

The few items that were left unanswered were possibly because of the amount of time allocated to fill the instruments, which might have been inadequate to slow learners or learners with problems in English language. This conclusion was arrived at basing on the fact that most items that were not responded to were from the last page in most of the copies of research instruments that were scrutinized. This however was not an issue of major concern because very few students were affected anyway.

4.4 Statistical Assumptions

The null hypotheses of this study were tested for, using Pearson's Product Moment Correlation Coefficient (PPMCC). These being inferential tests, they relies on a number of assumptions which were assessed beforehand. This was a mandatory step because the assumptions if violated, might have led to commission of type I or type II errors in the course of hypothesis testing and hence misleading findings (Cox, 2006). For this reason, all statistical assumptions of PPMCC analysis were assessed, so as to leave no room for committing any of the two previously mentioned statistical errors, both of which cannot be ignored, because doing so is tantamount to disseminating misleading findings.

PPMCC was used to test the study null hypotheses. Data for these hypotheses were checked to assess if the statistical assumptions were met for normality. Normality was tested using the Shapiro-Wilk test. The analysis as shown in Appendix 15 yielded a non-significant p-value for enrolment rate, transition rate and completion rate as earlier explained, which implied that all the data collected with respect to the null hypothesis were normally distributed. PPMCC was also used because all the variables under

investigation i.e. SSF, transition rate, completion rate and text book to student ratio were all on continuous ratio scale (George and Mallery, 2003).

All the statistical assumptions for correlation, having been assessed, imply that neither type I nor type II statistical errors were committed in the course of data analysis, as this would have led to implausible findings.

4.5 Findings with Respect to the First Research Objective

The first research objective was to investigate trends in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga county from 2009 to 2015. This section presents the findings of this study with respect to this first objective. The first research question as formulated from this objective was, "What is the trend in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga county from 2009 to 2015?". To address this research question, the study established the number of students that had been enrolled in Form one as from 2009 to 2015 in day and boarding schools. The findings were as shown in Table 8

Table 8: Trend Analysis of Form One Enrolment in Vihiga County from 2009 to 2015

School Type	Unit	2009	2010	2011	2012	2013	2014	2015
Boarding	Avg. no. of students per school	149	177	232	247	282	315	347
Day	Avg. no. of students per school	67	93	100	94	90	89	73
Total	**-**	**216**	**270**	**332**	**341**	**372**	**404**	**420**

Source: Field Data 2015

Results in Table 8 indicate that there was a steady rise in the average number of students enrolled in Form one in the boarding schools as from 2009 to 2015. This implies that ever since subsidization of secondary education was launched in 2008, there has been an influx of students who were enrolled in favor of boarding schools. The trends in enrolment can also be visualized from figure 10, which reveals that boarding schools received a larger percentage of form one students in comparison to day schools.

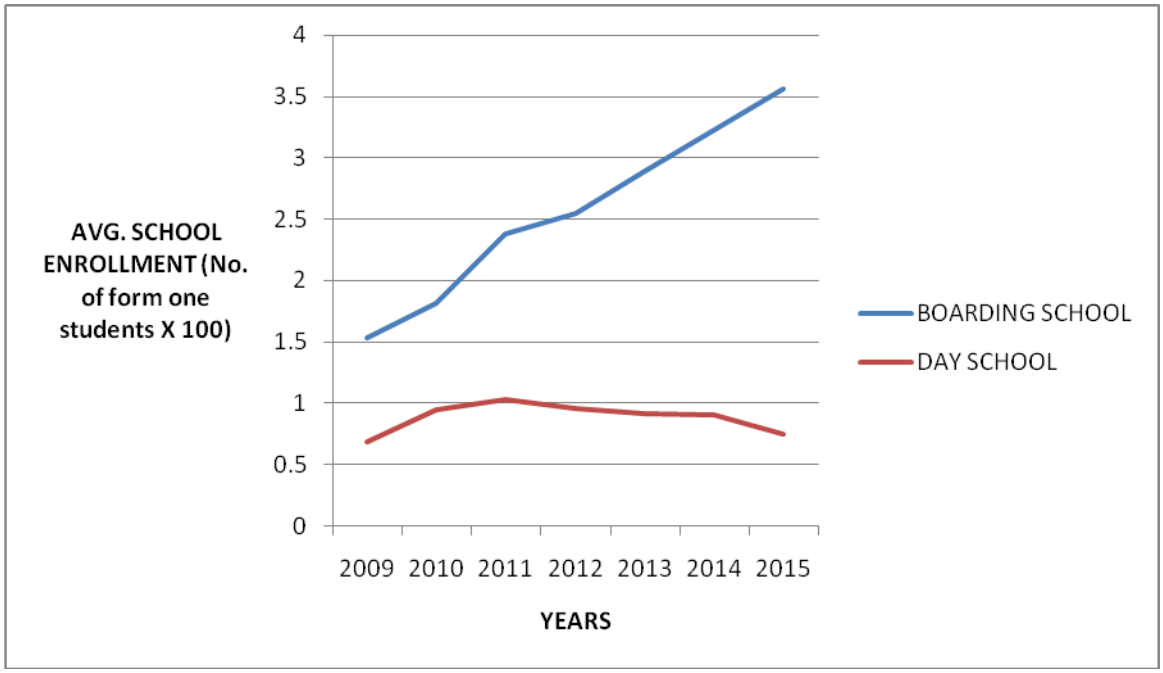
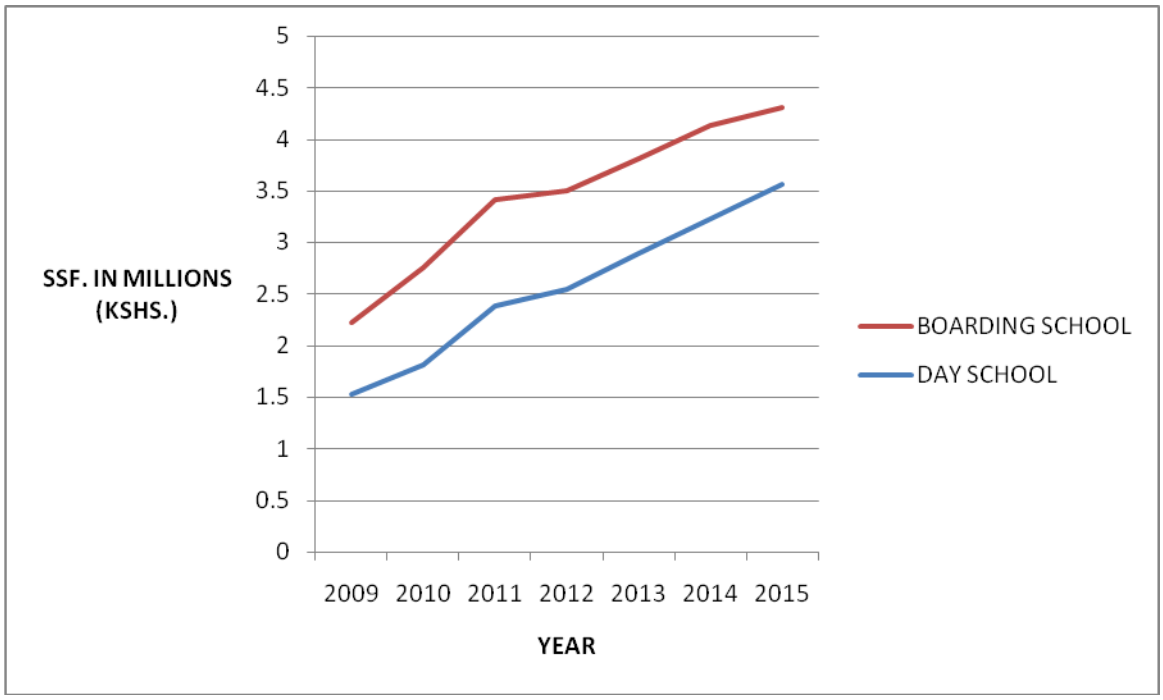


Figure 10: Trends in school enrolments from 2009 to 2015

The first objective of this study was investigate trends in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga County, Kenya, from 2009 to 2015. Figure 10 and Table have clearly indicated a general increase in students' enrolment across the years under investigation in favor of boarding schools.

The amount of money channeled towards SSF was also analyzed across the years under investigation and the results were as shown in Figure 11, which reveals a general increase in the amount of money for SSF. This increase is attributed to the increase in students' enrolment across the years under investigation as mentioned earlier.



It can also be deduced from the Figure that the subsidized school funding may have enabled parents who were unable to pay fees in boarding schools take their children for admission to boarding schools. With respect to day schools, Table 9 shows that from the year 2009 to 2011, there was an increase in the average number of students who were enrolled in Form one. However, as from 2012 to 2015, there was a steady decline in the number of students who were enrolled in Form one. A cross-tabulation was also made for SSF versus school enrolment rates per school category and the results were as presented in Table 9

Table 9: Cross Tabulation of SSF and Enrollment per School Category

School Type	Variable	2009	2010	2011	2012	2013	2014	2015
Boarding	Enrolment	149	177	232	247	282	315	347
	SSF in Millions (Ksh)	1.53	1.81	2.38	2.54	2.89	3.23	3.56
	% of total	69	66	70	72	76	78	83
Day	Enrolment	67	93	100	94	90	89	73
	SSF in Millions (Ksh)	0.69	0.95	1.03	0.96	0.92	0.91	0.75
	% of total	31	34	30	28	24	22	17

Table 9 points out that from 2009 to 2015, the average enrolment increased with increase in the amount of SSE funds in both day and boarding schools, although the boarding schools recorded higher enrolment a steady increasing trend in students' enrolment for boarding schools. This may be attributed to the fact that most parents are attracted to take children to boarding schools. It also was noted that there was intensive learning in such schools thus higher academic performance which may be because boarding schools had other levies meant for boarding. Principals in boarding schools may have utilized such funds as they wait for the Government to disburse the subsidized school funds. This is contrary to day schools that had no extra funds and thus depend on the subsidized school funding from the Government.

On the other hand, there was a rise in the students' enrolment in day schools as from 2009 to 2011, after which there was a steady decline in the number of students who were enrolled in Form one. This is attributed to steady increase in extra levies demanded by schools. It also means that the Government relaxed the supervisory role hence without scrutiny, schools increased fees leading to drop outs or inability to enroll in secondary school after completing primary school. One Sub-county Director of Education (SDE) confessed,

> *"We do not have enough staff in our offices to monitor what happens in all schools on day to day basis. Remember that almost every primary schools has a sister secondary school"*

In addition, it may have been noted that little learning went on in day schools due to delay in disbursement of subsidized funds leading to many day schools either to close or fail to sit end of term examinations hence lowering confidence among the parents.

It can be deduced from the Table that in boarding schools, there were positive deviations in the enrolment trends as from 2009 to 2015. This indicates that there was generally an increase in the number of students who were enrolled in Form one in the boarding schools as from 2009 to 2015. On the other hand, results indicate that for day schools, there was a positive deviation in the period of 2009 to 2010 and 2010 to 2011. After that there were negative deviations till 2015 which indicates that there was decrease in the number of students who were enrolled in Form one in day schools during those consecutive years.

These findings show that in spite of the low school fees charged by the day schools, the enrolment levels in Form one were on a steady decline while the boarding schools registered high levels of enrolment in Form one despite the fact that they charged high fees. This implies that there must be other requirements that parents need and thus the need to flood boarding schools with students and avoid day schools. This may make the Government's goal of increasing access to secondary education be hampered unless the parents and the society at large be sensitized on the same. At the same time, quality in boarding schools is likely to be compromised due to large number of students being enrolled which leads to resources in those schools being over-stretched.

On the other hand, the resources in day schools may be left idle or under-utilized due to low levels of enrolment. At the same time, it is worth noting that due to boarding levies, boarding schools can squeeze and employ some teachers on Board Of Management (BOM) to help areas that lack teachers unlike day schools that have no opportunity to charge any extra levies that can be used for the same. One SCDE said, thus:

> *"Day schools depend on the subsidized funding and the delay in the disbursement of the funds is a national issue not only in Vihiga County. The delay is due to logistical issues like the consultative budgetary process."*

More importantly, the Government policy of free day secondary school funding may be undermined. The question being raised is that: Is the policy working for the common good? Another SCDE indicated, thus:

> *"Education is like a shop, it is an issue of willing seller, willing buyer. It is upon the day school principals to market their institutions but the Government cannot force parents to take their children to schools that are not of their choice."*

It can be concluded that there was a general positive trend in students' enrolment in both day and boarding schools, which was as a result of the steady increase in the amount of funds that were sent to the said schools for SSE.

4.6 Discussion of Findings with Respect to the First Research Objective

It was found out in this study that there is a steady upward trend in the enrollment rate among students pursuing secondary education, especially in boarding secondary schools. This essentially calls for policy review. These findings in boarding schools are in agreement with Fafunwa (2010) who argues that there was a big gap in quality resulting from large number of students in crowded classrooms, using obsolete equipment and disillusioned teachers, which is an argument that is not in line with the findings in day schools. The findings also agree with Chapman *et al.*, (2009) who indicates that parents can take their children to other secondary schools if they can afford to pay the fees. The findings also disagree with Nyaga, (2005) who opined that the school going age have no option other than attend school to acquire education that is fully funded by the Government. Parents were willing to pay more by taking their children to boarding schools.

These results also part from the findings of Ndiku and Muhavi, (2013) that implementation of free secondary education saw many parents withdraw paying additional levies to supplement the FSE due to misconception. Declining enrolment rate

in day schools may be due to delay in the disbursement of the funding which agrees with Wafula, (2012) who reported that due to bureaucracies in the processing of the funds, delay is experienced causing panic and outcry among education stakeholders.

Also in agreement with findings of the present study are those of a study by Mutegi, (2015) who investigated the influence of unit cost of education on students' enrolment rates in public secondary schools in Tharaka South sub county, Kenya. The study tried to answer three questions. First, to what extent does the average household expenditure on education of every student influence enrolment in secondary schools in Tharaka South Sub-county? Secondly, to what extent does average government expenditure on every student's education influence enrolment in secondary schools in Tharaka South Sub-County? Thirdly, are there age and gender education unit cost differentials in Tharaka South Sub-County? The study used co relational survey research design to establish the relationship between unit cost of education and students' enrolment rates in public secondary schools. The data were collected from household heads and principals of secondary schools and also from Ministry of Education offices.

The target population comprised all the 23,275 household heads and 26 principals of secondary schools in Tharaka South Sub county. The Yamane's formula was used to get a sample of 393 household heads, while census was used to get the number of school principals who participated in the study. Questionnaires, interview schedules and education document analysis by interviewers were the main tools that were used for data collection.

The data were analyzed using both SPSS and STATA softwares whose results revealed that most of households had more girls in secondary school than boys. The study also established that there was high correlation between parents' level of education and children enrolment in secondary schools with r=0.891and $p<0.05$. On transport cost, the average distance from home of student to school is 24km, with day schools being closer at 12km and boarding schools being 28km away. The study revealed that the cost of girls' school uniform is 12% higher than that of boys, and there was evidence of a high correlation between uniform cost and a student's gender ($p<0.05$).

Regarding the household average expenditure on education for children in public secondary schools, the study established that the unit cost of education for girls is higher than that of boys in boarding schools (the average cost for girls was Ksh 52, 474 while that for boys was Ksh 49,194). However, the situation was opposite in day schools, where the unit cost for boys was higher than that of girls. The study also established that the average government expenditure per student was Ksh 27,189.

Furthermore, the study established that a child was less likely to enroll in a secondary school if the household expenditure was higher than the government expenditure. Thus, government education subsidies may have been promoting enrollments in secondary schools in the region (Mutegi, 2015). These findings therefore call for action by the Ministry of Education to put measures in place that would boost students' enrolment especially in day secondary schools, given that more money is allocated towards subsidization of secondary education in day schools as compared to boarding schools which receive lees money from the government,

A similar study by Aroni, (2013) assessed the effects of subsidized secondary education in Nyamache Division, Kisii County, whose specific objectives were; to determine the gross enrolment rates in public secondary schools in Nyamache Division in the last five years, to determine the impact of subsidized secondary education on access to the existing educational resources in public secondary schools in Nyamache Division, to determine how access has been achieved by the subsidized secondary education in relation to teaching and learning resources in public secondary schools and to propose solutions to the problems of subsidized secondary education in relation to access on the educational resources in public secondary schools in Nyamache Division.

The study adopted the descriptive survey design to investigate the various effects of subsidized secondary education in Kenya. The target population comprised of 28 public secondary schools in Nyamache Division with 2,536 students who are under the Subsidized Secondary Education Programme, from which a sample size of 14 Head Teachers and 48 class teacher were used which made a total of 62 respondents.

Data were collected, coded and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS). The collected data were analyzed using both inferential and descriptive statistics such as frequency tables, bar graphs, pie charts and measures of central tendency using SPSS. From this research, it was found out that there was scarcity of learning resources, delay in disbursement of funds to schools by the government and shortage of teachers in the public schools in Nyamache Division. Just like the present study, the enrollment trend was also on the upward trend, hence there is need to make plan for the expected large numbers of learners seeking secondary education.

4.7 Findings with Respect to the Second Research Objective

This section presents the research findings with respect to the second objective, which was to determine the relationship between subsidized school funding and student to textbook ratio in public secondary schools in Vihiga County, Kenya. To address this objective, the researcher sought principals' opinion on whether subsidized secondary school funding contributed to availability of textbooks and their responses were as shown in Table 10.

Table 10: Responses on Whether SSF Affected Availability of Text Books

Response	Principals (n = 12)		Teachers (n = 102)	
	Frequency (F)	Percentage (%)	Frequency (F)	Percentage (%)
Strongly Agree	2	16.7	25	24.5
Agree	6	50.0	63	61.8
Undecided	1	8.3	2	2.0
Disagree	2	16.7	10	9.8
Strongly Disagree	1	8.3	2	2.0

Source: Field Data (2015)

Table 10 indicates that 2 (16.7%) of the principals and 25 (24.5%) of the teachers strongly agreed that subsidized secondary school funding contributed to availability of textbooks while another 6 (50.0%) of the principals and 63 (61.8%) of the teachers agreed to the same. At the same time, one (8.3%) of the principals and 2 (2.0%) of the teachers remained undecided on whether subsidized secondary school funding

contributed to availability of textbooks in their schools. However, 2 (16.7%) of the principals and 10 (9.8%) of the teachers disagreed to the fact that the subsidized school funding contributed to availability of textbooks in their schools.

Another one (8.3%) of the principals and 2 (2.0%) of the teachers strongly disagreed to the same. It must be remembered that subsidized school funding was to cater for the purchase of textbooks in the schools but the findings show that the funds were not enough to cater for adequate textbooks in the schools. This means that some subjects were not covered as required by the curriculum. This is likely to compromise the quality of education in secondary schools and thus interfere with the realization of the vision 2030 and Sustainable Development Goals (SDG) which are crucial development agenda that depend on quality education. In addition, the study sought to establish whether the respondents were satisfied with the available textbooks in their schools and the findings are shown in Table 11.

Table 11: Respondents Satisfaction on Text Book Numbers

	Principal (n = 12)		Teachers (n = 102)		Students (n = 518)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Satisfied	1	8.3	45	44.1	108	20.8
Not Satisfied	11	91.7	57	55.9	410	79.2

Source: Field Data, 2015

Results in Table 11 indicate that 1 (8.3%), 45 (44.1%) and 108 (20.8%) of the principals, teachers and students were satisfied with the availability of the textbooks in their schools. On the other hand, 11 (91.7%), 57 (55.9%) and 410 (79.2%) of the principals, teachers and students were not satisfied with the availability of books in their schools. Principals are the most dissatisfied respondents on the availability of the books which may be due to the fact that the principals who know the status of the books in all subjects and the amount disbursed for textbooks from the Government.

Teachers were the most satisfied lot. This is due to the fact that specific teachers have teaching subjects and may have answered the question based on the situation of their teaching subjects. Generally, the student-textbook ratio is an issue that worries for the allocation for the same is small and therefore not adequate. At the same time, the study sought to establish whether parents were asked to pay money for the purchase of textbooks. The findings were as indicated in Table 12.

Table 12: Responses on whether Parents Purchased Text Books

	Principal (n = 12)		Teachers (n = 102)		Students (n = 518)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Asked to pay	4	33.3	22	21.6	157	30.3
Not asked to pay	8	66.7	80	78.4	361	69.7

Source: Field Data, 2015

Data in Table 12 show that 4 (33.3%), 22 (21.6%) and 157 (30.3%) of the principals, teachers and students reported that parents in their schools had been asked to pay money for the purchase of textbooks. However, another 8 (66.7%), 80 (78.4%) and 361 (69.7%) of the principals, teachers and students reported that parents in their schools had not been asked to pay money for the purchase of textbooks. It is however evident that those schools did not demand for parents to pay for textbooks. Furthermore, the study sought to establish the status of the textbook availability in the schools. As presented in Table 13.

Table 13: Status of Text Book Availability in Schools

	Ratings (Frequencies)					**Weighted**
Principals (n = 12)	**5**	**4**	**3**	**2**	**1**	**Mean**
There are adequate textbooks	0	4	3	3	2	**2.75**
The school library is well stocked	1	5	3	1	2	**3.17**
Syllabus coverage is adequate	3	9	0	0	0	**4.25**
Teachers (n = 102)						
There are adequate textbooks	21	48	23	8	2	**3.76**
The school library is well stocked	24	44	16	11	7	**3.66**
Syllabus coverage is adequate	50	35	13	2	2	**4.26**
Students (n = 518)						
There are adequate textbooks	59	174	30	175	80	**2.92**
The school library is well stocked	80	119	48	192	79	**2.86**
Syllabus coverage is adequate	179	198	39	58	44	**3.79**

Source: Field Data 2015

Results in Table 13 show that principals indicated that there were adequate textbooks at a weighted mean of 2.75. Furthermore, principals indicated that the school libraries were well stocked at a mean rating of 3.17 while at the same time indicating that the syllabus coverage was adequate at a mean rating of 4.25. This means that principals were in agreement that the syllabus coverage was adequate but disagreed with the fact that they had adequate textbooks in the schools. At the same time, the principals remained undecided on whether the school libraries were well stocked.

On the other hand, teachers were in agreement that there were adequate textbooks in their schools, the libraries were well stocked and the syllabus coverage was adequate at mean ratings of 3.76, 3.66 and 4.26 respectively. Further, students were undecided on whether the textbooks were adequate and school libraries were well stocked at weighted means of 2.92 and 2.86 respectively but agreed with the fact that the syllabus coverage was adequate at a mean rating of 3.79. These findings reveal that the principals and students had similar observations that textbooks were not adequate. This is because the students were the end users of the textbooks in several subjects while the principals received reports from either the librarian or subject heads from time to time on the status of the textbook availability. Teachers' observations may have been inclusive of all subjects but rather specific teachers teaching subjects.

Furthermore, this study established textbook to student ratio for all the compulsory subjects and a few other subjects, where for each subject, the value for textbook to student ratio was obtained using the formula;

$$\text{Textbook to student ratio} = \frac{number\ of\ textbooks\ distrinuted\ in\ a\ given\ class}{number\ of\ students\ assined\ to\ use\ the\ book\ for\ daily\ learning}$$

Figure 11: Formula used to Calculate Textbook to Student ratio

(Source: Huoblair, 2011)

From the formula displayed in Figure 10, the possible text book to student ratio can range between 0 and 1, where values close to zero imply many students sharing one text book in a given subject, while a value of 1 means only one student using one book (no sharing) in the subject. A ratio of 0.5 means two students sharing one book. To this end, the average text book to student ratio were computed for all the schools that were sampled, in all major subjects, one humanity and one technical subject. For the languages, separate ratios were computed for their respective set books. Table 14 displays average textbook to student ratios that were computed for all the sampled schools, in all the selected subjects from 2009 to 2015

Table 14: Text Book to Student Ratio

Subject	Text Book to Student Ratio						
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Mathematics	0.201	0.220	0.241	0.263	0.285	0.301	0.333
Kiswahili (Lugha)	0.208	0.219	0.252	0.271	0.296	0.321	0.334
Fasihi ya Kiswahili	0.200	0.202	0.204	0.207	0.208	0.211	0.218
English (Grammar)	0.204	0.222	0.249	0.265	0.288	0.351	0.381
Literature (English)	0.133	0.148	0.152	0.182	0.210	0.228	0.234
Chemistry	0.125	0.137	0.143	0.167	0.198	0.214	0.250
Biology	0.126	0.129	0.175	0.192	0.200	0.222	0.249
History	0.333	0.338	0.339	0.401	0.431	0.478	0.500
Music	0.200	0.221	0.281	0.333	0.472	0.501	0.998

Source: Field Data 2015

Results in Table 14 indicate that in all the subjects that were under consideration, the text book to student ratio has increased steadily since the SSF programme was launched in 2008. This implies that the number of students sharing a text book has been drastically going down from 2009 where it was highest in all subjects, to 2015 where it was lowest

in all the selected subjects. The Table further reveals that as at 2015, it was only in Music that the textbook to student ratio was the ideal 1:1 i.e. no sharing of a text book, while History was the second most equipped subject in terms of text books, as the ratio of 0.5 implies that one text book was shared by only two students. The rest of the subjects as the Table further reveals had textbook to student ratios ranging between 0.218 and 0.381 (3 to 5 students sharing a text book) in 2015, which was an improvement as high as 8 students sharing a text book in the year 2008, citing Chemistry as the worst hit subject at that time.

These findings imply that in spite of the existence of subsidized school funding, most subjects have less textbooks to an extent that students share either two or three of them. In fact, the shared textbooks are of compulsory subjects. Textbooks that are adequate are for optional subjects. It is clearly evident that textbooks were not adequate in most subjects and therefore it means that students shared textbooks during the learning process. It is a greater challenge in day schools for students to share textbooks because homework has to be done at home. One of the SCDE said,

> *"We are aware that there is shortage in the number of textbooks in the schools due to higher enrolment realized since the introduction of subsidized schools funding but we also go budgetary by allocation provided for us. May be in future, the Government may consider higher funding."*

In as much as the descriptive statistics discussed earlier suggest a relationship between SSF and text book to student ratio, it was imperative to determine whether this association was significant or not. The second null hypothesis was therefore tested statistically, using Pearson's Product Moment Correlation (PPMCC) analysis, on data

that were collected with respect to the second research objective. Results of PPMCC analysis were as shown in Table 15.

Table 15: Pearson's Correlation between SSF and Text Book to Student Ratio

Subject	**r***	**P**
Math	0.273	0.087
English grammar	0.462	0.080
English Literature	0.203	0.074
Kiswahili Lugha	0.343	0.932
Fasihi	0.343	0.203
Chemistry	0.183	0.103
Biology	0.464	0.093
History	0.203	0.063
Home science	0.673	0.045
Music	0.723	0.037
Overall	**0.301**	**0.192**

*correlation coefficient with SSF as independent variable, student to text book ratio as the dependent variable

It can be seen from Table 15 that in all the subjects except Music and Home science, the was a weak association between subsidized school funding and text book to student ratio. This is because the correlation coefficients that were obtained for all the subjects except Music and Home science were closer to zero than to 1. Furthermore, all the associated p-values were greater than 0.05, the stipulated alpha, which implies that the association was not significant.

It is only in Home science and Music where there was a strong association between SSF and text book to student ratio, since the correlation coefficients obtained in with respect to the two subjects were closer to 1 than to zero. Moreover, the associated p-values were less than 0.05, which proves a significant relationship. Overall however, there was no significant association between SSF and text book to student ratio since the p- value associated with the overall correlation coefficient was greater than the alpha level. This is a revelation in tandem with the assertion of the second null hypothesis, which suggested the same. For this reason, the second null hypothesis was accepted.

4.8 Discussion of Findings with Respect to the Second Research Objective

It was found out in this study that the student to text book ratio in most public secondary schools in the research area is way below the internationally recommended standards, despite the government's efforts to ease the burden on parents via subsidization of secondary school education. Consequently, many students are ending up having a valid scapegoat for not having done homework in the name of lack of books. As a result, teachers may not be very strict to the students who fail to do their assignments since they are aware that the textbooks were not enough for every student. This therefore explains why many schools in the research area are performing dismally in the annual Kenya certificate of secondary education examinations.

The low student to text book ratios in most of the selected subjects is a clear pointer that not all money from the government in form of SSF is utilized towards purchase of text books hence even more money is allocated towards SSF, this might not necessarily

translate to high text book to student ratio. Research reveals that lack of enough text books may seriously affect the provision of quality education and equitably, for Earthman, (2002) argues that poor performance of students is largely attributed to inadequate student to textbook ratio. In addition, lack of adequate of textbooks may lead to unfinished assignments. This concurs with Odebero, Sang, Bosire and Othuon, (2007) reported that lateness, absenteeism and unfinished assignments among students were caused by a deprived background and thus the need for support.

The findings also agree with Verspoor, (2008) who suggested that there was need for reforms in the subsidized schools funding because the same learning resources were used by large numbers of students. The issue of students-textbook ratio must be addressed to enhance intent of SSF for Achoka, (2009) argues that before the launch of subsidized school funding, the key concerns of the Government were access, retention, equity, quality and efficiency while Ubogu, (2014) argues that textbooks enable students to follow the teacher and aids in understanding of lessons.

The findings are also in agreement with a report by World Bank, (2002) in Uganda that indicated that even most prestigious schools were short of textbooks. The results further agree with World Bank, (2009) report that indicated that sharing textbooks is common in Kenya and suggested that the problem must be addressed if quality education was to be realized. In addition, the study findings concur with Mwangi and Nyaga, (2010) that about 55% of the schools had no libraries and where one existed, it had inadequate textbooks.

Although systematic data are lacking, and generally exist only for core textbooks, existing information shows that in many countries, students at all levels either lack textbooks altogether or are required to share them with their peers. For example, as of 2012 in Cameroon, there was only 1 reading textbook for 12 students and only 1 mathematics textbook for 14 students in grade 2. Mathematics textbooks are often scarcer (GER, 2016). In Togo, in grade 2, there were 3 students for every reading textbook, compared with 8 students for each mathematics textbook In some developing countries, elements of the Gavi model exist in the textbook market with some success (GER, 2016).

In Rwanda, in order to address large variations in textbook availability by location, a computerized system for managing textbooks now exists similar to the UNICEF procurement system for vaccines under the overarching Gavi structure. Head-teachers are in charge of ordering textbooks from an approved list with funding provided on the basis of school enrolment. Publishers deliver books to schools directly. Since being set up, 98.6% of schools have submitted accurate orders and 98.3% of schools had teaching and learning materials delivered directly to their schools, including off-road schools, by publishers at no cost to the schools (Global Partnership for Education, 2013; Read and Bontoux, 2015).

A survey of primary schools in eleven developing countries shows that, on average, 15% to 20% of grade 4 pupils do not have a textbook or they have to share one. In some countries, the percentage is much higher: only 31% of pupils in Paraguay and 51% of pupils in the Philippines had sole use of mathematics textbook (UIS, 2008). The

provision of books for the early grades should be the highest priority; this is when well designed teaching materials have a large impact on learning. Students in the early grades need a wide variety of books for reading instruction and practice. In Chad, where very few students speak French, the language of instruction, when they come to school, the PASEC 2010 survey found that only 20% of students had a French textbook in grade 2 compared with 40% of students in grade 5 (Chad Ministry of Primary and Civic Education and CONFEMEN, 2012).

In Burkina Faso, in 2007, 48% of grade 5 students had access to a mathematics textbooks compared with 8% of their peers in grade 2 (Burkina Faso Ministry of Basic Education and Literacy and CONFEMEN, 2009). Textbooks are also scarce in secondary education. The SERCE 2008 results showed that in Paraguay, only one-quarter of sixth graders had their own mathematics textbook. Half of the students reported sharing their textbook with other students. In the Dominican Republic, 43% of students had their own mathematics textbooks, and 37% shared a book with their peers (LLECE, 2008). In an analysis of 19 sub-Saharan African countries, only Botswana had adequate textbook provision, close to a 1:1 ratio for all subjects and all secondary grades.

In the other 18 countries, including Lesotho, Mozambique and Zambia, secondary textbooks, particular in non-core subjects, were in very short supply (World Bank, 2008). In 2014, in Rwanda, while the global target of 1:1 ratio was close to being reached for all subjects at the primary level, much remains to be done at the secondary level. There were three pupils for every history book at the lower secondary level, and five pupils for every

literature book at the upper secondary level (Rwanda Ministry of Education, 2015). Besides this general low level of textbook availability, there is marked variation by location.

In Liberia, in 2013, the pupil-to-textbook ratio in the county of Margibi was nearly 7:1, more than double the national average (Liberia Ministry of Education, 2013). In South Sudan, the ratio ranged from 2:1 in Central Equatorial State to 11:1 in Unity State (South Sudan Ministry of General Education and Instruction, 2012). These findings show that the low student to text book ratio in most Kenyan public secondary schools is not an isolated case, going by the situation in other countries. However, the government of Kenya needs to relook at other strategies that would ameliorate this situation, so as to improve the quality of education in the country as was intended through sublimation of secondary school education in all public secondary schools in the country.

4.9 Findings with Respect to the Third Research Objective

This section presents the research findings with respect to the third research objective, which was to establish the association between subsidized school funding and transition rates from public primary to secondary schools in Vihiga County from 2009 to 2015.

To address this objective, several principals and students from the research area were asked to give their opinion on whether the students who receive their invitation letters to join Form one showed positive response and the findings were as shown in Table 16

Table 16: Opinion on Whether Form One Students Show Positive Response

Respondents	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%	F	%
Principals (n = 12)	1	8.3	8	66.7	0	0.0	1	8.3	2	16.7
Students (n = 518)	109	21.5	173	34.1	50	9.8	131	25.8	45	8.9

Source: Field Data 2015

Results in Table 16 show that 1 (8.3%) and 109 (21.5%) of the principals and students respectively indicated that they strongly agree to the fact that students who received invitation to join Form one, reported while another 8 (66.7%) and 173 (34.1%) of the principals and students respectively agreed to the same fact.

At the same time, 50 (9.8%) of the students remained undecided on the same, maybe because they lacked information. On the other hand, 1 (8.3%) and 131 (25.8%) of the principals and students respectively disagreed to the fact that students who received invitation to join Form one showed positive response while a further 2 (16.7%) and 45 (8.9%) of the principals and students respectively strongly disagreed with this fact. These findings clearly show that majority of the principals (over 70%) and students (over 55%) were of the opinion that the students who were invited to join Form one showed a positive response. Although most students show positive response, they report to other schools that get admission letters informally. This compromises the Ministry of Education's admission policy and undermines the entire process of admission.

On the same research objective, this study sought to establish the transition rate for the previous five years, which was computed using the formula displayed in Figure 12.

$$\text{Transition rate} = \frac{no.of\ students\ who\ enrol\ in\ form\ one\ in\ a\ given\ year}{no.of\ pupils\ who\ sat\ for\ KCPE\ the\ previous\ year} \times 100$$

Figure 12: Formula Used to Calculate Transition Rate

(Source: Huoblair, 2011)

Using the formula in Figure 12, the possible values of primary to secondary school transition rate range between 0 and 100, where the latter implies that all the students who sit for KCPE in a given year proceed to form one the following year.

The average transition rates were computed for all the schools that were sampled in the research area and the results were as shown in Table 17. It is noteworthy that in as much as it was possible that some students enrolled in secondary schools outside Vihiga county after sitting for their KCPE exams in the county, the net effect of this scenario was not expected to significantly affect the transition rate because of the possibility that some students who sat for their KCPE in other counties could have taken up their places and therefore the resultant effect was effectively cancelled out.

Table 17: A Cross-Tabulation of SSF versus Transition Rates

Year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
SSF in Millions (Kshs.)	216	270	332	341	372	404	420
Transition rate (%)	67.18	67.93	52.99	59.00	60.37	64.52	69.02

Source: Field Data 2015

Table 17 reveals that there was a steady increase in amount of money channeled towards SSE from 2008 to 2015, which is expected to be the case since enrolment rate as earlier discussed had also revealed a similar trend. The Table indicates that in the year 2008 and 2009, the transition rate was 67.18% and 67.93% respectively which means that 67.18% of the students who sat for KCPE in 2008 and 67.93% of the students who sat for KCPE in 2009 joined Form one. In the year 2010, there was a transition rate of 52.99%. This means that 52.99% of the pupils who sat for KCPE examination joined Form one. This further implies that slightly over half of the KCPE candidates joined Form one. In the year 2011, the transition rate was 59.00% while in the year 2012, the transition rate improved slightly to 60.37%.

In the year 2013 and 2014, the transition rate was 64.52% and 69.02% respectively. The findings clearly show that in the years 2008 and 2009, there was a slight improvement as from 67.18% to 67.93%. In the year, 2010, there was a decline in the number of KCPE candidates who joined Form one. After that there has been a steady improvement in transition rate since 2010 to 2014. This can be clearly associated with the influence of subsidized school funding. It can be summarized from the Figure that there was a slight improvement as from 2008 to 2009, then a drop in 2010 after which there was a continuous improvement in the number of KCPE candidates who join Form one in Vihiga County. Figure 13 is a line graph showing the trends in transition rates across the years under investigation, which depicts the same observation as earlier discussed.

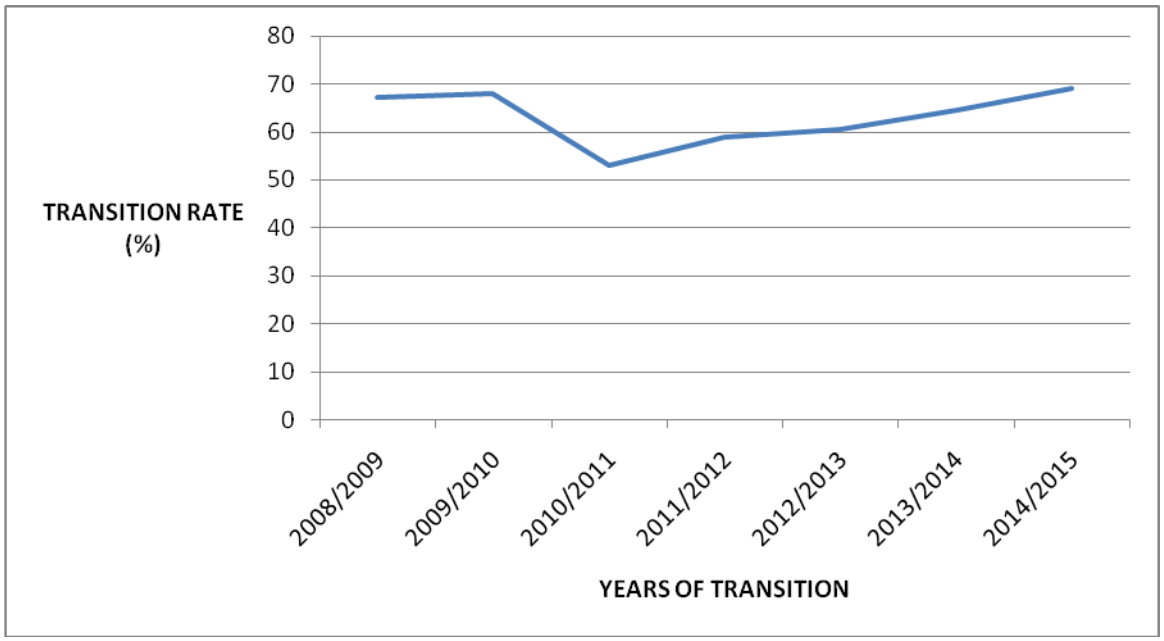


Figure 13: A Line graph showing the trend in transition Rates from 2008 t0 2015

It can therefore be deduced from the trends in SSF and primary to secondary transition rates that there exists a direct variation between the two variables in that generally, the higher the SSF, the greater the primary to secondary school transition rate.

To find out whether this association was significant or not, the third null hypothesis was tested inferentially using Pearson's Product Moment Correlation Cefficient (PPMCC), whose results were as shown in Table 18

Table 18: Pearson's' Correlation between SSF and Transition Rate

Variable/Statistic		Subsidized School Funding in Millions (Kshs.)	Primary to Secondary Transition Rate (%)
Subsidized School Funding in Millions (Kshs.)	Pearson Correlation	1	0.250
	Sig. (2-Tailed)		0.551
	N	8	8
Primary to Secondary Transition Rate (%)	Pearson Correlation	0.250	1
	Sig. (2-Tailed)	0.551	
	N	8	8

Findings in Table 18 reveal that there was a moderate positive association between SSF and transition rate from primary to secondary *[r = 0.492, p = .0138 at =.05]*. This was because the corelation coefficient obtained is midway between 1 and zero, which suggests a moderate positive association between the two variables. However, this aasociation is not significant because the associated p-value is greater than the stipulated 0.05 alpha level of statistical significance.

These results are in agreement with the assertion of the third null hypothesis, which stated that there is no significant association between SSF and transtitiion rates from public primary to secondary school in Vihiga county from 2009 to 2015. The third null hypothesis was not rejected.

This lack of association between SSF and transition can be attributed to the some of the religious beliefs among a section of residents of the research area as was mentioned in chapter one of this work. The faithfuls of the affected churches believe that the end of the world is near and therefore focus should be on doing all that will make them go to heaven, and not worldly things, education included. The number of pupils who fail to proceed to pursue secodary school education after completing their primary education in the era of SSE therefore explains the lack of association between SSF and primary to secondary transition rate.

This finding was made even clearer from the oral interviews that were conducted on selected respondents, who confirmed that a good number of students do not join secondary schools. During interview, one of the SCDE had this to say,

> *"One of the main challenge we are facing is that some principals charge some levies and scare away some parents that can not afford. We are following up this issue but at the same time, consider the legal framework for some of them consult the parents during AGM and agree on the levies. A number of churches in nthis area are also to blame, as they advocate for the issue of creating way for the lord at the expense of education"*

4.10 Discussion of Findings with Respect to the Third Research Objective

It was found out in this study that subsidization of secondary education does not significantly influence the transition rate from primary to secondary school. The findings agree with those of Nyaga, (2005) who opined that the school going age have no option other than attend school to acquire education that is fully funded by the Government. If the trend continues, it may affect development as Oyaro, (2008) observes that very few

countries if any have made development breakthrough into middle income status without majority of their citizens having access to secondary education.

The findings disagree with Jibril, (2008), who reveals that from the onset, it was noted that delay in the release of the funds and failure to fund all activities by the GOK would pose a challenge to the efficient implementation of the programme. The findings are in agreement with Akyampong, (2009) and Rollestoh, (2009) who revealed that children from poor households continue to be under represented in enrolments while Chimombo, (2009) argues that access to education continues to reflect household wealth.

One of the objectives of a study IPAR, (2013) included documentation of patterns of student enrolment by province and gender. The study, which adopted an exploratory approach, with a descriptive design involved four provinces, with one district purposively selected from each of the provinces. The key respondent sources included the Ministry of Education staff and opinion leaders at the community levels. Personal interviews based on unstructured interview schedules; group discussions and direct observation were used to complement the secondary data.

The Statistical Package for Social Science (SPSS) computer programme was used in data analysis. Findings of this study revealed major regional and gender disparities, with best performing districts in the non-ASAL regions. Among the first 14 best performing districts in the country (ranked by GER), five were in Central Province, four in Rift-Valley, two in Western, two in Nyanza and only one in Coast Province. None of the

districts with GER above the national mean figure of 20.5% were either from Nairobi (urban) or the predominantly ASAL North Eastern and Eastern Provinces.

The poorly performing districts were concentrated in the ASAL regions of North Eastern, Eastern and Coast Provinces. The districts with severe gender disparities as of 2000 included Wajir (GER: girls 2.7%, boys 8.8%); Mandera (GER: girls 3%, boys 6.9%) and Garissa (GER: girls 4.7%, boys13.1%) in North Eastern Province. In contrast, the districts with overall high GER and near gender parity were Kiambu, Nyeri, Nyandarua, Muranga, and Kirinyaga in Central Province; Taita-Taveta in Coast Province and Kakamega in Western Province.

4.11 Findings with Respect to the Fourth Research Objective

This presents findings with respect to the fourth research objective, which was to establish the relationship between subsidized school funding and completion rates in public secondary schools in Vihiga County. Completion rates were computed with help of SPSS, using the formula in Figure 10

$$\text{Completion Rate} = \frac{no.of\ students\ who\ graduated\ (sat\ for\ KCSE}{no.of\ students\ who\ enrolled\ in\ form\ one\ in\ the\ same\ school} \times 100$$

Figure 14: Formula used to calculate completion rate

Adapted and modified from Kiumi and Churi, (2004)

From this formula, a higher number of students who graduate as compared to those who enrolled will result in a high completion rate and vice versa. This means when all students who enroll in secondary school are able to graduate, then the completion rate would be 100%. Basing on this formula therefore, the completion rates were computed with the help of SPSS, for all the years between 2008 and 2015, repeaters and new comers excluded, and the results were as presented in Table 19

Table 19: Completion Rates as from 2008 to 2014

Year of Form Graduation	2008	2009	2010	2011	2012	2013	2014
No. that Graduated*	**4,308**	**4,501**	**3,607**	**5,411**	**6,415**	**8064**	**9,972**
No. that Enrolled	**6,637**	**6,862**	**5,436**	**8,070**	**9,531**	**11,821**	**14,116**
Completion Rate (%)	64.91	65.59	66.35	67.05	67.31	68.22	70.64

*repeaters and new comers excluded

Data in Table 19 indicates that 64.91% of the students who had joined Form one in 2005 were able to complete Form 4 in the year 2008 while 65.59% of those who had joined Form one the following year, completed Form 4. At the same time, 66.35% of the students who had joined Form one completed Form 4. In the year 2010 the completion rate was 66.35% while in the year 2011, Vihiga County registered a completion rate of 67.05%.

Furthermore, the county registered a completion rate of 67.31% in the year 2012 and 68.22% was registered in the year 2013. In 2014 the completion rate was 70.64%. These findings show that there was a steady improvement in the completion rate of the County

as from 2008 to 2014. It implies that factors of wastage in education such as drop out have been reduced to enable the students' progress with their education and finally complete their secondary education. This may be attributed to subsidized school funding which was launched in the year 2008. Since the Government pays a fraction of the fees for the students, the parents must have gotten relief and thus enable the students to complete.

However, it is worth noting that the rate at which the completion rate increased is very slow for instance, the deviation in the completion rate as from 2008 to 2014 (64.91% to 70.64%) is 5.73% only. At the same time, the fact that County completion rate is at 70.64% is not something to celebrate since about 30.0% of the students are wasted by the system and yet the hope of every education stakeholder including the subsidized school funding policy is that all students who join Form one should be able to complete Form 4. In order to see a clearer picture of how the number of students who completed SSE over the years compared with those that joined in Form one , a line graph was drawn as shown in Figure 11

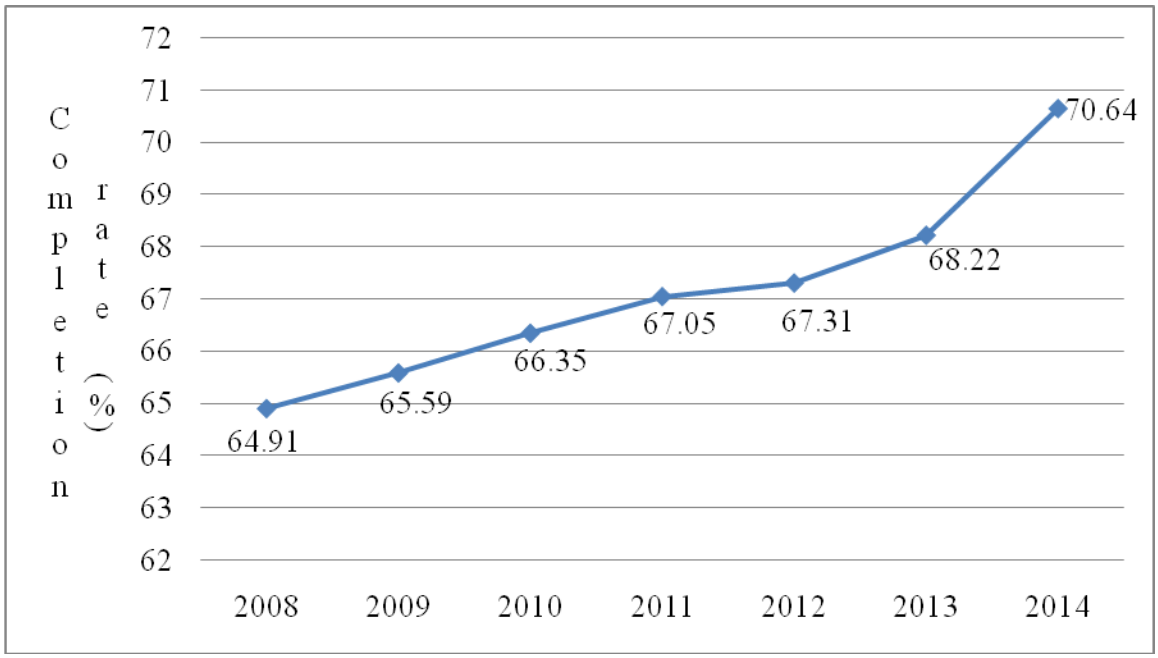


Figure 15: Students that Joined Form One and those that Completed Form 4

Figure 15 shows that from 2008 to 2009, there was an increase in the number of the students that completed Form 4 and those that had joined Form one. In the year 2010, there was a decline in the number of students who completed Form 4 and those who had joined Form one. It is worth to note that as from 2010 to 2014, there was a steady rise in the number of students who had joined Form one. This study further established the linear regression equation of the trend in the number of students that joined Form one and those that completed Form 4. Results in Figure 15 further indicate that there was a steady increase in the completion rate for all students in both day and boarding schools combined. This means that the education system in Vihiga County became more efficient as time went by since 2008 to 2014 thus reduced wastage like students drop out and unnecessary repetitions. This must have been influenced by subsidized school funding.

This study further determined whether the association between subsizised school funding and completion rates discussed earlier were significnt or not. The Fourth null hypothesis stated that there is no relationship between SSF and completion rates, This hypothesis was tested statistically using Pearson's Product Moment Correlation Coefficient at the 0.05 alpha level of significance and the results were as displayed in Table 20

Table 20: Correlation between SSF and Secondary School Completion Rate

Variable/statistic		**Subsidized School Funding in Millions (Kshs)**	**Secondary Education Completion Rate (%)**
Subsidized School Funding in Millions (Kshs)	Pearson Correlation	1	.933**
	Sig. (2-Tailed)		.001
	N	8	8
Secondary Education Completion Rate	Pearson Correlation	.933**	1
	Sig. (2-Tailed)	.001	
	N	8	8

**significant at 0.01 alpha

As Table 20 reveals, a Pearson's Corelation between SSF and completion rate revealed a strong positive association between the two variables *[$r = 0.65$, $p = 0.027$ at $\alpha = .05$]*.

The strong positive association as envisaged by the r value that is nearer to 1 than to zero implies that the higher the SSF, the greater the completion rate. This relationship is statistically significant because the p-value obtained in this correlation was less than the

stipulated alpha value of 0.05, which is a revelation contrary to then fourth null hypothesis. The fourth null hypothesis was therefore rejected as it purported otherwise.

This study went ahead and sought the opinion of the principals on subsidized school funding and completion rate and the findings were as indicated in Table 21.

Table 21: Principals' Opinion on Subsidized School Funding and Completion Rate

Opinion	Frequency Ratings (n = 12)					**Mean Ratings**	**Rating Status**
	5	**4**	**3**	**2**	**1**		
Those who join Form 1 finish secondary schooling cycle successfully.	1	9	1	1	0	**3.83**	**Good**
Irregular attendance of students has gone down since the introduction of the funding.	5	1	3	3	0	**3.67**	**Good**
Few students drop out of school due to fees balances.	4	5	1	2	0	**3.92**	**Good**
Parents meet their obligation of providing for their children on hidden costs.	2	6	1	0	3	**3.33**	**Fair**
There is less stress among students	0	5	2	3	2	**2.83**	**Fair**

Source: Field Data (2015)

Results in Table 21 indicate that principals rated the fact that those who join Form one finish secondary schooling cycle successfully as good with a mean rating of 3.83. This means that majority of the principals were in agreement to that fact. At the same time, principals were in agreement to the fact that since the introduction of the subsidized school funding, irregular attendance of students had gone down and rated as good with a mean rating of 3.67.

In addition, principals indicated that parents meet their obligation of providing for their children on hidden costs as fair at a mean rating of 3.33. This clearly means that principals were of the feeling that since the introduction of the subsidized programme, some parents were unable to meet their obligation of other costs. Furthermore, principals were of the feeling that the subsidized school funding reduced stress among students at a fair mean-rating of 2.83. This implies that stress among students was still experienced and majority of the principals disagreed to the fact that subsidized school funding programme had reduced stress among students.

Table 22: Students' Opinion on Subsidized School Funding and Completion Rate

Opinion	Frequency Ratings (n =518)					**Mean Ratings**	**Rating Status**
	5	**4**	**3**	**2**	**1**		
Those who join form 1 finish secondary schooling cycle successfully.	83	124	35	154	122	**2.79**	**Fair**
Irregular attendance of students has gone down since the introduction of the funding.	95	208	40	126	49	**3.34**	**Fair**
Few students drop out of school due to fees balances.	137	206	30	75	70	**3.51**	**Good**
Parents meet their obligation of providing for their children on hidden costs.	119	189	45	85	70	**3.33**	**Fair**

Source: Field Data, (2015)

Data in Table 22 indicates that students rated the fact that those who join Form one finish secondary schooling cycle successfully as fair with a mean rating of 2.79. This means that majority of the students were in disagreement to that fact. At the same time, majority of students disagreed and were undecided to the fact that since the introduction of the subsidized school funding, irregular attendance of students had gone down and rated as fair with a mean rating of 3.34.

At the same time, majority of the students agreed to the fact that due to subsidized school funding, few students drop out of school due to fees balances and rated it as good at a mean rating of 3.51. This implies that students were of the view that the subsidized school funding programme had reduced the school burden for the parents and thus reduced the number of students that dropped out due to lack of school fees. In addition, students indicated that parents meet their obligation of providing for their children on hidden costs as fair at a mean rating of 3.33. This clearly means that students were of the feeling that since the introduction of the subsidized programme, some parents were unable to meet their obligation of other costs.

Table 23: Students' Opinion on Effects of Subsidized School Funding

Opinion	Yes		No	
(n = 518)	F	%	F	%
Lower dropout rate among students	385	74.4	133	25.6
Less stress among students	325	62.8	193	37.2
Higher completion rate	389	75.1	129	24.9

Source: Field Data (2015)

Results in Table 23 indicate that 385 (74.4%) of the students revealed that subsidized school funding had led to lower dropout rate among students while another 133 (25.6%) of them indicated that subsidized school funding had not reduced dropout rate among students. This means that it is clear to the students that most of them do not drop out due to the subsidized school funding programme that support them. At the same time, 325 (62.8%) of the students reported that subsidized school funding had led to reduced stress among students with another 193 (37.2%) of them indicating that the funding had not reduced stress among the students. These findings show that majority of students believed that stress among them had reduced due to the subsidized school funding that they received.

At the same time, 389 (75.1%) of the students indicated that there was higher completion rate due to the subsidized school funding programme while 129 (24.9%) of them indicated that the subsidized school funding had not raised the completion rate. These findings make it clear that the students appreciated the benefits of subsidized school

funding and its relationship with completion rate. The results indicate that drop-out rates and wastage in secondary education reduced, 30% however remains high and ought to be addressed. At the same time, the completion rate deviation from 2008 to 2014 is small. This in comparison to the high enrolment rate is still wanting and must be looked into by all education stakeholders.

4.12 Discussion of Findings with Respect to the Fourth Research Objective

The study findings revealed a significant positive linear association between subsidized school funding and school completion rates. It was found out in this study that the completion rates among students in public secondary schools is still relatively low, despite the government's efforts to subsidize secondary education in all public secondary schools across the country. However, these findings contradict the MOEST, (2008) that indicate that the aim of SSF was to enhance completion rate to over 70% and Vision (2030) that puts that in partnership with the private sector, Kenya will increase funding to support the schools in the increasing students enrolment and retention of learners. The findings are in agreement with World Bank, (2009) that revealed that the completion rate was lower than expected because of poverty levels in developing countries. The findings also concur with Fafunwa (2010) who reported that completion rate was like stagnant and required intervention to boost it.

Similar to findings of this study are those of a study by Kinaro, (2015) who conducted a study to establish the influence of free day secondary education in enhancing internal efficiency, particularly the completion rates in public secondary schools in Mvita Subcounty, Mombasa. However unlike the present study, Kinaro, (2015) looked at cost of education (direct and indirect), parents economic activities, school characteristics including physical facilities, teacher resource, discipline, school type and category, family background which included parents‟ standard of living, and finally the parents‟ level of education in enhancing students‟ completion rates in public secondary in Mvita Sub county.

The study adopted a descriptive research design. The theoretical framework was based on systems theory of management. The sample size of this study was 12 head teachers, 64 teachers and 189 students. The study utilized questionnaires for the respondents to collect data. Reliability of the instrument was done by performing Spearman's rank order correlation. The validity was done by conducting a pilot study on two schools that were not included in the study. Both qualitative and quantitative techniques were used to analyze data. The Statistical Packages for Social Scientists (SPSS) software package were utilized in analyzing data. The analyzed data were presented in frequency tables. Findings showed that there was a high enrolment rate into secondary schools, which was not consistent with completion rates.

Reasons were that the physical facilities in the schools were not adequate to allow smooth learning sessions. The schools were also not very well developed to meet the

increasing demand by the learners pursuing secondary education. Additionally, the schools did not have adequate instructional materials, which affected the educational outcomes. Furthermore, the school funds were a major challenge as the research found out, because parents were still expected to meet educational costs, in spite of the subsidized education by free day secondary education by the government (Kinaro, 2015).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusions, recommendations and suggestions for further studies.

5.2 Summary of the Study

The purpose of this study was to establish the relationship between subsidized school funding programme and student participation among public secondary schools in Kenya. Specifically, the study investigated the trends in enrolment rates and subsidized school funding by school category, evaluated the relationship between subsidized school funding and student to textbook ratio, analyzed the association between subsidized school funding and transition rates from public primary to secondary school and determined the relationship between subsidized school funding and completion rates in public secondary schools in Vihiga County, Kenya.

The four research objectives were therefore to (i) Investigate trends in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga County, Kenya from 2009 to 2015, (ii) Determine the association between subsidized school funding and textbook to student ratio in public secondary schools in Vihiga county, Kenya (iii) Establish the relationship between subsidized school funding and transition rates from public primary to secondary schools in Vihiga county, Kenya from

2009 to 2015 and (v) Establish the relationship between subsidized school funding and completion rates in public secondary schools in Vihiga county, Kenya. The first objective was addressed using the following research question:

> *"What is the trend in enrolment rates and subsidized school funding by school category in public secondary schools in Vihiga county, Kenya from 2009 to 2015?"*

Moreover, the second, third and fourth objectives were addressed by examining the following four null hypotheses; (Ho2), there is no significant relationship between subsidized school funding and textbook to student ratio in public secondary schools in Vihiga county, Kenya (Ho3), there is no significant association between subsidized school funding and transition rates from public primary to secondary schools in Vihiga county, Kenya from 2008 to 2015 and (Ho4), there is no significant relationship between subsidized school funding and completion rates in public secondary schools in Vihiga county, Kenya.

The study was based on the Von Thunen's production function theory and was implemented using the descriptive survey research design, in Vihiga County, Kenya. The target population included; 5 Sub-county directors of education, 5,175 form 3 students, 115 principals and 1,023 teachers, all drawn from 115 public secondary schools in the research area. A sample of 518 form 3 students, 102 teachers, 12 head teachers and 5 sub-county directors of education was selected by saturated sampling for the directors, simple random sampling for the Principals and purposive sampling for the teachers and form three students.

Data were collected using questionnaires, interview schedules and document analysis guides. Piloting was conducted three weeks to the actual study in 5 secondary schools in the research area to assess the suitability of these instruments for collecting the required data. Validity of the research instruments was assessed using data from the pilot study, using the Rasch model, while their reliability was assessed at the same stage using the test-retest method. Both measures were found to meet the minimum threshold as stipulated by various educational research experts with respect to the research instruments that were developed by the researcher. Data were analyzed by use of descriptive and inferential statistics thus; frequency counts, means and percentages. Pearson's Product Moment Correlation coefficient and cross tabulations.

5.3 Summary of the Study Findings

This study examined the subsidized school funding programme by the Government of Kenya and how it relates to students participation. Four objectives were formulated to guide the study whose scope covered public secondary schools in Vihiga County. The study adopted descriptive survey design and was implemented in a mixed methods approach. The study employed the use of questionnaires, interview schedule and document analysis to collect data. The study randomly sampled 12 public secondary schools which comprised of 8 day schools and 4 day schools. Data were collected from 4 sub-county directors of education, 12 principals, 102 teachers and 518 Form three students (response of 100%). Both inferential and descriptive statistics were used to analyze data. A summary of findings is given in the subsequent subsections.

5.3.1 Trends in Enrolment Rates and SSF

The first objective of the study was set out to establish trends in enrolment rates in boarding and day schools. The study established that there was a steady rise in the average number of students enrolled in Form one in the boarding schools as from 2009 to 2015. On the other hand, there was a rise in the students' enrolment in day schools as from 2009 to 2011 after which there was a steady decline in the number of students who were enrolled in Form one.

However, as from 2012 to 2015, there was a steady decline in the number of students who were enrolled in Form one in day schools. Furthermore, this study analyzed the deviations in the students' enrolment as from 2009 to 2015 so as to establish that in boarding schools, there are positive deviations as from 2009 to 2015. On the other hand, results indicate that for day schools, there was a positive deviation in the period of 2009 to 2010 and 2010 to 2011. After that, there were negative deviations till 2015 which indicates that there was decrease in the number of students who were enrolled in Form one in day schools during those consecutive years.

5.3.2 Relationship between SSF and Textbook to Student Ratio

The second objective of the study was to establish the relationship between subsidized school funding and textbook to student ratio. Qualitative findings indicated that principals and teachers were of the feeling that subsidized secondary school funding contributed to availability of textbooks as indicated by over 50% of the principals, teachers and students as reported in chapter four.

At the same time, the study established that principals, teachers and students were satisfied with the availability of the textbooks in their schools as revealed by over 50% of the principals, teachers and students. Principals were the most dissatisfied respondents on the availability of the books. Teachers are the most satisfied lot. In addition, 33.3%, 21.6% and 30.3% of the principals, teachers and students in reported that parents in their schools had been asked to pay money for the purchase of textbooks. However, over 60% of the principals, teachers and students reported that parents in their schools had not been asked to pay money for the purchase of textbooks.

Principals indicated that there were adequate textbooks at a weighted mean of 2.75. Furthermore, principals indicated that the school libraries were well stocked at a mean rating of 3.17 while at the same time indicating that the syllabus coverage was adequate at a mean rating of 4.25. On the other hand, teachers indicated that there were adequate textbooks in their schools, the libraries were well stocked and the syllabus coverage was adequate at mean ratings of 3.76, 3.66 and 4.26 respectively.

Furthermore, students indicated that textbooks were adequate and school libraries were well stocked at weighted means of 2.92 and 2.86 respectively but agreed with the fact that the syllabus coverage was adequate at a mean rating of 3.79. The study established that languages (English and Kiswahili) had a textbook: student of 1:3. The same ratio was indicated for Mathematics and Sciences. Home science had a ratio of 1:2 while Music had the highest ratio of 1:1. The Association between SSF and text book ratio was found to be statistically non-significant.

5.3.3 Relationship between SSF and Transition Rates

The third objective of this study was to establish the association between subsidized school funding and transition rate. The study established that majority of the principals (over 70%) and students (over 55%) were of the opinion that the students who were invited to join Form one showed a positive response. The study further established that in the year 2008 and 2009, the transition rate was 67.18% and 67.93% respectively. In the in the year 2010, there was a transition rate of 52.99%. In the year 2011, the transition rate was 59.00% while in the year 2012, the transition rate improved slightly to 60.37%. In the year 2013 and 2014, the transition rate was 64.52% and 69.02% respectively. Inferential statistics revealed that the association between SSF and transiton rate was found to be statistically non-significant.

5.3.4 Relationship between SSF and Completion Rates

The fourth objective of this study was to establish the relationship between subsidized school funding and completion rate. It was established that there was a steady improvement in the completion rate of the County as from 2008 to 2014. However, it the rate at which the completion rate increases is very slow. For instance, the deviation in the completion rate as from 2008 to 2014 was 5.73% only. On the other hand, a correlation between SSF and completion rate revealed a strong positive relationship between the two variables and was statistically significant. This means that the trend of the students who completed Form 4 showed a positive trend. Principals who were interviewed reiterated the fact that those who join Form one finish secondary schooling cycle successfully as good with a mean rating of 3.83.

At the same time, principals were in agreement to the fact that since the introduction of the subsidized school funding, irregular attendance of students had gone down and rated as good with a mean rating of 3.67. In addition, principals indicated that parents met their obligation of providing for their children on hidden costs as fair at a mean rating of 3.33. Furthermore, principals were of the feeling that the subsidized school funding reduced stress among students at a fair mean-rating of 2.83. It was established that students rated the fact that those who join Form one finish secondary schooling cycle successfully as fair with a mean rating of 2.79. Introduction of the subsidized school funding, irregular attendance of students had gone down and rated as fair with a mean rating of 3.34.

At the same time, majority of the students agreed to the fact that due to subsidized school funding, few students drop out of school due to fees balances and rated it as good at a mean rating of 3.51. In addition, students indicated that parents meet their obligation of providing for their children on hidden costs as fair at a mean rating of 3.33. The study established that 385 (74.4%) of the students revealed that subsidized school funding had led to lower drop-out rate among students. At the same time, 325 (62.8%) of the students reported that subsidized school funding had led to reduced stress among students. At the same time, 389 (75.1%) of the students indicated that there was higher completion rate due to the subsidized school funding programme. Inferential statists revealed a significant relationship between SSF and completion rates.

5.4 Conclusions made from the Research Findings

Based on the findings of this study, conclusions were made based on themes derived from the objectives.

There was a steady increase in enrolment in boarding schools as from 2009 to 2015 for there exists a positive deviation in boarding schools. On the other hand, there was an initial increase in enrolment (2009 - 2011) but later decline in student enrolment (2009 - 2015) in day schools. Certain conditions exist in day schools that discourage parents and prospective students from enrolling while pre-existing conditions in boarding schools encourage parents and prospective students from enrolling. The free day secondary funding policy is under threat as results show negative response/trend in day secondary schools.

The study established a non-significant association between SSF and text book to student ratio. Similarly, the study also established a non-significant positive association between SSF and transition rate. However, the study established a significant positive association between SSF and completion rate.

5.5 Recommendations of the Study

Based on the findings and conclusions of this study, the following recommendations are made;

i. The Ministry of Education should sensitize the community in Vihiga County on the importance of enrolling their children in day schools and improve on supervision of day schools. In addition principals in day schools should improve the quality of education in their schools so that they can attract more students. The Government in consultation with other education stakeholders should review the subsidized school funding policy.

ii. This study established that subsidized secondary funding did not lead a reduction in the number of students sharing a text book, despite the ever increasing enrolment. Since there is no clear policy at the moment, which guides the principals on the type and number of text books that need to be bought at any given time, the Ministry of Education should specify the vote heads that the SSE money should go to and also supervise their implementation.

iii. This study established that not all students who were invited to join Form one showed a positive response, despite the introduction of SSF, which was meant to make secondary education affordable to all. The Ministry of Education should therefore formulate policy that makes secondary education compulsory for all Kenyan students who attain the minimum marks required for one to transit from primary to secondary school.

iv. The Ministry of Education should enhance the subsidized school funding so as to enhance the completion rate since there was a steady improvement in the completion rates of the students in secondary schools. Wastage was still higher and completion deviation was small in addition, the county leadership should sensitize the parents and society at large to take more children for secondary education and retain them in school to enhance completion rates. Other education partners like CDF should enhance secondary school funding in form of bursary to improve on completion rate.

5.6 Suggestions for Further Research

It was not possible to investigate all aspects of students' participation in secondary education because of several limitations like time, resources and scope of the study. However, with regard to research on the relationship between SSF and students' participation, many gaps will still exist, even if all the recommendations of this study were adopted. For this reason, the following suggestions are hereby made for further research, with the hope of bridging some, if not all the gaps that this study leaves behind;

i. The association between subsidized school funding on quality of education in public day secondary schools in Kenya. Some of the indicators of quality education that could be explored include; students' academic performance, number and quality of teaching/leaning resources, number of teaching staff among others.
ii. The role of education stakeholders in enhancing completion rate in public secondary schools in Kenya.
iii. Effect of subsidized school funding on educational facilities in public secondary schools in Kenya.

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APPENDICES

Appendix 1: Letter of Introduction

To whom it may concern

RE: MRS. MBAYAH JUDITH TSISIGA

The above mentioned is our postgraduate student, pursuing Doctor of Philosophy Degree in Educational Management and Policy studies at Masinde University of Science and Technology (MMUST). He has embarked on a study for her impending research entitled "Relationship between subsidized School funding and student participation among Public Secondary Schools in Kenya". Any assistance given to her will be highly appreciated by the university. Thanking you in advance

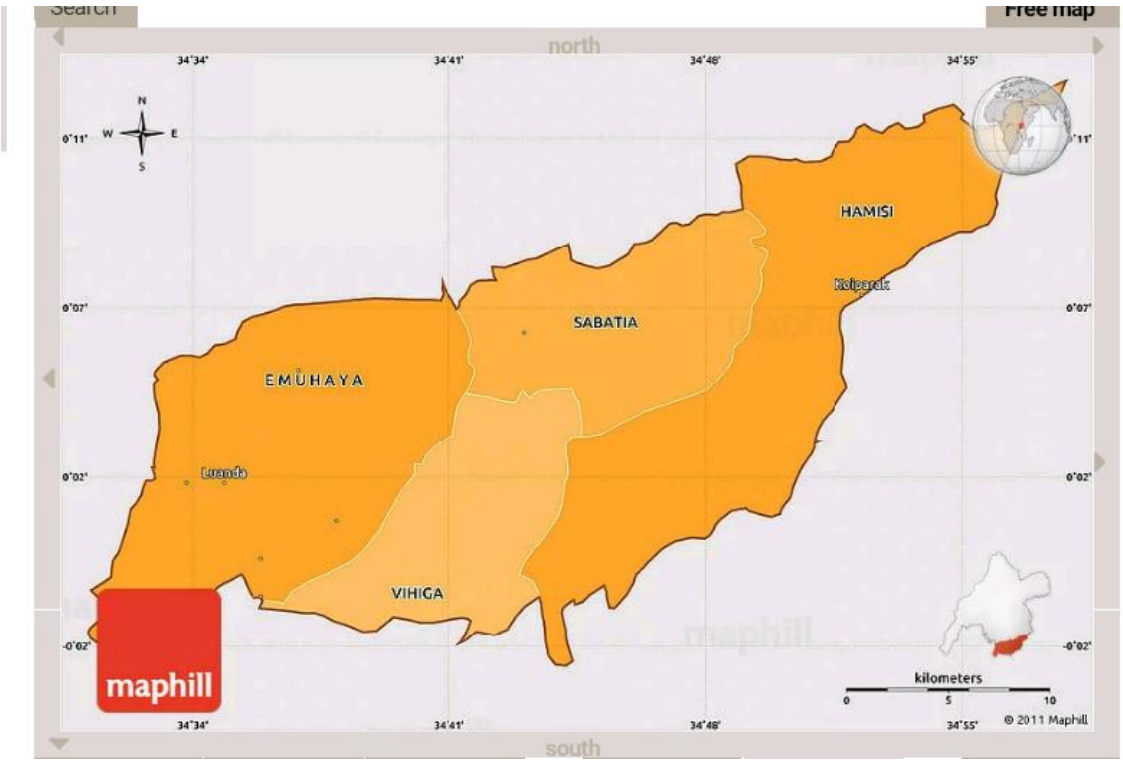
Yours sincerely,

.....

Dr. Judah Ndiku

Dean, Faculty of Education and Social Sciences

Appendix 2: Map of the Research Area



Appendix 3: Questionnaire for Teachers

The purpose of this study is to establish the relationship between subsidized secondary school funding and student participation in Kenya. Kindly answer the following questions to the best of your ability. Information provided will be treated with **utmost confidentiality** and will only be used for this study.

Please read the instructions for each question and do not write your name or the name of your school anywhere in the questionnaire.

Demographic Characteristics

1. Your Gender (tick √ as appropriate): Male [ ] Female [ ]
2. Professional Qualification (tick √ as appropriate):

   Untrained [ ] Diploma [ ] B.Ed [ ] M.Ed [ ] PhD [ ]
3. School category (tick √ as appropriate)

   Boarding [ ] Day [ ] Day and Boarding [ ]

Subsidized Funding and Student : Textbook Ratio

4. (a) In your view, subsidized secondary school funding contributed to availability of textbooks?

   a. Strongly agree ☐
   b. Agree ☐
   c. Undecided ☐
   d. Disagree ☐
   e. Strongly disagree ☐

(b) Are you satisfied with the available textbook in your school?

Yes [ ] No [ ]

5. Are your parents asked to pay money for purchase of textbook?

Yes [ ] No [ ]

6. In the tables below kindly indicate with the use of a tick (√) the description that best suits your opinion with regard to textbooks availability in your school. The attributes strong agree (5), agree (4), undecided (3), Disagree (4) and Strong disagree (1) are applicable.

STATEMENT	**5**	**4**	**3**	**2**	**1**
a. There are adequate textbooks					
b. The school library is well stocked					
c. Syllabus coverage is adequate.					

7. Please indicate the student : textbook ratio in your school per subject:

Subject	**Student : textbook ratio**
English	
Kiswahili	
Maths	
Biology	
Chemistry	
Physics	
CRE/IRE	
Geography	

History and Government	
Business studies	
Agriculture	
Computer studies	
Home science	
Music	
Art and design	
Woodwork	
Metalwork	
French	
German	
Any other subject:……	

School Funding and Completion rates

8. In the tables below kindly indicate with the use of a tick (√) the description that best suits your opinion with regard to completion rates in your school. The attributes strong agree (5), agree (4), undecided (3), Disagree (2) and Strong disagree (1) are applicable.

STATEMENT	SA	A	U	D	SD
a. All those who receive invitation letters to join Form one show positive response.					
b. Irregular attendance of students has gone down since the initiation of secondary subsidized funding.					
c. Parents meet their obligation of providing for their children on hidden costs.					
d. Few students drop out of school due to fees balance					
e. Those who join Form one complete Form 4 secondary schooling successfully.					
f. Lower dropout rate among students					
g. Less stress among students					

9. Please indicate the number of students who joined Form one and completed Form four in your school

Item	2009	2010	2011	2012	2013	2014	2015
Those who joined Form one							
Those who completed Form 4							

THANK YOU FOR YOUR PARTICIPATION!

Appendix 4: Questionnaire for Students

The purpose of this study is to establish the relationship between subsidized secondary school funding and student participation in Kenya. Kindly answer the following questions to the best of your ability. Information provided will be treated with **utmost confidentiality** and will only be used for this study.

Please read the instructions for each question and do not write your name or the name of your school anywhere in the questionnaire.

Demographic Characteristics

1. School category (tick √ as appropriate)

   Boarding [ ] Day [ ] Day and Boarding [ ]

Subsidized Funding and Student : Textbook Ratio

2. (a) In your view, subsidized secondary school funding contributed to availability of textbooks?

   i. Strongly agree ☐
   ii. Agree ☐
   iii. Undecided ☐
   iv. Disagree ☐
   v. Strongly disagree ☐

   (b) Are you satisfied with the available textbook in your school?

   Yes [ ] No [ ]

3. Are your parents asked to pay money for purchase of textbook?

   Yes [ ] No [ ]

4. In the tables below kindly indicate with the use of a tick (√) the description that best suits your opinion with regard to textbooks availability in your school. The attributes strong agree (5), agree (4), undecided (3), Disagree (4) and Strong disagree (1) are applicable.

STATEMENT	**SA**	**A**	**U**	**D**	**SD**
a. There are adequate textbooks					
b. The school library is well stocked					
c. Syllabus coverage is adequate.					

5. Please indicate the student : textbook ratio in your school per subject:

Subject	**Student : textbook ratio**
English	
Kiswahili	
Mathematics	
Biology	
Chemistry	
Physics	
CRE/IRE	
Geography	
History and Government	
Business studies	

Agriculture	
Computer studies	
Home science	
Music	
Art and design	
Woodwork	
Metalwork	
French	
German	
Any other subject:……	

School Funding and Transition rates

6. In the tables below kindly indicate with the use of a tick (√) the description that best suits your opinion with regard to transition rates in your school. The attributes strong agree (5), agree (4), usual (3), Disagree (2) and Strong disagree (1) are applicable.

STATEMENT	**SA**	**A**	**U**	**D**	**SD**
a) All those who receive invitation letters to join Form one show positive response.					
b) Irregular attendance of students has gone down since the initiation of secondary subsidized funding.					
c) Parents meet their obligation of providing for their children on hidden costs.					

d) Few students drop out of school due to fees balance					
e) Those who join Form one finishing secondary schooling successfully.					

7. Has the subsidized school funding led to the following:

	Yes	No
Lower dropout rate among students		
Less stress among students		
Higher completion rate		

THANK YOU FOR YOUR PARTICIPATION!

Appendix 5: Interview Schedule for Principals

1. Kindly highlight any relationships between subsidized school funding and students' enrolment in your school since inception of the program.
2. What is the relationship between subsidized school funding and improvement in the provision of textbook? Briefly elaborate.
3. Briefly explain any relationship between subsidized school funding and completion rates in your school.
4. What is the relationship between subsidized school funding and transition rates from primary to secondary (with reference to your school)
5. How long have you been principal.

Appendix 6: Interview Schedule for Sub County Directors of Education

DATE: _____

RESPONDENT'S PSEUDONYM: _____

INTERVIEW MODERATED BY: _____

I, Mbayah Judith Tsisiga, am conducting a research on the **"Relationship between subsidized School funding and student participation among Public Secondary Schools in Kenya".** Your insights will help policy makers in the Kenyan education sector to make important reforms about subsidization of education in the country. You have been identified as a key resource person with the information needed to achieve the purpose of this study. **The interview will take just 20 minutes!**

[May I begin or may we schedule a convenient time to complete the interview].

Anything you tell me is **confidential**. Nothing you say will be personally attributed to you in any reports that result from this interview. All of my reports will be written in a manner that no individual comment can be attributed to a particular person.

There are no wrong answers but rather differing points of view. Please feel free to share your point of view even if it differs from what others have said. Keep in mind that I am just as interested in negative comments as positive comments and at times the negative comments are the most helpful.

You've probably noticed the voice **recorder.** I will be recording the session so that I can study what you have said, but it goes no further than this interview. Anything you say here will be held in strict confidence; I won't be telling people outside this room who said what. People often say very helpful things in these discussions and I can't write fast enough to get them all down. When you have something to say, please repeat your name each time. When I will be listening to the tape again I will not be able to see who is speaking, and I'll need to be able to relate comments you made at different times. It will be on a first name basis and I won't publish any names in my report. You may be assured of complete confidentiality. Your participation in this interview is totally voluntary.

Do you have any questions before we begin?

INTERVIEW QUESTIONS

1. Kindly highlight any relationships between subsidized school funding and transition rate from primary to secondary schools in the Sub- County.

   Probe: Does subsidization of education increase enrolment rate"

2. Kindly state the number of students who sat for their KCPE examination and those who joined Form one in your sub-county as per the table below:

Year	2008	2009	2010	2011	2012	2013	2014	2015
Number that sat for KCPE								
Number that joined Form One								
Number that sat for KCSE								

Appendix 7: Document Analysis Guide

1. RECORDS OF GOVERNMENT SUBSIDY

SCHOOL ……. SUBCOUNTY …….
SCHOOL CATEGORY: (tick one) Day [ ] Boarding [ ]
YEAR: …… TERM: …… TOTAL NO. OF STUDENTS: ……..

CLASS	Total Fees Due (Ksh.)	Total Fees Payable (Ksh.)	Government Subsidy Amount (Ksh.)	Total Fees Deficit (Ksh.)
Form 1				
Form 2				
Form 3				
Form 4				
Total				

2. STUDENTS FEES PAYMENT

CLASS	Total Fees Due (Ksh.)	Total Fees Payable (Ksh.)	Amount Paid (Ksh.)	Total Fees Deficit (Ksh.)
Form 1				
Form 2				
Form 3				
Form 4				
Total				

3. STUDENTS ENROLMENT

CLASS	REGISTERED NO. OF STUDENTS								
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Form 1									
Form 2									
Form 3									
Form 4									
TOTAL									

4. STUDENTS COMPLETION

Year	No. Enrolled In Form One (4 Yrs Ago)	No Who Sat For Kcse This Year	Completion Rate
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			

IMPORTANT NOTES

- Include students who repeat in the same school regardless of number of years
- Exclude students who repeat or join the school in forms 2, 3 and 4 from a different school

5. TEXTBOOK INVENTORY

NAME OF SCHOOL……
SUBJECT …….

CLASS	NUMBER OF STUDENTS	NUMBER OF TEXT BOOKS	STUDENT TO TEXT BOOK RATIO
FORM 1			
FORM 2			
FORM 3			
FORM 4			
TOTAL			

Appendix 8: Letter to Experts for Validation of Research Instruments

Mbayah Judith Tsisiga,

Department of Educational Planning and Management,

Masinde Muliro University of Science and Technology,

P.O Box 190-50100,

KAKAMEGA.

Date _____

Dear Expert,

RE: Assessment of Content Validity of My Research Instruments

I have identified you as a resource person in matters educational research. I am a doctoral student in the department of Educational Planning and Management of Masinde Muliro University of Science and Technology. In my impending research, I plan to use the attached instrument, called _____, to collect data about_____.

I kindly request you to carefully read through the instrument, critique and rate each item therein, using the rating scale below after judging whether the items measure _____ _____. My interest in the instrument is _____ _____. Feel free to include any other useful information below the table, concerning the overall validity of the test (whether the test measures what it purports to measure). Attached please find the abstract of my study.

Rating Scale:

1= Not Relevant; 2= Relevant; and 3= Very Relevant.

Please refer to the attached instrument(s) and fill the table provided overleaf, with the appropriate score, by marking with a tick under the selected score for each item.

Yours sincerely,

……...

MBAYAH JUDITH TSISIGA

Admission Number: **ESP/LH/002/14**

Mobile Number: 0722 601 561

judithngome@yahoo.com

Rater's Name: _____ Institution: _____ Mobile: _____

Instrument: _____

ITEM NO.	COMMENT	VALIDITY SCORE		
		1	2	3
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Any other comments (If any)

_____

_____

_____

_____

_____

Thanks and God bless you Sir/Madam for your invaluable input

Appendix 9: Letter of Appreciation to Research Respondents

MBAYAH JUDITH TSISIGA,

P.O. BOX 190-50100,

KAKAMEGA.

15th March 2018

To: All individuals/institutions that participated in my research

Dear Participant,

Following your active participation in my recently concluded study that was entitled **"Relationship between subsidized School funding and student participation among Public Secondary Schools in Kenya".** I write this letter to express my sincere gratitude. I take cognizance in the fact that your participation was purely voluntary, free-of-charge and might have inconvenienced you in some way. However despite your busy schedule, you were able to sacrifice some of your precious time, just to take part in my research and for that, I will forever be thankful.

Rest assured that findings of this study will go a long way in improving the quality of education in this country, with respect to students' participation in academics and subsidization of secondary school education by the government of Kenya. Your efforts were therefore not in vain. In case you will be interested in my research findings, do not hesitate to contact me. My email address is judithngome@yahoo.com. Once again, thanks and God bless you. I wish you and your school all the best as you prepare for KCSE this year.

Yours sincerely

Mbayah, J.T.

The researcher

CC to: **- School Notice Board**
- Research Assistants
- The Principal
- Sub County Education Office

Appendix 10: Informed Consent Form for Research Respondents

I _____, declare that I have not been coerced in any way to participate in this research entitled, **"Relationship between subsidized School funding and student participation among Public Secondary Schools in Kenya".** My contribution is therefore purely voluntary, after the researcher clearly explaining to me the intention of this research and that all queries I had have already been answered to my satisfaction. I also have read a description of this research, which I do have a copy, and therefore give my consent to participate. I also have been given a copy of this consent form, to keep for my future reference. To the best of my knowledge, I meet the inclusion/exclusion criteria for participation (described below) in this study.

_____ _____

PARTICIPANT'S SIGNATURE **DATE**

Description of research

This study is dubbed, ""**Relationship between subsidized School funding and student participation among Public Secondary Schools in Kenya".** It is being conducted in several schools in Vihiga county. The main purpose is to find out how subsidization of education affects school enrolment rates, completion rates and transition rates and student to text book ratio.

Inclusion/Exclusion criteria

You qualify to participate in this study if;

i) Your school is in Vihiga county
ii) Your school is a public secondary school
iii) You are in for three
iv) Your parent has been informed or has no reservation about you participating in this study

Appendix 11: The Research Permit

THIS IS TO CERTIFY THAT:
MISS. JUDITH TSISIGA MBAYAH
of MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY, 856-50300 MARAGOLI,has been permitted to conduct research in *Vihiga County*

on the topic: *RELATIONSHIP BETWEEN SUBSIDIZED SCHOOL FUNDING AND STUDENT PARTICIPATION IN KENYAN PUBLIC SECONDARY SCHOOLS.*

for the period ending:
9th March,2018

Permit No : NACOSTI/P/17/22506/15753
Date Of Issue : 20th March,2017
Fee Recieved :Ksh 2000

.....
Applicant's Signature

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

CONDITIONS

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

HARAMBEE

REPUBLIC OF KENYA

NACOSTI

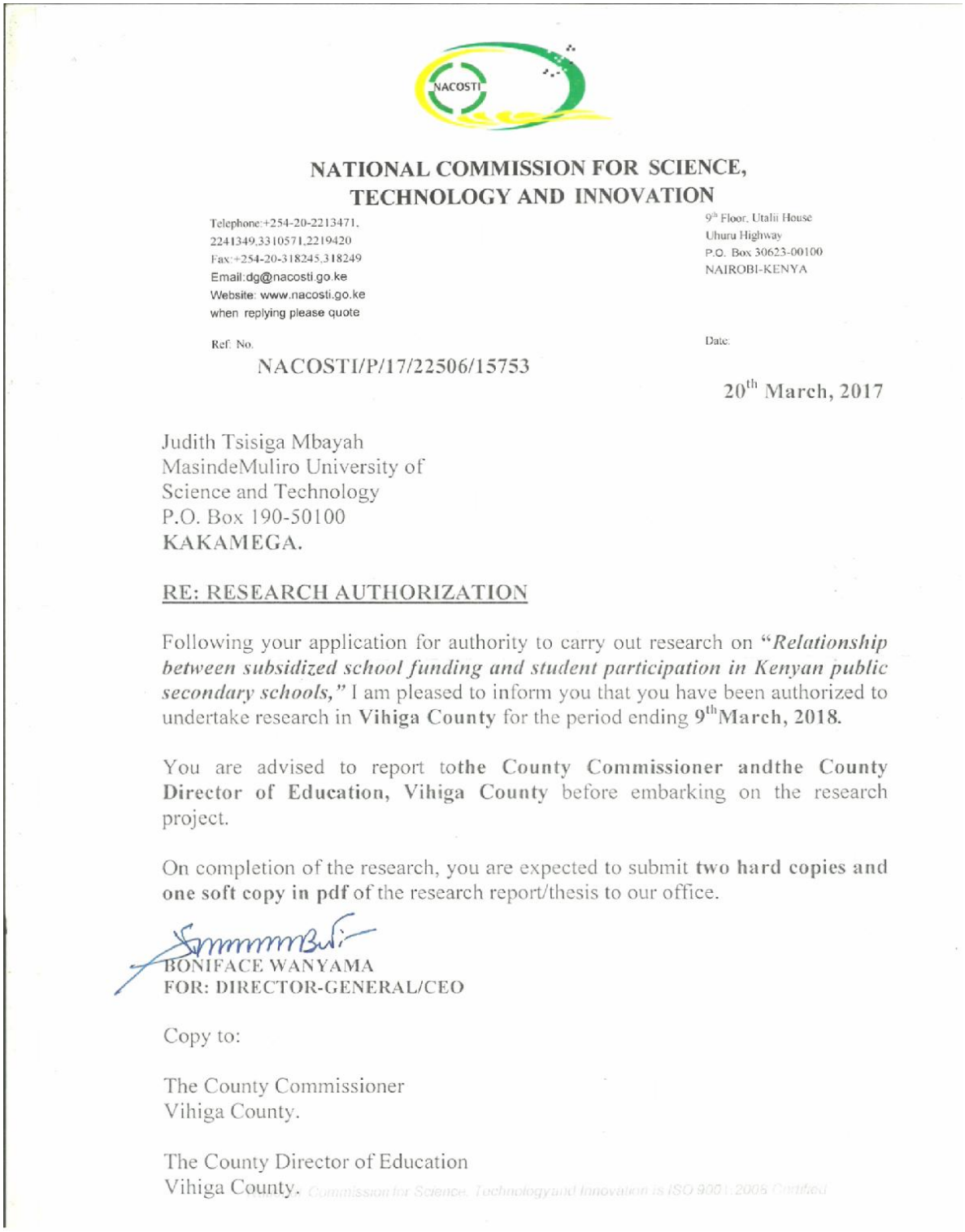
National Commission for Science, Technology and Innovation

RESEACH CLEARANCE PERMIT

Serial No.A 13344

CONDITIONS: see back page

Appendix 12: The Research Authorization Letter



NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471, 2241349,3310571,2219420
Fax:+254-20-318245,318249
Email:dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

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

Ref. No. NACOSTI/P/17/22506/15753

Date: 20th March, 2017

Judith Tsisiga Mbayah
MasindeMuliro University of
Science and Technology
P.O. Box 190-50100
KAKAMEGA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Relationship between subsidized school funding and student participation in Kenyan public secondary schools,"*** I am pleased to inform you that you have been authorized to undertake research in **Vihiga County** for the period ending **9th March, 2018.**

You are advised to report to**the County Commissioner andthe County Director of Education, Vihiga County** before embarking on the research project.

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

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Vihiga County.

The County Director of Education
Vihiga County.

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

Appendix 13: List of Secondary Schools in the Research Area (Vihiga County)

1. Mudavadi Girls High School – Girls
2. Chavavo Sec Sch – Mixed
3. Madira Girls' High School – Girls
4. Ebunangwe Secondary School – Boys
5. Ebusiratsi Girls
6. Kilingili Secondary School – Mixed
7. Emusire High School – Boys
8. Ebusakami Sec Sch – Girls
9. Esalwa Secondary School – Boys
10. Goibei Girls High School – Girls
11. Tigoi Girls Sec School – Girls
12. Munzatsi Secondary School – Mixed
13. Senende Boys' High Sch – Boys
14. Friends Sch Kaimosi Boys Sec School – Boys
15. St. Pauls Erusui Girls High School – Girls
16. Busali Union Secondary School – Mixed
17. St. Ursulas Chamakanga Girls Secondary School – Girls
18. Friends High School Kigama – Boys
19. Igunga Girls' High School – Girls
20. Chango Secondary School – Mixed
21. Ideleri Secondary School – Mixed
22. Kegoye Secondary School – Mixed
23. Mbihi Secondary School – Mixed
24. Kerongo Secondary School – Mixed
25. Magui Secondary School – Mixed
26. Vigina Secondary School – Mixed
27. Gilwatsi Secondary Shool – Mixed
28. Masana Secondary School – Mixed
29. Chambiti Secondary School – Mixed
30. Kidinye Friends Secondary – Mixed

31. Friends School Gavalagi – Mixed
32. Friends School Womulalu – Mixed
33. Kisienya S.A. Sec – Mixed
34. Mkombozi Chanzu Ingidi Friends Sec – Mixed
35. Chandolo Salvation Army Sec – Mixed
36. Matsigulu Friends Secondary School – Mixed
37. Kitumba P.A.G Mixed Day Secondary School – Mixed
38. Idavaga Muslim Secondary School – Mixed
39. Kidundu Secondary School – Mixed
40. Friends School Emanda Secondary School – Mixed
41. Friends School Ikumba Secondary – Mixed
42. Ebubayi Secondary School – Mixed
43. Ebusiloli Secondary School – Mixed
44. Ebwali Secondary School – Mixed
45. Hobunaka Secondary School – Mixed
46. Ibubi Girls Secondary School – Girls
47. Ebukhaya Secondary School – Mixed
48. Esong'olo Secondary School – Mixed
49. Mwituha Secondary School – Mixed
50. Ebulonga Secondary School – Mixed
51. Ematsuli Secondary School – Mixed
52. Emmatsi Secondary School – Mixed
53. Emmukunzi Secondary School – Mixed
54. Hobunaka Girls Secondary School – Girls
55. Ebuyalu Secondary School – Mixed
56. Ekwanda Secondary School – Mixed
57. Es'saba Secondary School – Mixed
58. Ebusyubi Secondary – Mixed
59. Emanyinya Secondary School – Mixed
60. Mumboha Secondary School – Mixed
61. Ebukanga Secondary School – Mixed

62. Esibila Secondary School – Mixed
63. Esibeye Secondary School – Mixed
64. Esiandumba Secondary School – Mixed
65. Khwiliba Secondary School – Mixed
66. Ebwiranyi Secondary School – Mixed
67. St. Peter's Itumbu Secondary School – Mixed
68. Ebukoolo Sec School – Mixed
69. St. Anne´s, Buyangu Girls´ School – Girls
70. Dr Maurice Dang'ana Secondary School – Mixed
71. Stanley Godia Secondary School-Givogi – Mixed
72. Givole Sec Sch – Mixed
73. Kapsotik Secondary School – Mixed
74. Museywa Sec School – Mixed
75. Gisambai Secondary School – Mixed
76. Gavudunyi Secondary School – Mixed
77. Ivola Secondary School – Mixed
78. Gimengwa Secondary School – Mixed
79. Kapchemugung Secondary School – Mixed
80. Gamalenga Secondary School – Mixed
81. Gimariani Mixed Secondary School – Mixed
82. Muhaya Secondary School – Mixed
83. Lwombei Secondary Shool – Mixed
84. Friends Gamoi Secondary School – Mixed
85. St.Veronica Kimaran Girls Secondary – Girls
86. Muhudu Secondary School – Mixed
87. Kaptik Secondary School – Mixed
88. Imusutsu Mixed Secondary School – Mixed
89. Makuchi Secondary School – Mixed
90. Ishiru Secondary School – Mixed
91. Friends Secondary School Shamakhokho – Mixed
92. Friends School Kaimosi Demonstration Secondary – Mixed

93. Cheptech Secondary School – Mixed
94. Gahumbwa Secondary School – Mixed
95. Jemovo Secondary School – Mixed
96. Kivagala Secondary School – Mixed
97. Lusengeli Secondary School – Mixed
98. Wangulu Mixed Secondary School – Mixed
99. Kapsambo Secondary School – Mixed
100. Kisangula Secondary School – Mixed
101. Ikobero Girls Secondary School – Girls
102. St.Mark Orthodox School –Chavogere – Mixed
103. Gaigedi Secondary School – Mixed
104. Friends School Mulundu Sec – Mixed
105. Digula Sec School – Mixed
106. Nabwani Secondary School – Mixed
107. Bukulunya Secondary School – Mixed
108. Friends School Chandumba – Mixed
109. Demesi Secondary School – Mixed
110. Viyalo Secondary School – Mixed
111. Mukingi Secondary School – Mixed
112. St. Paul's Musalia High School – Mixed
113. Tsimbalo Secondary School – Mixed
114. Friends Technical Secondary School-Munoywa – Mixed
115. Ivona Secondary School – Mixed

Appendix 14: Incentive to Students Who Participated in the Study

MY PERSONAL STUDY TIMETABLE

NAMES: _____
SCHOOL: _____
DREAM CAREER: _____
ROLE MODEL: _____
MOTTO: _____

DAY	MORNING (a.m)		EVENING (p.m)			
	4.00 - 5.00	5.00 - 6.00	5.30 - 7.00	7.00 - 8.00	8.00 - 9.00	9.00 - 10.00
MONDAY			Assignments			Consultation
TUESDAY			Assignments			Discussion
WEDNESDAY			Assignments			Consultation
THURSDAY			Assignments			Discussion
FRIDAY			Assignments			Consultation
SATURDAY						
SUNDAY						

TIPS ON HOW TO STUDY AND PREPARE FOR EXAMINATIONS

i. Always have a timetable and follow it strictly. Remember failure to plan is planning to fail
ii. Allocate more time for subjects you are weak in/ones you performed poorly in the previous test even if it is your favorite. This means your personal timetable should change from time to time
iii. Science subjects should be scheduled for morning sessions because most of them are concepts-oriented which require fresh minds for maximum concentration.
iv. Always have a notebook for making short notes that you can refer to any time of the day. It's easier to read short notes because they are a summary of main points. Always have the notebook on you.
v. It's not possible to understand everything you read in a day. Therefore, always note down what you did not understand and consult your teacher as soon as possible. Frequent consultation is one of the best ways of creating a healthy teacher-student relationship and rapport.
vi. Revise topically. This way you learn to relate all similar concepts. Thereafter, have a bank of as many questions as possible from the topic you just revised and ensure you can answer them all correctly. If not, **CONSULT!**
vii. Always spare time for rest and play. Remember all work without play makes you a very dull student.
viii. Before you start preparing for any exam, look at the exam timetable. Read today for the paper you will do tomorrow and not next weeks'. However, do not wait until exam time for you to start reading seriously. Always keep in mind the 5 P's of preparation;

"Prior Planning Prevents Poor Performance"

DONATED BY **MS. MBAYAH JUDITH TSISIGA,**
A doctoral student at Masinde Muliro University of Science and Technology

See overleaf for all the bachelor's degree courses offered at our university

Appendix 15: Normality Test Results for the Study's Quantitative Data

Variable	Shapiro-Wilk statistic		
	W	DF	P
Secondary school enrolment rate	0.994	518	0.131
Primary school to secondary school transition rate	0.953	102	0.093
Secondary school completion rate	0.910	12	0.076
Student to text book ratio	0.903	5	0.379