EXPANSION OF PUBLIC DAY SECONDARY SCHOOLS AND INTERNAL EFFICIENCY IN MUMIAS EAST AND MUMIAS WEST SUB-COUNTIES, KAKAMEGA COUNTY, KENYA

ROTHE IMBAHALA WAKHISI

A Thesis submitted in Partial Fulfillment for the Requirements for the Award of Masters Degree in Education Planning and Management of Masinde Muliro University of Science and Technology.

July, 2020

DECLARATION

This thesis is my original work prepared with no other than the indicated sources and support. It has not been presented elsewhere for a degree or any other award.

Signature _____ Date _____

Rothe Imbahala Wakhisi

EPM/G/17/12

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology, a thesis entitled: **"Expansion of Public Day Secondary Schools and Internal Efficiency in Mumias East and Mumias West Sub-counties, Kakamega County, Kenya".**

Signature _____ Date _____

Prof. Stephen O. Odebero

Department of Education Planning and Management,

Masinde Muliro University of Science and Technology.

Signature _____ Date _____

Dr. Jason Nganyi

Department of Education Planning and Management,

Masinde Muliro University of Science and Technology.

COPYRIGHT

DEDICATION

I dedicate this thesis to my beloved wife, Salome Okango Odiemo; Our children: Nissi, Shammah and Shema; Parents: late Tabitha Imbuhira and late Manase Wakhisi.

ACKNOWLEDGEMENTS

This is an acknowledgment to all those important people who have made the writing of this thesis a success, without whom the preparation, compilation and completion of this work could not have been successful. I am greatly indebted to my supervisors, Prof Stephen O. Odebero and Dr. Jason Nganyi whose guidance, counsel and corrections made this work to be what it is – thank you very much. I highly appreciate the entire teaching staff of the Department of Education Planning and Management Instructors who from the start to completion equipped me with this vital knowledge. I appreciate the encouragement given to me by colleagues in the Education Planning and Management Class – Burema Aggrey, Jane Wamalwa and Margaret Wekulo, as well as co-operation of principals, teachers and students from Mumias East and Mumias West Sub-counties that provided information appropriate for this study, Mr. Vitalis Khasoha Anusu, Mr. Mukhwana Okola, Mr. Muvango Mark for brotherly advice and my wife Salome Odiemo and children for humble time and financial support. For those not mentioned but did assist me in one way or another, I say thank you. God bless you all.

Wakhisi I. R.

ABSTRACT

Expansion of public day secondary schools was expected to enhance access and provide quality education to students who miss the opportunity to access boarding facilities due to high school fees charged. The purpose of this study was to determine the effect of expansion of public day secondary schools in Mumias East and Mumias West Sub-Counties on their internal efficiency between 2010 - 2015. The specific objectives of the study were to: determine the effects of trends in enrolment on internal efficiency of public day secondary schools; establish the effect of expansion of public day secondary school on utilization of selected school physical facilities; and to determine the influence of expansion of public day secondary school on quality of education offered in Mumias East and Mumias West Sub-Counties. The study was guided by a conceptual framework in which independent variable is expansion of public day secondary schools and dependent variable is enhancing internal efficiency. The study employed descriptive survey research design. A sample size of 1,323 students, 164 teachers, 36 principals from a population of 4,410 form 3 and 4 students, 546 teachers, 43 principals respectively; the Sub-County Director of Education was involved. Simple random, saturated and purposive sampling were used to select students / teachers, principals and education officers respectively. Research instruments used were questionnaires and interview schedules. Quantitative data collected from closed questionnaire items was tallied and analyzed using descriptive and inferential statistics with the aid of the statistical package for the social sciences Qualitative data was transcribed and organized into categories and themes based on study objectives. Study findings revealed a statistically significant positive relationship between enrolment trends and internal efficiency in public day secondary schools ($r=0.571$:$P<0.05$). It was also found that there was a significant and positive relationship between expansion of public day secondary schools and utilization of selected physical facilities ($r=0.599$: $P<0.05$). with regard to the third objective, the study found a significant negative relationship between expansion of public day secondary schools and quality of education offered in public day secondary schools ($r= -0.501$; $P<0.05$). It was revealed that students enrolment trends significantly influence internal efficiency of public day secondary schools; an increase in enrolment resulted in an improved internal efficiency in public day secondary schools; Expansion of Public day secondary school significantly improved utilization of selected school physical facilities (libraries and laboratories) however it lowered the quality of education offered to learners; thus it impacted negatively on the quality of education offered in public day secondary schools. The study concluded that enrolment trends significantly influence internal efficiency of PDSS; expansion of PDSS significantly improved utilization of selected school facilities (libraries and laboratories) hence enhancing internal efficiency and that expansion of PDSS has a significant negative offered on the quality of education offered to learners in public day secondary schools. The study recommended that an increase in enrolment be accompanied with increased funding to expand school infrastructure that would accommodate increasing students numbers hence enhance internal efficiency of schools; increased enrolment be accompanied by expansion in selected school physical facilities (Libraries and Laboratories) to provide a better teaching and learning environment that would improve the quality of education in public day secondary schools and enhance internal efficiency

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

BOM	-	Board of Management
CBE	-	Curriculum Based Establishment
CDE	-	County Director of Education
CDF	-	Constituency Development Fund
DCC	-	Deputy County Commissioner
EFA	-	Education For All
FPE	-	Free Primary Education
IIEP	-	International Institute for Educational Planning
ILO	-	International Labour Organization
KCSE	-	Kenya Certificate Secondary of Education
KNEC	-	Kenya National Examinations Council
KNPA	-	Kenya National Parents Association
MISA	-	Minimum Income School Attendance
MOE	-	Ministry of Education
MOEST	-	Ministry of Education, Science and Technology
MW	-	Mega Watts
NACOSTI	-	National Commission for Science, Technology and Innovation
NGO	-	Non-Governmental Organization
PDSS	-	Public Day Secondary Schools
SCDE	-	Sub-County Director of Education
SAIPEH	-	Support Activities in Poverty Eradication and Health
SASA	-	South Africa School Act
SDSE	-	Subsidized Day Secondary Education
SEMP	-	Secondary Education Master Plan
SPSS	-	Statistical Package for Social Sciences
TSC	-	Teachers Service Commission
UNESCO	-	United Nations, Educational, Scientific and Cultural Organization
UPE	-	Universal Primary Education

OPERATIONAL DEFINITION OF TERMS

The following terms, as used in the study ought to be understood as follows:-

Academic Performance:	Examination results graded by KNEC as an examining body that places the candidate to be able to advance to the next level of education.
Bursaries	Funds received from the central government by the constituency development fund (CDF) to distribute to bright, needy students who are unable to pay public secondary school fees.
Catchment Area	The surrounding areas of the school from where it draws its students for enrolment.
CDF funds	Money received from central government by all constituencies for socio-economic development in the constituency.
Expansion of public schools:	Increase in students enrolment, establishment of more public day secondary schools, re-registration of schools due to increased number of streams, expansion of physical infrastructure i.e. classrooms, laboratories, libraries, toilets.
Subsidized Day Secondary Education	Refers to the waiver of tuition fees by the government for secondary school level. Parents are expected to meet other requirements like lunch, transport, development projects and boarding fees for those in boarding schools.
Free Primary Education	Refers to the waiver of all forms of contributions to education by the parents in the primary school level. The government shoulders the financing of education in public primary schools.
Households	These are families including all the people living in a house.

Internal Efficiency:	The ability of the school system to make use of the scarce resources like physical facilities, teachers, text books, time, at a minimal cost to realize good academic performance.
Physical Facilities	Refers to classrooms, desks, latrines, laboratory, library, fields.
Public Day School:	Public secondary School registered by the Ministry of Education where students come from home to learn and go back at the end of the day.
Quality in Education:	Is the degree to which education can be said to be of high standard, satisfies basic learning needs and enriches the lives of learners and their overall experience of living. (UNESCO, 2000).
Student / Teacher ratio	The students population in the school compared to the number of teachers in the school.
Student / Text book ratio	The number of students in a class / subject compared to the number of text books available for reference per subject.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Secondary education is a gateway to the opportunities, benefits and social development. Demand for access to higher levels of education is growing dramatically as countries approach Universal Primary Education (UPE). The global Education for All (EFA) effort provides added momentum for the growth in secondary education. Globalization and increasing demand for a more sophisticated labour force, combined with the growth of knowledge based economies gives a sense of urgency to the heightened demand for secondary education; hence increased enrolment in secondary schools leading to their expansion. Secondary education is now being recognized as the cornerstone of the educational systems in the 21st century. The quality secondary education is indispensable in creating a bright future for individuals and nations alike (World Bank, 2005). Among the secondary schools with increased enrolment that result to their expansion are the public day secondary schools.

World Bank (2005), revealed that since 1963, when World Bank began lending for education, the bank has played an important role in assisting developing countries in their efforts to expand secondary education and to improve the quality of institutions and programmes hence improving internal efficiency. In countries with high secondary education enrolments, the bank interventions have focused on improving employability and productivity of school leavers through support to vocational secondary schools; and increasing competitiveness by improving the quality of general secondary education

especially public day secondary schools; so as to raise the overall productivity and trainability of the labour force. In countries with low secondary education enrolment, bank projects have focused on meeting specific shortages of educated manpower in the public and private sectors by raising secondary school completion rates and improving the social conditions of the poor and reducing inequality by expanding access to secondary education. (World Bank, 2005).

Lewin and Caillods (2001) noted that due to the success of efforts to increase primary school enrolment, many adolescents were now looking for opportunities in secondary schools hence putting education systems under constant pressure to meet demands for further education. Lewin and Caillods (2001) gives the following reasons for expanding secondary education: first, providing learning after primary education was essential to consolidate what had already been learned. Many achievement studies which had been undertaken in developing countries showed that, upon graduating from primary schools, students have only a shaky grasp of core competencies. Secondly at secondary level students can develop reasoning and thinking skills that are inaccessible to younger children. It is at this level that youngsters can be expected to acquire common culture that will allow them to be useful citizens to build knowledge through experience and experiments and to learn essential subjects like health education, science and technology. At secondary level large number of youngster can be taught how to think, how to work in teams and live together. Third, expanding quality secondary education was essential to ensure a better educated teaching force at the first level. Fourth, opening learning opportunities beyond primary education is necessary to motivate primary school pupils to complete their primary education. Primary education has expanded hence market value of a primary school certificate has decreased and only those who

continue to secondary hope to obtain access to a job in modern sector. Fifth, countries that experienced the highest level of economic growth in the past decade had all invested substantially in their secondary education a number of years before, as the fast developing countries of East and South East Asia and Europe.

In the last few decades there has been a considerable expansion of Secondary education in Latin America. However, this expansion has been insufficient and unequal, if compared to the differences in internal performance and school results between regions and social factors (Claudia, 2001). Claudia (2001) notes that segmented education systems in Latin America suffers the following challenges: loss of original purpose, inflexible institutional cultures, rigid organization of time and space in schools, awkward management of daily co-existence, teachers with few opportunities for institutional involvement and high absenteeism, curricula unrelated youth cultures. In view of all this, equality, efficiency and quality became the main challenges for the secondary school reforms in 1990's. Reducing inequalities therefore means broadening access to secondary education rather than restricting it by letting only, selective secondary schools. In Asia, Latin America and Europe improving quality, reducing inequalities and modernizing the functions of secondary schools are priority (Caillods, 2001).

The International Institute for Educational Planning (IIEP) carried out research in the city of Buenos Aires, Argentina and in Uruguay on analyzing actions taken to improve equality in education; which revealed that:- educational coverage is practically universal at primary level and high at secondary level. The expansion of secondary education has been persistently beleaguered by failure, with high repetition and dropout rates, especially in early years. The problems appear to be linked to poverty and families with

low educational levels (Claudia, 2001). There are programmes that provide additional financial support to secondary schools which develop projects aimed at retaining students. Improvement in retention of students and improvement of learning may be contradictory, although both aim to improve equality. It is not easy to find a school where both retention levels are high and everyone is learning. Those with the best levels of retention tended to have lower educational results where as schools with relatively good results tended to have a high dropout rate (Claudia , 2001).

Many countries in Southern Africa like Botswana and in South Asia like Indonesia are faced with the same constraints: how to attend to greater numbers of students at secondary level with limited additional public funding. There is need to widen access to secondary education in order to have meaningful literacy in a globalized world which can be achieved through more years of education. Provision of quality education could help to reduce income inequality and promote social mobility. The problems of unequal access to secondary education, low quality of education after expansion and system inefficiencies reflected by high levels of wastage rates and high costs often resulting from an underutilization of teachers was a major concern in these countries (Suzanne & Caillods, 2001).

Caillods (2001), notes that in SriLanka, expansion of school system up to grade II had succeeded by keeping cost differences between primary and secondary education low. This has been done through using same teachers at primary and secondary level. In many countries China included, expansion of education occurred at least in a first phase to the detriment of quality. Inappropriate curricula, high enrolment per class, a large proportion of untrained teachers, lack of teaching materials often accompany secondary education expansion resulting in serious deterioration in the quality of learning. This is

reflected in many countries by high level of repetition and drop-out rates, low examination results or achievement levels.

In Algeria, despite the considerable progress achieved in the education sector since independence, the government has had to deal with various setbacks and in particular many young people were without any prospect of employment. Measures that had been considered include:- improvement of internal efficiency system by reducing repetition and dropout rates; development, printing and distribution of new text books, in-service training of teachers and reorganization of measures for evaluating and managing the system. (Pierre, 2001). Zimbambwe succeeded in significantly increasing access to secondary due to high level of public resources set aside for education, combined with a reduction in unit costs resulting from increase in pupil teacher ratio and the extensive use of untrained teachers during the first ten years. The introduction of automatic promotion, double – shifting and cost sharing mechanisms had contributed to making enrolment affordable. (Gottelmann – Duret, Lewin, Caillods, 2001).

Efficiency is the ability to produce desired effect or results with a minimum effort in terms of expenses or wastages (Psacharopoulos & Woodhall, 1985). Internal efficiency of school is the amount of learning achieved during school age attendance, compared to the resources provided (Abagi & Odipo 1997). It is a measure of ability of an education system to achieve its internally set objectives. Psacharopoulos and Woodhall (1985), notes that measures such as examination scores, cognitive tests in wide range of subjects and the length of time needed for completion can be used to measure internal efficiency. They also consider how facilities like classrooms are utilized, the utilization of teachers, the pupil teacher ratio, the availability of textbooks, contact hours and time utilization, the use of flow patterns of the students such as wastage rates, repeater rates, drop out

rates, survival rates, retention rates, cohort wastage rates, graduation rates. Most studies carried out on the efficiency of education systems, throughout the world show that inefficiency characterizes many education systems especially in developing world (Psacharopoulos & Woodhall, 1985).

Alexander and Simmons as cited by Psacharopoulos and Woodhall, (1985), in the United States of America suggested that family background and socioeconomic background were factors that determine achievements of students more than school factors (variables) such as teacher qualifications, availability of learning resources like textbooks. These findings concur with Coleman, et al and Jenncks as cited in Psacharopoulos and Woodhall (1985). They established that the characteristic of a school output depended largely on a single input, that was the characteristics of the entering children. Levin noted that in Western Europe, social class of a family influenced the academic achievement of children. The study further revealed that inadequate incomes among lower class families hindered the provision of tuition fees, school books and other material inputs necessary to ensure good performance or continuation in school.

In Kenya, Ngware (1994) studied the nature and trend of educational wastage, established that majority of the parents of students who repeat come from low socio-economic backgrounds. It revealed that most of the repeaters parents were either illiterate or had no formal education. Maiyo (2005) determined internal efficiency in secondary schools and the study revealed that the main causes of dropouts among students in secondary schools are related to finance, drug abuse and pregnancy. This study, investigated the trends in students enrolment in public day secondary schools in Kenya as a result of government provision of the subsidized day secondary school

education and its effect on performance in the national exams, as a measure of internal efficiency.

Kenya spends 40% of its national budget on financing education, with expectations of good results. Expansion of public day secondary schools was expected to enhance access and to provide quality education to the citizens. Yearly, many primary school leavers missed opportunities in form one during selection. This led to the government recommending the establishment of more streams in the existing secondary schools and establishing of more public day secondary schools. In many cases, this was done without considering the quality of education to be offered hence compromising internal efficiency of institutions. A call by the Kenya National Parents Association (KNPA) chairman to have Kenya Certificate of Primary Education scrapped because has denied right to basic education and have a secondary section established at every primary school so as to increase the transition rates from primary to secondary was still a debate to be discussed and implemented(Education Newspaper Jan 17, 2013). In Kakamega County, a total of 30 new secondary schools have been registered between January to June 2014 of which 15 are from Mumias Sub-county. In Mumias Sub-county the steadily growing enrolment ratio at primary level was an attribute to free primary education that fed gradually increasing enrolment in secondary schools. Subsidized Day Secondary education that commenced in 2008 has also contributed to increased enrolment especially in Public Day Secondary Schools. School enrolment and retention are pegged on household capacities that reel around basic necessities of life. The high poverty index in Mumias contributed to low transition rates from primary to secondary and secondary to tertiary. Inadequate social amenities and infrastructural development in the learning institutions were a setback in realizing internal efficiency in the district

(Olwenyi, 2011). The Provision of bursary funds by Mumias Constituency Development Fund (CDF) and SAIPEH – a non – governmental organization based in Mumias have enhanced increase in school enrolment, in public day secondary school (Olwenyi, 2011). The number of public day secondary schools had increased from 24 schools in the year 2009 to 45 schools in the year 2014, as shown on table 1 below.

Table 1. 1: Number of Public Day Secondary Schools in Mumias Sub-county

YEAR	NO. OF PUBLIC DAY SEC SCHOOL
2015	54
2014	45
2013	37
2012	30
2011	25
2010	25
2009	24

Source: Sub-county Education Office – Mumias

1.2 Statement of the Problem

The introduction of free day secondary education by the Kenyan government was intended to make secondary education more affordable and to improve academic achievement of learners. These were to be achieved through reduced user fees and provision of school infrastructure, teaching and learning resources as well as adequate number of teachers. This reduction in user fees was quite significant in day schools since

under the cost sharing policy, public day secondary schools were found to be internally inefficient. Some of the notable inefficiencies included high rates of absenteeism, under enrolment, repetition and poor performance in national examinations. Odouri, (2014) notes that registration of new schools nationwide had been suspended and the Ministry of Education was in the process of regulating the mushrooming of public schools by ensuring that only viable schools are established. The Principal Secretary of education noted that there was need to optimize the existing school since putting up new schools required more resources than what was needed to expand existing ones (Oduor 2014). Most studies carried out on efficiency of education systems throughout the world shows that inefficiency characterized many education systems especially in developing world (Psacharopouls & Woodhall 1985). The study therefore seeks to investigate the effect of expansion of public day secondary schools in Mumias East and West Sub-County on their internal efficiency.

1.3 Purpose of Study

The general objective of the study was to: determine the effect of expansion of public day secondary schools in Mumias Sub-County on their internal efficiency between 2010 - 2015.

1.4 Objectives of the Study

The specific study objectives were to:

(i) Determine the effect of enrolment trends on internal efficiency in public day secondary schools in Mumias East and Mumias West sub-counties.

(ii) Establish the effect of expansion of public day secondary schools on utilization of selected physical facilities (libraries and laboratories) in public day secondary schools in Mumias East and Mumias West Sub-Counties.

(iii) To determine the influence of expansion of public day Secondary Schools on the quality of education offered in Public day Secondary Schools in Mumias East and MumiasWest Sub-Counties.

1.5 Research Question

(i) What is the effect of enrolment trends on internal efficiency in public day secondary schools in Mumias East and Mumias West sub-counties?

(ii) How does the expansion of public day secondary schools affect utilization of selected physical facilities (libraries and laboratories) in public day secondary schools in Mumias East and West Sub-Counties?

(iii) To what extent does expansion of public day Secondary Schools influence the quality of education offered in Public day Secondary Schools in Mumias East and West Sub-Counties?

1.6 Significance of the Study

The study provides accurate data on the ground on the enrolment trends in public day secondary schools in Kenya as well as factors affecting internal efficiency. This helps Schools, the Ministry of Education and all the stakeholders (Board of Management, Parents Teacher Association and local community) to improve on quality education provision and reduce wastages. It may also go a long way in helping the school Boards of Management to put in place the requisite resources to ensure improved academic performance in public day secondary schools. The study may assist the policy makers in

the Ministry of Education in allocation of resources to public day secondary schools. Investment in education in Kenya occurs against a backdrop of scarce resources hence the study may be of great benefit to schools and stakeholders have an insight into internal efficiency of the school system so as to employ resources to the best benefit of students and nation. It was hoped that this study may enable the school managers to have effective and efficient management of school physical facilities in order to make school a pleasant, safe and comfortable centre of academic activities.

1.7 Scope of the Study

The study was limited to Mumias East and Mumias West sub-counties of Kakamega County which have the highest number of newly established public day secondary schools within a short period of time. The study covered all the 36 Public Day Secondary Schools out of the 45 public day secondary schools in Mumias sub-county. It focused mainly on internal efficiency measures other than external efficiency. Students, Teachers, Principals, and Education Officers were to be involved in giving data. The study was limited to public day secondary schools only and leaves out public boarding, private day and boarding schools. It covered Mumias East and Mumias West Sub-counties out of the twelve sub-counties of Kakamega county hence the findings may not be a representative of other sub-counties.

1.8 Assumption of the Study

The study was based on assumptions that; expansion of public day secondary schools affect efficiency in the school; the trends in student enrolment and the increase in the number of public day schools have a negative effect on internal efficiency thus – the higher the enrolment and creation of streams / schools the higher the internal

inefficiency. It was assumed that expansion of public secondary schools occurred mainly in public day secondary schools other than public national, extra-county, county boarding and private schools. It was also based on assumptions that; there was a yearly increase in enrolment in all public day secondary schools as a result of FPE and SDSE introduced by government which led to creation of new schools and increase in school size, and that the respondents would give honest answers and data collection would reflect what was on the ground.

1.9 Limitations of the Study

Some students were of low academic ability hence had difficulties in responding to some questions in the questionnaire. Some principals and teachers who were suspicious on giving data on enrolment and academic performance were assured by the researcher that the information will be confidential and the names of the institutions will not be published: Most of the schools were far apart in distance hence the researcher had to use field assistants to collect data in some schools.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focused on the related literature to the study as follows:- Students enrolment trends in public day secondary schools and internal efficiency, selected physical infrastructure utilization, school sites and internal efficiency, employment of new teachers and internal efficiency in schools, concept of internal efficiency in schools and expansion of public day secondary school and quality of education.

2.2 Students Enrolment trends and Internal Efficiency

The provision of secondary education has changed particularly since independence with the quantity of schools and students expanding from 151 and 30,000 out of 1963 to 4,111 and 1,487,989 out of 2010 (MOE, 2012). The introduction of Free Secondary Education (FSE) brought about higher increment in enrollment in the public secondary schools by 17.1 percent in 2008 (Republic of Kenya, 2009) when contrasted with 13.7 percent in 2007, and the expansion was noted in the resulting years. Asian Network of Training and Research Institutions in Educational Planning (ANTRIEP, 2008) did a study on improving school efficiency.

The Asian experience done in Colombo, Sri Lanka purposed to improve school efficiency. The objectives were to: give an outline of the circumstance of various nations in Asia; look at how both internal and external school supervision and bolster supervision ought to be reinforced and adjusted to positively affect the nature of schools; investigate the part that assessment components (examinations,

accomplishment tests and others) can play in enhancing the quality and viability of schools; and talk about the system of teacher deployment and management , and ask at what levels diverse choices about conveying and overseeing educators can best be taken and how this choice procedure can be progressed. The investigation discovered among others that: assessments of basic and secondary schools are embraced without adequate data in regards to advancements in the field which gives enormous degree for delayed bureaucratic customs; assessment prompts exhaust among school staff and that the measures for assessment are abstract to the point that it is practically inconceivable for the evaluators to speak with the schools.

The reviewed study looked at the aspect of efficiency improvement in general, where it focused on what negatively affected efficiency, while the current study specifically looked at how internal efficiency is affected by increased enrolment in public secondary schools. In the course of recent decades, specialists, government officials, and corporate pioneers have concentrated reform endeavors on the measure of instructive settings. Many billions of public and private dollars have been contributed to lessen the size and extent of both the classrooms and schools (Lee & Ready, 2007). Not at all like numerous educational reforms, these scaling down plans have pulled in help for all intents and purposes from each quarter, and an assembled front of partners has blended behind the idea that "smaller is better." Efforts to lessen grade school class sizes have collected especially solid prevalent and political help. To be sure, the American public feels that making smaller class sizes is the best approach to select and hold very qualified teachers (Rose & Gallup, 2007).

Thirty-two states now support either intentional or commanded class-estimate reduction programs, with California and Florida together contributing nearly $20 billion to lessen class sizes. Notwithstanding its prominence, a few academicians and policy makers stay wary of class size reduction , presuming that the outcomes may not legitimize the tremendous aggregates as of now being contributed (Hanushek, 2002; Harris, 2002). Specifically, commentators question the saying that class size is identified with student learning. One such feedback of class-size activities is that they disregard educating and getting the hang of, concentrating on structure to the detriment of guideline (Cohen, Raudenbush & Ball, 2003; Hanushek, 2002; Milesi &amoran, 2006). Among the more negative conclusions is that desire for smaller classes among teachers comes from the need to lessen workloads, and to build the quantity of teachers and union members (Hoxby, 2000). As per a review in Kenya by UNESCO (Daily Nation, May fifteenth 2005 p19) demonstrates the normal proportion in 162 schools examined is 58:1, against the required 40:1. Such class sizes in broad public secondary schools make it troublesome for the teachers to show lessons successfully when contrasted with their partners in non-public schools who handle fewer students.

Several Latin America countries like Brazil, Mexico innovated a cash transfer (Minimum income) approach to simultaneously achieve improvement in educational attainment of children in poor families and poverty reduction. The initiative, known as minimum income for school attendance (MISA) compensated in cash grant the family for the direct and opportunity cost of sending their children to school. The overall result was increased enrolment. Ayieko (2011), cited a report carried out in contemporary policy magazine January 2001, entitled “Determinants of school enrolment and

performance in Bulgaria" revealed that the role of income among the poor and rich as a major determinant for school enrolment. Those in poor families were financially constrained in their investment in education and withdrew from school prematurely, other factors cited were parental education level and family size.

In Uganda Ayiga (1997) as cited by Ayieko (2011), noted that without education, people of different social groups and gender were condemned to inferior positions whether in social life, occupation or decision making. Ayiga (1997) noted that lack of school fees, social disruption and disability affected enrolment and participation. In Tanzania, Mbelle and Katabaro, (2003), noted that secondary education was guided by Secondary Education Master Plan (SEMP) policies and strategies which identified five key areas: improving quality of education; increasing access (expansion and affordability) to education, equity in education and efficiency (cost effectiveness) in provision of education. Enrolment was adversely affected when children did not enroll or leave school after enrolment due to demand factors, socio- cultural like undesirability of household for education, inability to meet costs of schooling and children seeking work to help household. In Kenya implementation of free primary education (FPE) has been responsible for recent upsurge in secondary school enrolments since 2003. Enrolment trends in secondary school show a steady growth from 0.870 million students in 2003 (13% private) to 1.03 million students (10% private schools) in 2006 and 1.7 million (8% private) in 2010. The number of secondary schools had increased from a total of 6,566 secondary schools in 2008 to 7,308 in 2010 against 27,489 primary schools in 2010 having increased from 26,206 in 2008, (MOE 2012). A policy framework for Education (2012), revealed that the government of Kenya was already implementing

measures to improve access and quality in secondary education through implementation of Subsidized Day Secondary Education (SDSE). This had led to increased enrolment from 1.03 million students in 2006 to over 1.7 million by 2010, with an increase in the transition rate from 60% in 2006 to over 69% in 2009.

Expanding provision for all in the secondary education sub-sector is a major challenge because of limited facilities. This had compromised internal efficiency that lower performance in national examinations hence this study had established the relationship between the increased enrolment as a result of SDSE and performance in national examinations. The rise of the level of poverty in Kenya indicates that 56 percent of Kenyans live below the poverty line (Economic survey, 2001). This was one of the major factors that had discouraged some of the parents to invest in their children's education. Many Kenyans, were unable to meet the cost of education and could no longer access it due to the high cost (Abagi & Odipo, 1997).

Abagi also noted that as the level of poverty rises, child labour has become crucial for family survival. This has contributed to reduction in enrolment. Teenage pregnancy had also led to low enrolment and participation in secondary education in Kenya. A study carried out Furguson (1988) revealed school girls pregnancies in the country. Dharam (1974) as cited by Ayieko (2011) noted that education in Kenya had not been evenly distributed across sexes, regions and social groups. He further noted inequalities between regions and groups in access to education, for many social background and regional origin were important in determining enrolment and participation in education opportunities. Low enrolment rates explained the internal inefficiency of the education

system (Galabawa & Mbelle, 2002). The need to expand was vital. Efficiency could be gained in the medium to long term through systematic enrolment and checking wastage. Ngware, etal. (2009) noted that households were disposed towards enrolment of their children in primary school if they were richer, residing away from urban informal settlement, were headed by a female head, smaller, lived near a primary school and the household head had more education. Child individual attributes also influenced the decision to enroll. Orphans were less likely to be enrolled compared to non-orphans, but the type of orphan does not matter – an indication that children were treated in the same way with regard to schooling. Different household and individual attributes motivated the decision on the type of school.

2.3 Physical Infrastructure and Internal Efficiency

The completion of the education objectives and targets requires the provision, most extreme use and proper administration of the available facilities which improve the quality of teaching/learning and hence internal efficiency of schools in the provision of secondary education. Enlistment in public elementary schools have since gone up from 5.8 million in year 2002 to around 7.2 million in the year 2003 after the government introduced free elementary education and by 2004 it remained at 7.5 Million. The quantity of physical resources stayed unaltered in these schools at around 180,000 and could even be less as a result of wear and tear. This greatly influence the reform rate in secondary schools as is the situation between the students– facility ratio (58:1) is above the norm of 40:1 (MOE, 2005).

Trijuman (1994) states that chaperon consequences for classroom exercises incorporate classroom control and discipline, teaching-learning atmosphere of schools and need for sufficient provision of facilities in improving the type of class room control and discipline on the teaching/learning atmosphere in general. Mwiria (2004) additionally adds that to accomplish this solid teaching establishment, the Kenya secondary education system, needs satisfactory facilities, for example, pieces of classrooms, furniture, teachers, instructional materials, libraries and other school hardware. These are relied upon to be accommodate compelling teaching-learning outcome, and for sufficient classroom populace, viable atmosphere, and standard student-teacher classroom proportion and student academic accomplishment to be achieved.

Lumuli (2009), calls attention to that arrangement of satisfactory learning facilities at all levels which also include the equipment and the HR improvement the quality and importance of conferred abilities to students. Teaching and learning process don't occur in a vacuum yet rather in a domain very much organized to encourage learning. Earthman (2002), covering California, expressed that agreeable class-room temperatures and small classes improve teachers' adequacy and give chances to students to get more personal consideration, make more inquiries, partake all the more completely in discussions, lessen discipline issues and perform much more better when compared to students in other schools which have substandard structures by several % rates. The aggregate improvement of the students in the academic, full of feeling, and psychomotor areas can just happen in a situation that is helpful for teaching and learning. Where the school is found decides the academic standard of the schools secondary schools' condition ought to animate, spur, and strengthen students' customary participation in

school. Putting resources into educational facilities is the way to guaranteeing that schools move toward becoming foundations where the learners cooperate, gain from one another and gain from a steady school learning condition, and thus expand students' learning experience so that all the learners accomplish their educational objective (United Nations Scientific and Cultural Organization, UNESCO, 2007).

Besides, the usage of these school facilities realizes productive learning results since it animates and persuades the learners (Okorie, 2001). Raw (2003), contends that proper use of physical facilities in schools controls dropout rates, keeps up student discipline, and influences the learner to stay persuaded for longer periods. The discovery by Yadar (2001) together with the Report compiled by UNESCO (2008) have indicated that classrooms, use of teaching aids, stationeries, and laboratories affect learner's performance in their academics. Rono (2000) raises concern that some schools started without prior planning. So majority of the secondary schools lack teaching facilities such as libraries.

Ngaroga (2007), reiterates that teaching and learning materials as those things, which are accessible in the school condition, gathered, or bought. In secondary schools, such resources include teacher resources such as chalk, boards, dusters, notebooks, textbooks, reference books, laboratory chemicals and apparatus, ICT services, blackboard rulers and construction materials for mathematics, maps for geography, calculators, registers, storage facility, balls, and other games paraphernalia among others. In spite of the various known benefits of secondary education, many of the developing countries still find it a challenge to provide the necessary material resources for teaching and learning

mainly due to the limited national resources and the competing options. Onyango (2008) points out that the high number of pupils enrolled after the introduction of FPE, has brought about problems of low textbook ratios, overcrowded classrooms and poor sitting patterns, which affect participation in primary schools. Secondary schools could also be having the same problem with the introduction of FSE. Smith (2002) observes that the availability of the learning resources including textbooks for learners, enough desks in classrooms, and good blackboards in schools had been noted to have an impact on pupils' participation in education. They provide easy access during teaching and learning process. Kenya undergoes through the same dilemma. Nega (2011) an investigation on Improving Internal proficiency in elementary School of Tigray Regional State: Challenges and Prospects done in Ethiopia had the purpose of examining the challenges and prospects of primary education in Tigray. The objective was to find out measures for improvement of the internal proficiency of the elementary education framework in the region. A descriptive survey research design was employed. Questionnaires, document review and semi-structured interview schedules were utilized in collecting data. According to the research findings, some main factors that caused students to fall out of school and repeating in some classes were: significant students were over age; principals and teachers were less qualified; parents were illiterate/ limited parents educational awareness; shortage of text book/school facilities and students who came from low economic background had negative attitude to education and health problems.

Ncube (2004) in a study on Managing the Quality of Education in Zimbabwe had the purpose of analyzing how the administration of the nature of instruction of Rural Day

Secondary Schools has been influenced by the internal productivity of the educational system. The objectives of the study were: to find out the indicators such as survival rates; dropout rates; m repetition rates and pass rates, to establish the differences in levels of indicators of internal effectiveness for students of various genders, ages and levels of schooling, to explore the perspectives of school directors (inclusive of some senior instructors) on factors that influence the internal proficiency in Rural Day Secondary Schools and to discover the perspectives of school heads on systems that can be executed to enhance the internal productivity of Rural Day Secondary Schools.

The investigation utilized quantitative and qualitative outlines. The examination discovered that the internal effectiveness of Rural Day Secondary Schools was low. Whereas in the reviewed study internal efficiency is the independent variable, in the current study it is the dependent variable. The reviewed study looked at how internal efficiency of school systems affected the management of the quality of education of rural day secondary schools while the current focused on the influence of increased enrolment on internal efficiency in public secondary schools without discrimination on the basis of geographical location and status (whether day or boarding schools). Adeyemi (2012) in a study on the School elements and internal proficiency of Secondary Schools in Ondo State, Nigeria had the purpose of investigating the relationship existing between school variables and internal proficiency of secondary schools. The study targets were: to determine whether or not secondary schools in Ondo State, Nigeria were internally efficient and to determine whether or not a relationship exists between school variables and internal efficiency of the schools in order to correct erroneous impressions.

The study used the inventory and the questionnaire as data collection instruments. This study adopted the ex-post facto and correlation research designs.

The study found out that secondary schools in Ondo State, Nigeria were internally efficient. Teachers' qualification was found to be the best predictor of internal efficiency in the schools. The study reviewed aimed at finding out whether the schools under study were internally efficient or not, and if a relationship existed between school variables and internal efficiency, whereas the current study looked at how increased enrolment affected internal efficiency. The study reviewed used ex-post facto and correlation research designs while the current study used descriptive survey research design. Boru (2013) in a study on factors which impact the internal proficiency in Public elementary schools of Moyale District, Marsabit County, Kenya had the purpose of establishing the factors influencing internal proficiency in public elementary schools in Moyale District.

The targets of this study included: to determine how competence of teaching/learning materials influence internal efficiency, to establish how school physical facilities influence internal efficiency, to assess how pupils family background influence internal efficiency and to establish how drop out of pupils in the schools influence internal efficiency. The study found out that, adequacy of teaching and learning materials affected internal efficiency, teachers qualification and in servicing of teachers can help improve internal efficiency, and that schools did not have adequate teaching and learning materials which affected teaching and learning and hence internal efficiency. Further, physical facilities influenced internal efficiency because it encouraged meaningful learning and teaching. Schools internal efficiency was found to be affected

by pupil's dropout. Further, the findings also revealed that pupils' family background such as household poverty affected internal efficiency of schools. Simatwa and Ayodo (2013) in a study on 'Impact of Home Based Factors on Internal efficiency in elementary Schools in Bungoma North and Kimilili-Bungoma Districts, Kenya purposed to analyze the impact of home based factors on internal productivity of primary schools in Bungoma-North and Kimilili-Bungoma Districts. Targets of the study were to: find out the degree to which parental level of training, parental occupation, dialect use at home and parental salary impact internal productivity of primary schools. The study found out that parental level of instruction, occupation; wage and dialect utilized at home do impact academic accomplishment of students. Fathers' level of Education was a huge indicator of students' performance. Incomes of households have been singled out as an important factor in determining enrolment (ILO/UNCIAD 2001).

2.4 School Size and Internal Efficiency

Adeyemi (2008) communicated class measure as an educational mechanism that can be used to delineate the typical number of the learners in a school. School size is frequently just considered as the separate populace of each class in a particular school. Diverse scientists (Adeyela, 2000; and Adeyemi, 2012) have revealed that extensive school sizes have negative effect on scholastic assignment. Class estimate positions among the most imperative factors that have solid and direct effect on academic execution of schools. Additionally, Alebiosu (2000) and Oderinde (2003) have detailed that students in classes that are small in size have more noteworthy accomplishment level than those in substantial classes.

The provision of secondary education has changed particularly since independence with the quantity of schools and students expanding from 151 to 30,000 in 1963 and to 1,487,989 in 2010 (MOE, 2012). The introduction of Free Secondary Education (FSE) brought about higher increment in enrollment in the public secondary schools by 17.1 percent in 2008 (Republic of Kenya, 2009) when contrasted with 13.7 percent in 2007, and the expansion was noted in the resulting years.

Asian Network of Training and Research Institutions in Educational Planning (ANTRIEP, 2008) did a study on improving school efficiency. The Asian experience done in Colombo, Sri Lanka purposed to improve school efficiency. The objectives were to: give an outline of the circumstance of various nations in Asia; look at how both internal and external school supervision and bolster supervision ought to be reinforced and adjusted to positively affect the nature of schools; investigate the part that assessment components (examinations, accomplishment tests and others) can play in enhancing the quality and viability of schools; and talk about the system of teacher deployment and management , and ask at what levels diverse choices about conveying and overseeing educators can best be taken and how this choice procedure can be progressed. The investigation discovered among others that: assessments of basic and secondary schools are embraced without adequate data in regards to advancements in the field which gives enormous degree for delayed bureaucratic customs; assessment prompts exhaust among school staff and that the measures for assessment are abstract to the point that it is practically inconceivable for the evaluators to speak with the schools. The reviewed study looked at the aspect of efficiency improvement in general, where it focused on what negatively affected efficiency, while the current study specifically

looked at how internal efficiency is affected by increased enrolment in public secondary schools.

In the course of recent decades, specialists, government officials, and corporate pioneers have concentrated reform endeavors on the measure of instructive settings. Many billions of public and private funding have been contributed to lessen the size and extent of both the classrooms and schools (Lee & Ready, 2007). Not at all like numerous educational reforms, these scaling down plans have pulled in help for all intents and purposes from each quarter, and an assembled front of partners has blended behind the idea that "smaller is better." Efforts to lessen grade school class sizes have collected especially solid prevalent and political help. To be sure, the American public feels that making smaller class sizes is the best approach to select and hold very qualified teachers (Rose & Gallup, 2007). Thirty-two states now support either intentional or commanded class-estimate reduction programs, with California and Florida together contributing nearly $20 billion to lessen class sizes.

Notwithstanding its prominence, a few academicians and policy makers stay wary of school size reduction , presuming that the outcomes may not legitimize the tremendous aggregates as of now being contributed (Hanushek, 2002; Harris, 2002). Specifically, commentators question the saying that class size is identified with student learning. One such feedback of class-size activities is that they disregard educating and getting the hang of, concentrating on structure to the detriment of guideline (Cohen, Raudenbush & Ball, 2003; Hanushek, 2002; Milesi & Gamoran, 2006). Among the more negative conclusions is that desire for smaller schools among teachers comes from the need to

lessen workloads, and to build the quantity of teachers and union members (Hoxby, 2000). As per a review in Kenya by UNESCO (Daily Nation, May fifteenth 2005 p19) demonstrates the normal proportion in 162 schools examined is 58:1, against the required 40:1. Such class sizes in broad public secondary schools make it troublesome for the teachers to show lessons successfully when contrasted with their partners in non-public schools who handle fewer students.

2.5 Employment of New Teachers and Internal Efficiency in Schools

Resources are very important in the development of qualitative education. The success or failure of any system of education depends on the quality and quantity of resources made available to it and the use to which such resources are put (Adeogun, 2009). Teacher/Students ratio could be used to measure the level of human resources input in term of number of teachers in relation to the size of the students' population. It is an indicator to determine the workload of a lecturer at a given level of education. It is an important indicator of internal efficiency in the educational system with respect to cost effectiveness and quality of education (Longe, 2003). Teacher/Student ratio should normally be used to compare with established national educational policy.

The National Policy on Education (1981) in Nigeria recommended teacher/student ratio of 40:1 in the primary schools and 35: 1 for secondary schools but in the higher institution, there is no specific number. A low teacher/student ratio suggests that each lecturer has to be responsible for a small number of students and it gives a higher relative access of students. A lower teacher/student ratio signified smaller classes which

have the tendency to enable the lecturer to pay more attention to individual students which may result to a better promotion rate and reduce repetition rate and drop-out rate.

The Teachers Service Commission has been slow in employent of new teachers for quite some time (Simatwa & Ayodo, 2013). The situation is worse in Mumias East and West Sub-Counties where teacher –student ration is upto 60:1 in some schools (Ndambuki, 2012).

2.6 Concept of Internal Efficiency in Education

Abagi and Odipo (1997) define internal efficiency in education as the measure of level learning that is accomplished amid the schooling age participation, contrasted with the resources that is given. In this manner, internal productivity alludes to the estimation of execution of the training framework by demonstrating the extent of students effectively finishing a certain grade of the Educational framework while avoiding wastage of resources. At the point when accomplishments by students are low, as observed from the school's low test score in national examination, such a school would be thought to be of low quality and along these lines wasteful (Abagi & Odipo, 1997). Interior effectiveness tends to the topic of how subsidies inside the Educational segment ought to be best allotted.

It is worrying about getting the best Educational yields for any point of expenditure. Financial experts have a basic Conceptual run to decide how the available resources ought to be dispensed within elective Educational exercises: The change in instructive execution that outcomes from the last measure of resources spent on an instructive

movement ought to be equivalent over every conceivable action. For instance, deliberate on a school that is settling on purchasing new Work books for learners and employing low maintenance instructor to show singular learners. Obviously, the school ought to spend the resources on the one that builds execution the most, which are exercise manuals in this case. Indeed it should keep spending money on Exercise manuals until the point that the instructive estimation of the two decisions is similar (After the Initial buy of exercise manuals, the estimation of included exercise manuals is presumably reduced so as at some point of expenditure, the proper choice is to hire a teacher rather than more exercise manuals).

A similar rationale holds for the majority of the sources of info that a school buys, prompting the already expressed run the show. Interior effectiveness is additionally now and then alluded to as "assign proficiency" or "value productivity" (Lockheed & Hanushek, 1987). More or less, inside effectiveness of any teaching framework is accepted to have high co

connection with instructive sources of info, procedures, and yields of the framework. Then again as per Sanothimi and Bhaktapur (2001), the topic of the quality of teaching is likewise an issue of internal proficiency in teaching framework. In this way, internal productivity and nature of the teaching framework can be shown by ascertaining the advancement, redundancy and dropout rates, at different review levels. Besides effectiveness, it incorporates cycle consummation and the survival rates at some interval and cycle to cycle transfer rate.

In other words, enhancing the internal proficiency of education framework is naturally enhancing nature of training in light of the fact that they concentrate on the relationship of teaching information sources, procedures and yields of the framework. UNESCO (1998) characterized the term dropout as used to refer to leaving school at some time just before the culmination of a certain phase of instruction or a given transitional or non terminal point in the level of training. The fundamental indications of wastages, specifically falling out of school, rely on the kind of instruction frameworks. It is characterized in connection to the qualities of the different instructive frameworks. The traverse of mandatory learning and the period amid the years into certain grades differ from nation to nation in various instructive frameworks. In the less developed nations, in any case, early dropping-out of school is an imperative issue, of the about 96 million learners who joined schools out of nowhere in 1995, one quarter which is equivalent to 24 million were most likely going to spurn their learning earlier before accomplishing Grade 5

(UNESCO, 1998).

There are three classes of theories that clear up why dropouts leave school. Classes are; Drop-out, Pull-out or Push-out theories (Glennie & Stern, 2002). Drop-out alludes to characteristics of the person that accelerate early fall out from schools. Variables such as availability and state of mind of the learners, medical issues, and ailing health are cases of dropout theory. The theory deliberates student's individual qualities as elements for falling out of education framework (Lisanu, 2004). Work openings are likewise cases of pullout elements which draw in the students to drop schooling. School elements which

debilitate learners from proceeding with their schooling, ugly school conditions are a portion of the cases that can go about as push factor to student's school dropout.

The inclination for learners to stop schooling is additionally connected with their encounters in schools, for example, abhorrence of school; Low study accomplishment; maintenance at review level; the feeling that instructors and heads couldn't care less about the learners; and failure to be in a good mood in an extensive, depersonalized school setting (U.S. Division of Education, 1999).In school factor that dissuade the participation of students can be arranged as push out components. The foremost reason for school fall out, particularly in the third world nations is the pull out factor. The requirement for having a period that would be utilized to offer the work and consequently get a method for existence in which families or individuals may rely upon has added to a more noteworthy extent of school dropouts (Lisanu, 2004). There are many variables related to dropping out of school, others are directly related with individuals, for instance, the weakness or the under-nourishment and kids' attitude to schooling. Other factors are as a result of children's' family circumstances, for instance, child labour and destitution. There are school level issues which additionally contribute to in increasing cases of school fall out, for instance, teacher's non-attendance, the location of the school and the poor quality of teaching method.

The type of education provided at the communal levels e.g. type of the school, levels of community bolster produces circumstances that can at last affect the possibility of children to stop schooling. Both demand and supply driven elements are part of school drop-out. In light of this the reasons for school dropout concentrating on the child's

family unit and schools settings. This criticism is based on the works of CREATE by Hunt (2008) and Pridmore (2007). Individual qualities of a child, affected by social standards can decide if the kid dropping out of learning system. A few investigations have conducted on the relationship between the child's wellbeing and teaching results, specifically how nourishing status impacts on school enrolment and subjective advancement (Ghuman, 2006; Alderman, 2001) yet just a couple of studies have looked at how medical issues are straightforwardly identified with falling out of school (Pridmore, 2007).

When all is said in done, thinks about propose that weakness is frequently an aftereffect of neediness and via under sustenance of children's access to education and accomplishment are extremely endangered. In this way there ultimately is a confirmation that hemoglobin level in blood, and stature and (weight for age), are the two pointers of nutritious state, have huge and affirmative relationship with the school's enrollment (Ghuman, 2006). In Bangladesh nourishment inadequacies are related with ease back school advance because of its effect on kids' psychological improvement (Grira, 2001). The family setting, specifically the connection of children with different individuals from the family unit and the children's duties might be vital causes of school dropout Rose and Al-(2001); Khanam (2008). In most of the poor nations children consolidate both schooling and work (at home or far from home) so as to fulfill family needs (Admassie, 2003).

Notwithstanding, not all types of children work are perfect with school cooperation (Hadley, 2010). Some work exercises, particularly in farming, are regular and the planning of seasons don't relate to those of the school schedule (Hadley, 2010). Different

exercises, for example, children tend to more youthful individuals in the family unit, are work escalated and tedious and may take away from children's' capacity to embrace school work (Dar et al, 2002). The direct and the aberrant expenses of education can obviously bar a few children from schooling. A standing out among the most essential direct costs basic for drop-out is schooling expense where such is collected. Hence schooling charges are observed as an intense account of drop-out of 27 percent of boys and 30 percent of girls previously registered in South Africa (Hunter & May, 2002).

Most states now have received expenses free strategy for the elementary learning cycle due to the effects on interest. Others have in addition acquainted capitation frame works with a balance on the adversity in schools salary. Be that as it may, different charges and circuitous costs keep on being a hindrance to enrolment of children from poor family units (Lewin, 2008). Hence the expenses of pens/pencils, copybooks, private instructing, transportation, and school uniform remain a relative financial weight for poor family units (Ananga, 2011). Absence of cash to purchase basic schooling materials for the kids' learning is probably going to cause absence of enrolments in any case and possibly high dropping out of school at a future date (Kadzamira & Rose, 2003).

This actually is what the situation is like in Kenya, where dropping out of school rates among the offspring of financially defenseless families have increased because of the absence of resources in order to be able to care of the expenses of training for their kids that are not secured by the charge free education policies (Mukudi, 2004). The strategy of sharing of costs of the Kenyan constrained guardians to pay around 65% of the total

schooling costs, which made numerous children from poor households drop-out of school (Ackers, J., Migoli, J & Nzomo, J., 2001).

2.7 The Expansion of Public Day Secondary Schools and Quality of education.

Liston (1999:4) defined quality of education as the total effect of features of the process or service on its performance or the customers or client perception of that performance. In view to education, it implied that quality could be measured by looking at the outputs, which were examinations results. Rather the internal efficiency of the school system which controlled for wastages in form of school drop outs, repetition rates or wastage ratios, was a more appropriate measure of quality education.

Quality is what was good for the school and its students (Hoy, Bayne-Jardine and Wood, 200:2). They quote Edward Deming who says: A product of service possesses quality if it helped somebody and enjoyed a good sustainable market. If a school internal efficiency was low resulting in low pass rates, high drop out rates, low survival rates, then that school system was not able to help its students nor would the students enjoy any sustainable job market; thus low internal efficiency compromised quality of education. The public sees quality more to do with the total effect schooling has on the individual rather than just examinations results. Hoy et al.(2005) says, "Measures that could be used as yardsticks for quality of education were pupil grades, attendance figures, staying on rates, exclusion rates, teacher qualifications, pupil – teacher ratios. The bulk of these indicators constitute internal efficiency on the school system. This was inline with Liston's (1993:3) view that one of the three dimensions of programme performance was efficiency, appropriateness and effectiveness.

IIEP module 2 (1989:3) pointed out that one indicator of quality of education was the internal efficiency of the school cycle, which was the optimum relationship between inputs and outputs. The critical concern was that the maximum numbers of students who entered an education system or cycle completed it successfully within the prescribed period. Any failures and extended study period compromised efficiency. Grisay and Mahlck (1991:5) also concurred to this view when they said, "There were also some indicators which were frequently used by planners in developing countries as appropriate means of measuring quality – repetition, dropout, promotion and transition rates". Examination results were used to monitor the performance of schools (Ross and Malick, 1990:29) All these were indicators of the internal efficiency of a school system. Ross and Mahlck (1990:20) also believed that examination feedback improved quality; as it was done through ranking of schools in Kenya when results were announced.

Whitaker (1998:110) argued that quality was relative to resources which implied that even rural schools, which had limited resources, could still achieve quality of education, within the context of available resources. He further said quality was a relationship between expectations and outcome. Pursuing the thinking that even in the make of limited resources quality could still be instructed. He maintained that impressions and opinions were not sufficient grounds to assume, its that the conclusions we drawn about the quality of our work were safe and secure. This view supported the analysis of the internal efficiency of schools to generate data to augment whatever judgments accrued from impressions and opinions.

Sallies (1996:15) looked at quality in two forms: procedural quality and transformational quality. Procedural quality stressed issues of effectiveness and efficiency, that was producing what was fit for purpose without much wastage, and thus in education was the focus of internal efficiency. Quality was directed by auditing the operations to address variations in the process instead of the product. He further said, "Education results measured against performance indicators are a good example".

Transformational quality focused more on organizational transformation rather than internal systems and procedures. The thrust was to make the organization customer focused rather than product. Quality was inclined towards intangibles like customer care, customer service and social responsibility but there was need to use some quantitative indicators to enable comparability and consistency (Sallis, 1996:15). If transformational quality was lacking in a school system, the student would drop out and survival rates would be low. If the customer was not well cared for pass rates would be low and repetition rates high. This resulted in a waste of resources and compromised the internal efficiency of the school system. He noted that to retain its clients and help them move through the education cycle efficiently, the school must establish customer needs and put in place structures and organizational cultures which empower teachers to meet those needs or else the retention capacity of the school system would suffer. This view of quality goes just beyond fitness for purpose to excellence (Sallis 1996;16) posited that in all educational settings the transformation of culture was a function of staff motivation and academic leadership in an environment that was student centred. This implied that quality was not determined exclusively by materials inputs rather human beings must be willing and able to deliver the quality. Leadership charted the direction of the quality

to be achieved by putting systems and procedures in operation and ensuring those systems were efficiently and effectively operated; hence quality was a function of inputs , personnel motivation, effective leadership, appropriate systems and procedures and the efficient operation of the systems.

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 school level was fully financed by the government(Moon& Moyes, 1994). Parents were only required to ensure that children attended school. In Britain education authority and central government were required section 7 of the 1944 act to make education facilities available. In Japan, the government fiscal policies provided for free education up to secondary school level. Those of school going age had no option other than attend school to acquire education that was fully funded by the government. (Nyaga, 2005). In the United States of America (USA) the Federal Government supports Public Education. The government was empowered by the constitution welfare clause, Article 1 section 8, to levy taxes and collect revenues for the support of education. However the congress decided the extent of such support (Nyaga, 2005). The situation in Kenya was not different from that of Japan and America as the government and the community participated in the provision of education. The current study would establish the financial adequacy of the government support and the extent of community support for quality education in public day secondary schools.

Compulsory Secondary Education was also an international trend that was driving change in Sub-Saharan African countries in education. Lower secondary education was

almost universally compulsory in Asia, North America, Europe and Australia. Some sub-Saharan African countries are extending basic compulsory education. In Mali, basic education lasted is from six to nine years. In Senegal and Zambia, basic education lasted for eight years. Longer basic education allowed more time for the consolidation of learning (Holsinger Scewell, 2010). Kenya had now twelve years for basic education constitutionally and introduction of SDSE appears to be a move toward extension of compulsory education at secondary school level.

Veriava (2002) noted that user fees was a barrier to education in South Africa. While school budgets were funded by allocations from state revenue, school fees were required to supplement these budgets so that schools would be able to run smoothly. The South Africa School Act (SASA) provided that a majority of parents at public school determined whether or not school fees was charged and the amount to be paid. There was however exemptions from paying school fees for parents who could afford to meet the cost. Exemption was extended to parents whose income was less than 30 times, but not more than 10 times the school fees amount (Veriava, 2002). In Kenya the government gives uniform allocation to all, hence education is accessible to every student who received admission in a secondary school. Chabari, (2010), noted that the demand for secondary education was increasing rapidly in almost all sub-Saharan African countries hence created an enormous challenge for secondary education policy; which needed to be designed not only to respond to inevitable rapid increase in demand for access but also to provide the quality of instruction necessary to ensure the supply of personnel with higher levels of education and training demanded by a growing and modernizing economy.

Verspoor, (2008) noted that: sub-Saharan African countries had responded to the increased demand for secondary places by spreading the same resources over larger number of students. This was as a result of constrained limited public resources and absence of significant policy reforms. Consequently, essential inputs often were in short supply resulting in increasing class sizes, shortages of textbooks, instructional materials and supplies, poorly equipped laboratories, poorly stocked libraries, and double or triple shift use of facilities. This affected the quality of education offered. The current study established expansion of PDSS and the quality of education being offered and resource utilization.

The Presidential working party on Education and Training for the Next Decade and Beyond in 1988 (Kamunge report 1988) focused on issues of education quality and relevance, cost of empowerment of local management bodies; efficiency in resource utilization and concerns on wastage in the sector. The report emphasized on need of cost-sharing between the Government, Parents and Communities. The implementation of cost-sharing policy in the face of rising poverty led to adverse effects on access, retention and quality (Muindi, 2011). In an effort to deal with fast increased demand for secondary education following the success of free primary education (FPE), the following policies were outlined by the government in sessional paper No. 1 of 2005 on education (Republic of Kenya 2005). Working towards integrating secondary education in the long term (This was been achieved), promoting the development of day schools as a means of expanding access and reducing costs to parents, providing bursaries to poor and disadvantaged students and providing targeted institutional materials to needy public

secondary schools (provision of laboratory equipments) while encouraging parents and communities to provide infrastructure and operational costs.

Kenya as any other developing countries, the provision of quality education and relevant training to all was the key determinant for achieving the national development agenda. The government of Kenya had therefore focused its main attention on formulating appropriate education policies to ensure maximum development of human resources who were essential for all aspects of development and wealth creation through industrialization. All education stakeholders recognized that quality education at all levels enabled Kenyans to utilize their natural resources efficiently and effectively in order to attain and maintain desirable lifestyles for all Kenyans (Munavu, Ogutu, & Wasanga, 2008) as cited by Chabari (2010).

Kiveu and Maiyo (2009) noted that according to (EFA, 2001) secondary education was part of basic education in Kenya. Failure to provide basic education seriously compromised a country's effort to reduce poverty. This also implied that the millennium development goal of providing basic education to all by the year 2015 would not be realized. Basic education of acceptable quality was crucial in equipping disadvantaged individuals with the means to contribute to and benefit economic growth. The launch of Free Secondary Education (FSE) in 2008 was meant to address illiteracy, low quality education and low completion rates at secondary level, high cost of education and poor community participation. (Republic of Kenya, 2005). This current study established the community and parent perception on FDSE in relation to quality education offered in public day secondary schools.

2.8 Knowledge gap

In conclusion, literatures reviewed above identify various factors that affect internal efficiency in schools. Ndambuki (2012) conducted a study on factors influencing girl child drop-out in Mbooni West District. Muriithi, (2005) undertook a study on the factors that contribute to education wastage in secondary schools in Nyeri District. Simatwa and Ayodo (2013) investigated impact of home based elements on internal proficiency in public elementary schools in Bungoma North District. Boru (2013) conducted a study on factors influencing internal efficiency in public primary schools in Moyale District. From the reviewed literature most studies focused on the determinant of low enrolment in schools: Income among the poor and rich, social disruption, disability, undesirability of household for education, child labour, inability to meet schooling costs, teenage pregnancy, regional origin thus there were inequalities between regions, groups, gender in access to education and child individual attributes to education e.g. orphans. This study focused on determinants that contributed to high enrolment (expansion) in public day secondary schools; FPE, SDSE, bursaries, stakeholders' perception to education and school catchment area.

The reviewed literature focused on the availability of physical facilities as a determinant of quality instruction and performance of students in examinations. There were public day secondary schools with physical facilities available, not properly utilized to give the desired quality performance; hence the current study focused on utilization of selected physical facilities (library and laboratory) as a measure of internal efficiency. Library and Laboratory play a central role in providing quality education and good performance.

The reviewed literature focused on dropout rates, repetition rates, wastage rates as a measure of internal efficiency. The current study will focused on; academic performance students' school attendance, utilization of the main physical facilities (laboratory and library), quality education offered by public day secondary school as a measure of internal efficiency. It also focused on student – teacher ratio at the general class level; as a measure of performance in exams. The lower the ratio, the higher the performance. However there are schools with high student-teacher ratio and perform much better than schools with low student-teacher ratio due to student academic ability. This study focused on student-teacher ratio at subject level especially for optional subjects. Most studies focused on general public secondary schools inclusive of boarding schools. This study was focused on public day secondary schools that have both form 3 and form 4 classes in Mumias Sub-County. The studies were carried out in Bungoma, Machakoes. Kangundo and Ekerenyo sub-counties at divisional level. The current study therefore seeks to fill the gap analyzing influence of selected factors (enrolment trends, physical infrastructure, teaching and learning resources) on internal efficiency in public day secondary schools in Mumias East and West Sub-Counties.

2.9 Conceptual Framework

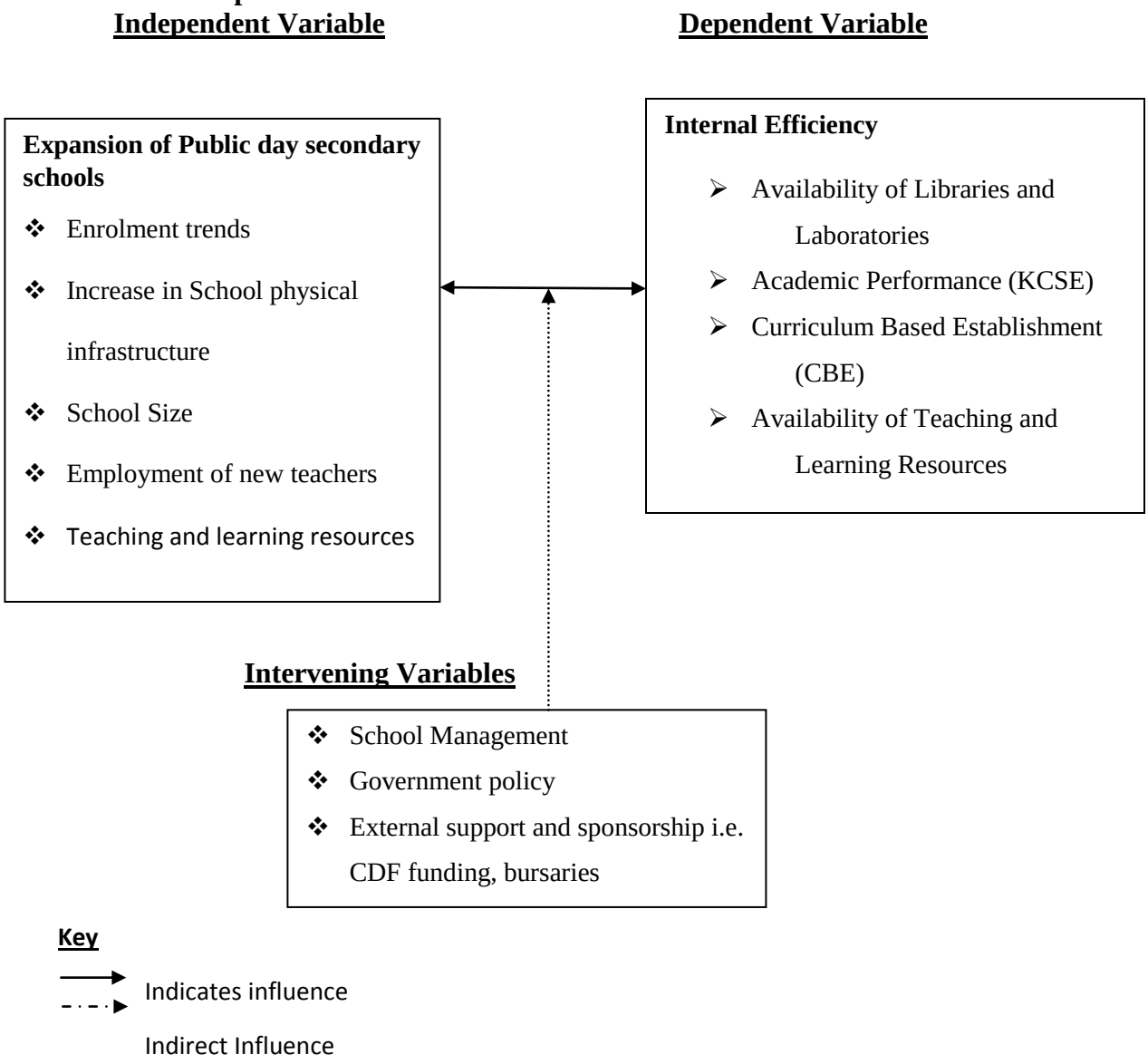

Figure 2. 1: Conceptual framework of linkage between variables in the study.

The study adopted conceptual framework based on Psacharpoulos and Woodhall (1985) model that provided a typical, input – output model of the form: P=f(xn) where xn represented independent variables or inputs as for this study – expansion of public day secondary schools. P was the dependent variables or outputs as for this study are internal efficiency indicators. The framework provided for the outputs and to determine if

objectives (profits) are being realized. The theory works on the understanding that resources are scarce and firms must operate with an objective of producing goods at minimum cost. In the context of public day secondary schools, they have increased both number and enrolment, hence should provide quality education to students for academic excellence at a minimum cost.

The conceptual framework in figure 1 provided an idea to help in understanding of how expansion of public day secondary schools had direct influence on internal efficiency of the schools. In education the outputs are determined by inputs. The variables of input are: enrolment trends, school physical infrastructure, school size and employment of new teachers. The measures of internal efficiency as an output are: availability of libraries and laboratories, students' performance, curriculum based establishment and availability of teaching and learning resources. The solid arrow line represents the direct influence between the independent variables and the dependent variable. The independent variables if manipulated in public day secondary schools would bring the desired internal efficiency as output. The dotted line represented indirect influence, of intervening variables which could influence expansion of public day secondary schools but affect internal efficiency. They are: school management, government policy and external support and sponsorship.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provided the research methodology focusing on: research design, study area, target population, sample size and sampling procedure, data gathering instruments, piloting, data validity and reliability, data collection procedures, data analysis and reporting.

3.2 Research Design

The study adopted descriptive survey research design. Descriptive research design was appropriate because it was used in preliminary and exploratory studies to allow researchers to gather information, summarize, present and interpret for the purpose of clarification (Orodho, 2002). It involved collecting data in order to test hypothesis or research questions concerning the current status of subjects of the study. It was used to test attitudes and opinions about events, individuals or procedure (Gay, 1993). Kothari (1995) noted that descriptive survey designs concerns with describing, recording, analyzing and reporting conditions that exist or existed. Mugenda and Mugenda (1999) gave the purpose of descriptive research as determining and reporting the way things are, Borg & Gall (1989) noted that descriptive survey research was intended to produce statistical information about aspects of education that interested policy makers and educators; for this study descriptive design enabled the researcher to document the stakeholders perception on expansion of public day secondary schools and the quality of education offered, which is a measure of internal efficiency. It also enabled the

researcher to collect and analyze data on utilization of selected physical facilities (library and laboratories), student-teacher ratio per subject department and student text book ratio. This design was suitable for this study because it provided numeric descriptions of some part of the population for extensive research. It enabled rapid data collection and ability to understand the whole population from a part of it. Mixed method were used to analyze the data.

3.3 Study Area

The study was conducted in Mumias East and Mumias West Sub-Counties of Kakamega County, which are to the north of the equator at latitude 0^0 15^1 north and east of the Greenwich meridian at longitude 34^0 21^1 east. The two sub-counties were carved out of the larger Butere Mumias district in January 2007. They cover a total area of 588.2 km^2. The two sub-counties are among the 12 sub-counties that form Kakamega County. They border Butere Sub-county in the south, Ugenya sub-county in the west, Matungu sub-county in the North, Kakamega central sub-county to the east, Navakholo sub-county to the north east.

The two sub-counties comprises of two constituencies namely; Mumias East and Mumias West. It is a home to four administrative divisions namely: South Wanga, Mumias, East Wanga and Wanga Mukulu. They have fifteen locations and thirty sub-locations. Population distribution by sex as per population census results of 2009 is 102,491 male and 110,327 female totaling to 212,818 people. The annual rainfall ranges from 1597 mm to 2875 mm per year. Temperatures range between 24^0C to 30^0C which enables farmers to have two cropping seasons. They have a diverse topography that is constituted by well drained, deep, driable loam soils that favour crop farming and animal

husbandry. The poverty index is 61%. The poor are characterized by lack of proper education and limited access to farmland by youth and women, poor housing, nutrition, lack of access to clean water and enterprising opportunities. High poverty level is occasioned by teenage marriages, corruption in civil society using the impoverished local population's plight to raise funds from donors to satisfy their selfish gain, low school retention rates, high school dropout rates, and poor implementation of poverty reduction projects (Olwenyi, 2011).

The unemployment rate in urban areas is at 16% with over 500,000 people competing for available 60,000 new jobs annually, nationally. A large proportion of rural dwellers face unemployment. Agriculture is the backbone of the local economy accounting for over 90% of household income. Of the 586.2 km^2 area of the sub-county, 450 km^2 is under arable farming. Of the arable land available, 85% is in use for agricultural activities and settlement. The dominance of cane farming has led to food insecurity. Land in Mumias is highly fragmented with the average farm size being 2.5 Ha, the average farm size on large scale being 20 Ha. 95% of the people report a poor state of health situation in the sub-county, 54% of the people have no access to level I health Care Service. It has 520 educational institutions constituted by: 314 early childhood centres, 140 primary schools, 53 secondary schools, 4 tertiary colleges and 16 special needs education centres. 70% of the population have primary level education. The sub-county is endowed with natural resources in form of flora and fauna, five permanent rivers, 234 wells, 80 boreholes and 500 protected springs. Proper roads are needed in the sub-county. It has a road network of 523.3 km of which 23.3 km is of bitumen and 500 km is of gravel.

The two sub-counties have the biggest sugar processing factory and electricity co-generation project in East African region – Mumias Sugar Company. They have diversified into power production and currently produces 38 MW of electricity of which 26 MW is exported to national grid. They have several financial institutions; Jua Kali Enterprises and small scale trade. They have been receiving devolved funds since inception of CDF in 2003. The study will focus on the two sub-counties because the poverty index is 61%. The poor are characterized by lack of proper education. High poverty level is occasioned by teenage marriage, low retention rates and high school dropout rates; yet it has the highest number of the newly established public day secondary schools. In Kakamega County, at least 30 public day Secondary Schools have been established between January to June 2014. Out of the 30, fifteen are from the two sub-counties (MOE, 2014).

3.4 Target Population

The target population consisted of 4,410 forms three and four students, 546 teachers, 36 principals of public day secondary schools and the Sub-county Director of education. The targeted population was chosen in order to establish challenges experienced in enhancing internal efficiency in the institutions. They were therefore considered appropriate for providing data for the study.

3.5 Sample and Sampling techniques

Simple random sampling method was used to select a sample of 1323 form three and four students from a total of 4,410; 164 teachers from a total of 546 teachers representing 30% of the study population. This was in order to get opinion from selected

respondents who represented the population of interest. A third of the study population provided an equal opportunity of selection for each element of the population and helped to yield data that was generalized to the larger student population (Orodho & Kombo, 2002). The study employed saturated sampling for principals, because the population involved was too small to be sampled (Kombe & Tromp, 2006). Purposive sampling was used for the two Sub-county Directors of Education. In purposive sampling the researcher consciously decided who to include in the sample. It was used to collect focused information. This enabled the researcher to ensure the easiest population from which to get information was reached hence saving time. Simple random sampling was used to select students. It involved selecting a sample without bias from the target population (Oso & Onen, 2008). It was mainly used to select a random representative sample. The study was used to ensure that each member of target population had an equal chance of being included in the sample. The sample sizes for students, teachers, principals and education officers were conducted as shown on table 2 below:-

Table 3. 1: Sampling matrix

Description	Population (N)	Sample size (n)
Students	4410	1323
Teachers	546	164
Principals	43	36
SCDE	1	1

3.6 Research Instruments

The study used questionnaires, interview and observation as the main tools for collecting data. The selection of these tools was guided by the nature of data that was collected, the time available as well as the objectives of the study. The overall aim of this study was to determine the effect of the expansion of public day secondary schools on their internal efficiency in Mumias East and Mumias West Sub-Counties. The research was mainly concerned with variables that could not be directly observed. Such information could be collected through the use of questionnaires and interview techniques (Bell, 1993; Touliatos & Compton; 1988). Questionnaires & interview were used to seek views, opinions, perceptions and feelings of the respondents. The sample size was also quite large (1,323 students, 164 teachers and 36 principals) and given the time constraints; questionnaire was the ideal tool for collecting data. The target population was also largely literate and unlikely to have difficulties responding to questionnaire items. Questionnaires were administered to students, teachers and principals. Orodho (2005) observed that the questionnaires had major merits which included; efficient use of time, anonymity was possible and questions were answered by everyone. Gay 1992) maintains that questionnaires give respondents freedom to express their views or opinion and also to make suggestions.

Interview and observation was used to collect data from principals and SCDE. Interviews involved person to person verbal communication in which one person (or a group of persons) asked the other questions intended to elicit information or opinion. It enabled one to collect information that could not be directly observed or are difficult to put down in writing, obtained historical information and gained control over line of questioning (Oso and Onen, 2008). Interviews provided in depth data that would not be

possible when using questionnaire (Kombo and Tromp, 2006). It was also possible to get more information by using probing questions. Interview, as a tool of data collection was used because some of the information required will involve historical information on trends of enrolment and performance in schools. Principals and education officers lack time to concentrate to fill questionnaires hence interviewing was the appropriate method.

3.7 Pilot Study

Before the actual data was collected, the researcher conducted a pilot study in the neighbouring Navakholo sub-county from five schools that were not included in the final study population. Navakholo sub-county was chosen for the pilot study because it is neighbouring Mumias East sub county, it has few public day secondary schools hence can save on time and money to be used. The characteristics could be the same hence retained. The researcher set dates with principals to visit the institutions to conduct pilot study. From each school where the five principals were stationed, two teachers, and three students were randomly selected for the pilot study. The pilot study participants included 5 principals, 10 teachers and 15 students, giving a total of 30 cases, which was the minimum number of cases required for conducting statistical analysis as recommended by Mugenda and Mugenda (2003). Questionnaires were administered to the principal, 2 teachers and 3 students per school. One education officer will be interviewed. The purpose of the pilot study was to enable the researcher to ascertain the reliability and validity of the instruments, familiarize himself with the administration of questionnaires hence improve the instruments and procedures.

3.7.1 Validity

The researcher sought expert opinion in assessing the validity of the instruments. Wiersma (1985) noted that validity is the extent to which an instrument measures what it is supposed to measure and that all assessments of validity are subjective opinions based on the judgment of the researcher. According to Borg and Gall (1989) content validity of an instrument is improved through expert judgment. The researcher sought assistance from his supervisors and other experts from the Department of Educational Planning and Management of Masinde Muliro University of Science and Technology to validate the instruments. The corrections and suggestions made were used to produce the final copy of questionnaire.

3.7.2 Reliability

Mugenda and Mugenda (2003) define reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trials. Wiersma (1985) noted that reliability is consistency of the measuring instrument in measuring whatever it measures. It is the degree to which an instrument will give similar results for the same individual at different times. To test reliability, test-retest reliability was used. The researcher gave two principals, four teachers and four students questionnaires then after two weeks, re-administered the same instrument. The study then used Cronbach's Alpha Coefficient of reliability which gave a reliability index of 0.861 implying that the study questionnaire was 86.1% reliable. Instrument (questionnaires) giving a co-efficient of above 0.8 are regarded as being highly reliable since the reliability threshold in behavioral research is 0.7. The questions for the interview schedule were given to the experts from the department of education and planning the approved them for use.

3.8 Data Collection Procedure

Before the commencement of the study, permission was obtained through an introductory letter from school of Graduate Studies of Masinde Muliro University of Science and Technology to NACOSTI to obtain a research permit. The research permit, being an official document that allows one to carry out research in the prescribed area of study was used to inform County Director of Education (CDE) and the Deputy County Commissioner (DCC) of the intended study. The DCC and CDE wrote letters of authorization to carry out the study in the intended sub-counties. An introductory letter to the principals was obtained from the two SCDEs. The letter explained the purpose of the study. The researcher visited the schools and set dates with principals for data collection. One week was set for students, teachers and principals to fill the questionnaires. The researcher also interviewed principals and made observations on the selected physical facilities (library and laboratory). He made appointments to meet the two SCDEs to interview them. The researcher used a field assistant to administer the questionnaires in some of the schools. This saved on time and costs to travel to all schools.

3.9 Ethical Consideration

An approval letter of the proposal from the Dean, School of Graduate Studies, Masinde Muliro University of Science and Technology was used to obtain a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). The research permit, being an official document that allows one carry out research in the prescribed area of study, was used to obtain an introductory letters from the DCC, CDE, and SCDE to the principals of public day secondary schools to allow the researcher to

collect data from their institutions. See appendix 8 to 13. The researcher ensured confidentiality of the data and individual names of respondents were not revealed as data was aggregated during analysis and reporting.

3.10 Data Analysis

Data obtained from the field was organized and edited to ensure completeness and consistency, classified and coded according to questions and objectives for analysis. Study data was then analyzed by use of both descriptive and inferential statistics with the aid of the Statistical Package for the Social Sciences (SPSS) version 23 for windows. Each question relating to a variable was assigned a score or numerical value by use of Likert scale method. The number on a Likert scale was ordered such that they indicate the presence or absence of the characteristics being measured. Descriptive statistics were computed to measure trends and to describe phenomena and included percentages, frequencies, range and standard deviation. Inferential statistics used in the study included Pearson Product Moment Correlation coefficient, regression analysis and Analysis of Variance (ANOVA). Pearson Product Moment Correlation Coefficient was used to test the relationship between study variables. Regression analysis was employed to determine the causal effect between and among study variables. ANOVA was used to determine the goodness of fit of the study models. Qualitative data was analyzed qualitatively using content analysis based on analysis of meanings and implications emanating from respondents information and documented data. Gray (2004) observed that qualitative data provides rich descriptions and explanations that demonstrate the chronological flow of events as well as often leading to chance findings. Statistical measurements were performed within 95% confidence interval.

Table 3. 2: Summary of Data Analysis Procedure

No.	Objective	Statistical tests	Decision Rule
1.	Determine the effect of enrolment trends on internal efficiency in public day secondary schools in Mumias East and West sub-counties.	Percentages, frequencies, Correlation, regression ANOVA	Test is significant if P value < 0.05 and insignificant if P value > 0.05
2.	Establish the effect of expansion of public day secondary schools on utilization of selected physical facilities (libraries and laboratories) in Mumias East and Mumias West Sub-Counties.	Percentages, frequencies, Correlation, regression ANOVA	Test is significant if P value < 0.05 and insignificant if P value > 0.05
3.	To determine the influence of expansion of public day Secondary Schools on the quality of education offered in Mumias East and Mumias West Sub-Counties.	Percentages, Frequencies, Correlation, regression ANOVA	Test is significant if P value < 0.05 and insignificant if P value > 0.05

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

The chapter presents the study findings, their interpretations and discussions in relation to the effect of expansion of public day secondary schools on internal efficiency in Mumias East and Mumias West Sub-Counties. Data presentation is organized from 4.2 to 4.4 based on the specific objectives of the study.

4.2 Data Testing

In order to determine if the collected data was appropriate for such an analysis, the Kayser-Meyer-Olkin (KMO) measure of sampling adequacy was applied to give a value that provides an indication as to the sampling adequacy for the study. Field (2009), referring to Hutcheson &Sofroniou (1999), states that values above 0.9 are superb; values between 0.8 and 0.9 are great; values between 0.7 and 0.8 are good, and values between 0.5 and 0.7 are mediocre. This study recorded a value of 0.899, which implied that the study data was significantly adequate (table 4.1). Bartlett's Test of Sphericity was also conducted in order to test if there were any relationships at all in the correlation matrix or if the matrix was an identity matrix (in an identity matrix all correlation coefficients would be zero). For the data at hand, Barlett's Test gave a highly significant result at 0.05 level of significance. In conclusion, the data was significantly adequate and appropriate for this kind of statistical analysis.

Table 4. 1: Test of Sampling adequacy and Sphericity of data

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.899	
Bartlett's Test of Sphericity	Approx. Chi-Square	32519.934
	Df	2695
	Sig.	.000

Source: Field Data, 2020.

Due to the nature of this study where effect of expansion of public day secondary schools on internal efficiency was investigated, assumed univariate and multivariate normality were analyses. Typically, there are two ways of analyzing normality. Firstly, graphical tests plot data of empirical observations and their distribution in comparison to a theoretical distribution, to identify mismatches. Secondly, numerical tests can be used to derive the skeweness and kurtosis statistics. Although graphical tests are more intuitive and potentially easier to interpret, numerical tests are more objective (Namusonge, 2009); therefore, numerical method was employed. Univariate normality was analysed by merging responses from the study respondents and conducting the Shapiro-Wilk D statistics on the total factor scores (Refer to table 4.2). The statistical procedure analysed if the distribution as a whole deviates from normal distribution.

Table 4. 2: Test for Normality in data distribution for the study

	Shapiro-Wilk		
Variables	**Statistic**	**Df**	**Sig.**
Enrolment trends	.869	45	.001
Expansion of Public Day Secondary Schools and utilization of selected physical facilities	.843	45	.001
Expansion of Public Day Secondary Schools and quality of education offered	.794	45	.001

a. Test statistic is normal
b. Test statistic is uniform

Source: Field Data, 2020.

The test resulted in significant results, indicating that the data was normally and uniformly distributed. This is shown by all coefficients above 0.5 with p values less than 0.05. Such normal and uniform distribution made it safe for the researcher to use statistical procedures that assume normality and uniformity in data distribution such as regression analysis, Chi-Square and Correlation.

4.3 Influence of Trends in Enrolment on Internal Efficiency in Public Day Secondary Schools.

The first objective of the study sought to determine the effect of trends in enrolment on internal efficiency of public day secondary schools in Mumias East and Mumias West

Sub-Counties. Study data on trends in enrolment was subjected to both descriptive and inferential statistics and findings presented in the following section.

Table 4. 3: Form 1 Enrolment 2010-2015

YEAR	SUM
2010	1349
2011	1626
2012	1900
2013	1871
2014	2226
2015	2395

Source: Field Data 2020

From table 4.3, it can be noted that in Form 1 for the period under consideration, there was a continuous increase in enrolment except for the year 2013. Enrolment increased from 1349 in 2010 to 2395 in 2015 representing 77.54% increase during the period of five years. The annual % increase were: 20.53% in 2011, 16.85% in 2012, -1.55% in 2013, 18.97% in 2014 and 7.59% in 2015. This information is represented graphically below in figure 4.1

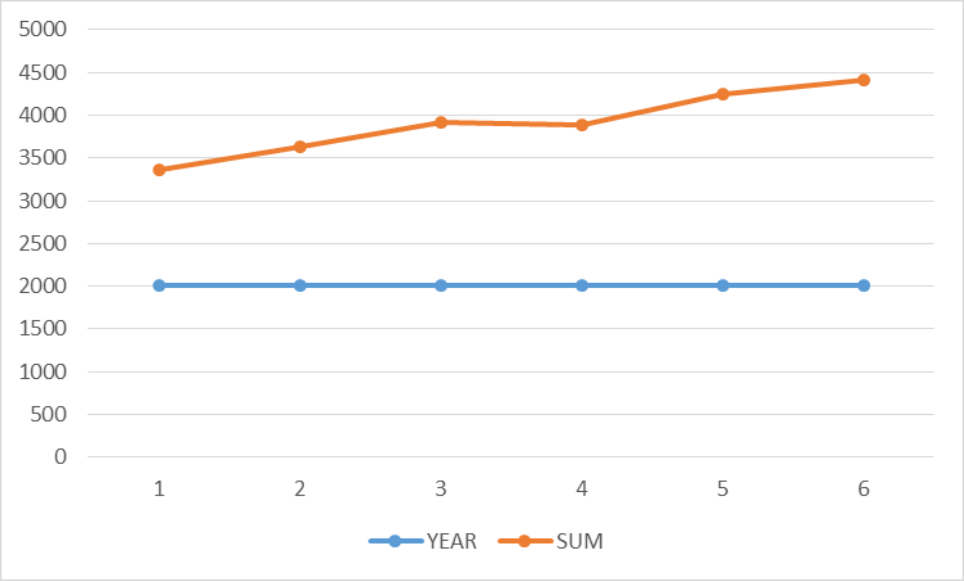

Figure 4. 1: Form 1 Enrolment 2010-2015

Source: Field Data 2020

Table 4. 4: Form 2 Enrolment 2010-2015

YEAR	SUM
2010	1321
2011	1395
2012	1778
2013	1905
2014	1911
2015	2380

Source: Field Data 2020

From table 4.4, it can be noted that in Form 2 for the period of 2010-2015 there was continuous increase in enrolment. Enrolment increased from 1321 in 2010 to 2380 in 2015, representing 80.2% increase during the period of five years. The yearly percentage

increase were: 5.60% in 2011, 27.46% in 2012, 7.14% in 2013, 0.31% in 2014 and 24.54% in 2015. This information is represented graphically below in figure 4.2.

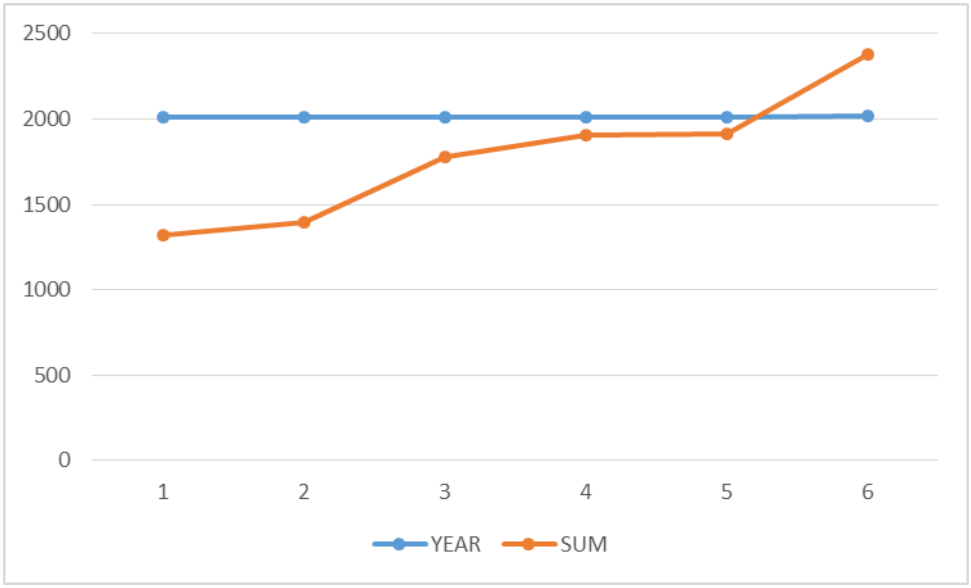

Figure 4. 2: Form 2 Enrolment 2010-2015

Source: Field Data 2020

Table 4. 5: Form 3 Enrolment 2010-2015

YEAR	SUM
2010	1347
2011	1383
2012	1449
2013	1746
2014	1852
2015	2167

Source: Field Data 2020

From table 4.5, it can be noted that in Form 3 for the period of 2010-2015 there was continuous increase in enrolment. Enrolment increased from 1347 in 2010 to 2167 in 2015, representing 60.9% increase during the period of five years. The yearly percentage increase were 2.67% in 2011, 4.77% in 2012, 20.50% in 2013, 6.07 in 2014 and 17.00 in 2015. This information is represented graphically below in figure 4.3

Figure 4. 3: Form 3 Enrolment 2010-2015

Source: Field Data 2020

Table 4. 6: Form 4 Enrolment 2010-2015

YEAR	SUM
2010	1110
2011	1155
2012	1211
2013	1303
2014	1515
2015	1635

Source: Field Data 2020

From table 4.6, it can be noted that in Form 4 for the period of 2010-2015 there was continuous increase in enrolment. Enrolment increased from 1110 in 2010 to 1635 in 2015, representing 47.29% increase during the period of five years. The yearly percentage increase in were 4.05% in 2011, 4.85% in 2012, 7.60% in 2013, 16.27% in 2014 and 7.92 in 2015. This information is represented graphically below in figure 4.4

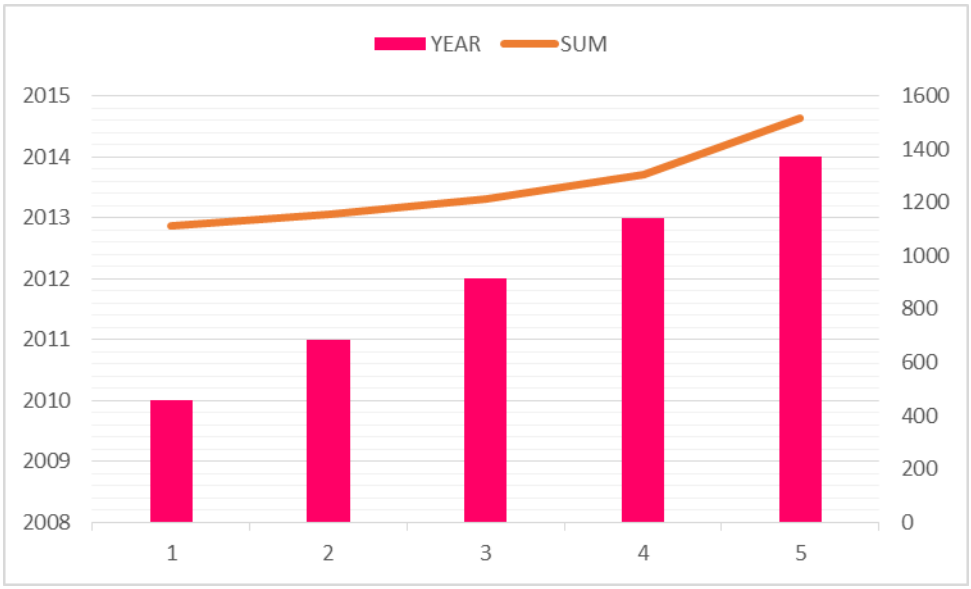

Figure 4. 4: Form 4 Enrolment 2010-2015

Source: Field Data 2020

Table 4. 7: Overall Trend in Enrolment 2010-2015

YEAR	ENROLMENT
2010	5127
2011	5559
2012	6338
2013	6825
2014	7504
2015	8577

Source: Field Data 2020

From table 4.7, it can be noted that total enrolment for the last five years greatly increased from 5,127 in 2010 to 8,577 in 2015, representing 67.3% increase during the period of five years. The yearly percentage increase were 8.43% in 2011, 14.01% in 2012, 7.68% in 2013, 9.95% in 2014 and 14.30% in 2015. This information is represented graphically below in figure 4.5

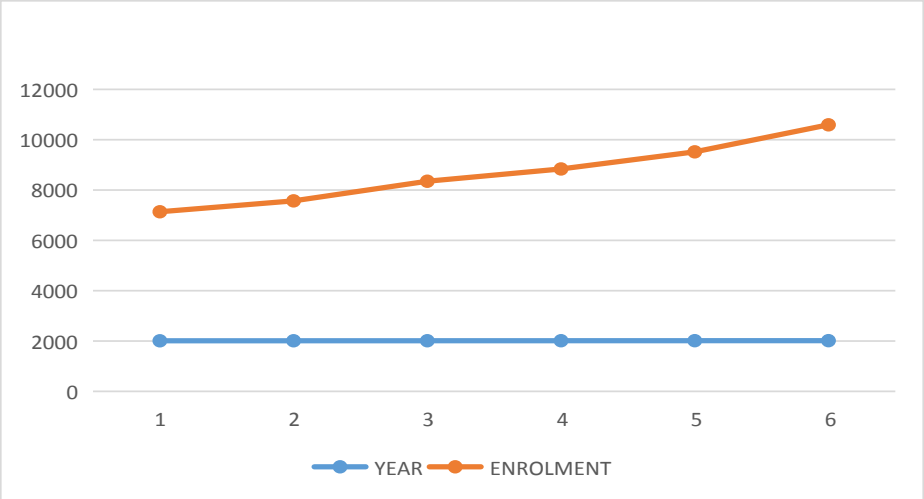

Figure 4. 5: Overall Trends in Enrolment 2010-2015

Source: Field Data 2020

From the data given, it can be noted that enrolment generally increased between 2010 and 2015. From interview with SCDE, it was revealed that enrolment is high in form one, because of the high transition rates from primary school to secondary school, after KCPE examination. Many students join public day secondary school because of low school fees and admission requirements, inadequate funds to pay boarding schools fees, some students are selected to schools far away from their home sub counties hence opt for sub-county day secondary school. Enrolment was highest in Form two may be due to transfer of students from public boarding, private schools to public day secondary schools because of parents being unable to sustain payment of boarding school fees. The increase in enrolment could also be as a result of Subsidized Day Secondary Education (SDSE) and FPE, bursaries, reduced poverty index, increased catchment area, CDF funding for infrastructure, forced repetition and ban of corporal punishment in schools.

4.4 Correlation Coefficients for enrolment trends and internal efficiency

Correlation analysis was conducted between enrolment trends and internal efficiency of public day secondary schools in Mumias East and West Sub-Counties and findings presented in table 4.8

Table 4. 8: Correlation Results for enrolment trends and internal efficiency

		Enrolment	Internal Efficiency
Enrolment	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	299	
Internal Efficiency	Pearson Correlation	.571	1
	Sig. (2-tailed)	.000	
	N	299	299

Source: Research Data (2020)

Correlation coefficient statistic that describes the degree of linear association between enrolment and internal efficiency in public day secondary schools was performed and study findings revealed a statistically significant positive relationship between enrolment and internal efficiency ($r=0.571:P<0.05$). This implies that an increase in enrolment resulted in an increase in internal efficiency of public day secondary schools in Mumias East and West Sub-Counties. These results conform to results from previous studies on the relationship between enrolment and internal efficiency. A study by the ministry of education in Kenya (2012) noted that the provision of secondary education has changed particularly since independence with the quantity of schools and students expanding from 151 and 30,000 out of 1963 to 4,111 and 1,487,989 out of 2010 and that period has been marked by a relative improvement in internal efficiency of secondary schools . The introduction of Free Secondary Education (FSE) brought about higher increment in enrollment in the public secondary schools by 17.1 percent in 2008 (Republic of Kenya, 2009) when contrasted with 13.7 percent in 2007, and the expansion was noted in the resulting years as having brought about internal efficiency. Asian Network of Training

and Research Institutions in Educational Planning (ANTRIEP, 2008) did a study on improving school efficiency and noted that increased enrolment brought about internal efficiency.

4.4.1 Regression analysis with enrolment level as a predictor of internal efficiency.

The results for regression analysis with enrolment levels as predictors of internal efficiency in public day secondary schools are presented in table 4.9.

Table 4. 9: Model Summary for Enrolment as predictor of Internal efficiency.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.353[a]	.347	.372	.86210	1.798

a. Predictors: (Constant), Student enrolment

b. Dependent Variable: Internal Efficiency

Source: Research Data (2020)

From the table 4.9, the value of R squared was 0.347 implying that enrolment trends account for 34.7% of variance in internal efficiency in public day secondary schools in Mumias East and west Sub-Counties.

4.4.2 ANOVA results for Enrolment Trends and Internal Efficiency.

Analysis of Variance for the linear model on enrolment trends and internal efficiency is presented in Table 4.10.

Table 4. 10: ANOVA for Enrolment Trends and Internal Efficiency.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	25.799	1	25.799	43.557	.000[a]
	Residual	220.737	297	.743		
	Total	246.536	298			

a. Predictors: (Constant), Student enrolment

b. Dependent Variable: Internal Efficiency

Source: Research Data (2020)

ANOVA for the linear model presented in Table 4.10 of student enrolment trends and internal efficiency of public day secondary schools in Mumias East and West sub-Counties has an F - value = 43.557 which is significant at 99% confidence level with p value = 0.000 meaning that the overall model was significant in predicting internal efficiency in public day secondary schools in Mumias East and Mumias West Sub-Counties**.**

4.4.3 Coefficients results for Student enrolment and internal efficiency of public day secondary schools.

The Coefficients for enrolment trends and internal efficiency in public day secondary schools are presented in table 4.11.

Table 4. 11: Coefficients for Enrolment Trends and internal Efficiency in Public Day Secondary Schools.

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	**B**	**Std. Error**	**Beta**	**T**	**Sig.**	**Tolerance**	**VIF**
(Constant)	3.617	.244		7.432	.000		
Internal Efficiency	.395	.058	.371	4.688	.000	1.000	1.000

a. Dependent Variable: Internal efficiency.

Source: Research Data (2020)

Multicollinearity was measured by variance inflation factor (VIF) (tolerance) as seen in table 4.11 above. Variance inflation factor refers to where independent variables are highly correlated value >10 hence leading to multicollinearity problem. The VIF value in the table is 1.000 hence less than 10, implying absence of multicollinearity problem. Analysis of the regression model coefficients shows there is a positive beta co-efficient of 0.395 for student enrolment as a predictor of internal efficiency in public day secondary schools in Mumias East and West Sub-Counties with a p-value = 0.000 which is highly significant within 99% confidence interval. This implies that student enrolment trends significantly influence internal efficiency of pubic day secondary schools.

4.5 Effect of expansion of public day secondary schools on utilization of selected physical facilities (libraries and laboratories)

The second objective sought to establish the effect of expansion of public day secondary schools on utilization of selected physical facilities in Mumias East and Mumias West Sub-Counties.

To this end, study data relating to expansion of public day secondary school and that relating to school physical infrastructure were subjected to descriptive and inferential statistics and findings presented in the following section.

4.5.1 Expansion of Public Day Secondary Schools and Library Utilization

Respondents from the principals and teachers categories were asked whether their schools had a functional libraries and findings presented in table 4.12.

Table 4. 12: The school has a functional library

Responses	Principals frequency	Percent	Teachers frequency	Percent
Strongly Agree	3	11.5	15	8.3
Agree	8	30.8	92	51.1
Disagree	13	50.0	49	27.2
Strongly Disagree	2	7.7	24	13.3
Total	**26**	**100.0**	**180**	**100.0**

Source: Field Data 2020

Table 4.12 from the principals' and teachers questionnaires depicted that, 11.54% of principals strongly agreed that their schools had functional libraries, 30.77% agreed with

the same. 50% and 7.69% of the principals disagreed and strongly disagreed respectively that their schools had functional libraries. Teachers questionnaires revealed that most public day secondary schools did not have functional libraries. 9.04% of the teachers strongly agreed that their school had functional libraries. 24.47% agreed with the same. 28.25% disagreed and 41.24% of teachers strongly disagreed that their schools had functional libraries.

Students were asked to state whether students effectively utilized school libraries following the expansion of day secondary schools in Mumias East and Mumias West Sub-counties and findings were presented in table 4.13

Table 4. 13: Students Utilize library adequately

Responses	**Principals frequency**	**Percent**	**Teachers frequency**	**Percent**
Strongly Agree	3	11.5	11	6.0
Agree	6	23.1	52	28.4
Disagree	15	57.7	94	51.4
Strongly Disagree	2	7.7	26	14.4
Total	**26**	**100.0**	**183**	**100.0**

Source: Field Data 2020

Table 4.13 from the principal's and teachers questionnaires revealed that 11.54% of principal strongly agreed that students do utilize library adequately while 23.08% agreed with the same. 57.69% and 7.69% of the principals disagreed and strongly disagreed respectively that students adequately utilize libraries on their schools. Teachers questionnaire revealed that 6.01% of the teachers strongly agreed that students adequately utilize the school libraries. 28.42% agreed with the same; 51.37% disagreed

and 14.21% strongly disagreed. It was noted that most students do not adequately utilize the school libraries due to lack of well build functional libraries. Most schools have small book stores which acts as libraries. Libraries are the engineers for academic excellence in secondary education institution hence should be made a mandatory requirement for establishment of a new institutions.

Table 4. 14: How often do you visit the school library

Likert scale rating	Frequency	Percent
Frequently	713	55.2
Rarely	366	28.3
Never	231	16.5
Total	**1292**	**100.00**

Source Field Data: 2020

Table 4.14 from student's questionnaire depicted that 55.19% of the students do visit the library frequently. 28.33% of the students rarely visit the library while 16.49% never visited the library.

Through observation method of data collection, it was noted that most schools had rooms in form of book stores where students visited during their free time to borrow text books. Some few schools lacked libraries. These findings are similar to those of Keitany (2012) whose study on factors influencing wastage among secondary school students in Kenya revealed that the learning facilities in Kisumu East District i.e. library services were inadequate. The research revealed that some schools had library buildings or rooms packed with several old books and material not relevant to the present curriculum. The

few useful books could not be shared among students equally. 66.30% of respondents expressed that learning resources were inadequate in the school libraries.

4.5.2 Expansion of Day Secondary Schools and utilization of Laboratories.

Respondents were asked if their schools had functional laboratories and responses presented in table 4.15.

Table 4. 15: The school has adequate functional laboratories

Responses	Principals frequency	Percent	Teachers frequency	Percent
Strongly Agree	5	18.5	11	6.0
Agree	10	37.0	54	29.5
Disagree	6	22.2	71	38.8
Strongly Disagree	6	22.2	47	25.7
Total	**27**	**100.0**	**183**	**100.0**

Source: Field Data 2020

Table 4.15 from the principals and teachers questionnaires showed that 18.52% of the principals strongly agreed that their schools had functional laboratories; 37.04% agreed with the same while 22.22% disagreed and 22.22% strongly disagreed that their schools had functional laboratories. 6.01% of the teachers strongly agreed that their schools had functional laboratories. 29.51% agreed with the same while 38.88% and 25.66 of teacher disagreed and strongly disagreed respectively. This implied that most PDSS did not have adequate functional laboratories. Through observation method of data collection made by the researcher it was noted that most newly registered PDSS did have laboratories; in some schools they were still under construction and those in operation had adequate facilities i.e. equipment and furniture.

Respondents were asked to state whether students effectively utilized laboratories following the expansion of day secondary schools in Mumias East and Mumias West sub-counties and findings presented in table 4.16

Table 4. 16: School laboratories are adequately utilized

Responses	**Principals frequency**	**Percent**	**Teachers frequency**	**Percent**
Strongly Agree	5	20.8	5	2.9
Agree	9	37.5	78	44.6
Disagree	6	25.0	66	37.7
Strongly Disagree	4	16.7	26	14.9
Total	**24**	**100.0**	**175**	**100.0**

Source: Field Data 2020

Table 4.16 from the principals and teachers questionnaires depicted that 20.83% of the principals strongly agreed; that the school laboratories are adequately utilized; 37.5% agreed with the same. 25% and 16.67% of the principals disagreed and strongly disagreed respectively that school laboratories are adequately utilized. 2.86% and 44.5% of teachers strongly agreed and agreed respectively that students utilized the laboratories adequately. 37.71% and 14.86% of teachers disagreed and strongly disagreed with the same.

Respondents from the students category were asked to indicate whether they do utilize school laboratories adequately and the findings presented in table 4.17.

Table 4. 17: Students adequately utilize school laboratories

Likert scale rating	Frequency	Percent
Strongly Agree	268	20.8
Agree	546	42.4
Disagree	295	22.9
Strongly disagree	178	13.8
Total	**1287**	**100.0**

Table 4.17 from the student's questionnaire reveals that: 20.82% of the students strongly agreed that they adequately utilized the laboratories while 42.42% of the students agreed with the same. 22.92% of the students disagreed that they adequately utilized the laboratories while 13.38% strongly disagreed with the same.

Bell and Rhodes (1996) research revealed similar findings that in order for a school to advance learning opportunities offered to student, it has to adequately utilize facilities available like the libraries and laboratories. It is the role of the principal to ensure that the facilities are used efficiently and effectively.

Respondents from the teachers' category were asked to indicate whether school laboratories were adequately equipped and findings presented in table 4.18.

Table 4. 18: The school laboratories are adequately equipped

Likert scale rating		Frequency	Percent
	Strongly agree	6	3.4
	Agree	54	30.2
	Disagree	84	46.9
	Strongly disagree	35	19.6
	Total	**179**	**100.0**

Table 4.18 from the teacher's questionnaire depicts that: 3.35% of the teachers strongly agreed that the school laboratories were adequately equipped. 30.17% agreed with the same. 46.93% of the teachers disagreed that the school laboratories were adequately equipped and 19.55% strongly disagreed with the same.

Respondents from the teachers' category were asked to indicate whether increased student enrolment had strained laboratory utilization and findings presented in table 4.19.

Table 4. 19: Increased student enrollment has strained laboratory utilization

Likert scale rating	Frequency	Percent
Strongly agree	54	31.0
Agree	75	43.1
Disagree	22	12.6
Strongly disagree	23	13.2
Total	**174**	**100.0**

Table 4.19 from the teacher's questionnaire revealed that 31.03% of the teachers strongly agreed that increase in student enrollment had strained laboratory utilization of facilities. 43.10% of the teachers agreed with the same. 12.64% of the teachers disagreed that increase in student enrollment had strained laboratory utilization of facilities. 13.22% of the teachers strongly disagreed with the same. From the Principal's and teacher's questionnaires it was noted that laboratories are moderately utilized. Through observation some schools had laboratories buildings that lacked equipment and some were poorly equipped. This was an indicator of under-utilization of laboratory facilities. Some schools had well equipped laboratories but the number of learners were higher than facilities available. This caused strain on laboratory facilities hence at times underutilized.

These findings are similar to those of Keitany (2012) whose study on factors influencing wastage among secondary schools in Kenya revealed that school laboratories are not equipped with apparatus. Those fully equipped, lacked chemicals and proper storage facilities that accompany laboratory equipment's. It also revealed that students who are

not exposed to frequent science experiment were not a position to score good marks in science subjects. Unsatisfactorily academic performance in KCSE attributed to limited laboratory apparatus was a reflection of internal inefficiency. These findings are also similar to those of UNESCO (2008), that showed laboratories could contribute more to student academic performance especially if other complementary inputs like apparatus are provided.

These findings agree with the observation made by Oyaro (2010) as quoted by Makari (2014) that 87.5% of county and extra county schools had functional libraries while 12.5% lacked. These findings relate to those of Frankline Dolor (2002), who noted that availability of adequate school buildings such as library, laboratories and classrooms were necessary for attainment of educational objectives. Similarly Hallak (1990), identified educational facilities e.g. library and laboratory among others as a major factor that contribute to academic achievement is school system. Adeboyeje (1999) revealed that physical facilities i.e. library and laboratories among others are essential materials that must be put in place and into consideration for the objectives of the school system to be accomplished. Adeboyeje (1998), further stressed that availability of these facilities determines the quality of instructions and performance of students in the school. Oyedeji (2000), revealed that school buildings had positive impact on the comfort, safety and academic performance of students. This was in line with the current findings that noted: for a school to be registered by the Ministry, it should be mandatory to have the key physical facilities, classrooms, library, laboratory, staffroom and toilets etc.

4.5.3 Correlation Results for Expansion of Public Day Secondary Schools on utilization of selected physical facilities.

Correlation Analysis was conducted to ascertain the effect of expansion of Public Day Secondary Schools on utilization of selected school physical facilities and results presented in table 4.20

Table 4. 20: Correlations for Expansion of public day secondary schools and utilization of Physical facilities in public day secondary schools

		Expansion	Use of Physical Facilities
Expansion	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	1523	
Use of	Pearson Correlation	.599**	1
Physical	Sig. (2-tailed)	.000	
Facilities	N	1523	1523

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

Source: Field Data (2020)

A correlation coefficient statistics that describes the degree of linear association between expansion of public day secondary schools and utilization of selected school physical facilities like libraries and laboratories in public day secondary schools in Mumias East and West Sub-counties was performed. Study findings revealed a statistically significant and positive relationship between expansion of public day secondary schools and utilization of selected physical facilities in public day secondary schools in Mumias

East and West Sub-Counties (r=0.599: P<0.05). This implies that expansion of day secondary schools significantly improved utilization school physical facilities hence bringing about internal efficiency in public day secondary schools in Mumias East and West sub-counties. These results conform to previous studies done by other scholars who studied the relationship between expansion of schools and availability of physical infrastructure and internal efficiency. Kenya Economic survey (2001) revealed that expanding provision for all in the secondary education sub-sector was a major challenge because of limited facilities like libraries, laboratories, classrooms and toilets. This had compromised internal efficiency that lower performance in national examinations.

4.5.4 Regression Results for Expansion of Day Secondary Schools and utilization of Selected School physical facilities

Study data relating to expansion of public day secondary schools and utilization of school physical facilities were subjected to regression analysis and findings presented in table 4.21.

Table 4. 21: Model Summary for school expansion of public day secondary schools and utilization of physical facilities

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.307[a]	.311	.374	.86210	1.842

a. Predictors: (Constant), Expansion of Schools

b. Dependent Variable: Utilization of Physical Facilities

Source: Research Data (2020)

From table 4.21, the value of R squared was 0.311 implying that expansion of public day secondary schools accounts for 31.1% of the variance in utilization of school physical facilities in public day secondary schools in Mumias East and West Sub-Counties.

4.5.5 ANOVA results for Expansion of Public Day Secondary Schools and utilization of Physical Facilities.

The ANOVA results for effect of expansion of public day secondary schools and utilization of physical facilities as a predictor of in internal efficiency of public day secondary schools in Mumias East and West Sub-Counties are presented in table 4.22.

Table 4. 22: ANOVA results for Expansion of Public Day Secondary Schools and Utilization of Physical Facilities.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	25.799	1	25.799	39.491	.000[a]
	Residual	220.737	297	.743		
	Total	246.536	298			

a. Predictors: (Constant), Expansion of day secondary schools

b. Dependent Variable: Utilization Physical Infrastructure

Source: Research Data (2020)

ANOVA for the linear model presented in Table 4.22 regards expansion of day secondary schools and utilization of selected school physical facilities to predict internal efficiency in public day secondary schools in Mumias East and West Sub-Counties. The model has an F - value = 39.491 which is significant at 99% confidence level with p value = 0.000 meaning that the overall model is significant in the prediction of internal efficiency in public day secondary schools in Mumias East and West Sub-Counties. The study therefore shows that expansion of day secondary schools improves utilization levels for school physical facilities leading to internal efficiency in public day secondary schools in Mumias East and West Sub-Counties.

4.5.6 Coefficients results for Expansion of Public Day Secondary Schools and Utilization of School physical facilities.

The Coefficients for expansion of public ay secondary schools and utilization of school pphysical facilities in public day secondary schools in Mumias East and West Sub-Counties are presented in table 4.23:

Table 4. 23: Coefficient results for School expansion of public day secondary schools and utilization physical Facilities

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	**B**	**Std. Error**	**Beta**	**T**	**Sig.**	**Tolerance**	**VIF**
(Constant)	3.317	.260		11.663	.000		
Expansion	.351	.065	.318	5.525	.000	1.000	1.000

a. Predictors: (Constant), Expansion of Public Secondary Schools

b. Dependent Variable: Utilization of Selected Physical facilities

Source: Research Data (2020)

Multi-collinearity was measured by variance inflation factor (VIF) or using tolerance as seen in table 4.23. Variance inflation factor refers to where independent variables are highly correlated value >10 hence leading to multi-collinearity problem. The VIF value in the table is less than 10 so there is no multi-collinearity problem. Analysis of the regression model coefficients shows there is a positive beta co-efficient of 0.351 for expansion of public day secondary schools as indicated by the co-efficient matrix with a p-value = 0.000 which is less than 0.05 thus significant. Therefore, expansion of public

day secondary schools improves utilization of school Physical facilities and is a significant predictor of internal efficiency in public day secondary schools in Mumias East and Mumias West Sub-Counties.

4.6 Expansion of Public Day Secondary Schools and Quality of Education offered in Public day Secondary Schools

The third objective of the study sought to determine the influence of expansion of public day Secondary Schools on the quality of education offered in Public day Secondary Schools in Mumias East and Mumias West Sub-Counties. Study data relating to expansion of public day Secondary Schools and that relating to quality of education offered were subjected to descriptive and inferential statistics and findings presented in the following section.

Respondents were asked to state whether school libraries had adequate text books for use by the teachers and students and findings presented in table 4.24.

Table 4. 24: Adequacy of text books per subject in the library

Likert scale rating	Frequency	Percent
Strongly agree	2	1.1
Agree	56	30.3
Disagree	89	48.1
Strongly disagree	38	20.5
Total	**185**	**100.0**

Table 4.24 from the teacher's questionnaire revealed that 1.08% of the teachers strongly agreed that there were adequate text books per subject in the school library. 30.27% of the teachers agreed with the same. 48.11% and 20.54% of the teachers disagreed and strongly disagreed respectively that there were adequate text books per subject in the library. This depicted that there were inadequate text books in school libraries in PDSS. This was due to most schools lacking library facilities hence a few textbooks issued at class level. Most schools do not use FDSE funds to purchase text books as per the tuition vote heads. The 1:1 student – text books ratio has not been attained in most PDSS. This compromised the quality of education offered in PDSS.

A study by Makari (2014) revealed that low textbooks ratio poses serious questions on quality of learning in schools. Some teachers hardly used textbooks. UNESCO (2005), showed that teachers having taught for so long without textbooks found it challenging to teach with them. These findings are also similar to those of Fuller (1986), whose findings revealed that schools that operated without libraries had affected the academic performance of their students. A library as an instructional resource would significantly influence students' academic achievement. Popoola (1989) also noted that schools with well-equipped library normally maintained high academic performance.

Table 4. 25: The school library is adequately equipped with facilities

Likert scale rating	Frequency	Percent
Strongly agree	7	3.9
Agree	27	14.9
Disagree	81	44.8
Strongly disagree	66	36.5
Total	**181**	**100.0**

Table 4.25 from the teacher's questionnaire showed that 3.87% and 14.92% of the teachers strongly agreed and agreed respectively that the school libraries are adequately equipped with facilities. 44.75% and 36.46% of the teachers disagreed and strongly disagreed respectively that the school libraries were adequately equipped with facilities. It was observed that in most schools the rooms used as libraries do not have facilities like chairs, reading tables, book - shelves and cupboards. Most students visited the rooms only to pick or return the textbooks. Adequate time was not created for library utilization of text books. This compromised the quality of education offered.

These findings are in line with those of Miyawa (2013) which revealed that a library occupied a central place in any school system hence must be up to date and at the same time should allow access to older materials. Ola (1990), noted that a well- equipped library enhances good learning and achievement of high educational standard. Farombi (1998) similarly noted that school libraries would be ineffective if the books there are inadequate and upto date as its impact may only be meaningful if it could be opened to students always for considerable length of time in a school day.

The findings were also in agreement to those of Miyawa (2013) that noted that an education system without a library limited students' academic achievement and level of exposure to current development in their area of study. Extra reading by students significantly improves their knowledge base. This reflected academic performance and achievement of students. Davies (1994) agreed that availability of adequate libraries, positively contributed to students' academic performance hence improving the overall quality of education received by the students.

Respondents were asked to state whether teachers' workload had any effect on the quality of education received by the learners and findings presented in table 4.26.

Table 4. 26: Teacher work load per week

Teaching work load	Frequency	Percent
6-10 lessons	2	1.1
11-15 lessons	29	16.0
16-20 lessons	39	21.5
21-27 lessons	89	49.2
28 lessons and above	22	12.2
Total	**181**	**100.0**

Table 4.26 from teacher's questionnaire showed that 1.10% the teachers had a teaching work load of 0-10 lessons per week. It was also seen that 16.02% had a workload of 11-15 lessons per week. 21.55% of the teachers had a teaching workload of 16-20 lessons per week. 49.17% of the teachers had a teaching workload of 21-27 lessons per week. 12.15% of the teachers had a teaching workload of 28 lessons and more. This showed that most teachers had the average workload recommended by TSC. However workload was still high, due to high teacher student ratio 21-27 lesson per week was unmanageable in a school with high student enrolment especially in compulsory subjects.

The findings are similar to those of Makari (2014) which revealed that, teachers overwhelmed by work load may not interact effectively with learners and this compromises the quality of education received by the learners. With increased

enrolment most teachers had work load of between 21 and 30 lessons per week, which implied that they were strained and could not effectively, manage their lesson in terms of adequate lesson preparation and delivery. This affects the quality of education delivered to students; an indicator of internal inefficiency.

These findings are also similar to those of Tindall (1988) as cited in Miyawa (2013) whose study on effects of learning resource management in technical training institutions in Western Kenya revealed that teachers workload had significant effect on academic achievement. Schools where teachers had 25 lessons or less registered higher mean scores compared to schools where teachers had 26 lesson or more. The findings agreed with Nwwinina and Mwanakezi cited in Osagic and Okafar (2012) who concluded that teachers workload was one of factors that inhibited students academic achievements.

Table 4. 27: Science teachers adequately utilize laboratories for practical lessons

Likert scale rating	Frequency	Percent
Strongly agree	15	8.5
Agree	85	48.3
Disagree	52	29.5
Strongly disagree	24	13.6
Total	**176**	**100.0**

Table 4.27 from the teacher's questionnaires showed that 8.52% of the teachers agreed that science teachers adequately utilized laboratories for practical lessons. 48.30% agreed with the same. 29.55% of the teachers disagreed that science teachers adequately utilized laboratories for practical lessons while 13.64% strongly disagree with the same.

This implied that in some of the PDSS teachers don't perform practical lessons in science subjects hence compromised the quality of education offered in 43.19% of the institutions.

Table 4. 28: The school has a qualified librarian

Likert scale rating	Frequency	Percent
Strongly agree	16	9.0
Agree	38	21.5
Disagree	50	28.2
Strongly disagree	73	41.2
Total	**177**	**100.0**

Table 4.28 from the teacher's questionnaires showed 9.04% of the teachers strongly agreed that their schools, had employed a qualified librarian. 21.47% of the teachers agreed with the same. 28.25% of the teachers disagreed and 41.24% strongly disagreed with the same. This implied that 69.49% of the PDSS do not have qualified personnel to offer services in the school library. Quality service was therefore not offered in the library. This contributed to poor reading culture since most libraries operated during games time, when language teachers are free to offer the services.

Table 4. 29: The school has qualified laboratory technician

Likert scale rating	Frequency	Percent
Strongly agree	28	15.6
Agree	73	40.8
Disagree	35	19.6
Strongly disagree	43	24.0
Total	**179**	**100.0**

Table 4.29 from the teacher's questionnaires revealed 15.64% of the teachers strongly agreed that their schools had qualified laboratory technicians. 40.79% of teachers agreed with the same. 19.55% of the teachers disagreed that their schools had qualified laboratory technicians while 24.02% of the teachers strongly disagreed with the same. This implied that 43.57% of PDSS do not have laboratory technicians to prepare equipment for practical lessons. This was done by the science teachers who are also supposed to prepare for lesson teaching and with high workloads. Some of the teachers therefore skipped the practical lessons hence compromised the quality of education offered in these institutions.

Table 4. 30: There is high teacher shortfall in compulsory subjects

Likert scale rating	Frequency	Percent
Strongly Agree	19	67.9
Agree	7	25.0
Disagree	2	7.1
Total	**28**	**100.0**

Table 4.30 from the principal's questionnaire reveals that, 67.86% of the principals strongly agreed that there was a high teacher shortfall in their schools due to school

expansion. 25% agreed with the same while 7.14% disagreed. This implied that 92.88% of the PDSS had high teacher shortfall in compulsory subjects: English, Kiswahili, Mathematics, Biology and chemistry. This impacted negatively on the quality of education offered in these institutions.

Table 4. 31: There is high teacher shortfall in optional subjects

Likert scale rating	Frequency	Percent
Strongly Agree	15	53.6
Agree	12	42.9
Disagree	1	3.6
Total	**28**	**100.0**

Table 4.31 from the principal's questionnaire revealed that 53.57% of the principals strongly agreed that there was high teacher shortfall in optional subjects in their schools. 42.86% of the principals agreed with the same while 3.5% disagreed. This implied that 96.43% of the PDSS had high teacher shortfall in optional subjects; Physics, History & Government, Geography, CRE/IRE, Agriculture, Home Science and Business studies. This affected the quality of education offered by these schools.

High teacher shortage in all disciplines implied that most of teachers had high workload per week, that affect service delivery to learners i.e. inadequate lesson preparation and evaluation of learners.

Table 4. 32: The school employs teachers on board yearly

Likert scale rating	Frequency	Percent
Strongly Agree	23	85.2
Agree	2	7.4
Disagree	2	7.4
Total	**27**	**100.0**

Table 4.32 from the principal's questionnaire revealed that 85.19% of the principals strongly agreed that their schools employed teachers on board of management yearly while 7.14% agreed with same. 7.41% of the principals disagreed that their school employed teachers on board yearly. This implied that there was high turnout of teachers in PDSS hence lack of consistence in lesson actively. This affects the quality of education offered in PDSS.

4.6.1 Correlation Coefficients for expansion of public day Secondary Schools and quality of education offered.

Correlation analysis was conducted to determine the effect of availability of teaching and learning resources on internal efficiency of public day secondary schools in Mumias East and Mumias West Sub-Counties and finding presented in table 4.33.

Table 4. 33: Correlations Coefficients for expansion of public day Secondary Schools and influence Quality of education offered

		Expansion of Schools	Quality of Education
Expansion of Schools	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	1523	
Quality of Education	Pearson Correlation	-.501**	1
	Sig. (2-tailed)	.000	
	N	1523	1523

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

Source: Research Data (2020)

Study findings in table 4.33 present correlation coefficients for effect of expansion of public day secondary schools on the quality of education offered in Public day secondary schools in Mumias East and West Sub-Counties. Study findings reveal a statistically significant but negative relationship between expansion of public day secondary schools and quality of education offered in public day secondary schools in Mumias East and West Sub-Counties ($r= -0.501$; $P<0.05$). This implies that expansion in public day secondary schools has significantly lowered the quality of education offered to learners in public day secondary schools in Mumias East and West Sub-Counties.

Findings from this study conform to findings from previous studies on the nexus between expansion of schools and quality of education offered. Onyango (2008) points out that the high number of pupils enrolled after the introduction of FPE, has brought about problems of low textbook ratios, overcrowded classrooms and poor sitting patterns, which affect participation in primary schools which has in turn lowered the quality of education offered to learners. Secondary schools could also be having the

same problem with the introduction of FSE. Smith (2002) observes that the availability of the learning resources including textbooks for learners, enough desks in classrooms, and good blackboards in schools had been noted to have an impact on internal efficiency as well as on pupils' participation in education.

4.6.2 Regression Analysis for Expansion of Public Day Secondary Schools and Quality of Education in public day secondary schools

Regression analysis was conducted to measure the predictive effect of expansion of public day secondary schools on the quality of education offered in public day secondary schools in Mumias East and Mumias West Sub-Counties

Table 4. 34: Model Summary for Expansion of Public Day Secondary Schools and Quality of Education

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.297[a]	.171	.167	.83005	1.855

a. Predictors: (Constant), Expansion of Schools

b. Dependent Variable: Quality of Education

Source: Research Data (2020)

Regression analysis was conducted to determine the influence of expansion of public day secondary schools on the quality of education to predict internal efficiency in public day secondary schools in Mumias East and Mumias West Sub-Counties. Study findings revealed a calculated R^2 value = 0.171 which implied that expansion of public day secondary schools accounted for 17.1% of the variance in the quality of education in public day secondary schools in Mumias East and Mumias West Sub-Counties.

4.6.3 ANOVA for Expansion of Public of Day Secondary Schools and Quality of Education

The ANOVA results for the effect of expansion of public day secondary schools on the quality of education in public day secondary schools in Mumias East and West Sub-Counties are presented in table 4.35:

Table 4. 35: ANOVA for the effect of Expansion of Public Day Secondary Schools and Quality of Education

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.174	1	.174	.675	.000[a]
	Residual	246.362	297	.830		
	Total	246.536	298			

a. Predictors: (Constant), Expansion of Public Day Secondary Schools

b. Dependent Variable: Quality of Education

Source: Research Data (2020)

A one way analysis of variance (ANOVA) that provided information about the effect of expansion of schools on quality of education offered and which formed the basis for tests of significance was used. ANOVA for the linear model presented in Table 4.35 for the effect of expansion of public day secondary schools on the quality of education offered in public day secondary schools in Mumias East and West Sub-Counties had an F - value = 0.675 which was highly significant within 99% confidence interval with a P value=.000. This means that the model was significant in the prediction of the effect of expansion of public day secondary schools on the quality of education offered.

4.6.4 Coefficients for Expansion of Public Day Secondary Schools and Quality of Education offered in public day secondary schools

The Coefficients for expansion of public day secondary schools and quality of education to predict internal efficiency in public day secondary schools in Mumias East and West Sub-Counties are presented in table 4.36.

Table 4.36: Coefficients for Expansion of Public Day Secondary Schools and Quality of Education.

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	**B**	**Std. Error**	**Beta**	**T**	**Sig.**	**Tolerance**	**VIF**
1 (Constant)	1.413	.326		3.691	.000		
Expansion	-.217	.192	.082	.357	.000	1.000	1.000

a. Predictors: (Constant), Expansion of Public Day Secondary Schools

b. Dependent Variable: Quality of Education

Source: Research Data (2020)

Multicollinearity was measured by variance inflation factor (VIF) or using tolerance. Multicollinearity refers to a situation where two or more independent variables are highly correlated with a correlation coefficient of a value > 10. The VIF value in table 4.36 is less than 10 implying absence of multicollinearity problem. If multicollinearity increases, the regression coefficient can fluctuate from sample to sample hence complicating interpretation of the coefficient as an indicator of relative importance of predicting variables (Cooper & Schindler 2003). The regression model coefficients revealed a negative beta co-efficient of -0.217 for influence of expansion of public day secondary schools on the quality of education offered in public day secondary schools in Mumias East and West Sub-Counties with a P-value = 0.000 which is significant at 0.01 level of significance. This implies that expansion of public day secondary schools negatively impacted on the quality of education offered.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study findings, conclusions based on the study findings, recommendations and suggestions for further research on the effect of expansion of public day secondary schools on their internal efficiency in Mumias East and Mumias West sub-counties. The general objective of the study was to determine the effect of expansion of public day secondary schools in Mumias Sub-County on their internal efficiency between 2010 - 2015. From this overall objective, this study aimed to determine the effect of enrolment trends on internal efficiency in public day secondary schools in Mumias East and West sub-counties, to

establish the effect of expansion of public day secondary schools on utilization of selected physical facilities(Library and laboratories) in Mumias East and Mumias West Sub-Counties and to determine the influence of expansion of public day Secondary Schools on the quality of education offered in Public day Secondary Schools in Mumias East and Mumias West Sub-Counties.

5.2 Summary of the Findings

This study was conducted on the premise that expansion of public day secondary schools affected their internal efficiency. The study reviewed both theoretical and empirical literature on the nature and extent of expansion of public day secondary schools and how it affected internal efficiency of such schools. From the review of related literature, a conceptual framework was constructed to conceptualize the nexus between school expansion and internal efficiency. The hypothesized relationships were presented in the conceptual framework. Using the conceptual framework together with objectives of the study, the research used primary tools for purposes of data collection. Questionnaires were used to collect data from students, teachers and principals while an interview schedule was used to collect data from Sub-county Directors of Education officials in Mumias East and Mumias West sub-counties. The questionnaire was pre-tested for reliability using Cronbach's alpha (α) coefficients of reliability and validity (using factor analysis for construct validity) through a pilot study. The questionnaire was then used to

collect the primary data for both the independent variables and dependent variables from the study respondents.

Regression analysis was used to test the combined effect of all the independent variables on the dependent variable. The correlation between the independent variables and the dependent variable performance was performed using Pearson product moment Correlation Coefficient. The independent variables were tested for multicollinearity using variance inflation factor (tolerance) while Durbin - Watson test was used to test for autocorrelation. Statistical package for social sciences (SPSS) version 23.0 for windows was used during data analysis. Quantitative data was analyzed using descriptive and inferential statistics. Inferential statistical analysis for every variable was made. All statistical measurements were done within 95% confidence interval.

5.2.1 Enrolment Trends and Internal Efficiency of Public Day Secondary Schools.

The first objective of the study sought to determine the effect of trends in enrolment on internal efficiency of public day secondary schools in Mumias East and West Sub-Counties. Study data on trends in enrolment was subjected to both descriptive and inferential statistics. Correlation coefficient statistic that describes the degree of linear association between enrolment and internal efficiency in public day secondary schools was performed and study findings revealed a statistically significant positive relationship between enrolment and internal efficiency ($r=0.571:P<0.05$). This implies that an increase in enrolment resulted in an increase in internal efficiency of public day secondary schools in Mumias East and West Sub-Counties. Regression analysis revealed a value of R squared was 0.347 implying that enrolment trends account for 34.7% of variance in internal efficiency in public day secondary schools in Mumias East and west Sub-Counties. ANOVA for the linear model depicting the effect of student enrolment trends on internal efficiency of public day secondary schools in Mumias East and West sub-Counties has an F - value = 43.557 which is significant at 99% confidence level with p value = 0.000 meaning that the overall model was significant in predicting internal efficiency in public day secondary schools in Mumias East and West Sub-Counties**.** Analysis of the regression model coefficients shows that there was a positive beta co-efficient of 0.395 for student enrolment as a predictor of internal efficiency in

public day secondary schools in Mumias East and West Sub-Counties with a p-value = 0.000 which is highly significant within 99% confidence interval. This implies that student enrolment trends significantly influence internal efficiency of pubic day secondary schools.

5.2.2 Expansion of Public Day Secondary Schools and Utilization of selected Physical Facilities (Libraries and Laboratories)

The second objective of the study sought to determine the effect of expansion of public day secondary schools on utilization of selected physical facilities (libraries and laboratories) in Mumias East and Mumias West Sub-Counties. Study data was analyzed and correlation coefficient revealed a statistically significant and positive relationship between expansion of school and utilization of selected physical facilities in public day secondary schools in Mumias East and West Sub-Counties ($r=0.599$: $P<0.05$). This implies that expansion of day secondary schools significantly improved utilization of selected school physical facilities hence bringing about internal efficiency in public day secondary schools in Mumias East and West sub-counties. Data was subjected to regression analysis and findings revealed a value of R squared of 0.311 implying that expansion of day secondary schools accounts for 31.1% of the variance in utilization of school physical facilities in public day secondary schools in Mumias East and West Sub-Counties. ANOVA for expansion of public day secondary schools and utilization of selected school physical facilities to predict internal efficiency in public day secondary schools gave an F - value = 39.491 which is significant at 99% confidence level with p value = 0.000 meaning that the overall model is significant in the prediction of internal efficiency in public day secondary schools in Mumias East and West Sub-Counties. Analysis of the regression model coefficients shows that there was a positive beta co-efficient of 0.351 for expansion of public day secondary schools as indicated by the co-efficient matrix with a p-value = 0.000 which is less than 0.05 thus significant. Therefore, expansion of public day secondary schools improves utilization of school physical facilities and is a significant predictor of internal efficiency in public day secondary schools in Mumias East and West Sub-Counties.

5.2.3 Expansion of Public Day Secondary Schools and Quality of Education offered in Public day Secondary Schools

The third objective of the study sought to determine the influence of expansion of public day Secondary Schools on the quality of education offered in Public day Secondary Schools in Mumias East and Mumias West Sub-Counties. Study data relating to expansion of public day Secondary Schools and that relating to quality of education offered were subjected to descriptive and inferential statistics. Correlation coefficients for effect of expansion of public day secondary schools on the quality of education offered in Public day secondary schools revealed a statistically significant but negative relationship between expansion of public day secondary schools and quality of education offered in public day secondary schools in Mumias East and Mumias West Sub-Counties ($r= -0.501$; $P<0.05$). This implies that expansion in public day secondary schools has significantly lowered the quality of education offered to learners in public day secondary schools in Mumias East and Mumias West Sub-Counties. Regression analysis was conducted to determine the influence of expansion of public day secondary schools on the quality of education to predict internal efficiency in public day secondary schools in Mumias East and Mumias West Sub-Counties. Study findings revealed a calculated R^2 value = 0.171 which implied that expansion of public day secondary schools accounted for 17.1% of the variance in the quality of education in public day secondary schools in Mumias East and Mumias West Sub-Counties. A one way analysis of variance (ANOVA) that provided information about the effect of expansion of schools on quality of education offered and which formed the basis for tests of significance was used. ANOVA for the linear model revealed an F - value = 0.675 which was highly significant within 99% confidence interval with a P value=.000. This means that the model was significant in the prediction of the effect of expansion of public day secondary schools on the quality of education offered. The regression model coefficients revealed a negative beta co-efficient of -0.217 for influence of expansion of public day secondary schools on the quality of education offered in public day secondary schools in Mumias East and Mumias West Sub-Counties with a P-value = 0.000 which is

significant at 0.01 level of significance. This implies that expansion of public day secondary schools negatively impacted on the quality of education offered.

5.3 Conclusion

In light of the findings made by the study, the following conclusions are made;

The first objective of the study sought to determine the effect of enrolment trends on internal efficiency of public day secondary schools in Mumias East and Mumias West Sub-Counties. Study findings revealed a statistically significant positive relationship between enrolment and internal efficiency. Based on the study findings, a conclusion is made that enrolment trends significantly influence internal efficiency of public day secondary schools in Mumias East and Mumias West Su-Counties.

The second objective of the study sought to establish the effect of expansion of public day secondary schools on utilization of selected physical facilities (libraries and laboratories) in Mumias East and Mumias West Sub-Counties. Study findings revealed a statistically significant and positive relationship between expansion of public day secondary schools and utilization of selected physical facilities (libraries and laboratories) in Mumias East and Mumias West Sub-Counties. Based on the study findings, a conclusion is made that expansion of public day secondary schools significantly improved utilization school physical facilities hence bringing about internal efficiency in public day secondary schools in Mumias East and West sub-counties.

The third objective of the study sought to determine the influence of expansion of public day Secondary Schools on the quality of education offered in Public day Secondary Schools in Mumias East and Mumias West Sub-Counties. Study findings revealed significant but negative relationship between expansion of public day secondary schools and quality of education offered in public day secondary schools in Mumias East and Mumias West Sub-Counties. In light of the findings with regard to the third objective a conclusion is made that expansion of public day secondary schools has a significant

negative effect on the quality of education offered to learners in public day secondary schools in Mumias East and Mumias West Sub-Counties.

5.4 Recommendations

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

This study has examined how internal efficiency is affected by increased enrolment in public day secondary schools. It is evident from the study findings that education specialists and government officials have concentrated reform endeavors on the measure of instructive settings. Issues of class size resulting from increased student enrollment have not caught the attention of educationists. Increasing enrollment without expanding resources in public day secondary schools make it troublesome for the teachers to effectively deliver content to students. It is recommended that an increase in enrollment be accompanied with increased funding to expand school infrastructure that would accommodate the increasing student numbers hence enhance internal efficiency of schools.

This study has shown that utilization of school physical facilities such as libraries and laboratories improve the quality of teaching/learning and hence internal efficiency of schools in the provision of secondary education. Unfortunately, the quantity of physical resources stayed unaltered in many schools even after the introduction of free day secondary education. It is recommended that increase in enrollment be accompanied by expansion in selected school physical facilities (libraries and laboratories) to provide a better teaching and learning environment that would improve the quality of education in public day secondary schools and enhance internal efficiency.

This study revealed a negative relationship between expansion of public day secondary schools and quality of education offered in public day secondary school. There is need for provision of adequate resources including equipment such as laboratory equipment, text books in libraries and enough teachers. It is recommended that adequate resources be put in schools as a measure to guarantee that schools move toward becoming foundations where learners gain from a steady school learning environment, and thus

expand students' learning experience so that all the learners accomplish their educational objectives resulting from improved internal efficiency in schools.

5.5 Suggestions for further research

The researcher wishes to make following suggestions for further researches

(i) Further research can be done to private and public boarding schools, mixed day and boarding, Boys and Girls Schools, national, extra county and county schools.

(ii) Further research can be done on utilization of other physical facilities i.e. classrooms, toilets, fields, dining hall, kitchen, furniture, dormitories and ICT infrastructure.

Research on teacher appraisal and internal efficiency.

REFERENCES

Abagi, O. & Odipo, G. (1997). Efficiency of Primary Education in Kenya: Situational Analysis and Implications for Educational reform. Discussion paper.

Abagi, O. & Odipo, G. (2000). Situational analysis of the education sector in Kenya : A report prepared for CARE Kenya. Nairobi: IPAR

Ackers, J., Migoli, J. & Nzomo, J. (2001). Identifying and addressing the causes of declining participation rates in Kenyan primary schools. International Journal of Educational Development, 21 (4): 361-374.

Adeyemi, T. (2012). School Variables and internal efficiency of secondary school in Ondo state, Nigeria. Journal of Education and Social Research.

Adeyemi, T. O. (2008). Teachers Teaching and students learning outcomes in secondary schools in Ondo State, Nigeria. MED Project, Department of Educational Foundation and Management, University of Ado -Ekiti-Nigeria.

Admassie, A. (2003). Child Labor and Schooling in the Context of Subsistence Rural Economy: Can they be Compatible? International Journal of Educational Development, 23 (2): 167- 185.

Akaranga, G .J. (2011). Impact of Subsidized Secondary Educational on Access To Educational Learning Resource in Public Secondary Schools in Butere District. Kenyatta University: Unpublished Thesis.

Akinleye. (2001). Provision and management of facilities for primary education in Nigeria. Ibadan: University of Ibadan.

Alderman, H. (2001). Child Health and School Enrollment: A Longitudinal Analysis. The Journal of Human Resources- XXXVI, 36(1):185-205.

Ananga, E., (2011). Typologies of School Dropout: the Dimensions and Dynamics of Exclusion from Universal Basic Education in Ghana, paper accepted for a CREATE special issue of the International Journal of Educational Development.

Ayieko, A.J. (2011). *Challenges Impacting on Female Students Enrolment and Completion rates in Public Secondary Schools in Nyamusi Division in Ekerenyo District. Kenya.* A research Project paper. Kenyatta University.

Ayiga, N. (1997) *Causes of low Enrolment and High dropout rates in Primary Education in Uganda.* A bridget Research Report.

Beebout, H (1972). *The Production Surface for Academic Achievement*: An economic Study of Malaysia Secondary Education: Phd Dissertation: University of Pearson Education Company.

Bell, J. (1993). *How to complete your research project successfully.* NewDelli UISSPI).

Bell, L.& Rhodes, C. (1996). *The Skills of Primacy School Management*, London: Routledge.

Best, J. & Khan, J. (2003). Research in Education (7th edition), New Delhi Prenticehall: India.

Bishop, G. (1989). Alternative Strategies for Education. Hong Kong: British Library

Borg, W.R. & Gall, M.D. (1989). *Education Research*: An Introduction. 4th ed. New York. Longman.

Boru, K. (2013). Factors Influencing Internal Efficiency in Public Primary Schools of Moyale District Marsabit County.

Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005). Explaining the short careers of high achieving teachers in schools with low-performing students. AEA Papers and Proceedings, 95(2), 166-171.

Chabari, E.B. (2010). *Challenges Facing Effective Implementation of Free Secondary Education in Public secondary schools in Kangundo District, Kenya*. M.Ed Thesis Chuka University College.

Claudia, J. (2001). Improving equality in secondary Education in Latin America, IIEP Newsletter Vol. XIX. No. 4 from www.unesco.org/iiep

Cohen, D., Randenbush, M. & Bush (2003). Growth and human capital: Good data, good results: Journal of Economic Growth. 1(3), 113 – 207.

Connelly, R. & Zheng, Z. (2003). Determinants of school enrolment and completion of 10 To 18 year olds in China. Economics of Education Review, 22 (4): 379-388.

Daily Nation, 26th November 2013. school dropout rate up, says new survey.

Dar, A., Blunch, N.H., Kim, B. & Sasaki, M. (2002). Participation of Children in Schooling And Labor Activities: A Review of Empirical Studies, Social Protection Unit, and Human
Development Network. Washington DC: The World Bank.

Dharam & Dadid, C (1974) *Education, Society and Development* Oxford University Press. Nairobi.

Dooley, D. (2004). Social Research Methods (3rd ed.). India: Prentice Hall.

Earthman, G. I. (2002). School facility conditions and student academic achievement. LOS Angeles University of California's Institute for Democracy, Education and Access.

Education Newspaper, January 17, 2013. Parents Call for scraping of KCPE.

Frankel, J.R.& Wallen, NE (2000). *How to Design and Evaluate Research in Education* McGraw Hill Companies; USA.

Galabawa, J. C. J. (2003). Enhancing Efficiency, Improving Quality and Relevance. Paper Prepared for the Kenya National Conference on Education, at Kenyatta International Conference Centre 27th - 29th November, 2003, Nairobi.

Galabawa, J.CJ. & Mbelle A.V.Y (2002). *Education Sector Public Expenditure Review. Report to the Government of Tanzania* Dar-es-Salaam University Press.

Gay, LR (1993). *Educational Research Competence for Analysis and Application.* Macmillan Publishing Company.

Ghuman, S. (2006). Children's Nutrition, School Quality and Primary School Enrollment in Philippines, Working Paper Series, Volume, 2006-24.

Glenmie, P. & Stern, H.G. (2002) An Economic Analysis of Delayed Primary-school Enrolment in a Low-income Country: The Role of Early Childhood Nutrition. Review of Economics and Statistics, 77: 156-169.

Gottelmann - Duret, Gewin .K. and Caillods .F. (2001). *Science, Education and Development*: Planning and Policy issues at Secondary level. Pans:UNESCO/IIEP, 1997.

Grira, H. (2001). Delayed School Enrolment in Bangladesh: Who Is Responsible, Pantheon Sorbonne University and CNRS, Maison des Sciences Economiques.

Grisay, A & Mahlck (1991). *The quality of Education in developing countries*: A preview of some research studies and policy documents Paris: IIEP.

Hadley, S. (2010). Seasonality and Access to Education: the case of primary education in Sub- Saharan Africa, CREATE Pathways to Access, Research Monograph No. 31, Brighton: University of Sussex.

Hanushek, E. A. (2007). Education Production Functions. Hoover Institution, Stanford University: Washington DC.

Hanushek, E.A. (2002). Evidence, politics, and the class size debate. In L. Mishel & R. Rothstein (Eds.). The class size debate (pp. 37-65). Washington, DC: Economic Policy Institute.

Harris, D. (2002). Identifying optimal class sizes and teacher salaries. In H.M. Levin & P.J. McEwan (Eds.), Cost-effectiveness and educational policy: 2002 yearbook of the American Education Finance Association (pp. 177-191). Larchmont, NY: Eye on Education.

Holsinger, D. & Cowell; R. (2000) *Positioning Secondary – School Education in Developing Countries Paris:* IIEP / UNESCO.

Hoxby, C.M. (2000). The effects of class size on student achievement: New evidence from population variation. The Quarterly Journal of Economics, 115(4), 12391285.

Hoy, C, Bayne-JArdine, C & Wood, M (2000). *Improving Quality in Education.* London Falmer Press.

Hunt, F. (2008). Schooling Citizens: A study of policy in practice in South Africa. Unpublished DPhil thesis. Brighton: University of Sussex.

Hunter, N. & May, J. (2002). Poverty, Shocks and School Disruption Episodes among Adolescents in South Africa, CSDS Working Paper No 35.

Jespen, C., & Rivkin, S. (2002). Class size reduction, teacher quality, and academic achievement in California public elementary schools. San Francisco: Public Policy Institute of California.

Juma, F. (2011).The Relationship Between mode of Teacher Motivation and students Academic performance in Public Secondary Schools in Bungoma North District. Unpublished M.Ed. Project Report, Moi University, Kenya.

Kadzamira, E. and Rose, P. (2003). Can free primary education meet the needs of the poor? Evidence from Malawi, International Journal of Educational Development, 23.501-516.

Kathmandu, T. (2001). Research Center, A study on improvement of internal efficiency of primary school in Nepal (17-34).

Kerlinger, F.N. (2003). Asas-asas penelitian behavioral (3th ed). Yogyakarta: Gajah Mada University Press.

Khanam, R. (2008). Child Labor and School Attendance: Evidence from Bangladesh, International Journal of Social Economics. Vol. 35, Iss:1/2, pp 77-89.

Koang, Y. (2014). Factors affecting internal efficiency of primary schools in Nuer zone, Gambella Regional State. PhD Thesis submitted to Jimma University.

Kombo, D.K. & Tromp, Al. D (2006) *Proposal and Thesis writing*. Paulines Publications Africa. Nairobi.

Kothari, C. R. (2004). Research methods: methods and techniques. New Delhi: New Age International Ltd.

Krejcie, R. V., & Morgan D.W. (1970). Determining Sample size for research activities: *Educational and Psychological measurement.* State: Publisher.

Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher sorting and the plight of urban schools: A descriptive analysis. Educational Evaluation and Policy Analysis, 24(1),37- 62.

Lee, J. W. & Ready, R., (2007). A new data set of educational attainment in the world, 1950 – 2010. National Bureau of Economic Research Working Paper No. 15902, Massachusetts.

Levin, H.M. (1995). Cost Effectiveness Analysis. Oxford: Pergamon.

Lewin, K.M. (2008) Strategies for Sustainable Financing of Secondary Education in Africa.World Bank Working Paper No 136 Africa Human Development Series World Bank Washington.

Lewin, K; Caillod, F. (2001). *Financing Secondary Education in developing counties*: Strategies for sustainable growth; Pans; UNESCO IIEP.

Lisanu, A. (2004). Factors affecting Internal Efficiency of Rural Primary school in Tigray Region. Addis Ababa University: Master Thesis.

Liston, C (1999) *Managing Quality and Standards Buckinghami*: Open University Press.

Lockheed, M., & Hanushek, B. (1987). How textbooks affect achievement in developing countries: evidence from Thailand. Educational Evaluation and Policy Analysis, 18(4).

Lumuli, N. C. (2009). An investigation into Internal Efficiency measures in Promotion of Access and completion Rates in Public Secondary Schools in Bungoma. Unpublished M.Ed. Thesis, Masinde Muliro University of Science and Technology.

Maek, (2003) *Secondary Schools dropout in Kilome Division,* Makueni District.

Mayama, L. & Lumuli, N. C. (2009). Effects of proprietor Interests on Quality of Education in private secondary schools in Bungoma South District in Kenya. Unpublished M.Ed. Thesis, Masinde Muliro University of Science and Technology.

Mbelle, A & Katabaro, J. (2003). *School Enrolment, Performance and Access to Education in Tanzania.* Research Report No. 03.1 Mkuku na Nyota Publishers Ltd. Dar-es-salaam.

Mbelle, A.V. Y (2001). "*Action Programme for the Development of the United Republic of Tanzania 2001 – 2010*" Government submission at the Third UN Conference on LDCs, Brussels.

Michelowa, K. (2003). Determinants of Primary Education Quality: What we learn from PASEC for Francophone Sub-Saharan Africa. Blennale Meeting of Association

for Development of Education in Africa. Grand Baie, Mauritius, December 3rd – 6th , 2003.

Milesi, C., & Gamoran, A. (2006). Effects of class size and instruction on kindergarten achievement. Educational Evaluation and Policy Analysis, 28(4), 287-313.

Ministry of Education (2005). Sessional paper No. 1 of 2005, Policy Framework for Education, Training and Research. Meeting the challenges of Education, Training and Research in Kenya in the 21st Century. Nairobi: Government Press.

MOE, (2012). A *Policy Framework for Education*. Aligning Education and Training to the Constitution of Kenya (2010) and Kenya Vision 2030 and beyond. Draft April, 2012.

MOE, (2012). Basic Requirements for Registration of Educational and Training institutions in the Ministry of Education. Nairobi: Government Press.

MOE, (2013) Mumias District Education Day Report 2013.

Moon, B & Mayes, A.S. (1994). *Teaching and Learning in Secondary Schools* London. Routledge.

Mugenda, O.M. & Mugenda G. (2003) *Research Methods. Quantitative and qualitative Approaches.*

Muindi, M.M. (2011). *Impact of Free Secondary Education on Quality of Secondary Education in Katangi, Yatta District – Machakoes County. Kenya. A Research Proposal Paper.*

Mukudi, E. (2004) the Effects of User-Fee Policy on Attendance Rates among Kenyan Elementary School Children. International Review of Education, 50(5/6): 447-461.

Mulkeen, A.G. (2005). *Teachers for Rural Schools Experiences in Lesotho, Malawi, Mozambique, Tanzania and Uganda;* African Human Development Series, Washington D.C. World Bank.

Muluki, K. N. (2003). A case study of factors that influence performance in KCSE in Private individual secondary schools in Nakuru Municipality, Nakuru.

Munavu, R. M., Ogutu; D.M. & Wasanga, P.M. (2008). *Sustainable Articulation Pathways and Linkages between Upper Secondary and Higher Education in Africa; Paper presented at the Biennale on Education in Africa* Workshop, Maputo, M.O. Zambique.

Murphy, P. and GIPP, C.V (1996). *Equity in the classroom*; Towards Effective Pedagogy for Girls and Boys. London / Washington. Falmer Press.

Mwiria, K. (2004, January 18). Bridging Education Gap: Why KCPE Results from Academies are Deceptive. Daily Nation Nairobi, Nation Media Group. pp. 6-7, Kenya.

Ncube, NJ(2004). *Managing the Quality of Education in Zimbabwe: The Internal Efficiency of Rural Day Secondary Schools.* A Theses – University of South Africa.

Ndambuki, N. (2012). Factors influencing Dropout in Free Day Secondary EducationProgram: A case study of Mbooni West District, Makueni County. Nairobi: Kenyatta University.

Nega, A. (2011). Improving Internal Efficiency in Primary School of Tigray Regional State: Challenges and Prospects. Addis Ababa, Ethiopia.

Ngware. Et.al (2009). *DO Household Characteristics Matter in Schooling decisions in Urban Kenya?* Working paper No. 37 African Population and Health Research Centre, Nairobi Kenya.

Njeru, E. and Orodho, J. (2003). Education financing in Kenya: Secondary School Bursary Scheme Implementation and Challenges, IPAR DP/035 2003. Nairobi: Institute of Policy Analysis and Research.

Nyaga, B.M. (2005). *Effects of Delayed Fees Payments on the Teaching and Learning Process.*

Oduori, A. (2014 June 25). State suspends registration of new schools nation wide. *The standard Newspaper* Pg 4.

Okwach, A. & Odipo (1997). *Efficiency of Primary Education in Kenya Situational Analysis and Implications for Educational Reform.*

Olubor, R.O (2004). A Comparative Analysis of the Internal Efficiency of Public Junior Secondary Education of Two Selected States in Nigeria. Journal of Educational Foundations and Managements (JEFAM), University of Ado Ekiti, Nigeria.

Olwenyi, J. (2011). Mumias Constituency Strategic Plan 2012 – 2016. Krisnel Agencies Mumias.

Ongweya, N.T (2015) Influence of School Based Factors in Internal Efficiency in Provision of Secondary Education in Seme, Kisumu County. Masters thesis Submitted to University of Nairobi.

Onyango, N. (2008). A study of Factors Influencing Girls Participation in Primary Schools; A case Study of Nginyang and Marigat Division of Baringo Distroict. Unpublished M. Ed Thesis, University of Nairobi.

Orodho (2005). *Elements of Education and Social Science Research Methods*. Nairobi. Masola Publishers.

Orodho, A. J. (2009). Elements of Education and Social Science Research Methods. Nairobi: Kanezja Publishers.

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

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

Orodho, J.A. (2002). *Techniques of Writing Research Proposals and Reports in Education and Social Sciences.* Nairobi. Masola Publishers.

Oso, Y.W. & Onen, D. (2008). *A General Guide to Writing Research Proposal and Report.* A handbook for Beginning Researchers Second Edition.

Raw, V. K. (2003). Quality Teaching. New Delhi: APH Publishing Corporation.

Republic of Kenya (2005). Sessional paper No.1 of 2005 on A Policy Framework For Education Training and Research. Nairobi: Government Printer.

Republic of Kenya (2005b). Sessional Paper No 1 of 2005: A policy Frame Work for Education Training and Research (Ministry of Education). Nairobi: Government Press.

Republic of Kenya (2006). Ministry of Education Strategic Plan 2006- 2011. Nairobi: Government Press.

Republic of Kenya (2012b). A Policy Framework for re-aligning education to the Constitution 2010 and Vision 2030 and beyond. Nairobi: Government printer.

Republic of Kenya/UNICEF (2012). Education for All (EFA) End of Decade Assessment (2001-2010). Nairobi: Ministry Of Education and UNICEF.

Rono, J. K. (1990). Factors Influencing the Rate of Drop out Among Primary School Students in Nandi District of Kenya. Unpublished M. Ed Thesis, Kenyatta University, Nairobi Kenya.

Rose, L.C. & Gallup, A.M. (2007). The 39th annual Phi Delta Kappa/Gallup poll of the public's attitudes toward the public schools. Phi Delta Kappan, 89(1), 34-45.

Rose, P. & Al-Samarrai, S. (2001) Household Constraints on Schooling by Gender: Empirical Evidence from Ethiopia.Comparative Education Review, 45(1): 36-63.

Ross, K.N & Malick L. (1990). *Planning the quality of Education: The collection and use of data for informed decision* – making Paris: IIEP.

Sallis, E. (1996). *Total Quality Management in Education.* London: Kogan Page.

Sanothimi, & Bhaktapur, (2001). Study of Internal Efficiency of Primary Education. Nepal.

Smith, B. (2002). Quality Matters. Annual Instructional Time in an Urban System. Educational Administration Quarterly 36. No. 5: 652 – 682

Veriava, F. (2002). *Eradicating Barrier to Education. An Introduction to the education Rights Project,* SA e-publications, Vol. 3 (2) 13 – 15.

Verspoor, A. (2008). *At the crossroads: choices for secondary Education in Sub-Saharan Africa*, Washington DC: World Bank.

Whitaker, P. (1998). *Managing Change in Schools Buckingham: open.* University Press.

Wiersma, W (1995). *Research Methods in Education: An Introduction* London Alyn and Bacon Inc.

World Bank, (2005) E*xpanding Opportunities and Building Competencies for Young People.* A comprehension look at issues and policy options for secondary education in the 21st century.

World Bank, (2007). *Recruiting, Retaining and Retraining Secondary School Teachers and Principals in Sub-Saharan Africa Working Paper* No. 99 Washington, DC: World Bank.

Yadar, K. (2001). Teaching of life science. New Delhi: Anmol Publication Ltd India

APPENDICES

APPENDIX 1: QUESTIONNAIRE FOR TEACHERS AND HEADS OF DEPARTMENTS

Kindly answer the questions below as honestly as possible. This information is for academic research purposes only and will be treated with confidentiality. The study is on; Expansion of public day secondary schools on their internal efficiency. Tick on your choice of answer.

Question **Choice**

1. What is your gender? (i) Male ☐ (ii) Female ☐

2. What is your age? (Indicate)_____ ☐

3. Name of the Department. (i) Languages ☐ (ii) Humanities
(iii) Mathematics ☐ (iv) Science & Applied ☐

4. What is your responsibility? (i) Deputy ☐ (ii) DOS ☐
(iii) HOD ☐ (iv) Teacher ☐

5. What is your highest education / professional level?
(i) PhD ☐ (iv) Masters ☐
(ii) BED ☐ (v) Diploma ☐
(iii) Certificate ☐ (vi) KCSE Level ☐

6. Your teaching experience
(i) Below 5years ☐ (ii) 6- 10 years ☐
(iii) 11-15years ☐ (iv) 16-20ye ☐
☐
(v) 21 years and Above

Objective 2: Effect of expansion of Public Day Secondary School on utilization of selected physical facilities (Library and laboratory).

Tick (√) against the column of your choice per the statement given.

	Statement	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
7	Our school has a functional library				
8	Students utilize the school library adquately.				
9	Teachers utilize the library adequately				
10	Increased school enrolment of students has strained library utilization				
11	Our school has adequate laboratories				
12	The school laboratories/laboratory are/is adequately equipped				
13	Students adequately utilize the laboratories				
14	Science teachers adequately utilize laboratories for practical lessons				
15	Increased enrolment of students has strained laboratory utilization				

16. What is your teaching work load per week?

(i) ☐ 5 lessons and below ☐ (ii) 6 -10 lessons

(iii) 11-15 lessons ☐ (iv) 16-20 lessons ☐

(v) 21-27 lessons ☐ (vi) 28 lessons and Above ☐

Tick (√) against the columns of your choice per the statement given.

	Statement	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
17	There are adequate school text books per subject in the school library				
18	The school library is adequately equiped with facilities i.e. chairs, tables, shelves				
19	The school has a qualified librarian				
20	The school has a qualified laboratory technician				
21	Students are evaluated regulary (monthly)				

22	Our school provide quality education to students				
23	The school KCSE performance has been on upward trend for the last five years				

24. (a) Give your subjects mean scores for the last five years

YEAR	**SUBJECT I _____**	**SUBJECT II_____**
2014		
2013		
2012		
2011		
2010		

(b) Give reasons for trends in performance.

_____

_____

_____

25. Does increase in the number of public day secondary schools compromise the quality of education offered? Yes ☐ No ☐ (tick). Give reasons.

_____

_____

_____

26. Does increase in the number of streams due to increased enrolment compromise on the quality of education offered? Yes ☐ No ☐ (tick). Give reasons.

_____

_____

_____

Thank you.

APPENDIX II: QUESTIONNAIRE FOR STUDENTS

Kindly answer the questions below as honestly as possible. This information is for academic research purposes only and will be treated with confidentiality. Put a tick on your choice column or box.

Question		**Choice**
1. What is your gender?	(i) Male ☐	(ii) Female ☐
2. What is your class?	(i) Form 3 ☐	(ii) Form 4 ☐
3. What is your age_____		

Objective 1: Trends in Enrolment between 2010 – 2015 in Public Day Secondary School in Mumias Sub-county.

Tick (√) against the columns of your choice of answer given.

	Question	**Frequently**	**Rarely**	**Never**
4	How often are you sent home for fees?			

Tick (√) against the column of your choice per statement given.

	Question	**Strongly agree**	**Agree**	**Disagree**	**Strongly Disagree**
5	Students who perform poorly in our school are forced to repeat.				
6	Students who perform poorly in our school are requested to join other schools				
7	My parent/guardian pay fees on time				
8	Most Students in our school are supported through bursary fees				
9	Many students from neighbouring schools join our school because of good academic Performance				
10	Parents influenced my joining to this school				
11	My home is more than 2 km away from school.				

12. How many students are there in your class? _____

Objective 2: Effect of Expansion of PDSS on utilization of selected physical facilities (library and Laboratory

Tick (√) against the column of your choice per statement given.

	Statement	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
13	Students adequately utilize our school laboratories.				
14	Students adequately utilize the school library				

15. Does the number cause strain on use of facilities i.e. textbooks laboratory and library?

Yes ☐ No ☐ (tick).

Give reasons_____

_____

_____

Objective 3: Effect of Expansion of PDSS on quality of Education offered.

Tick (√) against the column of your choice of answer given.

	Question	**Frequently**	**Rarely**	**Never**
16	How often do you visit the school library?			
17	How often do you perform chemistry practicals in the school laboratory?			
18	How often do you perform physics practicals in the school laboratory?			
19	How often do you perform biology practicals in the school laboratory?			
20	How often do you sit for evaluation tests?			

Tick (√) against the column of your choice per the statement given.

	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
21	There are adequate school text books in all subjects in the library				
22	There are adequate facilities in the school laboratory				
23	Parents contribute towards school programmes e.g. prize giving, book harvest				

Thank you.

APPENDIX II: PRINCIPAL'S QUESTIONNAIRE

Kindly answer the questions below as honestly as possible. This information is for academic research purposes only and will be treated with confidentiality. The study is on Expansion of Public day secondary schools on their internal efficiency. Put a tick on your choice of answer and fill data in the tables provided.

1 What is your gender? (i) Male ☐ (ii) Female ☐

2 What is your age? (indicate) _____

3 What is the category of your school? (i) Boys ☐ (ii) Girls ☐ (iii) Mixed ☐

4 When was the school established? _____

5 Who proposed its establishment? (i) Church ☐ (ii) Community ☐ (iii) Politician ☐ (iv) Others (Specify) _

6 What were the reasons for its establishment?

_____

_____

Objective 1: Trends in Enrolment between 2010 – 2015 in PDSS in Mumias Sub-County

7 How many neighbouring PDSS are within a distance of 2 km? (Tick appropriate)

(i) None ☐ (ii) One ☐

(ii) Two ☐ (iii) Three ☐

(iii) Over three ☐

8 Give the school status (Number of streams) as per registration certificate

_____

_____

9 Give the number of streams per class for the last five years (2010 – 2014)

YEARS	NO. OF STREAMS				
	FORM 1	FORM 2	FORM 3	FORM 4	TOTAL
2010					
2011					
2012					
2013					
2014					
Total					

Comment on the trends _____

_____

_____

10 What is overall enrolment per year for the last five years?

YEAR	F1	F2	F3	F4	TOTAL
2010					
2011					
2012					
2013					
2014					
2015					

Give reasons for the above trends _____

_____

_____

_____

Objective 2: Effect of Expansion of PDSS on utilization of selected physical facilities (Library and Laboratory)

Tick (√) against the column of your choice per the statement given.

	Statement	Strongly agree	Agree	Disagree	Strongly Disagree
11	The school has a functional school library				
12	Students adequately utilize the library				

13	Teachers adequately utilize the library				
14	The school has a functional twin laboratory				
15	School laboratories are adequately utilized				

Objective 3: Effect of Expansion of PDSS on quality of Education offered.

Tick (√) against the column of your choice per that statement given.

	Statement	**Strongly agree**	**Agree**	**Disagree**	**Strongly Disagree**
16	There is high CBE in compulsory subjects				
17	There is high CBE in optional subjects				
18	The school employs BOM teachers				
19	The school offer quality education to students				
20	Establishment of more PDSS compromises quality of education offered.				
21	KCSE performance has been on upward trend for the last five years.				

22. How many teachers do you have in the following subjects. (Give data on the subjects you offer only)

SUBJECT	**TSC employed**	**BOM employed**
English		
Kiswahili		
Mathematics		
Biology		
Physics		
Chemistry		
History		
Geography		
CRE		

Agriculture		
Business studies		
Computer Studies		
Art & Design		
Home Science		
Woodwork		
Total		

23. What is the average student enrolment in optional subjects in Form 3 and 4 for the last five years?

SUBJECT	**ENROLMENT**
PHYSICS	
HISTORY	
GEOGRAPHY	
CRE	
AGRICULTURE	
BUSINESS STUDIES	

Give reasons for the trends _____

_____

_____

24. Give the number of teachers with the following qualification in your school.

QUALIFICATION	**NUMBER**
Ph.d	
Masters	
Degree B.ed	
Diploma	
University students	
KCSE leavers	

25. Give the school KCSE mean for the last five years.

Year	**Mean scores**	**Deviation**
2010		
2011		
2012		
2013		
2014		

Give reasons for the trends _____

_____

_____

Thank you.

APPENDIX III: INTERVIEW SCHEDULE FOR SUB-COUNTY DIRECTOR OF EDUCATION

Objective 1: Trends in Enrolment between 2010 – 2015 in PDSS in Mumias as sub-county

1. What is the impact of the introduction of SDSE on student's enrolment in public day secondary schools in Mumias District?

   _____

   _____

   _____

2. Should expansion of public day secondary school be encouraged in Mumias Sub-county? Give reasons.

   _____

   _____

Objective 2: Effect of Expansion of PDSS on utilization of selected physical facilities (Library and Laboratory)

3. What are your views on the adequacy of library and laboratory in public day secondary schools in Mumias Sub-county?

   _____

   _____

   _____

4. How has the implementation of SDSE affected adequacy of library and laboratory facilities in public day secondary schools?

   _____

   _____

   _____

5. How has the adequacy of library and laboratory impacted on the quality of education in the pubic day secondary schools?

_____

_____

_____

6. What are the positive and negative effects of the expansion of public day secondary schools in the district?

_____

_____

_____

Objective 3: Effect of Expansion of PDSS on Quality of Education Offered.

7. What are your views on the adequacy of teachers in the pubic day secondary schools as compared to the period before SDSE?

_____

_____

_____

8. What impact has the staffing levels have on quality of education in the public day secondary schools?

_____

_____

_____

9. What are your views on the adequacy of teaching / learning resources e.g. textbooks in public day secondary schools in the district?

_____

_____

_____

10. How has the implementation of SDSE affected adequacy of teaching / learning resource in public day secondary schools in the district?

_____

_____

_____

11. How has adequacy of teaching / learning resources impacted on the quality of education in the public day secondary schools in the district?

    _____

    _____

12. How supportive are parents and other stakeholders to pubic day secondary schools since introduction of free day secondary education?

    _____

    _____

13. What are your views on the adequacy of funds allocated to public day secondary schools by the government per student?

    _____

    _____

14. What proposals would you make for improvement of quality education in public day secondary schools in Mumias sub-county?

    _____

    _____

Thank you.

APPENDIX IV: APPROVAL LETTER

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: sgs@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Office of the Dean (School of Graduate Studies)

Ref: MMU/COR: 509079

Date: 28th May 2015

Rothe Imbahala Wakhisi
EPM/G/17/12
P.O. Box 190-50100
KAKAMEGA

Dear Mr. Wakhisi,

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Senate of Masinde Muliro University of Science and Technology acting on the advice of the Board of the School of Graduate Studies approved your proposal entitled: '***Effect of Expansion of Public Day Secondary Schools on Internal Efficiency in Mumias Sub-County, Kenya***" and appointed the following as supervisors:

1. Prof. Stephen Odebero
2. Dr. Jason Nganyi

You will be required to submit through your supervisor(s) progress reports every three months to the Dean SGS. Such reports should be copied to the following: Chairman, Faculty of Education and Social Sciences Graduate Studies Committee and Chairman, Educational Planning and Management.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your Masters thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

I once more congratulate you for the approval of your proposal and wish you a successful research.

Yours Sincerely,

DEAN
SCHOOL OF GRADUATE STUDIES
MASINDE MULIRO UNIVERSITY
OF SCIENCE & TECHNOLOGY

Prof. Peter Odera
AG. DEAN, SCHOOL OF GRADUATE STUDIES

Copy to: Deputy Vice Chancellor (A&SA)
- Registrar (AA)
- Dean, FESS
- COD, EPM.

APPENDIX V: RESEARCH AUTHORIZATION

0

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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

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

Ref: No. NACOSTI/P/15/61504/8354

Date: 23rd November, 2015

Rothe Imbahala Wakhisi
Masinde Muliro University of
Science and Technology
P.O. Box 190-50100
KAKAMEGA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Effects of expansion of public day secondary schools on internal efficiency in Mumias Sub-County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Kakamega County** for a period ending **11th November, 2016.**

You are advised to report to **the County Commissioner and the County Director of Education, Kakamega 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.

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

Copy to:

The County Commissioner
Kakamega County.

The County Director of Education
Kakamega County.

APPENDIX VI: RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MR. ROTHE IMBAHALA WAKHISI
of MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY, 0-50100 KAKAMEGA,has been permitted to conduct research in *Kakamega County*

on the topic: *EFFECTS OF EXPANSION OF PUBLIC DAY SECONDARY SCHOOLS ON INTERNAL EFFICIENCY IN MUMIAS SUB-COUNTY, KENYA*

for the period ending:
11th November,2016

Applicant's Signature

Permit No : NACOSTI/P/15/61504/8354
Date Of Issue : 23rd November,2015
Fee Recieved :Ksh 1,000

Director General
National Commission for Science, Technology & Innovation

CONDITIONS

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

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 7296

CONDITIONS: see back page

APPENDIX VII: COUNTY RESEARCH AUTHORIZATION

REPUBLIC OF KENYA

THE PRESIDENCY

MINISTRY OF INTERIOR & CO-ORDINATION OF NATIONAL GOVERNMENT

Telegrams
Telephone: 056-31131
Fax-056-31133
Email-cckakamega12@yahoo.com

When replying please quote

REF: ED.12/1/VOL.II/48

COUNTY COMMISSIONER
KAKAMEGA COUNTY
P.O BOX 43-50100
KAKAMEGA

DATE: 6TH JANUARY, 2016

ROTHE I. WAKHISI
MMUST
P.O. BOX 190 - 50100
KAKAMEGA

RE: RESEARCH AUTHORIZATION

Following your authorization vide letter Ref: NACOSTI/P/15/61504/8354 dated 23rd November, 2016 by National Commission of Science, Technology and Innovation to undertake research on "***Effects of expansion of public day secondary schools on internal efficiency in Mumias Sub-County, Kenya,***" for a period ending 11th November, 2016.

Iam pleased to inform you that you have been authorized to carry out the research on the same.

W. OMOLLO
FOR: COUNTY COMMISSIONER
KAKAMEGA COUNTY

COUNTY COMMISSIONER – KAKAMEGA Page 1

APPENDIX VIII: COUNTY RESEARCH AUTHORIZATION

MINISTRY OF EDUCATION SCIENCE & TECHNOLOGY

Telephone: 056 - 30411
FAX : 056 – 31307
E-mail : wespropde@yahoo.com
When replying please quote.

COUNTY DIRECTOR OF EDUCATION
KAKAMEGA COUNTY
P. O. BOX 137 - 50100
KAKAMEGA

STATE DEPARTMENT OF EDUCATION

REF:WP/GA/29/17/VOL.III/ 30 **6th January, 2016**

Rothe Imbahala Wakhisi
Masinde Muliro University of Science & Te chnology
P. O. Box 190 – 50100
KAKAMEGA

RE: RESEARCH AUTHORIZATION

The above has been granted permission By National Commission for Science, Technology and Innovation vide their letter Ref: NACOSTI/P//15/61504/8354 dated **23rd November, 2015** to carry out research on "**Effects of expansion of public day secondary schools on internal efficiency in Mumias Sub – County, Kakamega County Kenya**", for a period ending 11th November, 2016

Please accord him any necessary assistance he may require.

MURERWA S. K.
COUNTY DIRECTOR OF EDUCATION
KAKAMEGA COUNTY

APPENDIX IX: MOEST RESEARCH AUTHORIZATION

MINISTRY OF EDUCATION, SCIENCE & TECHNOLOGY

Telegram:.....
When replying please quote
Email: deomumias@gmail.com

DISTRICT EDUCATION OFFICE,
MUMIAS DISTRICT
P. O. BOX 352 - 50102,
MUMIAS.

STATE DEPARTMENT OF EDUCATION

REF: MMS/EDU/ 7/32/103 Date: 12 January, 2016

All Principals
Secondary Schools
MUMIAS DISTRICT

RE: RESARCH AUTHORIZATION
ROTHE IMBAHALA WAKHISI

The above named is a student at Masinde Muliro University of Science and Technology; he has been granted permission by National Commission for Science, Technology and Innovation vide letter **Ref: NACOSTI/P/15/61504/8354** dated **23rd November,2015** to carry out research on **Effeects of expansion of public day secondary schools on internal efficiency in Mumias Sub-County, Kakamega County Kenya,** for a period ending 11th November, 2016.

This is therefore to kindly request you to accord him the necessary cooperation in the course of his research work to enable him come out successfully.

Thank you for your continued support.

DISTRICT EDUCATION OFFICER
MUMIAS DISTRICT
P.O. Box 352,
MUMIAS - 50102

Mukabi Thomas
SUB-CONTY DIRECTOR OF EDUCATION
MUMIAS DISTRICT

C.C.

The County Comissioner
KAKAMEGA COUNTY

The County Director of Education
KAKAMEGA COUNTY