

**INFLUENCE OF SCHOOL BASED FACTORS ON INTERNAL
EFFICIENCY IN PROVISION OF SECONDARY EDUCATION IN
SEME, KISUMU COUNTY, KENYA**

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DECLARATION

This research project is my original work and has not been presented for award of a degree in any other university.

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DEDICATION

I dedicate this research to my father Peter Nyanya Oyuga, mother Judith Anyango Nyanya, and my wife Jane Thomas.

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I would like to thank the Almighty God for granting me strength, good health, and financial breakthrough to undertake this course. I am also very much thankful to the University of Nairobi for giving me an opportunity to pursue my masters' degree in the institution; I thank all my lecturers who taught me during the course period. I sincerely acknowledge the guidance and help I received from my supervisors: Dr. Rose N. Obae and Mr. Ferdinand Mbeche. May the Almighty God bless you.

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ABBREVIATIONS AND ACRONYMS

BOM	Board of Management
FPE	Free Primary Education
FSE	Free Secondary Education
KCSE	Kenya Certificate of Secondary Education
KESSP	Kenya Education Sector Strengthening Program
KIPPRA	Kenya Institute of Public Policy Analysis
KNEC	Kenya National Examinations Council
MDGs	Millennium Development Goals
NIER	National Institute for Education Research
PPMCC	Pearson Product – Moment Correlation Coefficient
SPSS	Statistical Package for Social Sciences
UNESCO	United Nations Scientific and Cultural Organization

ABSTRACT

A study was carried out on the influence of school-based factors on internal efficiency in provision of secondary education in Seme, Kisumu County, Kenya. The objectives of the study included: To determine the relationship between teachers' academic level of training and internal efficiency in the provision of secondary education in Seme, Kisumu County. To assess how provision of teaching and learning material resources affect internal efficiency in the provision of secondary education in Seme, Kisumu County, and finally to assess how provision of adequate physical facilities affects internal efficiency in provision of secondary education in Seme, Kisumu County. The main purpose of the study was to assess how school based factors affect internal efficiency in the provision of secondary education in Seme, Kisumu County. The design employed in this study was descriptive Survey. The researcher targeted 26 secondary schools in Seme sub-county, Kisumu County. Stratified random sampling was used for this study. The researcher grouped the target population into relatively homogenous sub-groups thereafter; random sampling was applied within the stratum. Simple random sampling ensured that there was no biasness in the study. The findings were analyzed by the use of SPSS and interpreted. A summary of the findings was then done. Some of the school-based factors that affect internal efficiency of schools in the provision of secondary education were found to be teachers' academic level of training, teachers' professional level of training, availability, or unavailability of teaching and learning materials, and the status of the school physical facilities. Since the study was carried out only in Seme Sub-County, there is need to do similar studies in other sub counties to establish if the findings would be the same. The researcher recommends that all teachers be trained and they be taken for more in service training to boost on their professionalism. The researcher further recommends that the education stakeholders ensure that teaching/ learning materials and school physical facilities are availed sufficiently in all secondary schools to improve the internal efficiency of secondary schools in the provision of secondary education.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Education is a basic human right enshrined in the United Nations bill of rights. The right to education is recognized in the constitution of Kenya. Education reform efforts in less industrialized countries aim at making education an effective vehicle for national development. Education also makes positive contribution in controlling and shaping of environment and its degradation. Governments, policy makers, and civil society have emphasized that developing countries need to invest more in education and ensure that systems of education are managed efficiently, that limited national resources allocated to the education sector yield maximum impact, and that cost-recovery measures are adopted (Government of Kenya, 1996; 1997; UNESCO, 1996; World Bank, 1996).

Globally, education is still the most vital way of developing the society throughout the developing world (Aikman & Unterhalter, 2005). Education performance has great impact and contribution to the area of human resource development of any nation (World Bank, 2005; UNESCO, 2007; UNICEF, 2008). The main goal of education is to prepare individuals for the job markets by transmitting knowledge, skills, attitudes, and cultural norms from the adult world to the younger world (Graffin, 1998; Ellis, 2006).

The 2007 UNESCO and UNICEF report addressed two interrelated rights that should be addressed to attain Education for All (EFA). They include right to access quality education and respect within the education environment.

The report had it that the barriers to EFA are among others: inadequate trained teachers, insufficient teaching-learning material resources, and inadequate physical facilities among others. A teacher's years of service and level of training influence the quality of teaching thus is correlated to student academic achievements (Gimbert, Bol & Wallace, 2007).

Luke (1999) found that school environment was the major determinant of efficiency in schools and hence students' performance. However, he did not single out the various components of school environment. The education goals of Kenya's Vision 2030 are to provide globally competitive quality education, training, and research to her citizens for development and enhanced individual well - being. This can be achieved by improving internal efficiency in provision of education so that the input into the education system yields maximum output in terms of good grades, high completion rates, and low repetition rates.

The introduction and implementation of Free Primary Education, (FPE) as a means of meeting Universal Primary Education (UPE), the second of the eight Millennium Development Goals (MDGs), led to high demand for secondary education. The Free Secondary Education (FSE) program was then introduced in the year 2008 as stipulated in KESSP to raise student enrolment rate in

secondary schools. Education performance in most developing countries is challenged by a crisis of high dropout and low performance (UNESCO, 2007). The World Bank (2007) education report for African countries, show that performance in Tanzania and Uganda were very low, although a lot has been done on enrolments and access to secondary schools.

There is high level of dropout, repetition, and low pass rate in the national examinations in Kenya as a nation and Seme sub county in particular. Gathigah (2010), the dropout rate of secondary students in Kenya has gone up despite the FSE. The 2013 KCSE analysis by KNEC, not even a single secondary school in Seme Sub- County, Kisumu County was ranked as a highly performing school (Kenya National Examinations Council, 2013). The mean score for Seme was only 4.8525 as shown in table one below.

Table 1: 2013 K.C.S.E examination results- of Seme sub county secondary schools.

Grade	Frequency	Percent
A	0	0.00
A-	6	0.43
B+	31	2.21
B	72	5.14
B-	113	8.07
C+	162	11.57
C	211	15.07
C-	251	17.93
D+	243	17.36
D	224	16.00
D-	89	6.36
E	4	0.29
X	0	0.00
Y	5	037
TOTAL	1400	100

In the year 2013, only forty two percent obtained C (plain) and above in Seme. Those who scored C- (minus) and below constituted fifty eight percent of the candidates who sat for KCSE in 2013 in Seme. It clearly follows that in 2013, many graduates from the secondary schools in Seme did not obtain grades that could allow them join formal training institutions. This could be because of school-based factors, which influence the provision of secondary education in Seme Sub County.

1.2 Statement of the problem

Through the FSE program, the government of Kenya invests resources into the secondary education sector to ensure that children from poor households acquire quality education that enables them to access opportunities for self-advancement and become productive members of society. The expectation of the FSE initiative was and still is to see students go through secondary education smoothly and successfully. There should be low dropout rate, low repetition rates, high pass rate, high transition rate, and high completion rate.

The DEO Seme statistics (2014), the dropout rate in Seme for the year 2013/2014 was 57%. This is very high. Performance in KCSE examinations has been very low in Seme with many students getting grade C- (minus) and below. Students' absenteeism rate is high in Seme. The county government of Kisumu has attempted to avert this trend by acquiring buses for a number of schools, giving bursaries to students and even constructing classrooms in some schools. However, the input into secondary education in Seme, Kisumu

County does not still match the output thus rendering the schools inefficient in terms of provision of secondary education.

1.3 Purpose of the study

The purpose of the study was to assess the influence of school-based factors on internal efficiency in provision of secondary education in Seme, Kisumu County, Kenya.

1.4 Research objectives

The objectives of the study were as follows:

1. To determine the extent to which teachers' academic levels influence internal efficiency in the provision of secondary education in Seme, Kisumu County.
2. To determine the extent to which teachers' professional levels of training influence internal efficiency in the provision of secondary education in Seme, Kisumu County.
3. To assess the extent to which provision of teaching and learning material resources influence internal efficiency in the provision of secondary education in Seme, Kisumu County.
4. To establish the extent to which provision of adequate physical facilities influence internal efficiency in provision of secondary education in Seme, Kisumu County.

1.5 Research questions

The following were the research questions:

1. To what extent did the teachers' academic level Influence internal efficiency in the provision of secondary education in Seme, Kisumu County?
2. To what extent did teachers' professional levels of training influence internal efficiency the provision of secondary education in Seme, Kisumu County?
3. To what extent did provision of teaching and learning material resources influence internal efficiency in the provision of secondary education in Seme, Kisumu County?
4. To what extent did provision of physical facilities influence internal efficiency in provision of secondary education in Seme, Kisumu County?

1.6 Significance of the study

The findings may enlighten the Boards of Management (BOM) of various secondary schools on the status of the existing physical facilities in their schools and how this affects internal efficiency. The schools BOM may use the research findings to form policies and initiate the construction of school facilities. It may further enlighten the BOM on the need to ensure that there are adequate teaching and learning resources in their schools.

The findings of the study may be used by curriculum developers to ensure that teaching and learning materials recommended for secondary schools are those that are readily available and those that positively help to promote learning and hence improve KCSE performance in the country. The study may help teachers appreciate the importance of further training, the teaching and learning resources and physical facilities in the teaching and learning process. The finding may be of great help to the educational planners in determining what school based factors to invest in so as to harvest maximum output from the secondary schools. Through the research findings, the educational planners will be able to form educational policies that can help in the elimination of wastages in the secondary education sector.

The findings may be of great help to the school principals and school managers in ensuring that there are sufficient teaching and learning resources, physical facilities, and well trained teachers for better performance of the school. The findings will also be very significant to the learners as they will be able to appreciate the importance of the available teaching and learning resources, the school facilities, and even the services offered by their teachers. This will help the students to have better performance, low dropout rates, low repetition and high completion rates.

1.7 Limitations of the study

The students whose achievement scores were used in this study had left school. They were not part of the respondents. The researcher used the form four students as the respondents since they have stayed the longest time in school. Another limitation was that it was not possible to get information from the school dropouts, as tracing them required considerable time and resources. The next limitation was inaccessibility of some schools due to poor roads leading to these schools, and extreme weather conditions. The distance between the schools were very long. This limitation was addressed by clustering the sampled schools so that schools that were close were handled same day before moving to the next group of schools.

1.8 Delimitations of the study

The study was carried out in Seme, Kisumu County. Having worked in Seme for five years and observed internal inefficiency of secondary schools in the provision of secondary education, the researcher therefore chose to study the school-based factors that influence internal efficiency of secondary schools in the provision of secondary education in Seme Sub County. The researcher mainly concentrated on the influence of teachers' academic and professional levels of training, teaching, and learning materials, and physical facilities on internal efficiency in the provision of secondary education in Seme Sub-County, Kisumu County, Kenya. The 2015 form four candidates were targeted for this study. Other groups who participated in the research are the teachers from the sampled schools.

1.9 Basic assumptions of the study

The following assumptions were made:

- i) The factors under investigation are important in explaining internal efficiency in the provision of secondary education in Seme Sub County.
- ii) All respondents would be cooperative and provide reliable information.

1.10 Definitions of significant terms

Completion rate refers to the ratio of students who successfully complete form four compared to the number of the same group who enrolled in form one four years earlier.

Dropout rate refers to the ratio of students who withdraw from school before completing the secondary cycle before terminal point against the number of students in the grade from which they are drawn.

Internal efficiency refers to the ability of an education system to turnout its graduates at any level in the most efficient way, without wastage, stagnation or repetition. An education system is internally efficient if maximum output is obtained from a given minimum input

Pass rate refers to the proportion of students completing the four-year secondary school course with at least a mean grade of C.

Repetition rate refers to students who repeat the same grade in a subsequent year divided by the number of students in the same grade in the previous year.

School physical facilities refer to the infrastructural facilities such as classrooms, laboratories, libraries, school hall, staff room, offices, toilets and latrines, and dormitories.

School – based factors refer to factors emanating from schools that affect schools' internal efficiency in the provision of secondary education.

Teaching and learning resources refer to the equipment that teachers use in the course of their teaching such as textbooks, chalk, duster, charts, chemicals, and other laboratory equipment.

1.11 Organization of the study

This study is organized in five chapters. Chapter one is the introduction, which consists of the background to the study, statement of the problem, purpose of the study, research objectives, research questions, significance of the study, limitations of the study, delimitations of the study, basic assumptions of the study and definitions of significant terms and organization of the study. Chapter two deals with the related literature reviewed. This section includes: the concept of internal efficiency, effect of teachers' academic and professional level of training on internal efficiency, effect of teaching and learning resources on internal efficiency in the provision of secondary education, effect of physical facilities on internal efficiency in the provision of secondary education, summary of the related literature reviewed, theoretical framework and finally the conceptual framework.

Chapter three comprises of research methodology with the research design, the target population, the sample size and sampling procedure, research instruments, validity of the instruments, reliability of the instruments, data collection procedures, data analysis techniques and ethical considerations. Chapter four consists of data analysis, presentation and discussion. Chapter five includes the summary of the study, conclusion, recommendations and suggestions for further research.

CHAPTER TWO

RELATED LITERATURE REVIEWED

2.1 Introduction

This section presents related literature reviewed. It consists of: the concept of internal efficiency; effect of Teachers' academic and professional levels of training on internal efficiency in provision of secondary education; effect of provision of teaching and learning material resources on internal efficiency in provision of secondary education; effect of physical facilities on internal efficiency in the provision of secondary education. The theoretical and conceptual frameworks of the study will be discussed.

2.2 The concept of internal efficiency

Economists (Blaug, 1970; Brimer & Pauli, 1971) first discussed the concept of efficiency in education. Efficiency is the optimal relation between inputs and outputs. An internally efficient educational system is one that turns out graduates without wasting any student-year or without dropouts or repeaters. Padmanabhan (2001), internal efficiency refers to the number of students who pass from one grade to the other and complete that cycle within the stipulated period.

Psacharopoulos (1980) defined internal efficiency of an education system as "the ability of an education system to turnout its graduates at any level in the most efficient way, without wastage, stagnation or repetition". An education system is internally efficient if maximum outputs are obtained from a given minimum input.

In this study, the researcher considered completion rates, repetition rates, dropout rates and performance in KCSE examinations (grades obtained by graduates from the system), availability of Teaching/learning resources and physical facilities as the pointers to internal efficiency of the respective schools. Unequal distribution and hence consumption of education is caused by unbalanced distribution and unavailability of resources both material and human resources in our secondary schools.

2.3 The School based factors affecting internal efficiency in the provision of secondary education

Different scholars have identified different school based factors that contribute to efficiency or inefficiency in secondary schools. These factors can dictate the pass rates, dropout rate, repetition rate and completion rate in secondary schools. Robert (2005), efficiency is a multidimensional concept. No one factor can justify its attainability. The Education for All (EFA) Report (2001) observes that the primary level education in Kenya is characterized by high wastage in terms of repetition and dropout. Ngau (1999), notes that multiple repetition results to frustration of the students who in turn feel embarrassed to remain in the same form and cause the students to drop out. In this study therefore the researcher will be limited to find out a few school based factors and their influence on internal efficiency of secondary schools in the provision of secondary education. These factors are; teachers' academic level, teachers' professional level of training, teaching and learning material resources and the school physical facilities.

2.3.1 Teachers' academic and professional levels of training on internal efficiency in provision of secondary education

Teachers' level of training can be looked at in terms of teacher's academic and training levels, teaching experience, and job performance. Darling – Hammond (1998), defines a well-trained teacher as one who is fully certified and holds the equivalent of a major in the major subjects taught. The level of performance, both academic and non-academic performance, in any learning institution is connected to the level of training of its teachers. Looking at Nigeria, though the issue of student's performance in relation to the teacher's level of training, characteristics and competence has remained a contested issue, there is a wide gap between the demand and supply of trained teachers in Nigeria (Eruh, 2013). This has opened up educational institutions in Nigeria to teachers with no required academic and professional training.

Kenya has the same case as Nigeria. We have form four leavers teaching in secondary schools. They lack academic and professional training and experience to handle learners. Eshiwani et al (1988) established that the level of education of a teacher matters in school performance in examinations. Onguti (1987) noted that a well-trained teacher is a resource to the school. However, Onguti (1987) failed to justify whether it was only teacher level of training that affected efficiency in teaching and hence student performance in KCSE examinations. He recommended a further study to justify or confirm his findings. Muluki (2003) in his study on factors that influence performance in

KCSE in private individual secondary schools in Nakuru noted that professional training of teachers is important in improving the quality of teaching techniques (skills).

On teachers' experience, Gibbons et al., (1997) established that teachers' experience and student achievement were directly related since the teachers have mastered the content and acquired classroom management skills to deal with different kinds of classroom problems. Adeyemi (2008) said that teacher experience and competence were the prime predictors of student's performance in all subjects in secondary schools in Ondo State, Nigeria. The interest of the researcher will be to establish whether this is the same case in Seme Sub- County, Kisumu County in Kenya. The findings of Kaur (2004) stated that in Singapore the problem of teaching Mathematics needed properly trained teachers/educators and recommended that the Ministry of Education equip mathematics teachers with necessary skills through in – service courses. Kenya in response to trained teacher demand, expanded her training of secondary school teachers between the years 2005 – 2009 (Republic of Kenya, 2010) Low academic performance in Seme school tend to suggest that there is a gap in the demand versus supply of qualified and experienced teachers. The researcher will thus set out to establish what the case is on the ground.

2.3.2 Teaching and learning material resources and internal efficiency in provision of secondary education

Ngaroga (2007), talks of teaching and learning materials as those things, which are accessed in the school environment, collected, 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 availability of resources such as textbooks, desks, and blackboards had been found to have an impact on pupils' participation in education. They provide easy access during teaching and learning process. Kenya undergoes through the same dilemma.

Kenyan schools are not equally supplied with the material resources though the government of Kenya, through the FSE program, gives the students in public schools equal amount of money. Eshiwani (1981), observes that sharing of books lowers the morale and interest among students. This can lead to non-completion of education program or poor performance leading to repletion of classes. Murald (1998), supports this view by pointing out inadequate teaching and learning aids, lack of teacher system and gender insensitivity, classroom dynamics can work against a student.

Teaching and learning resources form a focal point of attention, arouse interest, stimulate the learners' imagination, save time and energy, and promote retention and good memory. Some sub -county do not perform well generally in the KCSE examinations. Basing on the status of inefficiency, the researcher is set to study the effect of provision of teaching/learning material resources on internal efficiency in provision of secondary education in Some sub – county, Kenya.

2.3.3 Physical facilities and internal efficiency in the provision of secondary education.

The actualization of the educational goals and objectives calls for the provision, maximum utilization and appropriate management of the facilities which improve the quality of teaching and learning and hence internal efficiency of schools in the provision of secondary education.

Lumuli (2009), points out that provision of adequate learning facilities at all levels including equipment and human resources enhance the quality and relevance of imparted skills to learners. Teaching and learning processes do not take place in a vacuum but rather in an environment well structured to facilitate learning.

Stoner, Freeman and Gilbert (1996), described the environment of an organization as all elements relevant to its operation and they include direct and indirect action elements. Several studies conducted in other parts of the country have shown that there is a direct relationship between the qualities of school facilities available and the school products. Studies have also shown that a close relationship exists between the physical environment and the academic performance of students. School facilities consist of all the building in the schools for both academic and non-academic activities, equipment for academic and non-academic activities, areas for sports and games, landscape, farms and gardens including trees, roads, and paths.

Other physical facilities include furniture and toilet facilities, lighting, acoustics, storage facilities, ICT, food services, special facilities for the physically challenged people. Eshiwani (1993), factors responsible for poor performance are related to physical facilities such as classrooms, toilets,

dormitories, libraries, dining halls, textbooks and learning aids such as overhead projectors.

Wamahiu (1995), adds that learning occurs more easily when order prevails, facilities are clean and are in good repair, and the materials are adequate. These facilities play a role in satisfying the physical and emotional needs of the staff and students of the school.

Earthman (2002), reporting on California, stated that comfortable classroom temperature and smaller classes enhance teachers' effectiveness and provide opportunities for students to receive more individual attention, ask more questions, participate more fully in discussions, reduce discipline problems and perform better than students in schools with substandard buildings by several percentage points. The total development of the learners in the cognitive, affective, and psychomotor domains can only take place in an environment that is conducive to teaching and learning. Where the school is located determines the academic standard of the schools. Secondary schools' environment should stimulate, motivate, and reinforce students' regular attendance in school.

Investing in educational facilities is the key to ensuring that schools become institutions where students work together, learn from each other and benefit from a supportive school environment, and consequently maximize student learning so that all students achieve their full learning potential (United

Nations Scientific and Cultural Organization, UNESCO, 2007). Furthermore, the utilization of these school facilities brings about fruitful learning outcomes since it stimulates and motivates students (Okorie, 2001).

Raw (2003), maintained that appropriate utilization of physical facilities in schools controls dropout rates, maintains student discipline, and makes students remain motivated for longer periods.

The findings of Yadar (2001) and the Report by UNESCO (2008) have shown that classrooms, teaching aids, stationeries, and laboratories affect academic performance of the learners. Rono (1990), raises concern that some schools started without prior planning. So majority of the secondary schools lack teaching facilities such as libraries. It is against this background that this study therefore looked into the effect of school physical facilities on internal efficiency in the provision of secondary education in Seme sub – county in Kisumu since no such study had been done in the region.

2.4 Summary of the related literature reviewed

The related literature reviewed has showed that different scholars have stated various school- based factors influencing internal efficiency in the provision of education. These school-based factors are teachers’ academic levels, teachers’ professional levels of training, teaching/learning resources, and school’s physical facilities.

Going by the above literature, secondary schools in Seme Sub-County would be more efficient and highly performing if the factors were adequately provided. However, what is on the ground is contrary to many expectations. This therefore calls for an investigation to identify and establish the school based factors influencing internal efficiency thereby resulting to high dropout rates, low retention rates, high repetition rates, and poor academic performance.

2.5 Theoretical framework

This study was based on two theories: Human Capital Theory and the System theory. Schultz developed the Human Capital Theory in 1960. Schultz (1960), maintained that increase in any output could only be realized by investing in human capital, hence the Human Capital Investment Theory. Investing in human capital through education is to enable graduates respond to changing opportunities (Schultz, 1971). The convention theory of human capital developed by Becker (1992) and Mincer (1974) views education and training as the major sources of human capital accumulation. Secondary schools therefore should participate in enabling students acquire knowledge, skills, and attitudes which are very crucial for human capital base.

A system is any pattern with elements, which are related in an efficiently constant manner to validate attention. Ludwig von Bertalanffy initially proposed general systems theory in 1928. According to Ludwig, a system is featured by interactions of its components and nonlinearity of the interactions. Systems can be either controlled or uncontrolled. The researcher considers

secondary schools as processing systems comprising of different components: BOM, teachers, administration, students, resources, and facilities.

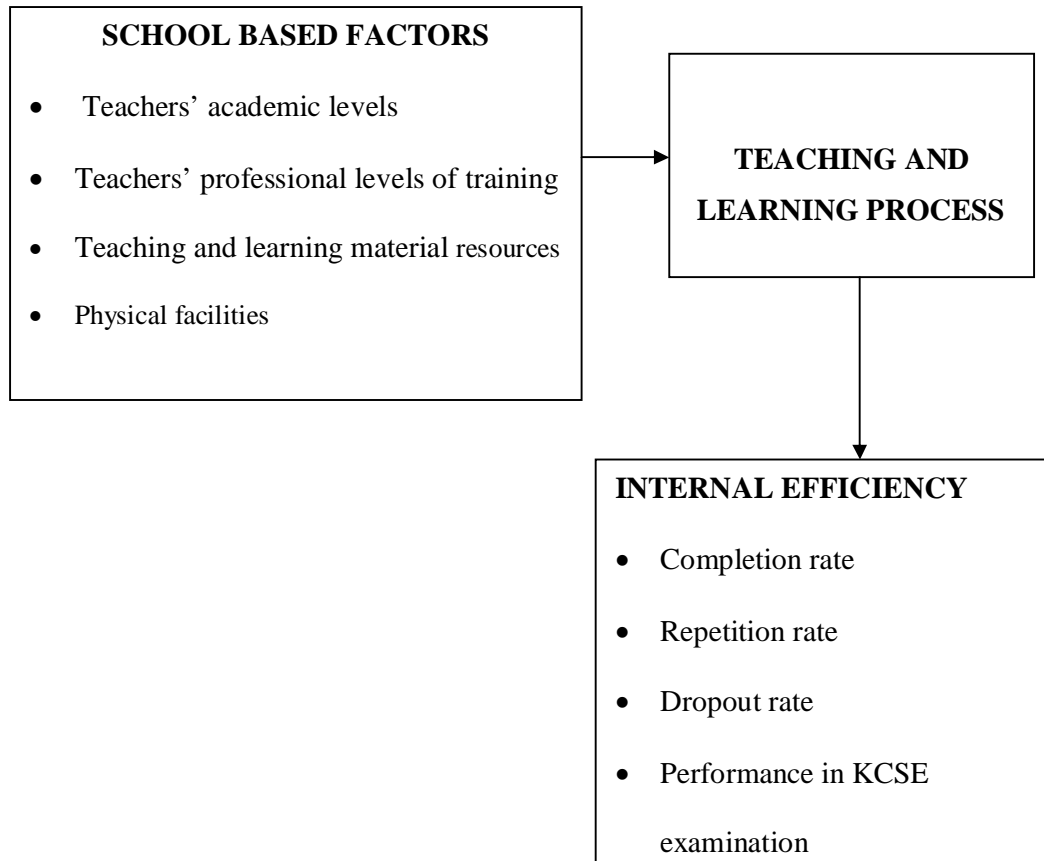
The raw materials (input) are the form ones enrolled into the schools, processed through teaching and learning to give rise to finished products (form four graduates). The more the school system is internally efficient, the more qualitative are the graduates, with less wastage.

Both the Human Capital Theory and the Systems Theory reinforces the main purpose of education. That is to improve learners ability to make positive contribution in controlling and shaping of environment and its degradation. Governments, policy makers, and civil society have emphasized that developing countries need to invest more in education and ensure that systems of education are managed efficiently, that limited national resources allocated to the education sector yield maximum impact, and that cost-recovery measures are adopted.

Even though these two theories look at learners as “machines” to be sharpened for better production, they still prove the best for this study since Kenya being one of the developing countries has embarked on educating her citizens as a way of empowering then to take responsibilities in the society and to improve their productivities.

2.6 Conceptual framework

Figure 2.1: Relationship between school - based factors and internal efficiency



The framework shows three school – based factors (independent variables) that may influence internal efficiency in the provision of secondary education.

These independent variables include aspects of internal efficiency: teachers' academic and professional levels of training, teaching/learning material resources, and physical facilities. The interactions of these independent and the dependent variables during the teaching and learning process in schools may affect the dependent variables either positively or negatively. The dependent variables are the main determinants of internal efficiency of schools. They include completion rate, repetition rate, dropout rate, and performance in KCSE examination.

If the teachers' academic and professional trainings, available teaching/learning resources, and physical facilities lead to high completion rates, high retention rates, low dropout rates, excellent performance, and low absenteeism rates, then the school's internal efficiency is high. On the other hand, if the teachers' academic and professional trainings, available teaching and learning resources, and physical facilities lead to low completion rates, low retention rates, high repetition rates, high dropout rates, poor academic performance, and high absenteeism rates, then the schools' internal efficiency would be low.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter comprises of the research design, the target population, the population sample and the sampling technique, research instruments, validity of the instruments, reliability of the instruments, data collection procedures, ethical considerations and finally the data analysis techniques.

3.2 Research Design

This study employed a descriptive survey design. Kothari (2004), the main purpose of the descriptive/diagnostic research is to determine the frequency with which something occurs or its association with something else. Orodho (2010), maintains that descriptive survey is a method of collecting information by interviewing or administering questionnaires to a sample of individuals. The researcher set out to establish the relationship between the school - based factors and the aspects of internal efficiency in the provision of secondary education in Seme, Kisumu County. Descriptive survey design was the most suitable for the study.

3.3 Target population

Orodho (2009), suggested that all items or people under consideration in any field of consideration constitute a universe or target population. Seme has 26 secondary schools, 341 teachers, and 1548 form four students.

The form fours were targeted because they were assumed to be having enough and relevant information required for this study since they have stayed longest in the secondary schools.

3.4 Sample size and sampling procedure

Orodho (2009), defines sampling as the process of selecting a sub set of cases in order to draw conclusions about the entire set, while a sample is a small part of a large population, which is thought to be representative of the large population. Gay (2006), says that for a large population, at least 10 percent of the population is a good representation. Since there are only 26 schools in Seme, 13 (50 percent of the schools) schools were sampled randomly.

Probability sampling was employed to select the teachers and students who participated in the study. 20 percent of the 341 teachers were engaged translating to about 68 teachers participating in this study (that is five teachers per school). Twenty form four students in every school were also randomly selected and involved in the study. This again translated to 260 students, which is 16.8 percent of the total number of form fours in the universe. These sample sizes for teachers and students were deemed adequate for the study as Neuman (2000), indicates that a sample size of 10 percent of the target population is large enough as long as it allow for reliable data analysis by cross tabulation and provide desired level of accuracy in estimate of large population.

3.5 Research instrument

During this study, the researcher used questionnaires and observation list as the instruments for gathering information. Mugenda and Mugenda (2003) observed that questionnaires are commonly used to gather information since they are relatively cheaper, convenient, easier to construct and administer. The researcher can simultaneously collect information from the respondents hence saving time (Mugenda & Mugenda, (2003). The respondents had their freedom to answer sensitive questions in the absence of the researcher. Questionnaires with closed ended and open-ended questions were administered to get information from teachers, and students in the sampled schools. Another instrument that was used by the researcher was observation list. In this method, the information was sought by way of investigator's own direct observation without asking from the respondents. The observation method is subjective. Biasness was eliminated since the observation was made carefully.

3.5.1 Validity of the instruments

Orodho (2009), maintains that instrument validity is concerned with establishing whether the research instruments' contents are measuring what they are developed to measure. It refers to the quality of data gathering instruments or procedure that enables it to measure what it is supposed to measure (Best & Kahn, 2002). Mugenda and Mugenda (2003), indicates that content validity is a measure of degree to which data collected using a particular instrument represents a specific domain of indicators or content of a particular concept.

The researcher consulted thoroughly with his supervisors to ensure that the questionnaire questions measured what they were to measure and that the observation checklist was valid. The instruments were then administered and used very carefully to avoid collecting invalid information.

3.5.2 Reliability of the instruments

Reliability of an instrument is the degree of consistency that the instrument or procedures demonstrate. To establish whether the questionnaires are reliable, the researcher used test – retest method in the study. The questionnaires were administered to the same group twice, in a lapse of about two weeks. Reliability was then calculated using Pearson’s product moment correlation coefficient (r). A coefficient of about 0.7 and above was appropriate for this study (Kiess & Bloomquist, 1985).

$$r = \frac{\sum xy}{NS_x S_y}$$

Where x and y are deviation scores, that is, $x = X - \bar{X}$ and $y = Y - \bar{Y}$

And S_x and S_y are sample standard deviations, that is,

$$S_x = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

This says that the correlation is the average of cross products (also called a covariance) standardized by dividing through by both standard deviations.

3.6 Data collection procedures

The researcher, after getting approval of the proposal from the supervisors, applied for a research permit from the National Council of Science, Technology, and Innovation (NACOSTI). The researcher then presented the research permit to the Seme Sub-County Education Officer and the sampled school principals. After this, the researcher made necessary arrangements and chose the dates for data collection.

On the material days of data collection, the researcher visited the sampled schools accompanied with introduction letters to the school principals. The researcher then administered the questionnaires after making brief introductions concerning the study. The researcher also ensured that the respondents were aware that confidentiality was ensured. The researcher gave enough time to the respondents to answer all the questions asked in the questionnaire. The researcher finally collected the questionnaires immediately they had been completed. Alongside administering the questionnaires, the researcher also used observation list to observe the available physical and material facilities in the sample schools.

3.7 Data analysis techniques

The collected data from the questionnaires and observation lists were edited, coded and analyzed statistically using Statistical Package for Social Sciences (SPSS) version 20. This is because analyzing the data manually was deemed tedious and might lead to errors.

The quantitative data was analyzed and tabulated using descriptive statistical tools. Tables of frequency distributions, percentages, and graphs were used. The frequencies and percentages are more convenient in giving the general view of the problem thus, making it easier to make conclusions and recommendations. Tables are easier to interpret.

3.8 Ethical considerations

The researcher explained to all the teachers and students who participated in the study that the study is for academic purposes only and not for witch-hunt. The researcher further ensured that the responses given by the respondents were treated with confidentiality. The researcher did not harass the respondents during the collection of data but each respondent was given enough time to fill in the questionnaire before submitting it back to the researcher.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATIONS AND DISCUSSIONS

4.1 Introduction

This chapter presents the data analysis, interpretation, presentation, and discussion of the research findings.

4.2 Questionnaire Return Rate

Sixty eight questionnaires were administered to the teachers. All the 68 (100 percent) were returned. Another 260 questionnaires were administered to the students. Out of the 260 questionnaires given out to the students, 250 (96.15 percent) were returned. Mugenda (2003), indicates that above 50 percent returned of the questionnaires is acceptable. The questionnaire return rates of 100 percent and 96.15 percent for the teachers and students respectively were sufficient enough to give a good representation of the samples.

4.3 Findings and Interpretations

The findings of the study, from the data that was collected through the questionnaires were analyzed using Statistical Package for Social Sciences (SPSS) version 20, organized and presented in tables and graphs

4.31 The relationship between teachers’ academic level and internal efficiency in the provision of secondary education in Seme, Kisumu County.

Whether teacher’s academic and professional level of training affect student dropout and repetition of classes in schools

Table 4. 1: Responses on whether teacher’s academic and professional level of training affect student dropout and repetition of classes in schools

Response	Frequency	Percentage
Yes	250	100
No	0	0

The results in table 4.1 indicate that teachers’ academic and professional levels of training influence student dropout and repetition of classes in schools due to the fact that all the students who participated in the study asserts that. This finding agrees with that of Muluki (2003) that academic and professional training of teachers is important in improving the quality of teaching techniques (skills) and hence retention of students in the education program.

Whether the following types of teachers know how to teach well?

Table 4.2: Responses on which type of teachers teaches well

Who teaches well?	Yes % (N)	No % (N)
Trained teachers	92% (230)	8% (20)
Untrained teachers	13% (33)	87% (217)

The data in table 4.2 indicate that 92 percent of the students affirm that trained teachers teach well. Onguti (1987) noted that a well-trained teacher is a resource to the school. This implies that for the secondary schools to be efficient in providing secondary education there must be enough trained teachers handling students in schools in all the subjects. It emerged that trained teachers motivate students. They also have better problem solving skills and approaches. The presence of trained teachers in a school will reduce dropout rate in schools and improve retention rate. The level of indiscipline in schools will also reduce since most students will feel that their issues are being taken care of sufficiently by the teachers. Since the students will also tend to have confidence in the trained teachers, their performance in examinations will improve.

Table 4.3: Dropout of students from secondary school

	<u>Number of dropouts</u>	<u>Frequeny</u>	<u>Percent</u>	<u>Cumulative %</u>
Valid	0 - 9	39	15.6	15.6
	10 - 19	113	45.2	60.8
	20 and above	98	39.2	100.0
	Total	250	100.0	

The results in table 4.3 indicate that 45.2 percent of the students who participated in the study agreed that between 10 to 19 students have dropped out of school since they joined form one up to the time they are now in form four. The findings show that there is high dropout rate from the secondary schools in Seme Sub County. High dropout rate results to wastage of educational resources. The finances and other resources that have been invested in the dropped out students are wasted and not accounted for. This is amounting to inefficiency in the secondary schools.

Table 4.4: Academic levels of teachers

<u>Academic level of teachers</u>		<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Percent</u>
Valid	Diploma	10	14.7	14.7
	Degree	54	79.4	94.1
	Masters	4	5.9	100.0
	Total	68	100.0	

The table findings in table 4.4 indicate that majority of the teachers, seventy nine point four percent have first degrees. Only 5.9% of the teachers had masters. From the research findings, it is evident that teachers are not motivated to pursue further training. Majority of the teachers were employed with degree certificates as was confirmed by the teachers who participated in the study. Teachers who are not motivated to seek further education and training do not challenge their students to pursue higher education. These results to low morale among the learners and this might result to poor performance, dropout and even repetition of grades among students.

Findings on the relationship between teachers’ academic level and internal efficiency in the provision of secondary education in Seme, Kisumu County.

To address the first objective of the study, a correlation analysis was conducted. The set scores on the teachers’ academic level were used as the independent variable while scores from internal efficiency was used as the explanatory variable (dependant variable). The results of the correlation are presented in table 4.5;

Table 4.5 Pearson Correlation between teacher’s academic level and internal efficiency in the provision of secondary education

Pearson Correlation between teachers academic level and Internal efficiency in the provision of secondary education			
		Teachers’ academic level	Internal efficiency
Teachers’ academic level	Pearson Correlation	1	.846**
	Sig. (2-tailed)		.02
	N	68	68
Internal efficiency	Pearson Correlation	.846**	1
	Sig. (2-tailed)	.02	
	N	68	68

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

In Table 4.5, the Pearson Product-Moment correlation coefficient ($r = .846$) for teachers was computed and indicated that there was positive correlation between teachers' academic level and internal efficiency in schools in Seme, Kisumu County. The analysis revealed highly significant ($p < 0.05$) positive relationship between teachers' academic level of training and internal efficiency. These findings are in agreement with the view of Gibbons et al., (1997) that teachers' Academic level, experience, and professionalism are directly related to student achievement. To improve students, academic performance, the teachers' level of education plays an important part. Performance in Seme is generally low because even untrained teachers teach students in Seme Sub County. As a result, the students are given raw deal, which manifests in poor academic performance, dropouts, and even repetition of classes.

4.32: The extent to which teachers’ professional levels of training and internal efficiency influence the provision of secondary education in Seme, Kisumu County

Table 4.6: How teachers use professional documents.

Whether teachers do prepare and use the professional documents such as, records of work, schemes of work, and teaching notes * If yes, how often are the documents checked for approval?

		Cross tabulation				Total	
		If yes, how often are the documents checked for approval?					
		Rarely	Often	Always	N/A		
Do you prepare and use the professional documents such as, records of work, schemes of work, and teaching notes?	Yes	Count	21	29	9	1	60
		% within Do you prepare and use the professional documents such as, records of work, schemes of work, and teaching notes?	35.0%	48.3%	15.0%	1.7%	100%
		% of Total	30.9%	42.6%	13.2%	1.5%	88.2%
	No	Count	0	0	0	8	8
		% within Do you prepare and use the professional documents such as, records of work, schemes of work, and teaching notes?	0.0%	0.0%	0.0%	100%	100%
		% of Total	0.0%	0.0%	0.0%	11.8%	11.8%
Total	Count	21	29	9	9	68	
	% within Do you prepare and use the professional documents such as, records of work, schemes of work, and teaching notes?	30.9%	42.6%	13.2%	13.2%	100%	
	% of Total	30.9%	42.6%	13.2%	13.2%	100%	

The results in table 4.6 show that eleven point eight percent of the teachers who participated in the study said that they do not prepare professional documents such as schemes of work, record of work, lesson plans, and teaching notes. This shows that there is lack of professionalism among some teachers. Such teachers are disorganized and make learning a difficult process for the students.

Due to lack of proper preparation by the teachers, the syllabus coverage is poor, resulting to poor performance exams, dissatisfaction of learners giving rise to school dropout, and insufficiency in terms of time management. Apart from the teachers who do not use professional documents totally, 30.9 percent out of those who said yes do prepare professional documents rarely, amounting to their inefficiency in executing their duties effectively.

4.33 To assess how provision of teaching and learning material resources affect internal efficiency in the provision of secondary education in Seme, Kisumu County.

Table 4.7: Responses on effect of teaching and learning materials on dropout and repetition

	Yes (%)	No (%)
Does teaching and learning resources affect student dropout and repetition of classes in schools?	68 (100)	-
Are there sufficient number of textbooks for both teachers and students in school for the subject that teachers are teaching?	22 (32.4)	46 (67.6)

The data in Table 4.7 shows that all the 68 teachers (100 percent) that were quizzed established that teaching and learning resources affect student dropout and repetition of classes in schools. These findings confirms the view of Smith (2002) who observes that availability of resources such as textbooks, desks, and blackboards had been found to have an impact on pupils' participation in education. They provide easy access during teaching and learning process.

Inadequate provision of teaching and learning material resources in secondary schools therefore leads to low learning of concepts, difficulty in developing of new concepts, demotivation of both teachers and students which results to poor performance, grade repetition and school dropout.

Only 67.6 percent of the teachers indicated that there are no enough textbooks for both teachers and students in schools for the subject that teachers are teaching. Students in most schools in Seme are compelled to share the textbooks even when teaching is ongoing. The few books available are outstretched and therefore much time is wasted. Assignments are not done in time and the syllabus is not completed in most schools. The general result is poor performance in both internal and external examinations. As a result of poor exam performance, students dropout out and some are forced to repeat grades in pursuit of better grades.

Table 4.8: Status of revision materials in school in Seme

		Whether schools have sufficient revision materials for preparing students for KCSE			
		<u>Frequency</u>	<u>Percent</u>	<u>Valid Percent</u>	<u>Cumulative Percent</u>
Valid	Yes	9	13.2	13.2	13.2
	No	59	86.8	86.8	100.0
Total		68	100.0	100.0	

The findings in table 4.8 show that mainstream schools do not have sufficient revision materials for preparing students for KCSE. This is because 86.8 percent of the teachers who participated in the investigation said no. This means that these schools do not have sufficient revision materials for preparing students for KCSE. Once a school has insufficient revision materials, students in that school will not be adequately prepared for the national examination. The students go to the exam when they are half-baked. Poor results are thus recorded. Parents and students respond to poor results in KCSE by transferring their children to schools, which have posted good results in KCSE examination. On the contrary, schools that had sufficient revision materials posted good results in KSCE exams and are now over populated due to high demand and inflow of students who transfer from other schools. There is great fear that the resources and facilities in such schools will be overstretched resulting to completion for facilities by the students. This might result into dropout or the students developing unwanted behaviors as due to overcrowding.

Whether schools have experienced shortage of laboratory apparatus and chemicals needed by teachers for the practical sessions? * If yes, how frequently has this happened?

Table 4.9: Data on laboratory apparatus and chemicals

Cross tabulation

			If yes, how frequently has this happened?				Total
			Rarely	Often	Always	N/A	
Has your school experienced shortage of laboratory apparatus and chemicals needed by teachers for the practical sessions?	Yes	Count	11	42	10	0	63
		% within Has your school experienced shortage of laboratory apparatus and chemicals needed by teachers for the practical sessions?	17.5%	66.7%	15.9%	0.0%	100.0%
		% of Total	16.2%	61.8%	14.7%	0.0%	92.6%
	No	Count	0	0	0	5	5
		% within Has your school experienced shortage of laboratory apparatus and chemicals needed by teachers for the practical sessions?	0.0%	0.0%	0.0%	100.0%	100.0%
		% of Total	0.0%	0.0%	0.0%	7.4%	7.4%
Total	Count	11	42	10	5	68	
	% within Has your school experienced shortage of laboratory apparatus and chemicals needed by teachers for the practical sessions?	16.2%	61.8%	14.7%	7.4%	100.0%	
	% of Total	16.2%	61.8%	14.7%	7.4%	100.0%	

The findings in Table 4.9 show that 92.6 percent of the teachers agreed that schools have experienced shortage of laboratory apparatus and chemicals needed by teachers for the practical sessions. This implies that most of the practical lessons are not taught or they are taught theoretically. The concepts to be learnt practically by the students are not sufficiently learnt. Students' performance in science subjects are therefore low compared to performance in other subjects. Since a student must do at least two science subject, many students achieve low mean grade in KCSE exams. As a result, the schools' mean scores are always very low making Seme to be generally poor performing sub county. These findings in Table 4.9 show that learning do not take place easily in Seme. Wamahiu (1995) found out that that learning occurs more easily when order prevails, facilities are clean and are in good repair, and the materials are adequate. Some schools have to borrow or use other schools, laboratories to conduct their experiments. This demoralizes the teachers teaching these subjects and even the students who in most cases opt for transfers to well established schools.

Table 4.10: The supply of teaching and learning materials.

<u>Responses of</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative</u>
<u>teachers</u>			<u>Percent</u>
Valid	Yes	32	47.1
	No	36	100.0
	Total	68	100.0

The results in Table 4.10 indicate that 52.9 percent of the teachers are not supplied with teaching/ learning materials whenever they need them. This denotes that resources are inadequate in the schools that participated in the study. Once a teacher is not given the teaching and learning material resources he or she requires, the teacher will not prepare well for the lessons and might opt to sub standard modes of teaching, which do not enhance learning and hence poor performance in the exams. Some students will transfer as others will still be forced by their parents to repeat grades so as to get better grades. Insufficient supply of teaching and learning material resources therefore results to inefficiency of secondary schools in the provision of secondary education.

4.34 To assess how provision of adequate physical facilities affect internal efficiency in provision of secondary education in Seme, Kisumu County.

Table 4.11: Results on whether physical facilities affect student dropout and repetition.

<u>Students' responses</u>		<u>Frequency</u>	<u>Percent</u>	<u>Cumulative</u> <u>Percent</u>
Valid	Yes	250	100.0	100.0
	No	0	0	100.0
Total		250	100.0	

Table 4.11 shows that out of the students who participated in the study, all of them affirmed that school physical facilities affect student dropout and repetition of classes in their schools. This finding is in agreement with the statement of Raw (2003) who maintained that appropriate utilization of physical facilities in schools controls dropout rates, maintains student discipline, and makes students remain motivated for longer periods. Physical facilities, when provided and properly utilized, motivate students. Competition for physical facilities by students can result to dropout. Poor states of the school facilities cause students to transfer to better schools.

Table 4.12: The status of school physical facilities in secondary schools in Seme Sub County

ITEM	Adequate (%)	Inadequate (%)	Unavailable (%)
School library services.	15.2	38.0	46.8
Computer laboratory services.	13.6	34.4	52.0
Science laboratory.	40.8	54.4	4.8
Playing fields and pitches.	15.2	82.8	2.0
Electricity supply.	21.6	62.0	16.4
Clean water supply	25.6	63.2	10.8
Catering/ kitchen department.	52.0	45.6	2.4
Toilets and latrines	40.8	58.4	0.8
Classrooms.	45.6	54.4	-

The findings in Table 4.12 show information concerning the availability of physical facilities. Forty six point eight percent of the students who participated in the study uphold that school library services are unavailable. Schools with no or inadequate library services do not cultivate the reading culture on their students. Much of the free times are wasted resulting to poor

performance. When the students perform poorly, their dropout and repetition rates increase.

The findings in the Table 4.12 again show that 52 percent confirmed that computer laboratory services are unavailable in the schools. It implies that computer skills are not taught in most of the secondary schools in Seme despite the fact that computer has become a basic requirement for most courses at universities and colleges and even for most employment opportunities.

In addition, the table 4.12 indicates that 54.4 percent of the sampled schools have inadequate Science laboratories. This explains why there is poor performance in science subjects since no or very few practical lessons are conducted by the students. On the other hand, 82.8 percent of the students agreed that Playing fields and pitches are inadequate. Lack of enough playing grounds and pitches in secondary schools imply that the curriculum is not being implemented fully. All the objectives of secondary education cannot be achieved. Games are motivators and where there is no games, students will tend to drop out of school. Class work with no play is very boring to students.

Concerning electricity, 16.4 percent of the students confirmed that Electricity supply is not available in their schools. Schools without sufficient supply of electricity cannot organize for preps unless they have other alternative sources of light.

Where there is no electricity, it is hard to organize video shows for the set books, clips on demonstrations in sciences, and any other entertainment, which help attract, refresh, and retain students in a school.

The results in Table 4.12 also indicate that 10.8 percent of the students who participated in the study confirmed that clean water supply is completely not available in their schools. Some students in boarding secondary schools in Seme have to fetch water from outside the school compound. This does not only waste their time but also opens the students up to malicious behavior such as drug abuse and immorality since they interact with the community around the schools. With the problem of water in school, some students contract diseases resulting from the use of dirty water. Some drop out from schools because of discomfort created by the scramble for the few available water sources.

On the item of Catering/ kitchen department, 45.6 percent said that Catering/ kitchen department is inadequate. The worse is 2.4 percent of the students who confirmed that Catering/ kitchen department is unavailable. For the 2.4 percent of the schools where there is no lunch program, students walk long distances going for lunch. Afternoon lessons in such schools are interfered with. This amounts to poor performance in exams. Some student opt to just staying within the school compound without taking lunch. Such students become so distracted in the afternoon lessons.

Retention rate in schools with no or inadequate lunch program lower compared to schools with sufficient feeding program.

The data in Table 4.12 indicates that 58.4 percent of the students said that Toilets and latrines are inadequate in schools. Worse are the 0.8 percent of the students who confirm that in some schools there are no latrines and toilets. The implications of this is that students will have long ques going to the toilets and in some cases the privacy of the students are violated. There will be great discomfort among the students. This leads to school dropout and transfers. Apart from creating discomfort, there are many hours lost, lessons interrupted, as the students will be still scrambling for the few toilets available.

The classrooms in a good number of schools are not enough. This was pointed out by 54.4 percent of the students who confirmed that classrooms are inadequate. This implies that some lessons especially the optional lessons are taken outside the classroom. It could also imply that the classes are overpopulated and with this comes the difficulty in managing these classes during a teaching and learning process. In the overcrowded classes, some students develop laziness, which contribute to poor performance in exams.

Table 4.13: Information by teachers on the accessibility of the schools in Seme Sub County.

<u>Teachers' responses on accessibility of schools</u>		<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Percent</u>
Valid	Accessible during dry and wet seasons	34	50.0	50.0
	Accessible during dry season only	30	44.1	94.1
	Not accessible during dry and wet seasons	4	5.9	100.0
	Total	68	100.0	

The findings in Table 4.13 show that out of the teachers who participated in the study, 44.1 percent confirmed that their schools are accessible during dry seasons only. This implies that teachers and students find it difficult getting to school. Some have to walk long distances coming to school due to the impassibility of the roads. This can result to dropout especially during wet seasons.

Table 4.14: Information by teachers on the school facilities

Information by teachers on the school facilities

<u>School facility</u>	<u>Yes (%)</u>	<u>No (%)</u>
Whether electricity is available in the school	77.9	22.1
Whether clean water is available in the school	38.2	61.8
Whether teacher's houses are available in the school	20.6	79.4
Whether functional computer laboratory is available in the school	13.2	86.8

The findings in Table 4.14 likewise show that 22.1 percent of the teachers interviewed confirmed that electricity is unavailable in their school. 61.8 percent of teachers indicated that there is no sufficient supply of clean water. The worse was teacher's houses whereby 79.4 percent of the teachers said that there are no teacher's houses in their schools. The results in Table 4.14 further showed that 86.8 percent of the teachers who participated in the study indicated absence of functional computer laboratories.

Table 4.15: Information by teachers on whether they produce exams in school and whether there are enough extra rooms for optional lessons

Items	Yes (%)	No (%)
Do you produce your examinations within the school?	75	25
Are there enough departmental offices in your school?	16.2	83.8
Are there enough classrooms to accommodate all the lessons especially during optional lessons?	41.2	58.8

The results in Table 4.15 indicate that 25 percent of the teachers agreed that they do not produce their examinations within their schools. This implies that the cost of producing examinations is high. Teachers cannot give exams whenever they want and so the students are not adequately prepared for the national exams. The result is poor performance in the KCSE exams. Moreover, 83.8 percent of the teachers agreed that there are no enough departmental offices in their school. This implies that the staff room is congested. There is no room for consultations by students.

The data in Table 4.15 also indicates that 58.8 percent of the teachers who participated in the study said there were no enough classrooms in their schools especially to accommodate all the lessons during optional lessons. These results are in settlement to the words echoed by Yadar (2001) & Report by UNESCO (2008) which has shown that classrooms, teaching aids, stationeries, and laboratories affect academic performance of the learners.

Table 4.16: Information student: toilet ratio

Estimate the student: toilet ratio	Boys (%)	Girls (%)	Total (%)
Less than 20	16.2 (11)	19.1 (13)	35.3
21-30	25.0 (17)	26.5 (18)	51.5
31-40	23.5 (16)	29.4 (20)	52.9
41-50	20.6 (14)	22.1 (15)	42.7
51 and above	14.7 (10)	2.9 (2)	17.6
Total	100 (68)	100 (68)	

The results in Table 4.16 indicate that on the estimation of student: toilet ratio, fifty two point nine percent of them said above thirty students use that one toilet. In most schools where this study was conducted, the student: toilet ratios are higher than the standard ratios, which are 1: 30 for boys and 1: 25 for girls. This implies that they will be congestion at the toilet doors.

There will be lack of privacy. It can also lead to students developing bad behaviors, which can later lead to dropout or poor performance.

Table 4.17: The number of science laboratories in the schools

<u>Teachers' responses on the numbers of laboratories in their schools</u>	<u>Frequency</u>	<u>Percent</u>	<u>Valid Percent</u>	<u>Cumulative Percent</u>
Valid 3 laboratories for the 3 science subjects	4	5.9	5.9	5.9
Only one laboratory for the 3 science subjects	58	85.3	85.3	91.2
None	6	8.8	8.8	100.0
Total	68	100.0	100.0	

The findings in Table 4.17 show that 85.3 percent of the teachers confirmed the presence of only one laboratory for the three science subjects in their schools. Unfortunately, 8.8 percent of the teachers said that their schools do not have any science laboratory. From the research findings, many schools cannot conduct the laboratory sessions effectively for all the three sciences.

This explains the poor performance in science subjects in Seme Sub County. In most cases, there is limited time for preparation of the laboratory, as one a teacher has to follow another immediately. For the schools with totally no science laboratory, students are not taken through practical sessions.

The result is poor performance in the sciences in the national exam. Some students meet the practical in KCSE and Mock exams for their first time. Some students who are exposed will tend to transfer to rather better schools while some will be discouraged to continue with education and finally dropout.

Table 1.18: Teachers information on school facilities

Other physical facilities	Yes (%)	No (%)
Do you have a dining hall in your school?	11.8	88.2
Does your school have enough playing grounds for all the games and athletics activities carried out in your school?	25	75

The results in Table 4.18 indicate that 88.2 percent of the teachers who participated in the study said that they do not have a dining hall for the students in their schools. It is clear that many schools in Seme, Kisumu County do not have school dining halls. Students eat outside in the open or in their classrooms. It becomes more embarrassing during rainy season. The classrooms become stuffy with food staff. This makes the learning environment not healthy and this affects the learning and teaching process hence poor results. Students then respond to the poor results through dropouts, transfers and even grade repetition.

How many of your classmates whom you started with in form one have dropped out from school up to date.

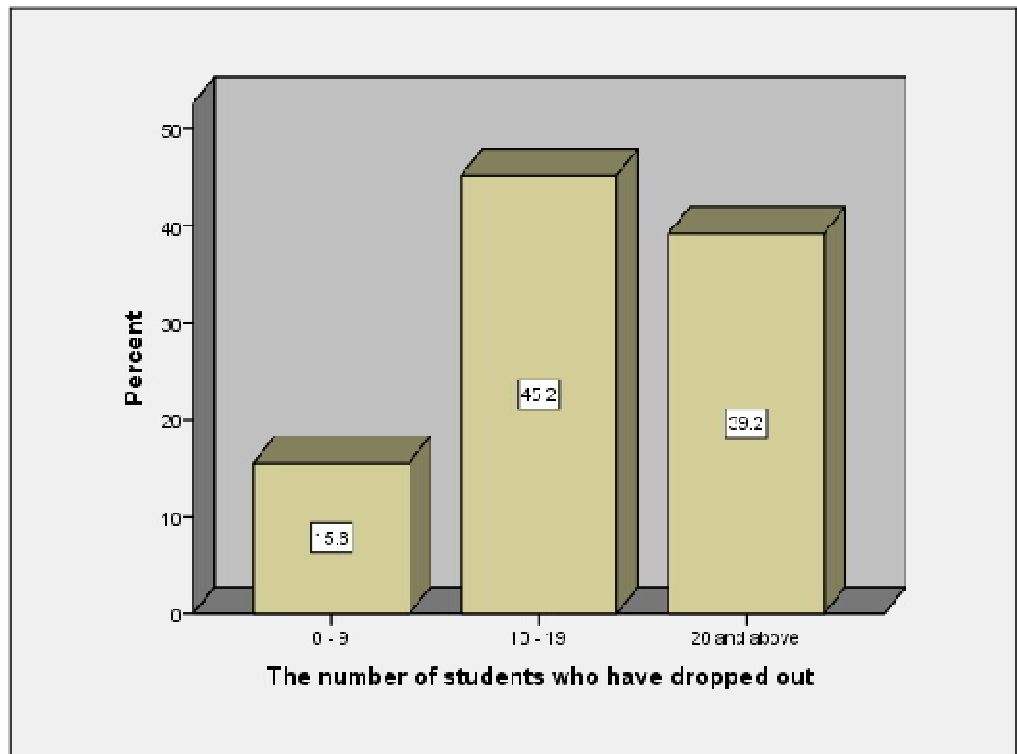


Figure 4.1: The number of students who have dropped out since form one

The data in Figure 4.1 indicate the number of students who have dropped out from the 2012 cohort. The results show that 45.2 percent confirmed that between 10 - 19 students have dropped from school in their group. From the findings, it is evident that the dropout rate is high in most schools. This is wastage of education resources, which is a case of inefficiency in secondary education sector. The students who do not complete their secondary education cannot join the tertiary colleges and universities. They are denied the opportunity to proceed with their education.

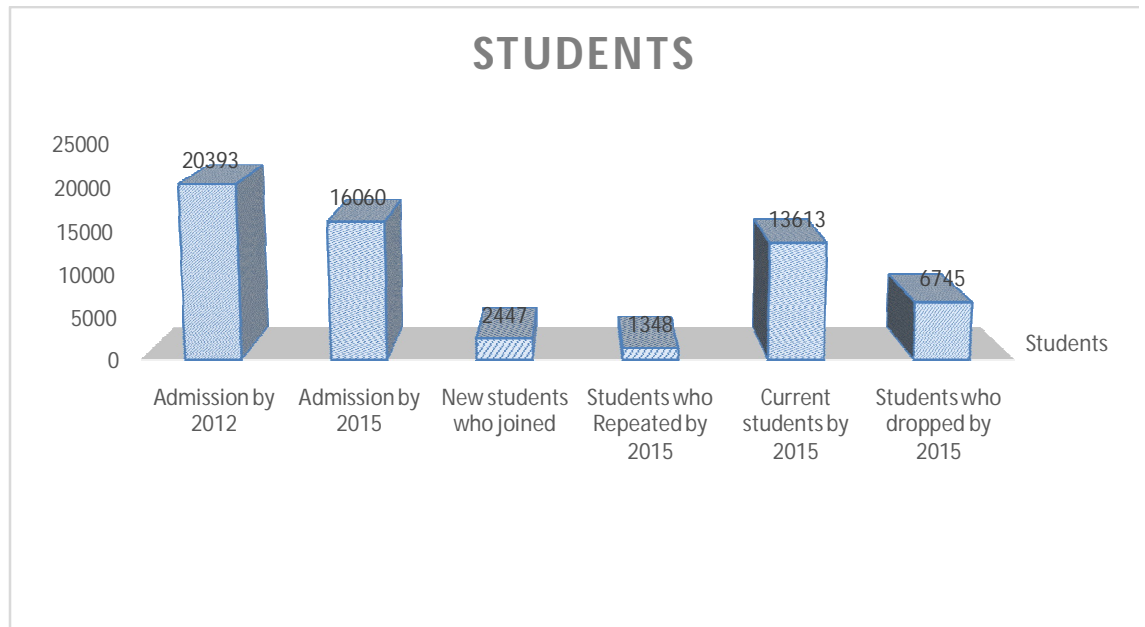
The students who drop out from school cannot later participate in developing the society and the nation at large.

Table 4.19: Information on the level of absenteeism by students

Rate of absenteeism	Frequency	Percent
High	22	32.4
Average	27	39.7
Low	19	26.9
Total	68	100

The findings in Table 4.19 show that 32.4 percent of the teachers confirmed that the level of absenteeism of students in their schools is high. High rate of absenteeism implies that students do not get all the concepts that teachers teach while they are absent from school. This results to poor performance in both internal and national examinations. Poor performers always opt to dropping out or repeating classes, hoping that their performance will improve. All these three contribute to in efficiency of secondary schools in the provision of secondary education in Seme Sub County.

New admission into the 2012 cohort, repeaters, dropouts and completion rates

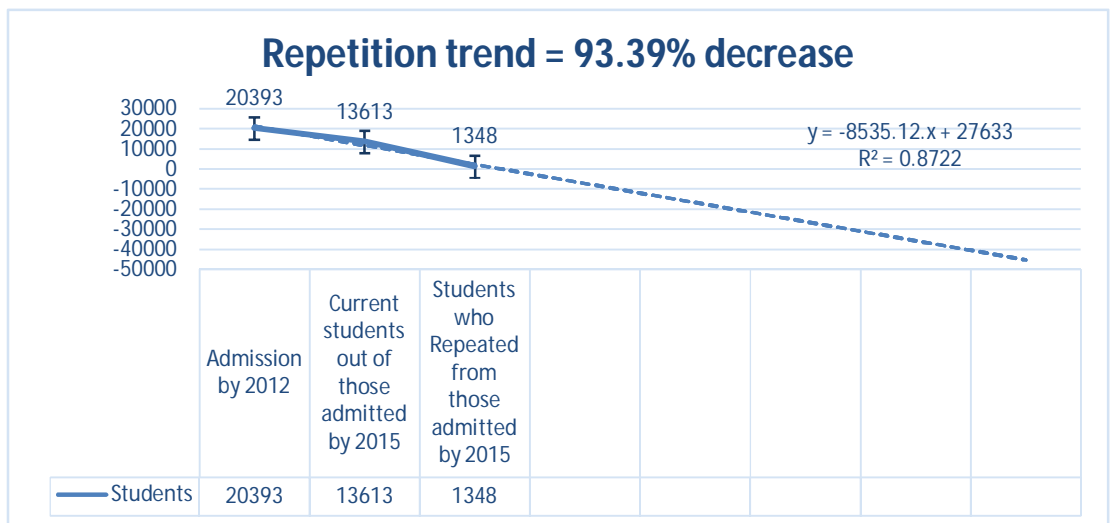
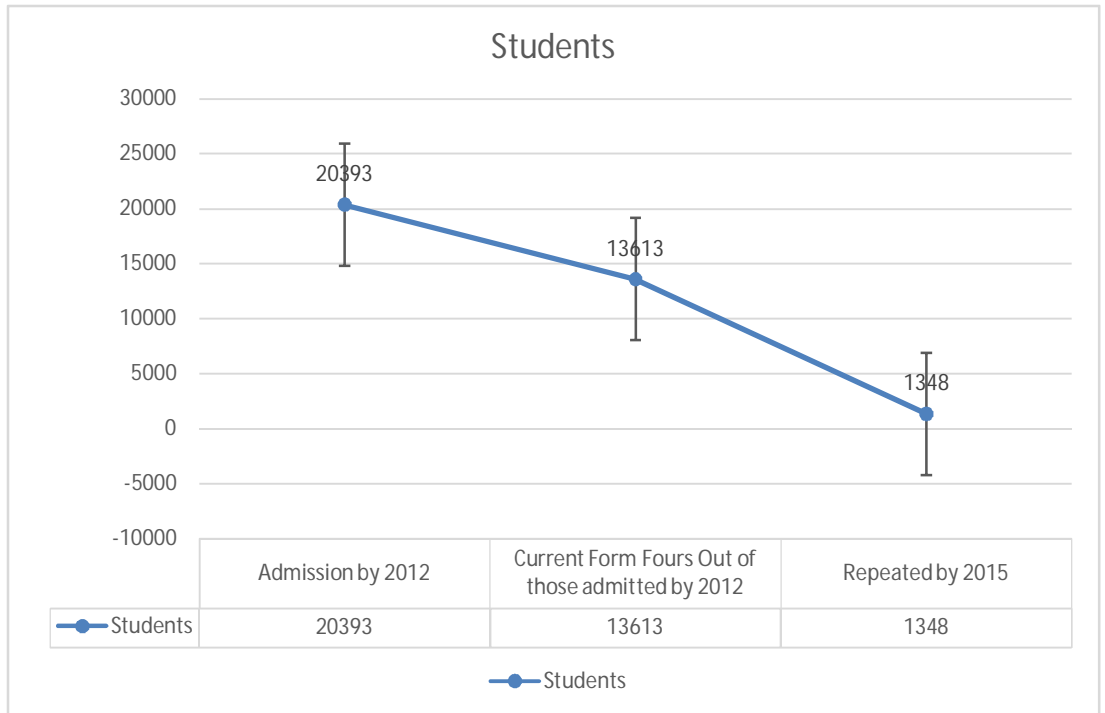


The data in Figure 4.2 indicates information the 2012 cohort- new admissions, repeaters, dropouts, and completion.

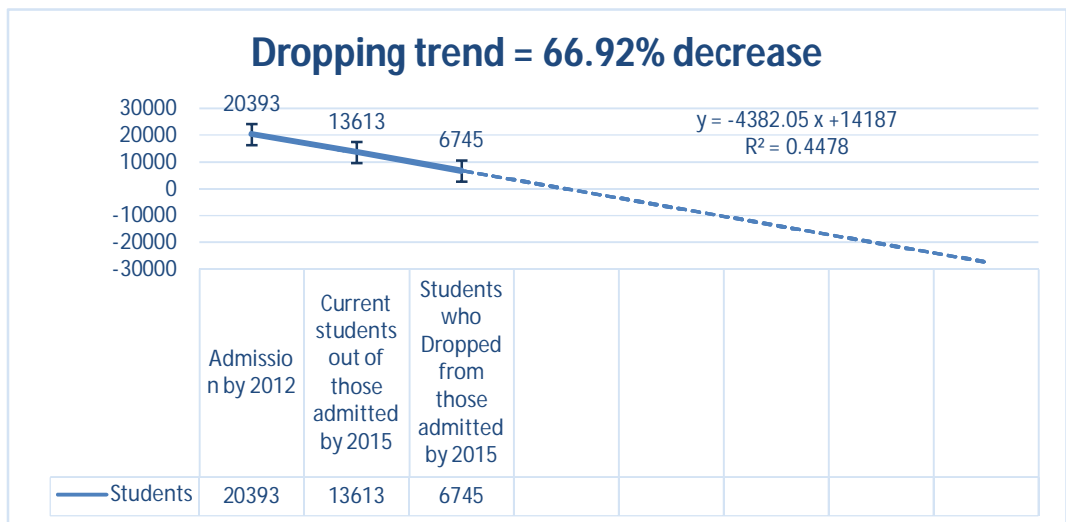
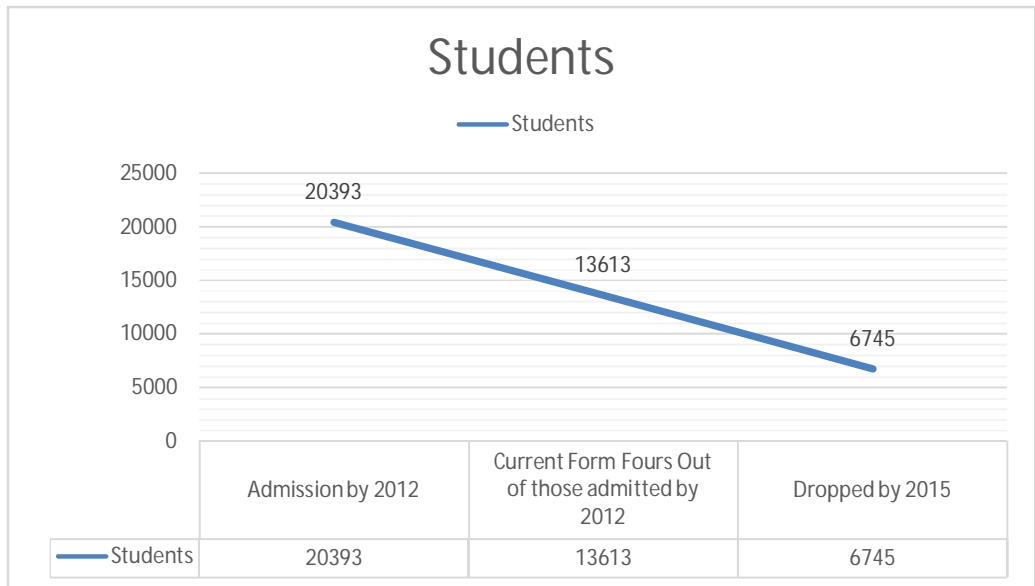
The findings in Figure 4.2 indicate that of the study, 20393 students who were admitted in form one in 2012, representing 100 percent, only 66.75 percent (13613) out of the total number admitted in 2012 are in form four in 2015. The students who repeated were 6.61 percent (1348) and those who dropped out were 33.08 percent (6745).

The results in figure 4.2 further show that the repetition trend is about 93.39 percent on the decrease. This implies that those who repeat are 6.6 percent out of those who joined in form one. This still high since secondary education is becoming a necessity for national development.

The government of Kenya has come up a policy that ensures no students repeat a grade. This explains why the repetition rate is relatively lower than the dropout rate.



The data in Figure 4. 3 shows the repetition trend in secondary schools



The data in Figure 4. 4 indicates the dropping trend in secondary schools in Some sub county.

The dropping trend is about 66.92 percent on the decrease. This implies that 33.08 percent dropped out of school from the 2012 cohort. Many students dropout from school and this is a clear indicator of in efficiency in the provision of secondary education.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

In this Chapter of the report, the researcher has summarized the study, made conclusions, and recommendations based on the study findings. This chapter gives a summary of the main findings of the study, conclusions, and suggestions for further research.

5.2 Summary of the study

The purpose of the study was to investigate the influence of school-based factors on internal efficiency in the provision of secondary education in Seme, Kisumu County, Kenya. These school-based factors included: teachers' academic level, teachers' professional levels of training, teaching, and learning material resources and the physical facilities as they influence internal efficiency in the provision of secondary education.

The objectives of the study were as follows: To determine the extent to which teachers' academic levels influence internal efficiency in the provision of secondary education in Seme, Kisumu County; to determine the extent to which teachers' professional levels of training influence internal efficiency in the provision of secondary education in Seme, Kisumu County; to assess the extent to which provision of teaching and learning material resources

influences internal efficiency in the provision of secondary education in Seme, Kisumu County, and finally to establish the extent to which provision of adequate physical facilities influence internal efficiency in provision of secondary education in Seme, Kisumu County.

The study employed descriptive survey design. The target population included teachers and students in the entire Seme sub county. The sample consisted of 328 respondents; 68 teachers and 260 students. The researcher employed self-administered questionnaires and observation checklist to gather data for the study. There were questionnaires for teachers and those for students. All of the school-based factors cited above affect internal efficiency in the provision of secondary education. The government, through the Free Secondary Education (FPE) program, has subsidized tuition fee thereby increasing enrolment into the secondary schools. Government policy on repetition has seen repeater rate come down in the region to 6.6 percent although this is still high.

All the students (100 percent) who participated in the study indicated that teachers' academic level of training and professional level of training affect student dropout and repletion. Teachers who are adequately trained tend to know how to handle all types of students. The teachers who carry out their duties professionally also encourage and motive learners to continue pursuing secondary education. According to the findings, 92 percent of the students affirm that trained teachers teach well compared to the untrained teachers.

The study showed that only five point nine percent of the teachers in Seme have masters, seventy nine point four percent have degrees and fourteen point seven percent have diploma certificates.

The Pearson - Product moment correlation coefficient ($r = .846$) for teachers was computed and showed a positive correlation between teachers academic level and internal efficiency in the provision of secondary education in Seme, Kisumu County.

The analysis revealed highly significant ($p < 0.05$) positive relationship between teachers' academic and professional level of training and internal efficiency. The problem of teaching and learning material resources in the sub county was found to be high. One hundred percent of the teachers involved in the study indicated that teaching and learning resources affect student dropout, repetition, and performance in exams. Sixty seven point six percent of the teachers said they do not have enough teaching and learning materials such as textbooks. Eighty six point eight percent of the teachers established that they do not have sufficient revision materials for preparing their students for exams.

On whether the schools have experienced shortage of laboratory apparatus and chemicals needed for practical sessions, ninety two point six percent of the teachers said YES.

Out of these, sixteen point four percent have rarely experienced this, sixty one point eight percent often and fourteen point seven percent do experience this problem always. The problem of teacher professionalism is evident in Seme since eleven point eight percent of the teachers who participated in the study said they always do not use professional documents such as record of work, schemes of work, and the teaching notes.

School physical facilities was established to influence efficiency in the provision of secondary education as all the students who participated in the study affirmed that. Forty six point eight percent of the students who participated in the study uphold that school library services are inadequate. Fifty two percent confirmed that computer laboratory services are unavailable. Fifty four point four percent said science laboratories are inadequate in their schools.

Eighty two point eight percent agreed that playing fields and pitches are inadequate, sixteen point four percent of the students said that electricity supply is not available in their schools while sixty two percent said electricity supply is inadequate. The study found out that there is still a problem with clean water supply to schools in Seme as ten point eight percent of the students confirmed that clean water supply is completely not available in their schools. Sixty three point two percent agreed that clean water supply is inadequate.

Fifty eight point four percent of the students who participated said that toilets and latrines are inadequate in their schools as much as zero point eight percent confirmed that there are no toilets as the ones present are completely full and some have collapsed. The toilet: student ratio goes as high as 1: 50 for both boys and girls. Likewise fifty four point four percent said that the classrooms in their schools are inadequate.

Concerning the accessibility of schools in Seme, fifty percent of the teachers who participated in the study said that schools are accessible during dry and wet seasons while forty four point one percent affirmed that their schools are accessible during dry season only. However, five point nine percent of the respondents established that their schools are not easily accessible both during dry and wet seasons. It was established by the study that most schools in Seme, produce their examinations in school as seventy five percent of the teachers affirmed that. Twenty five percent of the teachers quizzed disagreed. Very few schools in Seme have enough departmental offices in their schools. This was established by the study as only sixteen point two percent of the teachers who were quizzed agreed that their schools have enough departmental offices. Eighty three point eight percent of the teachers said they do not have enough departmental offices in their schools.

The research question one sought to determine the extent to which teachers' academic levels influence internal efficiency in the provision of secondary

education in Seme, Kisumu County. Research question two sought to determine the extent to which teachers' professional levels of training influence internal efficiency in the provision of secondary education in Seme, Kisumu County. Research question three sought to assess the extent to which provision of teaching and learning material resources influence internal efficiency in the provision of secondary education in Seme, Kisumu County. Lastly, the research question four sought to establish the extent to which provision of adequate physical facilities influence internal efficiency in the provision of secondary education.

Literature review was focused on the importance of education and the place of education in the society. How school based factors such as teachers' academic and professional level of training, teaching, and learning resources, and school physical facilities influence dropout rate, repetition rate and pass rate.

5.3 Conclusion

In view of the study findings, the researcher concluded that teachers' academic level of training influences internal efficiency in the provision of secondary education. This affects students' dropout, students' repetition, performances in examinations and the completion rate. The researcher also concluded that teachers' professional levels of training also influence internal efficiency in the provision of secondary education by affecting the students' dropout, performance in examinations and repetition of grades. The researcher further concluded that the provision of teaching and learning material resources influences largely the internal efficiency in the provision of secondary

education. Finally, the researcher established that the provision of adequate physical facilities influences internal efficiency in the provision of secondary education as indicated by dropout rates, repeater rates, and pass rates among students in Seme Sub County, Kisumu County. Therefore, the researcher made a general conclusion that internal efficiency is a multidimensional concept and is influenced by many school-based factors. No one factor can justify its attainability.

High levels of dropout, repetition, absenteeism, and poor performance in examinations demonstrate the effect of perceived inefficiency in the provision of secondary education. These inefficiency factors result to low levels of participation in education leading to lack of productivity in the economy and hence low income and poverty to the entire country. The study established that more students were not repeating due to the current government policy on repetition whereby no student is expected to repeat any class. This is a good policy but only if the students will finally get trainable grades in KCSE. All the education stakeholders to ensure the schools are well supplied with trained and professional teachers, teaching, and learning material resources, and physical facilities to enhance on the school's efficiency in the provision of secondary education.

5.4 Recommendations

Based on the findings of the study, the following recommendations are put forward in order to enhance internal efficiency in the secondary schools so as to improve education achievement in Seme, in the entire Country Kenya and also globally and to reduce wastage in the education sector.

- There is need to ensure that only trained teachers handle students in the subject they are trained to teach. This will ensure that the learners are given the best and that they are motivated to learn. The government to train more teachers and ensure that the trained teachers out of colleges equally distributed in the country.
- The relevant quality assurance officers, school administration, heads of department, and subject heads to ensure all teachers use professional documents and that regular check us carried out.
- All the stakeholders of secondary schools including parents, teachers, BOM, NGOs, County and Nation Governments and all the other interested parties to ensure the secondary schools are adequately supplied with teaching and learning material resources such as exercise books, textbooks, pieces of chalk, revision materials etc.
- There should be adequate supply of school physical facilities such as enough classrooms, science laboratories, computer laboratories, school halls, good access roads, clean water supply, electricity supply, enough

toilets and latrines, playing grounds and pitches, kitchen, functioning library services, and enough departmental offices.

5.5 Suggestions for further studies

The researcher recommends the study of that:

1. The same research conducted considered in other sub counties to check if similar findings could be made.
2. A study on the effect of Free Secondary Education on the internal efficiency in the provision of secondary education.
3. Lastly the extent to which the government and school policies have affected internal efficiency in the provision of secondary education.

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APPENDICES

Appendix I

LETTER OF INTRODUCTION

Nyanya Ongw'eya Thomas,
University of Nairobi,
P.O. Box 30197,
Nairobi, Kenya.

Date: 30th May 2015.

Dear Sir/Madam,

RE: PARTICIPATION IN RESEARCH

I am a Master of Education student at the University of Nairobi. Currently, am conducting a research on **“Influence of school-based factors on internal efficiency in the provision of secondary education in Seme, Kisumu County, Kenya.”** I kindly request that you allow your teachers and students to participate in the study. All the information gathered will be used for academic purposes only and your identity will be treated with strict confidence.

Yours faithfully,

Nyanya Ongw'eya Thomas

Appendix II

QUESTIONNAIRE FOR TEACHERS

Kindly tick in the boxes of your choice in the corresponding parts of the questionnaire. This study is purely for academic purpose and therefore all answers will be kept strictly confidential. Please do not write your name or the name of your school anywhere on this paper.

SECTION A:

1. What is your age bracket (in years)?

18 – 25 years []

26 – 30 years []

31 - 35 years []

36 – 40 years []

2. How long have you been a teacher?

0 – 5 years []

6 – 10 years []

11 – 15 years []

Over 15 years []

3. What is your highest academic level of training?

Dip [] Degree B.Ed [] M.Ed [] others specify _____

4. What is the approximate student: book ratio in the subject you teach?

5. (i) Have you ever attended a subject method workshop or seminar?

Yes [] No []

(ii) If your answer in the question above is yes, how regularly do you attend the workshops and seminars?

Once a year [] Twice a year [] More than twice a year []

(iii) How has the seminars and subject trainings influenced your teaching? _____

6. What mean score did you obtain in the last KCSE in your teaching subject?

i) Less than 2

ii) 2 – 4

iii) 5 – 7

iv) 8 – 10

v) Above 10

7. What do you think should be done to improve your productivity as a teacher? _____

8. Do you think your training and education level helps to boost students' academic performance? Yes [] No []

SECTION B:

Please answer the following questions on teaching and learning material resources in your school

9. Are there enough textbooks for both teachers and students in your school for the subject you are teaching? Yes [] No []
10. Does your school have sufficient revision materials for preparing students for KCSE? Yes [] No []
11. (i) Has your school experienced shortage of laboratory apparatus and chemicals needed by teachers for the practical sessions?
Yes [] No []
- (ii) If yes, how frequently has this happened?
Rarely [] Often [] Always []
12. Are you always supplied with teaching/ learning materials whenever you need them? YES [] NO []
13. (i) Do you prepare and use the professional documents such as, records of work, schemes of work, and teaching notes? Yes [] No []
(ii) If yes, how often are the documents checked for approval?
Rarely [] Often [] Always []
14. How do you think availability or unavailability of teaching and learning materials have affected performance in the school where you teach? _____

SECTION C (Information on the physical facilities)

15. What do you say on the accessibility of school?
Accessible during dry and wet seasons []
Accessible during dry season only []
Not accessible during dry and wet seasons []
16. Is your school supplied with following physical facilities:
(i) Electricity Yes [] No []
(ii) Clean water Yes [] No []
(iii) Teachers' houses Yes [] No []
(iv) Functioning computer laboratory Yes [] No []
17. Do you produce your examinations in school or outside the school?
Yes [] No []
18. Are there enough departmental offices in your school?
Yes [] No []
19. Do you produce your examinations in school? Yes [] No []

20. Estimate the student: toilet ratio for both boys and girls in your school.
(student: toilet ration = No. of students in that category divided by the number of toilets for that category)

- i) Less than 20
- ii) 21 - 30
- iii) 31 – 40
- iv) 41 – 50
- v) 51 and above

Boys' _____: _____

Girls' _____: _____

21. How many science laboratories does your school have? (Tick appropriately)

3 laboratories for the 3 science subjects []

Only one laboratory for the 3 science subjects []

None []

22. (i) Do you have a dining hall in your school? Yes [] No []

(ii) If Yes, is it able to accommodate all your students? []

23. Does your school have enough playing grounds for all the games and athletics activities carried out in your school?

Yes [] No []

SECTION D: Information on student dropout and repetition rates.

Please answer the following questions on the statistics of your students.

24. What is the level of absenteeism of students in the school?

High [] Average [] Low []

25. What is the average size of your classes in figures?

i) 1 – 20

ii) 21 -40

iii) 41 – 60

iv) 61 and above

26. (i) Are there cases of repetition in your school? Yes [] No []

(ii) If your answer is yes, how many students repeated form three this year in your school? _____

27. What could be the main reasons behind school dropout and repetition in your school?

Thank You for your information

Appendix III

QUESTIONNAIRE FOR STUDENTS

Kindly tick in the boxes of your choice in the corresponding parts of the questionnaire. This study is purely for academic purpose and therefore all answers will be kept strictly confidential. Please do not write your name or the name of your school anywhere on this paper.

1. What is your age (in years)?
17 – 19 []
20 – 25 []
Above 25 []
2. What is your gender?
Male [] Female []
3. How many are you in your class this year (2015)? _____
4. How many were you when you joined form one in the year 2012? _____
5. How many of your classmates in form four joined you after form one?

6. (i) How many of your classmates have repeated any class since you
Joined form one? _____
(ii) Do you think the following factors affect student dropout and
repetition of classes in your school?
(a) Teacher's academic and professional qualification
Yes [] No []
Explain

(b) Teaching and learning resources
Yes [] No []
Explain

(c) School physical facilities
Yes [] No []
Explain

7. Do the following types of teachers know how to teach?
Trained teachers Yes [] No []
Untrained teachers Yes [] No []
Explain your answer.

8. Tick appropriately against each of the following facility whether the facility is available in your school or not.
- i) School library services: adequate [] inadequate [] unavailable []
 - ii) Computer laboratory: adequate [] inadequate [] unavailable []
 - iii) Science laboratory: adequate [] inadequate [] unavailable []
 - iv) Playing fields/ pitches : adequate [] inadequate [] unavailable []
 - v) Electricity supply: adequate [] inadequate [] unavailable []
 - vi) Clean Water supply: adequate [] inadequate [] unavailable []
 - vii) Catering/ kitchen department: adequate [] inadequate []
unavailable []
 - viii) Toilets and latrines: adequate [] inadequate [] unavailable []
 - ix) Classrooms : adequate [] inadequate [] unavailable []
9. Accessibility of the school: adequate [] inadequate []
10. How many of your classmates whom you started with in form one have dropped out from school up to date?
- | | | |
|-------------|-------------|-------------|
| 0 – 9 [] | 40 – 49 [] | 80 – 89 [] |
| 10 – 19 [] | 50 – 59 [] | 90 – 99 [] |
| 20 – 29 [] | 60 – 69 [] | |
| 30 – 39 [] | 70 – 79 [] | |
11. In your own opinion, how do you think teacher’s academic and professional qualification affects your performance in KCSE examinations?
-
-

Thank You for your information.

Appendix IV
RESEARCHER'S OBSERVATION LIST

The researcher to use this list of items to comment their condition in each of the sampled schools.

1. Accessibility and location of the school. Good [] Bad []
2. Status of the science laboratories. Good [] Fair [] Bad []
3. Number of toilets for:
 - (i) Teachers -
 - (ii) Girls -
 - (iii) Boys -
 - (iv) Other workers -
4. Status of the toilets for:
 - (i) Teachers -
 - (ii) Boys -
 - (iii) Girls -
 - (iv) Other workers -
5. Number of departmental offices. _____
6. Number of pitches/ playing fields. _____
7. Staffroom for teachers.
Congested [] spacious [] unavailable []
8. A schools bus/van? _____
9. School library _____
10. School hall _____

Appendix V

RESEARCH PERMIT

PAGE 2
PAGE 3

THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Thomas Ong'weya Nyanya
of (Address) University of Nairobi
P.O.Box 30197-00100, Nairobi
has been permitted to conduct research in
Kisumu West District, Nyaanza Province
on the topic: Determinants of occupational attrition among teachers in public secondary schools in Kisumu West District, Kenya
for a period ending: 30th June 2015

Research Permit No. NCST/RCD/14/012/57
Date of issue: 25th May, 2015
Fee received: KSh 1,000

Applicant's Signature: _____
Secretary National Council for Science & Technology

CONDITIONS

1. You must report to the District Commissioner and the District 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)/four (4) bound copies of your final report for Kenyans and non-Kenyans respectively.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice


REPUBLIC OF KENYA
RESEARCH CLEARANCE PERMIT

GPK6055t3mt10/2011
(CONDITIONS—see back page)

APPENDIX VI
LETTER OF AUTHORIZATION

MINISTRY OF EDUCATION SCIENCE AND TECHNOLOGY
STATE DEPARTMENT OF EDUCATION

Telegrams:
Telephone: Kisumu (057) 2022626
When replying please quote


REPUBLIC OF KENYA

SUB-COUNTY EDUCATION OFFICE,
SEME SUB-COUNTY,
P.O. BOX 19,
PAW-AKUCHE

9/4/2015

REF: KWD/GA/23/8VOL.1/106


TO ALL PRINCIPALS.
SECONDARY SCHOOLS.
SEME SUB - COUNTY

RE: RESEARCH AUTHORIZATION
NYANYA ONG'WEYA THOMAS.
ID. 23038739
REG: E55/66054/2011.

The above stated officer is hereby authorized to carry out a Research in Seme Sub-County on the topic
*"Influence of School based factors on internal efficiency in Provision of Secondary Education in Seme,
Kisumu County, Kenya.*

By a copy of this letter you are requested to accord him the necessary assistance to enable him accomplish the requirements of the research.

SUB-COUNTY DIRECTOR OF EDUCATION
SEME SUB-COUNTY
P. O. Box 19
PAW AKUCHE


OTIENO BEATRICE (MRS)
SUB-COUNTY DIRECTOR OF EDUCATION
SEME.