SELECTED FACTORS INFLUENCING ACADEMIC PERFORMANCE IN CONSTITUENCY DEVELOPMENT FUND BUILT SECONDARY SCHOOLS IN RACHUONYO SOUTH SUB-COUNTY, KENYA

BY

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DEPARTMENT OF EDUCATIONAL MANAGEMENT AND FOUNDATIONS

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DECLARATION

Declaration by the candidate:

I declare that this Thesis is my original work and not a duplication of a similar work published for academic purposes. It has not therefore been presented for a degree work to any other university. I declare that all materials cited in this Thesis which are not my own have been duly acknowledged.

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DEDICATION

This Thesis is dedicated first and foremost to God my Redeemer. It is also dedicated to my dear Mother who sowed the seed by taking me to school, wife and children, God's gift to me. I love all of you. My father whom I was not privileged to see but am sure is watching over me. It is also dedicated to my maternal grandmother for her belief in me and her passion for education which inspired me to pursue higher education.

ABSTRACT

It is presumed that Kenya Certificate of Primary Examination and Kenya Certificate of Secondary Examination results are mainly used to determine who can move to higher education. Students therefore, stand to lose or gain ostensibly from performance in KCSE examinations. In 2013 and 2014, over 50%(728 out of 1336 and 778 out of 1491) of candidates enrolled in CDF built secondary schools in Rachuonyo South sub-County got E t D grades which are below the acceptable minimum quality grade of C+ that enables candidates pursue competitive courses at tertiary and university levels. It is against this background that this study investigated the selected factors influencing academic performance in CDF built secondary schools in Rachuonyo South sub-County. The study objectives were: to establish the influence of students' entry behavior on performance of students at Kenya Certificate of Secondary Education (KCSE), to determine the influence of teacher quality on student's performance at KCSE and to examine the influence of physical facilities on performance of students at KCSE. The study was guided by Education Production Function Theory based on the input and output variables. Descriptive Survey and Correlational research designs were used. The study population was 42 principals of CDF built secondary schools and 1 sub-County Quality Assurance and Standards Officer. The sample comprised 37 principals of the 37 secondary schools and 1 SCQASO. The principals were sampled using simple random sampling while the SCQASO was sampled using saturated sampling technique. Data was collected using questionnaires, interview schedule and document analysis guide. The instruments were validated by experts from the department of Educational Management and Foundations, Maseno University for content and face validity. Piloting was carried out in 5 schools in order for reliability to be achieved. Test-retest reliability was established by correlating the two tests and a correlation of r=.7showed that the instruments were reliable. KCPE marks and KCSE results, teacher quality and students' performance, and physical facilities and students performance were analyzed using the Pearson Correlation Coefficient of -1 to +1and descriptive statistics as well as linear multiple regressions. Entry mark was found to have a strong positive relationship with KCSE performance and it accounts for 64.2% change in KCSE mean score. Teacher quality was found to have a strong positive relationship with students' performance and it accounts for 17% of change in KCSE mean score. Teacher experience was found to account for 3.31% of change in KCSE mean score. Physical facilities were also found to have a relationship with students' performance and accounts for 14% of change in KCSE mean score. It was concluded that the performance of these schools is weak because they admit students with low KCPE marks and KCPE is a strong predictor of KCSE outcome. It was also concluded that teacher quality is key to good performance at KCSE. Physical facilities were also found to be crucial in ensuring good performance. The government should work more in strengthening primary education so that pupils exit with good masteryof numeracy and literacy skills. Government should employ enough qualified teachers and requisite facilities should be put up in CDF schools to guarantee quality education. These findings will be useful to the government and Teachers Service Commission since the information will be used to guide resource allocation to these schools.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADEA	Association for the Development of Education in Africa
CBE	Curriculum Based Establishment
CDD	Community Driven Development
CDF	Constituency Development Fund
EAC	East Africa Community
EFA	Education For All
KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
MOET	Ministry of Education of Tanzania
MUERC	Maseno University Ethics Review Committee
PASEC	Programme d' Analysis des Systems Educatifsdela CONFEMEN
PTR	Pupil Teacher Ratio
SAQMEC	Southern Africa Consortium for Monitoring Educational Quality
SCEO	Sub-County Examinations Officer
SCQASO	Sub-County Quality Assurance and Standards Officer
SGS	School of Graduate Studies

SPSS	Statistical Package for Social Sciences
TSC	Teachers Service Commission
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organizations.
UNICEF	United Nations International Children's Emergency Fund.
USA	United States of America
USAID	United States Agency for International Development.

DEFINITION OF KEY OPERATIONAL TERMS

CDF built secondary schools	:	Secondary schools established with money from CDF
Entry behavior	:	The marks students joining form one attained at KCPE
Performance	:	KCSE mean scores of the CDF built Secondary school and grades attained by individual students
Physical facilities	:	Classrooms, science laboratories, libraries and computer laboratories
Quality grades	:	These are grades which qualify students to join university (C+ to A)
Selected factors	:	Entry behavior, teacher quality and physical facilities
Teacher quality	:	Training level of teachers, experience and teaching methods they use during lessons

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Governments world-wide are turning to school leaders to improve educational quality and are responding to greater demand for accountability from the public for the education system where children are learning (World Bank 2009). In 2001 the then United Nations Secretary General came up with a critically important initiative, "Education First" which sought to refocus the world's attention on the unfinished agenda of quality education for all. The emphasis placed on education quality is based on the premise that education promotes social equality and has strong links to reduction of poverty. It produces a more informed citizenry, it empowers individuals and enables them to become more proactive, gain control over their lives and broaden the range of available options (UNESCO, 1997).

By linking educational access to quality from the very onset, the World Declaration on Education for All in 1990 duly acknowledged that meaningful development would only be realized when learning resulted from education provided. The focus of education now rests on actual learning acquisition and outcomes, rather than the previous exclusive concern on enrolment, participation and certification. This commitment was reaffirmed in 2000 when the Dakar Framework for Action put quality squarely at the heart of education. As a concept education quality needs to be understood in the inter-related nature of the five key dimensions: the learner, the environment, content, process and outcome (UNICEF, 2000).

To offer education of good quality therefore, educational institutions and programmes should be adequately and equitably resourced, with the core requirement of safe, environmentally friendly

and easily accessible facilities, well motivated and professionally competent teachers and books, other technologies that are context specific, cost-effective and available to all learners. It is because of the emphasis on quality education that the 2007 UNESCO and UNICEF reports addressed right to access quality education as one of the three interrelated rights that must be addressed in order to provide Education for All (EFA). The reports noted that the barriers to be removed in the provision of EFA include: inadequate and unqualified teachers, inadequate physical facilities, resources and lack of effective supervision. The government of Kenya has embraced education as a human right as quoted in the constitution under the economic and social rights. Education is therefore, one of the children's rights in Kenya (GOK, 2010). According to the United Nations (2001) the following constitute comprehensive policies and programmes that enhance educational quality: quality learners; quality content; quality teaching and learning processes; quality learning environments that are healthy, hygienic and safe and quality outcomes.

Regionally, member states of the countries of sub-Saharan Africa, through the Framework for Action in sub-Saharan Africa: Education for African Renaissance in the Twenty-First Century also emphasized the commitment to education quality by prioritizing "access and equity, quality and relevance." While acknowledging learning outcome as primary indicators of education quality, the African Union Plan of Action for the second decade of Education for Africa (2006-2015) also includes the following in their conception of quality: physical infrastructural resourcing for learning environment, learner characteristics, teacher qualification, competence and motivation, relevance of subject matter, professional support for teachers and good governance.

The Association for the Development of Education in Africa (ADEA) in its latest Policy Brief in progress towards Second Decade for Education in Africa goals notes that managing education quality remains a challenge for all East Africa Community (EAC) partner states with issues of efficiency and effectiveness impacting on the provision of education and training (MOEST, 2015). In fact Ayodo (2010) notes that the quest for provision of quality education continues to be a matter of leading concern to both consumers and providers of the education service in Kenya and other developing countries.

In Kenya, Strategies, Achievements and Progress in Quality Education was reviewed under the following dimensions of quality among others: infrastructural development, teacher quality and effectiveness and learning assessment (learning outcome). The government recognizes infrastructure as a key component of education quality and this has been a major focus of investment; constructing and providing for quality classrooms, water and sanitation facilities, laboratories and libraries. Provision of infrastructure in educational institutions is done by the national government, devolved funds such as CDF and the community and development partners (MOEST, 2014).

Constituency Development Fund (CDF) is a form of Community Driven Development (CDD) initiative that involves some funding from the central government and other donors to empower local communities (Kimenyi, 2005). It is not unique to Kenya but is also used in other countries like India where it is called Member of Parliament Constituency Development Fund and in Solomon Island, where it is referred to as Rural Constituency Development Fund (Onduru, 2011).

In Kenya CDF was established through the CDF Act in the Kenya Gazette Supplement No 107 (Act No. 11) of 9th January 2004 which had been enacted by parliament in 2003. Among other objectives CDF is meant to eradicate poverty at constituency level. Education is one of the ways by which poverty can be fought and eradicated hence CDFs allocate 32% of their total funds to education. The rest is shared between: health 26%, water 19%, physical infrastructure 8% and agriculture, security, social services and wildlife 15%.

In the education sector the CDF money is spent mainly on construction of tuition blocks, laboratories, dormitories, administration blocks and bursary since it is one of the interventions the Kenya government has put in place to expand school infrastructure (Wambua, 2011). Ng'alu and Bomet (2014) studied the role of CDF in provision of facilities in secondary schools in Kilome constituency and they deduced that many schools have facilities courtesy of Kilome Constituency Development Fund. For example, Marua secondary school was established by CDF funds at a cost of 5 million Kenya shillings (The Standard, June 13th, 2012). It is important to note that the school projects funded by CDFs are identified by the communities on priority basis. In Rachuonyo South sub-County there were 78 public secondary schools at the time this research was conducted and 42 were built by CDF. The high number of CDF built secondary schools makes it difficult for these schools to be built to completion on time since it takes CDF four to five years to put up basic facilities in a school in Rachuonyo South sub-County.

A lot of studies have been conducted on how CDFs have contributed to access, equity and retention. For example, Onduru (2011) studied the impact of CDF on access and equity in financing secondary education in Nyando Constituency. Wakaba (2013) looked at the impact of CDF on secondary schools curriculum implementation in Nyahururu sub-County in Laikipia County. She studied the extent to which CDF has addressed textbook shortages, infrastructure

shortages, teacher development and co-curricular activities in the sub-county. Olendo, Olel and Agak (2016) studied the influence of CDF on access to secondary education in public secondary schools in Kisumu County. Their objective was to determine the influence of constituency development fund on access to secondary education in public secondary schools in Kisumu County. They however, did not look at how increased access as a result of many secondary schools built by CDFs has interfered with quality of education. A lot of research which has been conducted on CDF and its influence has been on access but little is known about how it has impacted quality of education by enabling many students to access quantity and not quality education. So this research filled this knowledge gap by studying the selected factors influencing academic performance in CDF built secondary schools using Rachuonyo South sub-County as the site for this study. In fact Onduru (2011) identified the impact of CDF on education quality as a gap in knowledge that needs to be filled. Based on that recommendation the current study sought to establish the influence of selected factors influencing academic performance in CDF built secondary schools using Rachuonyo South sub-County as the site for this study.

According to the National Development Plan 2002-2008, Republic of Kenya (2003), one of the ways of improving secondary school access was to build more day secondary schools. Expansion of learning institutions has been one of the greatest achievements in education sector. This recommendation was given by Olel (2000). CDF secondary schools are mostly day schools hence have contributed immensely to promoting secondary education as confirmed by Mwangi (2013). He researched on ways Constituency Development Fund promotes secondary education in Laikipia sub-County. He concluded that CDF has promoted secondary education as witnessed by increased access to secondary education in the sub-County through new and expanded school facilities like classrooms, science laboratories, and school water and electricity projects. It has

also enhanced retention rates through bursaries and expanded facilities in young schools. Constituency Development Funds have helped in promoting access as noted by the researches cited however, little is known about how the increased access has impacted quality of education. The researcher set out to investigate the performance of CDF schools as an aspect of quality by looking at the selected factors influencing academic performance in these schools.

In Tanzania the government envisioned to achieve universal secondary education by 2015 (Republic of Tanzania, 2001) hence secondary places have been made available. The availability of secondary places has seen the rise of primary school pupils transiting to secondary schools. This increased transition to secondary schools is not based on improved performance in class seven examinations but rather on the availability of secondary places. This has in turn impacted negatively on performance at secondary school level where the pass rates in the national examinations have been falling consistently and persistently as reported in Haki Elimu (2012).

In spite of gains in increasing access to and making resources available for education, a significant proportion of learners are leaving the system without achieving the numeracy and literacy skills expected at their level. Even though the quality of Kenyan schools appears to be better than most of sub-Saharan Africa, there is need to balance between education quantity and quality. Educational attainment at secondary school level in Kenya is low with three quarters of candidates not achieving the minimum grades considered desirable for admission to university or other middle level colleges (C+ and above for university admission and C for middle level colleges) (MOEST, 2014). Despite transition rate from primary to secondary education rising from below 50% over a decade ago to about 72.5%, only 6.5% of students completing secondary education progress to higher or tertiary education. Cohort analysis from standard 1 to university education indicates that only 2% of pupils who enroll for class one actually progress to first year

of university education. This wastage has led to a tremendous loss of potential human resource in the country (MOEST, 2014).

In Kenya provision of education quality remains a major issue across the entire spectrum of education and will be the focus of Government attention in the medium term. There is a weak balance between the quantity (access and participation) and quality of education across all levels of education. A number of factors continue to frustrate the provision of quality education for a majority of Kenyan students; poverty being one of them. More affluent institutions of learning often have well equipped laboratories, classrooms and instructional materials. On the other hand low income private, public and district schools are often characterized by lack of infrastructural and learning equipment and facilities. For schools located in the poorer rural areas the conditions tend to be worse (Ojiambo, 2009). Gogo (2002) found out that performance in the then Rachuonyo District in the national examinations was poor due to inadequacy of infrastructure, learning equipment and facilities and that schools which had low incomes performed relatively poorly compared to the big schools.

Kenya is committed to the Education for All goals of the provision of quality education for all school going age population by 2015 (UNESCO, 2004). While Kenya is committed to the EFA goal, the reality on the ground is totally different. While access to education has expanded, the quality of education has stagnated and may in fact have deteriorated further (Uwezo East Africa, 2012).

Falling pass rates at secondary school level is a source of concern since secondary education is significant because it prepares students for tertiary and university education. All secondary school students should therefore get quality education leading to quality passes. This research

sought to investigate how examination outcomes in CDF built secondary schools in Rachuonyo South sub-County are influenced by quality of learners, quality of teachers and quality of facilities as the three are recognized by the government of Kenya and UNICEF/UNESCO as key dimensions of quality education.

Schools are social organizations with defined rules and procedures that determine the degree of activities and behavior of each member (Mbithi, 1974). Schools are, in a sense, factories in which raw children are shaped and finished to meet the various demands of life. In Kenya the education system is highly selective and advancement of students is solely based on their performance in examinations. Examinations are used to identify those adjudged suitable to proceed to the next level of education. Success of schools is measured by the performance of students in external examinations, in case of Kenya, Kenya Certificate of Secondary Education (KCSE) examination. Gogo (2000) noted that the general performance in KCSE examination is an indicator of the output of secondary education and it explains the level of quality of secondary education.

Nyamongo, Sang, Nyaoga, and Matoke (2014) while looking at the relationship between school-based factors and students' performance in Kenya Certificate of Secondary Education focused on the relationship between teacher qualification and students' performance and the relationship between school facilities and students' performance. They however, did not look at the relationship between students' entry behavior (KCPE marks) and performance. This research sought to fill this gap by investigating the influence of students' entry behavior as a measure of quality of learners on their performance at Kenya Certificate of Secondary Education examination.

Qualified teachers are critical in ensuring quality performance. A qualified teacher is one who holds a teaching certificate earned from a reputable and accredited institution and so is licensed to offer services in their area of specialization. Teacher qualification can be described in terms of the level of certification earned by teachers including Bachelor of Education (B.Ed), Postgraduate Diploma in Education (PGDE), Professional Diploma in Education (PDE), Master's among others. These qualifications determine the level of competence of a subject teacher, Trinder (2008).According to Passos (2009) the success of any pedagogical process does not rely on teacher competence alone but on other factors such as mode of delivery of content, teacher preparedness, learner engagement in the learning process and the learning environment among others. Teacher competence is developed through teacher education, work experience and on-the-job training.

Everstone, Hawley and Zlotnik (1985) compared well-educated teachers with less-educated teachers. The results showed achievement gains for students with well-educated teachers. They also showed that achievement was related to teachers' knowledge of the subjects taught. Elliot (1998) noted that well qualified teachers had a significant influence on high school student's achievement in Mathematics. Naoreen, Aslam, Nausheen and Arshad (2011) in a study involving 7000 students found that the quality of the teaching force has a comparable impact on students test scores as socioeconomic status.

Moraga (1983) opined that training of teachers is one of the most important aspects of curriculum development and implementation in any education system. One common indication of teacher quality is the teaching experience expressed in terms of years served as a subject teacher as well as the number of years an individual teacher interacts and shares ideas and insights with peers in the working environment. Experience gained by teachers overtime

enhances their knowledge skills, work effectiveness and productivity in delivering the desired outcomes. Many researchers are in agreement that inexperienced teachers (those with less than two years of experience) are typically less effective than more experienced teachers. However, the benefits of experience appear to level off after about five years. Experienced teachers influence students' achievements in several ways. Teachers with long experience use better classroom approaches and adequate teaching methods that encourage students.

According to GMR (2013/2014), learners must be taught by teachers who are trained, motivated and enjoy teaching. Adequately funded national education plans that ensure equitable access to well-trained teachers must be a policy priority. Determinants of improving the quality of teaching are: academic and professional qualities of the teacher, curriculum content mastery and understanding and tools and methodology of delivery (pedagogy). The government places emphasis on learners being taught by trained teachers and making equitable access to trained teachers by learners a policy priority. This justified the selection of teacher quality as a factor whose influence on performance of students in CDF built secondary schools should be studied.

Kenaz, Kiplagat and Nyongesa (2016) conducted a study on influence of teacher competence on Mathematics performance in KCSE examinations among public secondary schools in Nyatike sub-County, Migori County. They looked at teacher competence in terms of three key factors: educational qualification, training and experience. They concluded that the relationship between teacher educational qualification and performance in Mathematics was positive, strong and statistically significant. They also concluded that the relationship between teacher experience and Mathematics performance was positive and statistically significant. However, they confined their research to influence of teacher competence on Mathematics while this research looked at

influence of teacher quality across all subjects taught in CDF built secondary schools in Rachuonyo South sub-County.

Anastasia (2015) in her study looked at the influence of teacher professional qualification on students' performance in KCSE examination and the influence of teacher professional experience on students' performance in KCSE examination in Kibwezi sub-County. While looking at teacher professional experience she did not look at teaching methods as an aspect of experience; a gap which this research filled.

Irungu and Nyaga (2011) in their study on determinants of academic performance in Kenya Certificate of Secondary Education recommended that a similar study can be carried out in other parts of the country for comparison purposes. They also recommended that other factors that may determine academic performance like the quality of teachers should be studied. Based on this recommendation and using Descriptive and Correlation research designs this research sought to fill this gap by looking at the influence of teacher quality on students' academic performance in CDF built secondary schools using Rachuonyo South sub-County as the site for this study.

Barasa and Nyongesa (2007) concluded that differences in school facilities such as: library, textbooks, laboratories and dormitories seemed to account for differences in performance in secondary schools in Kenya. They further asserted that the presence or absence of facilities distinguished high or low performing schools. Munda, Tanui and Kaberia (2010) observed that availability and quality of textbooks in a secondary school was strongly related to achievement among children from lower income families especially those in rural boarding schools and that those physical facilities contribute positively to students' academic performance. UNICEF (2005) observed that school infrastructure affects quantitative growth and the provision of

quality education since a certain minimum space in a classroom per learner, adequate science rooms, well equipped library, recreational facilities and boarding facilities are a prerequisite in providing quality education. UNICEF puts school facilities at the centre of quality education. It is this recognition by UNICEF that justified the selection of school facilities as one of the key factors that needed investigation to establish its influence on students' academic performance in CDF built secondary schools.

Wambua (2011) studied the impact of school infrastructure on access and provision of quality secondary education and concluded that the number, state and size of school infrastructure highly influenced access, provision of quality secondary education and talent development. Wambua studied all categories of schools in Kisumu Municipality and looked at how school infrastructure impacts access and quality of education in all categories of secondary schools while this research studied the influence of school facilities on a specific category of secondary schools; CDF built secondary schools. A study involving all types of secondary schools may not give a true picture because different schools may have different facilities.

The performance of Homa Bay County at KCSE has been average vis-à-vis other counties in Nyanza Region since the introduction of counties. Table1 below shows 2012 and 2013 rankings of six counties making up Nyanza Region.

Regional Position	County	Rank in 2012	Rank in 2013
1	Siaya	4	2
2	Kisumu	10	7
3	Migori	13	11
4	Homa Bay	14	13
5	Nyamira	22	22
6	Kisii	31	25

Source: Standard Digital (March 3, 2014)

In Nyanza Region, Homa Bay County has been trailing Siaya, Kisumu and Migori in that order. In 2014 and 2015 Homa Bay county had a total of 293 secondary schools which presented candidates for KCSE examination and 219 were sub-county secondary schools (KNEC, 2015).

Table 2 below, presents 2014 schools per sub-county, enrolment per sub-county and number of grades E to C per sub-county.

Sub-county	**Number of schools**	**Enrolment**	**E to C grades**
Rachuonyo South	78	4329	2257
Homa Bay	64	3302	1511
Rachuonyo North	52	2475	1458
Ndhiwa	45	1971	1421
Mbita	33	1230	736
Suba	35	1260	647

Table 3 below, presents number of schools per sub-county, enrolment per sub-county and number of grades E to C in 2015.

Sub-county	**Number of schools**	**Enrolment**	**E to C grades**
Rachuonyo South	78	4440	3293
Homa Bay	64	3680	2545
Rachuonyo North	52	2745	2385
Ndhiwa	45	2022	1855
Suba	35	1479	1323
Mbita	33	1668	1265

Data presented in tables 2 and 3 above show that Rachuonyo South sub-county had more schools than the rest of the sub-counties in Homa Bay county. It also had the highest number of

candidates getting grades lower than the national minimum university grade (C+). In 2014, out of a candidature of 4329, over half, 2,257 attained E to C grades. In 2015, the sub-county enrolled 4440 candidates and 3293 got E to C. The high number of students getting grades below national university cut off grade (C+) in Rachuonyo South sub-County warranted an investigation into the selected factors influencing academic performance in Rachuonyo South sub-County.

In 2013 CDF built secondary schools in Rachuonyo South sub-County registered 1336 candidates and only 11.901% (159) attained quality grades (C+ to A) while 54.491% (728) scored grades below minimum university entry grade (E to D+) (Rachuonyo South Examination Department, 2013). In 2014 the schools enrolled 1491 candidates and only 11.536% (172) scored quality grades (B to A) while 52.179% (778) got grades below minimum university entry grade (E to D+). The same scenario is replicated in Rachuonyo North which neighbors Rachuonyo South. The CDF built secondary schools in Rachuonyo North are performing poorly as well. Less than 20% of their candidates got quality grades while the rest got grades below C+ which is the minimum university entry grade during the period under consideration (SCQASO Rachuonyo North, 2014). In comparison non-CDF sub-county secondary schools in Rachuonyo South perform better than the CDF built secondary schools. In 2013 they enrolled 977 candidates and 21% (205) got quality grades, 48.6% got medium grades and 30% got grades D. there was no student who got grade E. In 2014, out of 869 candidates registered in non-CDF sub-county secondary schools 253 (29%) got quality grades, 422 (48.56%) got medium grades, 193 (22.209%) got grades D and only one student got grade E.

It is important to note that the students in the CDF built secondary schools sit for the same KCSE examination with those in county, extra-county and national schools. They also compete for the few chances available in tertiary institutions and universities as well as employment

opportunities. Good performance at secondary school level is important because in most education systems all over the world, secondary education is optimum higher learning that prepares one for university and vocational training. It was therefore necessary to conduct a research on selected factors influencing academic performance in CDF built secondary schools in Rachuonyo South sub-County to establish factors contributing to low performance of students in these schools.

The few researches so far conducted in this field have focused on how CDF has expanded access to secondary education in various sub-counties and constituencies but little is known on how CDF has influenced education quality. This research filled this gap in knowledge by studying the selected factors influencing academic performance in CDF built secondary schools using Rachuonyo South as the site for this study.

1.2 Statement of the problem

The choice of CDF built secondary schools as a focus of this study was necessitated by the fact that over 50% of the candidates enrolled in CDF built secondary schools in Rachuonyo South sub-county get grades which are lower than the national minimum (C+) for university entry at KCSE. It should be noted that CDF built schools made up 59.155% (42 out of 78 public secondary schools) of the public secondary schools in the sub-County as of the year 2014. It means many of the students who get below C+ which is the minimum grade for university qualification are from these schools. Students enrolled in non-CDF sub-county secondary schools seemingly perform better than their counterparts in CDF built secondary schools. In 2013 non-CDF sub-county secondary schools enrolled 977 candidates and 21% (205) got quality grades, 48.6% (475) got medium grades and 30% (297) got D grades. There was no candidate who got grade E. in 2014 out of 869 candidates 253 (29%) got quality grades, 422 (48.56%) got

medium grades and 193 (22.209%) got D grades. Only one candidate got grade E (Rachuonyo South Examination Office). Up to now no research has been conducted on how CDF built secondary schools have influenced performance of students at KCSE in Rachuonyo South sub-county. It is this gap in knowledge that warranted the investigation into the selected factors: students' entry behavior, teacher quality and school facilities and their influence on academic performance of students in CDF built secondary schools in Rachuonyo South sub-County.

1.3 Purpose of the Study

The purpose of the study was to investigate if the selected factors influence academic performance in CDF built secondary schools in Rachuonyo South sub-County.

1.4 Specific Objectives

Specific objectives of the study were to:

1) Establish the influence of entry behavior of students (KCPE marks) in CDF built secondary schools on their performance at KCSE examination in Rachuonyo South Sub-County.
2) Determine the influence of teacher quality on performance of students at KCSE examination in CDF built secondary schools in Rachuonyo South Sub-County
3) Examine the influence of physical facilities on performance of students at KCSE examination in CDF built secondary schools in Rachuonyo South Sub-County.

1.5 Research Hypotheses

Research hypotheses of the study were:

H_{01} There is no significant relationship between students' entry behavior and their performance at KCSE examination in CDF built secondary schools in Rachuonyo South Sub-County.

H_{02} There is no significant relationship between teacher quality and performance of students at KCSE examination in CDF built secondary schools in Rachuonyo South sub-County.

H_{03} There is no significant relationship between physical facilities and performance of students at KCSE examination in CDF built secondary schools in Rachuonyo South sub-County.

1.6 Significance of the Study

The findings of this study can be used for intervention by the government which is the main investor in education since the needs of these schools will be identified and the government will be able to provide them with the much needed resources like physical facilities which will enable the CDF built secondary schools offer quality education. Once the resources are provided the weak balance between quantity and quality education offered in CDF built secondary schools will improve. Teachers Service Commission (TSC) will also benefit from the findings of this research. It is hoped that TSC will use the information to prioritize supply of teachers to these schools. Researchers and academicians will benefit immensely from this research since it will add to the existing body of knowledge and inspire them to conduct more research in this field. The CDFs will also benefit from these findings since they will inform the funding criteria.

1.7. Assumptions of the study

The study was governed by the following assumptions:

1. The respondents understood the importance of the study and answered honestly and to the best of their ability
2. That the Kenya Certificate of Secondary Education (KCSE) examination is a reliable and accurate instrument for measuring students' achievement at the secondary school level.

1.8. Scope and Limitations of the Study

1.8. 1 Scope

This study investigated only three selected factors that influence academic performance, that is, entry behavior of students, quality of teachers and school facilities, leaving out other factors like students' attitude, students discipline and students socio-economic background. The investigation was carried out in CDF built secondary schools in Rachuonyo South sub-county. Other secondary schools, non CDF sub-county secondary schools, county and extra-county schools, did not form part of the study because their performance was better than that of CDF built secondary schools.

1.8.2 Limitations

Although this research has reached its aims, there were some unavoidable limitations. First of all this research was based on KCSE results as a measure of internal efficiency of schools ignoring other aspects of efficiency and quality outcomes. Secondly the information about teachers was gathered through the principal's questionnaire instead of teachers' questionnaire.

1.9. Theoretical Framework

This study was guided by Education Production Function Theory. Economists think in terms of a production model where schools and other influences go in and student's achievement comes out. Efficiency analysis is centrally concerned with measuring the competence with which inputs are converted into valued outputs (Fried et al 1993). In schooling examination results are an important intermediate measure of outcomes. Education is seen as a production and schools as production units. Secondary schools (i.e. CDF built secondary schools) take inputs in terms of resources and use them to produce outputs in terms of students' performance in KCSE examinations. This study focused on students' entry behavior, teacher quality and school facilities as inputs which influence academic performance of students in CDF built secondary schools in Rachuonyo South sub-County.

The Theory of Education Production is the process by which inputs are converted into outputs (Psacharopolous & Woodhall 1985). When schools take in students in form one as an input the expectation is that when they exit at form four they should exit with grades that enable them join institution of higher learning in order to join the country's pool of human resource. On the same note it is expected that the schools have adequate facilities and qualified teachers who can guarantee quality education and not quantity education measured by the quality of outcomes (good grades in KCSE). It can be expressed thus:

$A=f(TBE\ldots n)$

Where:

A=Achievement

T= Teacher

B= Textbooks

E=Equipment

n=other variables like family background, pupils entry behavior and attitude. This study was guided by the above theory using the following variables:

P=f(S, T, F…n)

Where:

P= performance (KCSE grades)

S= students 'entry behavior (KCPE marks)

T= teacher quality

E=teacher experience

M= teaching methodology

F= physical facilities(laboratory, library, classrooms and computer laboratory)

It can be expressed in a regression equation as follows:

$P=aS+bT_1+cT_2+dT_3+eT_4+fF$ ……..+ ε

Where: a, b c, d, e, f and ε are constants of regression and n are other factors like students attitude, family/socio-economic backgrounds which did not form part of this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction.

This section reviewed literature on selected factors influencing academic performance of students under the following sub-headings: influence of students' entry behavior on performance of students, influence of teacher quality on performance of students and influence of school facilities on performance of students.

2.2 Entry Behavior of Students and its Influence on Students' Performance.

Secondary education occupies a critical place in the national education system since it bridges the gap between the primary and tertiary levels of education globally. It admits the primary level graduates and prepares them for the tertiary level which is the manpower base of the nation. The development of secondary education in Africa and other low-income countries is receiving renewed efforts (Ndata, 2006) however, many students continue to fail in their final exams. Kombo (1988) observed that the whole educational process is punctuated at various stages by examinations which ensure that only a limited number of students goes through.

In Tanzania performance in secondary education has been declining because there has been a declining trend in the proportion of primary school leavers passing standard seven. While the pass rate at primary level has been decreasing the number selected to join secondary school has been increasing progressively (MOET, 2010).

Entry behavior of students was established by Nakhanu (2009) as a factor affecting syllabus coverage. She further observed that students who entered form one with low Kenya Certificate of

Primary Examination mark were found to be slow learners and thus delayed coverage of the syllabus. This view is in agreement with that of Hallahan and Kauffman (1982) who observed that the child with learning disabilities needs individual tutoring in one or more areas of disability. Low entry behavior was identified as a challenge experienced by head teachers in their attempts to provide quality education (Mobegi, 2000).

Mosha (1997) concluded that universities can only teach to their required levels if students enter with recognizable and adequate qualifications. Mwebi (2012) established that the high quality of students admitted in private universities in Kenya and the high students evaluation in various programs was a contributing factor in the expansion of private universities in Kenya. The same can be said of secondary schools and more specifically CDF built secondary schools. Secondary schools admit students from primary schools and so if the quality of primary education is poor like has been established by Uwezo East Africa (2012) then their outcomes are bound to be of poor quality. Maundu (1986) attributed the poor performance in harambee schools to poor caliber of students admitted in those schools. He concluded that good academic performance had a positive effect on future pupil achievement. A study by Wanjohi and Yara (2011) revealed that school category predicts performance of students in KCSE.

Waseka and Simatwa (2015) established that students who entered form one with high KCPE marks were motivated, easier to teach and they easily grasped various concepts in class causing them to score high grades in class and eventually in KCSE. Those with low entry marks were said to lack self confidence, had low self-esteem and performed below average in class and eventually in KCSE. They further established that national and county schools required high entry mark on admission and usually performed better compared to sub-county schools which admitted students with low marks at KCPE. In some of the schools however, students who

entered with low marks out performed those who entered with high marks. They attributed this exception to the rule to a number of factors one of them being that some of these students were in day primary schools and must have faced insurmountable challenges causing them to perform poorly. However, with the advantage of boarding school at secondary level they went ahead to perform well at KCSE. It could also be attributed to the fact that some of the students must have attended primary schools which were understaffed and with limited facilities. Once they joined secondary schools with adequate facilities they were able to score high marks at KCSE because these factors are controlled at secondary school level.

Adrian (2008) posits that many of the performance problems at secondary level have their roots from primary schools. Kenya Certificate of Primary Education (KCPE) is used to select form one students to various cadres of secondary schools on the premise that their performance in KCPE will affect their performance in KCSE. In Kenya, graduation from primary to secondary is based on students' performance in KCPE. Students with good KCPE grades are selected to attend national secondary schools and the students with the next level grades can go to provincial secondary schools. Students not admitted to the national or provincial secondary schools go to district secondary schools (JICA, 2012). A study by Amburo (2011) found out that students' performance in KCPE had a correlation of 0.452 to their performance in KCSE. Jagero (2013) studied how performance of students in KCPE can predict their performance in KCSE and concluded that there was a correlation of 0.0559 between performance in KCPE and KCSE and the correlation was significant at 0.01 levels in a two tailed test.

Nyamongo, Sang, Nyaoga and Matoke (2014) looked at the relationship between school-based factors and students' performance in Kenya Certificate of Secondary Education and they focused on the relationship between teacher qualification and students' performance and the relationship

between school facilities and students' performance. They did not look at the relationship between students' entry behavior (KCPE) marks and performance at KCSE. They also did not study the relationship between school based factors and performance in CDF secondary schools but looked at schools in general. This research however, looked at the influence of entry behavior of students admitted in CDF built secondary schools on their performance at KCSE.

2.3 Teacher Quality and its Influence on Students' Performance

The shortage of well trained and motivated teachers is of particular concern in Africa; notably in Sub-Saharan Africa where 902,000 teachers are needed to reach the target (UNESCO, 2013). This is a source of concern because more teachers must mean better quality learning. According to the Ministry of Education (2014) there were a total of 118,608 teachers at the secondary school level out of which 90.8% were in public secondary schools and 9.2% were in private. Out of all the teachers in public secondary schools 33% were employed by the Boards of Management.

Teacher deployment in public secondary schools is done on the basis of curriculum based establishment (CBE). The pupil- teacher ratio at secondary school level stood at 19.5 with the public schools PTR being 5.7 points higher than the private secondary schools. In Kenya there still exist regional disparities in the distribution of teachers (MOE, 2014). According to GMR (2013/14) learners must be taught by teachers who are trained, motivated and enjoy teaching who can identify and support weak learners. It is therefore incumbent upon the government to ensure that adequately funded national education plans that ensure equitable access to well-trained teachers is made a policy priority. In Education for All National Review 2015, the Ministry of Education Science and Technology recommended that in order to maintain equity

and quality, Teachers Service Commission needs to achieve curriculum based establishment at post primary level with a 1:32 PTR being the national average in secondary schools.

A lot of research that have been carried out on effects of teachers' qualification on student's performance are in agreement that teachers are very crucial in learning. Coleman et al (1966) noted that teacher variable has more pronounced effect on school achievement among pupils from modest background and ethnic minorities. Regardless of the pupils' ethnic group, good teachers exert a greater influence on the achievement of pupils from poor socio-economic backgrounds (Crahay, 2000). Wanzare (2007) notes that teacher quality and quality teaching leads to quality performance.

Eshiwani (1983) argued that because the improvement of education depends mainly on the improvement of teacher competency, there is need for a systematic upgrading and programs for primary, secondary and third level of teaching staff. Eshiwani assumed that the schools were adequately staffed and the only missing ingredient for attainment of quality education was in-service of teachers. Kinyanjui (1974) points out that the caliber of teachers in any school system forms an important input variable, which can have an impact on school outcome, where resources are limited. Bassey and Ikwa (1999) noted that qualitative results depend on the quality of teacher service. Forojalla (1993) observed that for proper implementation of any new, changed or expanded education the necessary teachers must be secured. Teacher preparation however; takes a long period of time this in turn affects learning negatively because poor qualified teachers may remain in the service with the consequent detrimental effect on the system.

Yara and Otieno conducted a research on teaching/Learning resources and academic performance in Mathematics in secondary schools in Bondo District of Kenya (2010). They concluded that lack of trained teachers was found to be significant. They further found out that recent visit to schools by personnel from the Ministry of Education Science and Technology in Kenya revealed that most teachers do not have expertise in their subjects the consequence of which is failure in examinations by students. Birgen (2005) found out that teaching is one of the duties that require both qualification and experience for better delivery. There is an inadequate distribution of teachers between the three categories of secondary schools, National, Provincial and District, with national schools receiving the highest priority followed by provincial schools. This leads to skewed performance in examinations in favor of national and provincial schools (MOE 2010).

Yara and Otieno researched on teaching of Mathematics in the then Bondo District, and their research was confined to the quality of teachers of Mathematics. This research sought to investigate the quality of teachers of all subjects in CDF built secondary schools in Rachuonyo South sub-County and the extent to which it influences performance of students at KCSE.

Kenaz, Kiplagat and Nyongesa (2016) conducted a study on influence of teacher competence on Mathematics performance in KCSE examinations among public secondary schools with the focus of their study being on teacher competence in terms of educational qualification, training and experience. They concluded that the relationship between teacher qualification and performance in Mathematics was positive, strong and statistically significant and that the relationship between teacher experience and performance in Mathematics was positive and statistically significant. Kenaz, Kiplagat and Nyongesa limited their study to one subject

(Mathematics) while this research looked at the influence of teacher quality across all subjects taught in CDF built secondary schools.

2.4 Physical Facilities and its Influence on Students' Performance

In Texas students in deteriorating schools score 10 to 17 points lower on state standardized tests than their counterparts attending schools with adequate facilities (Macgowen, 2007). Glickman (2004) notes that students interviewed regarding the challenges that they face on a daily basis are more likely to note deplorable building conditions rather than curriculum standards. Learning is a complex activity that puts students' motivation and physical condition to the test (Lyons,2002).

Earthman, Cash and Van Berkum (1996) found out that 11^{th} grade students in above standard buildings scored higher as measured by the Comprehensive Test of Basic Skills than did their counter parts attending class in substandard facilities. Cash (1993) found that when socioeconomic factors were constant, facility condition had a significant correlation with student achievement. He found that air conditioning, absence of graffiti, condition of science laboratories, lockers, accommodation, condition of classrooms, furniture, wall color and acoustic levels correlated well with students' achievement at a significant level when controlling for socio-economic status of students.

Saeed and Wain (2011) argued that in developing countries low levels of learning among children can be partly attributed to poor or inadequate facilities of the schools. A report by UNESCO (2002) indicated that educational resources in most developing countries are inefficiently used and do not meet the quantitative and qualitative objectives. A study carried out by SACMEQ (2005) indicated that shortage of physical facilities and other equipment affected

students' learning and their subsequent performance. Majority of the schools have only one science room for all science subjects and in most cases such rooms are ill-equipped.

Eshiwani (1993) noted that the presence of quality school facilities and services are some of the symbols of high educational quality. Physical facilities are the fundamental factors in better learning and achievement of the students. Maundu (1987) asserts that the instructional resources play an important role in explaining the wide variation in academic performance among the students enrolled in different types of schools. Chan (1996) found that technology and adaptabilities of modern environments better equipped students for success and that to ignore that fact is to disregard the physical difficulties of learning.

Fonseca and Conboy (2006) argued that the physical conditions and organization of schools facilitate or inhibit construction of a culture of success. According to Kombo (1988) schools with adequate resources such as laboratories, textbooks and other materials would stand a better chance of having better results than poorly equipped schools. The Kenya Education Sector Support Programme (2005-2011) cites mobilization, prioritization and utilization of resources as some of the problems facing performance in secondary schools. Fuller (1988) reported the same on studies in Uganda and Peru. According to MOEST census report (2014) there were a total of 49,104 permanent classrooms and 5,245 temporary classrooms in use accounting for 89.1% of total classrooms in the country against an average class size of 40.

According to Kombo (1988) schools with adequate resources such as laboratories, textbooks and other instructional materials would stand a better chance of having better results than poorly equipped schools. Most of the upcoming day secondary schools in Kenya are either sponsored through CDF and or communities and parents. Due to the inadequacy of infrastructure,

equipment and facilities in the upcoming secondary schools, provision of quality of education is compromised.

Gogo (2000) deduced that boarding and single sex schools attract more students may be because of better learning/teaching facilities in these schools and better performance. He further observed that enrolment in day schools has remained low due to lack of adequate physical facilities and their poor performance in KCSE. Gogo concluded that the following physical facilities were inadequate hence contributed to the poor performance of secondary schools in the then Rachuonyo District: staff houses, textbooks, halls, special rooms like workshops, laboratories, libraries and home science rooms. He studied performance in all categories of secondary schools in the then Rachuonyo District while this research narrowed down to CDF built secondary schools in Rachuonyo South sub-County and looked at how physical facilities influence performance of students in these schools.

Munda, Tanui and Kaberia, (2010) studied the relationship between selected education facilities and students' academic performance in secondary schools in Bungoma District. In their study they looked at libraries, laboratories and classrooms in terms of students per unit space. They also studied two categories of schools: provincial and district schools and used Descriptive Survey Design. This research looked at the adequacy or inadequacy of these facilities and how they influence performance of students at KCSE in CDF built secondary schools in Rachuonyo South sub-County using Descriptive Survey and Correlation research designs.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter covers research design, study area, study population, sample and sampling techniques, instruments of data collection, validity and reliability of instruments, data collection procedures and data analysis.

3.2 Research Design

The study was conducted through Descriptive Survey and Correlation research designs. Descriptive Survey is based on the premise that problems can be solved and practices improved through objective thorough observation, analysis and description. It involves obtaining information or data through questions and interview schedules in order to test hypotheses or answer research questions of a given study (Thomas and Nelson, 1996). Correlation research was used to evaluate the associations of students' performance at KCPE and KCSE, teacher quality and performance and physical facilities and performance.

3.3 Study Area

Rachuonyo South sub-County is found in Homa-Bay County in Kenya. It is one of the six sub-Counties in Homa-Bay County. At the time of formulating this research it comprised two divisions namely Kasipul and Kabondo and two constituencies: Kasipul and Kabondo/Kasipul. Currently the study area has two sub-counties namely Rachuonyo South and Rachuonyo East. It covers an area of approximately 509.5 square kilometers and is bordered by Nyando sub-County to the North East, Nyamira County to the East, Kisii County to the south East, Rachuonyo North

sub-County to the North West and Homa-Bay sub-County to the South West. The sub-County lies between longitude $34^0$25' and $35^0$0' East and latitude 0^0 15' and $0^0$45' South. It has a population of 220,666 persons and it is inhabited by the Luo tribe whose main occupations are small-scale business and agriculture. About 74% live below absolute poverty line (Republic of Kenya 2005,2010). The high poverty level in the sub-County affects educational activities in that there are inadequate funds to pay school fee and other levies. According to the 1999 census it had a population of 179 788 with a population density of 708 persons per square kilometer (Rachuonyo District Development plan, Republic of Kenya, 2009). The population is mainly youthful with 67% aged below 25years. Approximately 41.2% of secondary school going age (14-17 years) are enrolled in secondary schools. This youthful population has put pressure on social services such as education. There is a high dropout rate attributed to high level of poverty (Omollo, 2013).

3.4 Study population

The study population comprised of 42 principals of CDF built secondary schools in Rachuonyo South sub-County and 1 SCQASO. Hence, 42 principals of the schools and the SCQASO were the respondents. The SCQASO was used because he/she is the one responsible for education quality and standards in the sub-County.

3.5 Sample and Sampling Technique

Out of the 42 principals 5 principals who were used in the pilot study were sampled using Simple Random Sampling technique and then the remaining 37 were picked and used in the main study. Simple Random Sampling was used because the population was homogeneous, that is, all the schools studied were mixed day CDF secondary schools. In addition the SCQASO was sampled using saturated sampling technique.

3.6 Instruments of Data Collection

In this study three instruments were used for data collection. These were questionnaire, interview schedules and document analysis guide. A combination of several instruments ensured better results compared to using a single instrument. Shipman (1992) argues that no single technique is superior to the others but all may have shortcomings. When several methods are used there is the likelihood that the shortcomings of one method will be taken care of by the other methods so that reliable results are finally obtained.

One category of questionnaire was used; principal's questionnaire (appendix ii). Leeds (1980) argues that a questionnaire is preferred in data collection because it is easy to administer to a good number of respondents, who respond in private settings. Both closed and open ended questions were used. The principal's questionnaire required information about the background of the principal, learning/teaching facilities, student's entry behavior and performance, teacher's qualification, experience and teaching methods.

Interview schedule is a self-report instrument used for gathering information about the variables of interest to the investigator. Its purpose is to enable the researcher get extra/ in-depth information and clarification on some issues or questions. Gall (1996) argues that one of the most important aspects of the interview is its flexibility in that questions can be explained or their meanings explained in case they are not understood by the respondent. The SCQASO was interviewed to obtain in depth information on the performance trends of the CDF built secondary schools over the years and how the selected factors influenced performance of these schools at KCSE (appendix iii).

The researcher also analyzed documents to corroborate the information gathered through questionnaires and interviews. Entry behavior records and KCSE results were analyzed and correlated. Teaching methods records and subject means were also analyzed and correlated. Qualification level of teachers and their subject means records were also analyzed.

3.7 Reliability and Validity

3.7.1 Validity

Validity is the degree to which the researcher has measured what he/she set out to measure (Smith, 1991; 106). Cohen and Manion (1994) assert that validity of an instrument is based on how an instrument fulfills the function it is supposed to perform. For face and content validity to be achieved, experts from the Department of Educational Management and Foundations, Maseno University examined the instruments, gave advice and recommendations. Improvement was made according to the recommendations of the experts before the instruments were finally used.

3.7.2 Reliability

Reliability is the degree of accuracy or precision in the measurements made by research instruments. Reliability measures the degree to which a particular measuring procedure gives similar results over a number of repeated trials (Orodho 2004:41) For reliability of instrument of research to be achieved, a pilot study was conducted in 5 CDF built secondary schools which were exclusive of the sample in order to pre-test the instruments for their reliability. The instruments were administered to the principals of the pilot schools. After two weeks the same instruments were administered to the same group and results correlated for reliability. Test-retest reliability was achieved since there was a high correlation of 0.7. Pre-testing the instruments

reinforced their relevance and accuracy. Inadequacies, inconsistencies and weaknesses in the instruments were corrected before they were finally used in the field.

3.8 Data Collection Procedures

After getting an introductory letter from the School of Postgraduate Studies (SGS) and permission to conduct research from Maseno University Ethics Review Committee (MUERC), the researcher proceeded to the sub-County Education Office for familiarization and introduction to the CDF built secondary schools.

The researcher distributed a total of 37 questionnaires to the principals and arranged to interview the SCQASO after booking an appointment. The questionnaires were numbered and responses coded using numbers.

3.9 Method of Data Analysis

Data was analyzed using descriptive and correlation statistics as well as linear multiple regression analysis. Pearson Correlation Coefficient of -1 and +1 was used to analyze the relationships with the following ranges: - /+ 0.7 or higher denoting very strong relationship, -/+ 0.40 to 0.69 denoting strong relationship, -/+ 0.30 to 0.39 moderate relationship, -/+ 0.20 to 0.29 weak relationship, 0.01 to 0.19 denoting negligible relationship and 0 (zero) correlation or no relationship (Theme Horse 2018).

Inferential statistics namely linear regression analysis was used to determine the influence of entry behavior, teacher quality and school facilities on performance of students at (KCSE).

The education production function was:

$Y=F(X_1, X_2, X_3, X_4, X_5, X_6)$ implying that

$Y = b_o + b_1X_1+b_2X_2+b_3X_3 +b_4X_4 +b_5X_5 +b_6X_6$

Where Y is students' performance

X_1 is students 'entry behavior

X_2 is teacher qualification

X_3 is teacher experience

X_4 is science laboratory

X_5 is classroom quality

X_6 is computer laboratory

Qualitative data gathered from the interview with the SCQASO was documented then organized into concepts or themes. The organized data was discussed under relevant objectives and hypotheses of the study.

3.10. Ethical Issues

The research was guided by the expression; "basic ethical principle" which refers to those general judgments that serve as a basic justification for the many particular ethical prescriptions and evaluation of human behavior. The three basic principles which were observed here were: the principle of respect of persons, beneficence and justice. In order to uphold the principle of respect for persons the researcher acknowledged autonomy and protected those with diminishing autonomy. Participants were informed of the purpose of the research, expected duration and the procedures. They were also informed of their rights to decline to participate and to withdraw from the research once it had started as well as the consequences of doing so.

The researcher ensured that participants were informed of potential risks, discomfort or adverse effects and any prospective research benefits. They were adequately briefed on limits of confidentiality and who they could contact with questions. The participants were presented with an informed consent document/form for respondents to sign (appendix i) as proof of willingness to participate in the research.

Data was coded and bore no name of the participants or their schools to protect their identity. The raw data was accessed only by the principal investigator since it was stored in a computer encrypted with a password known only by the principal investigator.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1: Introduction

This chapter covers presentation, analysis and discussion of results for the study. The purpose of this study was to establish if the selected factors influence academic performance in CDF built secondary schools in Rachuonyo South sub-County, Kenya.

The chapter is organized according to objectives that guided the study which were to:

1) Establish the influence of entry behavior of students (KCPE marks) in CDF built secondary schools on their performance at KCSE examination in Rachuonyo South Sub-County.
2) Determine the influence of teacher quality on performance of students at KCSE examination in CDF built secondary schools in Rachuonyo South Sub-County
3) Examine the influence of physical facilities on performance of students at KCSE examination in CDF built secondary schools in Rachuonyo South Sub-County.

The researcher managed to achieve a response rate of 37 (100%).

4.2 Demographic Information

Table 4.1 provides the distribution of principals by years of experience as principals.

Table 4.1 Distribution of Principals by Years in Service

Years in service	No of principals	Percentage
21 and above	1	3.1
16-20	0	0.0
11-15	10	27
6-10	22	59.5
1-5	4	10.8
Total	37	100.0

Table 4.1 shows that of the principals who took part in the study 22 (59.5%) had served for between six and ten years, 10(27%) had served for between eleven and fifteen years, 4 (10.8%) had served for between one and five years and only 1 (3.1%) had served for 21 years and above.

Table 2 below presents distribution of principals by qualification.

Table 4.2 Distribution of Principals by Professional Qualification

Professional Qualification				
BED	**MED**	**PGDE**	**PHD**	**TOTAL**
5	3	0	0	8 (25.0%)
7	5	1	0	13 (37.5%)
8	3	2	0	13(28.1%)
2	1	0	0	3 (9.4%)
22(59.5%)	12(32.4%)	3(8.1%)	0(0.0%)	37(100.0%)

According to the results in Table 4.4, more than half of the principals 22(59.5%) had Bachelor's degree, 12(32.4%) of the principals had Master's degree, while 3(8.1%) had PGDE, and there was none with PhD. All the principals were of the right qualification in terms of level of training and experience.

4.3 Influence of Students' Entry Behavior on Students' Performance at KCSE.

The first objective was to establish the influence of entry behavior of students (KCPE marks) admitted to CDF built secondary schools on their performance at KCSE examination in Rachuonyo South Sub-County. In order to address this objective a null hypothesis was generated, "There is no significant relationship between students' entry behavior and their performance at KCSE examination in CDF built secondary schools in Rachuonyo South sub-County.

Table 4.3 presents the distribution of entry behavior of the students admitted in 2012, their KCPE marks and their KCSE grades in 2015.

Table 4.3: Distribution of Students Admitted in 2012, Their KCPE, Marks and Their KCSE Grades in 2015.

KCPE Marks in 2012	Number of students	%	2015 KCSE Grade				
			A	B	C	D	E
351 and above	1	0.096	1	0	0	0	0
301 to 350	5	0.48	1	2	2	0	0
251 to 300	302	29.038	0	20	32	250	0
250 and below	732	70.384	0	12	34	659	27
TOTAL	1040	100.0	2	34	68	909	27

According to the results in Table 4.2, 732 (70.384%) had an entry behavior of 250 marks and below in KCPE, followed by 302(29.038%) who had KCPE marks of between 251 and 300. Surprisingly only 1(0.096%) of the students was admitted with 351 and above marks to the secondary schools, while 5(0.48%) had between 301 and 350 marks in KCPE. The 2015 KCSE results reveal that 909(87.4%) of the students had a mean grade of D, followed by 68(6.5%) who had C and 34(3.269%) with B. There were 27 (2.596%) students who got grade E while those

with grade A were 2(0.192%). In total 936 (90%) got grades (E &D) while 68 (6.538%) attained medium grades (C) and only 36 (3.461%) managed to get quality grades (B to A) at KCSE.

4.3.1 Principals' Responses on How KCPE Marks Influenced KCSE Outcomes.

Principals' responses on whether KCPE marks influenced KCSE outcomes were as follows. The 'YES' responses were 27 (72.9%) while 'NO' responses were 10 (27%). Table 4.4 shows the reasons given by the principals as to why the entry behavior of the learners affected their performance in secondary schools.

Table 4.4: Principals' Responses on How KCPE Marks Influenced KCSE Outcomes (n=37)

How KCPE marks influenced KCSE outcomes	Frequency	Percentage
• Entry behavior directly influence final results	29	78.4
• Those with 250 and above marks perform well in KCSE	17	45.9
• Those with low marks in KCPE performed poorly in KCSE	15	40.5
• No direct correlation.	4	10.8
• Those with average KCPE marks got above D+	12	37.5
• Those who came with lower marks appear to have worked harder and emerged better than those who came with higher marks.	8	25.0
• Average KCPE marks of students who attained grade C+ and above was higher than the average of those who got below C+	4	10.8
• Most of the students did not do well in English and Kiswahili and this has overall negative impact on our quality of grades	21	56.8

According to the results in Table 4.3, the most common responses on how KCPE marks influenced KCSE outcomes were that entry behavior directly influence final results 29 (78.4%) followed by 21(56.8%) who said that most students did not do well in English and Kiswahili and this had overall negative impact on their quality grades. Another 17 (45.9%) respondents said that those with 250 and above marks perform well in KCSE and 15 (40.5%) of them indicated that those with low marks in KCPE performed poorly in KCSE. Another 12(37.5%) indicated that those with average KCPE marks got above D+ and 8 (25%) said that those who came with

lower marks seemed to have worked harder and emerged better than those who came with higher marks. Only a paltry 4 (10.8%) opined that there was no direct correlation between KCPE marks and KCSE outcomes. Another small number 4 (10.8%) responded that average KCPE marks of students who attained grade C+ and above was higher than the average of those who got below C+.

The questionnaire findings revealed that over 70% of the principals opined that entry behavior directly influenced performance of students at KCSE. They observed that students who enter form one with high KCPE marks performed well while those with low KCPE marks performed poorly. In an interview with the Sub-County Quality Assurance and Standards Officer, he was asked whether entry behavior of students affect their performance at KCSE. He gave a no and yes response. He was of the opinion that entry behavior on one hand does not influence students performance because the two levels are different. He observed that other factors may influence performance at KCPE, for example, may be some students attended primary schools where there were no feeding programmes so the pupils went hungry most of the time and this caused them to perform poorly. Some may be were orphans or were nursing sick parents hence were acting like mother or father. When given a conducive environment at secondary school level they can perform better. On the other hand he observed that entry behavior influences performance in that the CDF built secondary schools end up with so many poor performers who do not compete in class. They are simply satisfied with the fact that they are in secondary school. They also do not pay school fee well. With so many of such poor performers the schools end up performing poorly in national examinations. His views were in agreement with the questionnaire findings. He observed that the CDF built secondary schools in the sub-county admit students with as low as 120 marks out of the maximum 500 marks and these students end up performing poorly at

KCSE because they lack the motivation to learn and they also do not compete in class work. He further observed that the poor performance by these students affects the overall performance of the sub-county negatively. These views are in agreement with those of Waseka and Simatwa (2015) who established that students who enter form one with low KCPE marks lack self confidence, have low self-esteem and performed below average in class and eventually in KCSE.

The findings are further in agreement with the findings by Nakhanu(2009) who established that students who entered form one with low KCPE marks were slow learners and thus delayed the syllabus coverage. Low entry behavior was identified by Mobegi (2007) as a challenge experienced by head teachers in their attempt to provide quality education. Some principals however, said that some students who entered form one with low marks appeared to have worked hard and performed better than those who got higher marks at KCPE. This exception to the rule is in agreement with Waseka and Simatwa (2015) who established that in some schools students who entered form one with low KCPE marks performed better than their peers who entered with high KCPE marks. They attributed this to two probable reasons: these students must have attended day primary schools where they faced insurmountable challenges causing them to perform poorly however, with the advantage of boarding school at secondary level they went ahead and performed well. It could also be attributed to those who were in primary schools that were understaffed and with limited facilities but joined secondary schools with adequate facilities. This enabled them score higher at KCSE because these factors are controlled at secondary school.

Descriptive statistics revealed that the entry behavior of the students admitted into the CDF schools stood on average at 220 marks meaning they attract students with very low KCPE marks.

A correlation was done and it confirmed that there is a positive relationship of 0.811 between students' entry behavior and students' performance at KCSE. The coefficient of determination was calculated and the result was 0.6416 meaning entry behavior accounts for 64.2% of change in KCSE mean score. The finding is in agreement with Amburo (2011) and Jagero (2013) who found out that a student's KCPE mark can predict their performance in KCSE.

Maundu (1986) concluded that poor performance in harambee schools could be attributed to poor caliber of students they admitted. Maundu's findings are in agreement with Adrian (2000) who concluded that many of the performance problems at secondary school levels have their roots in primary schools.

A student's previous ability therefore, determines his/her performance in KCSE. The null hypothesis that there is no significant relationship between students' entry behavior and their performance at KCSE was therefore, rejected since there is a statistically significant relationship of 0.811 between students' entry behavior and their performance at KCSE and entry behavior accounts for 64.2% of change in KCSE mean score.

4.4: Influence of Teacher Quality on Students' Performance at KCSE.

The second objective of the study was to determine the influence of teacher quality on performance of students at KCSE examination in CDF built secondary schools in Rachuonyo South sub-County. In order to address this objective a null hypothesis was generated, "There is no significant relationship between teacher quality and students' performance at KCSE examination in CDF built secondary schools in Rachuonyo South sub-County." The teacher qualities under study were: teacher qualification, training and registration, experience and methodology, and availability.

Table 4.5 below presents analysis of teacher quality per school in all the 37 CDF secondary schools

Table 4.5: Teacher Quality

SCHOOL	MASTERS (5)	BED (4)	PGDE (3)	DIPLOMA (2)	KCSE (1)	TOTAL	QUALITY INDEX
S1	2	4	1	0	2	9	3.444
S2	0	4	1	0	3	8	2.750
S3	1	4	0	1	2	8	3.125
S4	0	4	0	1	2	7	2.857
S5	0	3	0	0	4	7	2.287
S6	0	5	0	1	2	8	3.000
S7	0	3	0	0	4	7	2.287
S8	0	4	1	1	2	8	2.375
S9	1	2	0	0	5	8	2.250
S10	0	4	1	0	3	8	2.750
S11	0	4	0	0	3	7	2.143
S12	1	4	1	0	3	8	3.000
S13	1	5	0	1	2	9	3.222
S14	1	3	0	0	3	7	2.857
S15	0	5	0	0	2	7	3.143
S16	1	3	0	0	4	8	2.625
S17	1	4	1	0	2	8	2.750
S18	0	4	0	0	3	7	2.286
S19	0	4	1	1	2	8	2.875
S20	0	8	0	0	2	10	3.200
S21	0	4	0	1	2	7	2.286
S22	0	6	2	0	2	10	3.200
S23	0	4	0	0	3	7	2.714
S24	0	4	0	1	2	7	3.000
S25	0	4	0	1	2	7	3.000
S26	0	4	1	0	3	8	2.750
S27	0	3	2	0	2	7	2.857
S28	0	4	1	0	3	8	2.750
S29	0	4	2	1	2	9	2.889
S30	1	4	1	0	2	8	3.250
S31	0	4	0	0	4	8	2.500
S32	0	4	0	1	3	8	2.625
S33	0	5	0	1	2	8	3.000
S34	0	4	0	0	3	7	2.714
S35	1	4	0	1	2	7	3.714
S36	0	3	0	0	4	7	2.285
S37	0	2	0	1	4	7	2.000

Table 4.6: Principals' Response on How Teacher Qualification Affect Students' Performance at KCSE (Total Responses n = 37)

How teacher qualification affect students' performance at KCSE	F (%)
• Teacher qualification has very little influence on students performance	8(21.62)
• It affects the mastery of content and influences the methodology, pedagogy and content delivery	28(75.7)
• No correlation between qualification and student performance other factors on the teachers influence performance	5(13.5)
• It gives them morale , confidence influenced by students attitude	24(64.86)
• There is direct correlation between teacher qualification and student performance	22(59.5)
• Qualification of up to degree or diploma level translates to good results but master and PhD may not be relevant	21(56.8)
• Other teachers lack seriousness since they do it for the salary	11(29.72)
• Teacher qualification is important because of exam techniques and skills,	21(56.8)
• Trained teachers with degrees sometimes lack the commitment to perform their duties	10(27)

According to the results in Table 4.6, a big proportion of the principals indicated that teacher qualification affects the mastery of content and influences the methodology, pedagogy and content delivery 28(75.7%) while a small number said it has very little influence on students' performance 8(21.62%). Those who said there is direct correlation between teacher qualification and student performance were many, 22 (59.5%) while only 5(13.5%) noted that no correlation between qualification and student performance other factors on the teachers influence performance. Further, some 24 (64.86%) said it gives them morale, confidence influenced by students' attitude yet 21 (56.8%) said teacher qualification is important because of exam techniques and skills. Another, 11(29.72%), said that other teachers lack seriousness since they do it for the salary and yet another group, 10(27%) said that trained teachers with degrees sometimes lack the commitment to perform their duties.

The principals were asked to explain why teaching experience affect performance of students at KCSE and the results are provided in table 4.7.

Table 4.7: Principals' Response on Why Teaching Experience Affect Performance of Students at KCSE. (Total Responses n = 37)

Why Teaching Experience Affect Performance of students at KCSE	**f(%)**
• Mastery of content and method of delivery hence better results	26(70.3)
• An experienced teacher will detect challenges and individual abilities.	25(67.6)
• More experienced teachers teach exam class repeatedly over the years	23(62.2)
• They understand the length and depth of the syllabus	13(35.1)
• The youthful teachers post better results due to their energy and enthusiasms and ability to fit in easily with the students	12(32.4)
• Those with higher teaching experience have their students score higher mean	22(59.5)
• Experienced teachers have pedagogical approaches required to enhance performance	17(45.9)
• some are examiners and hence have the ability to advise students during exam preparation	21(56.8)
• The teacher out of his/her experience is able to prepare the students better.	13(35.1)
• Deep contact will impact positively in extent to which students read and work extra	7(18.9)

Table 4.7 shows Principals' response on why teaching experience affect performance of students at KCSE. A good percentage said that experience enhanced mastery of content and method of delivery hence better results 26(70.3%). Closer to that it was found that an experienced teacher will detect challenges and individual abilities of learners 25(67.6%), while more experienced teachers teach exam class repeatedly over the years 23(62.2%). Also, experienced teachers understand the length and depth of the syllabus 13(35.1%). The other reasons given included; the youthful teachers post better results due to their energy and enthusiasms and ability to fit in easily with the students 12(32.4%); those with higher teaching experience have their students

score higher mean 22(59.5%); experienced teachers have pedagogical approaches required to enhance performance 17(45.9%) finally some are examiners hence have the ability to advise the student during exam preparation 21(56.8%).

Table 4.8 below presents principals responses on why teaching experience does not affect performance of students at KCSE.

Table 4.8: Principals' Response on Why Teaching Experience Does Not Affect Performance of Students at KCSE. (Total Responses n = 37)

Why Teaching Experience does not Affect Performance of students at KCSE	**f(%)**
• Syllabus coverage is most important	15**(**40.5**)**
• It does though commitment to ones duty plays a greater role	17**(**45.9**)**
• Teaching depends so much on ones zeal and desire to do well	22**(**59.5**)**
• Many a times personality trait, environment and students abilities affect performance more than experience	14(37.8)
• Some teachers are experienced but fatigued some are inexperienced but have vigor to deliver	12**(**32.4**)**
• Every year we admit students with varying academic abilities, thus their brain capacities influence their performance.	10**(**27**)**
• A good teacher will improve results even in year one	8**(**21.6**)**
• Even those who have served for three years can still perform	6**(**16.21**)**
• There is no correlation between the two factors	4**(**10.8**)**

Table 4.8 presents principals' responses on why teaching experience does not affect performance of students at KCSE. First and foremost, syllabus coverage is most important 15 (40.5%), secondly a good percentage said that it does affect though commitment to ones duty plays a greater role 17(49.9%), thirdly, teaching depends so much on ones zeal and desire to do well 22(59.5%) furthermore, many a times personality trait, environment and students abilities affect

performance more than experience 14(37.8%). Some teachers are experienced but fatigued while some are inexperienced but have vigor to deliver 12(32.4%), and every year schools admit students with varying academic abilities, thus their brain capacities influence their performance 10(27%), with another 8 (21.6%) saying that a good teacher will improve results even in year one and 6 (16.2%) indicating that even those who have served for three years can still perform. Lastly 4 (10.8%) stated that there is no correlation between the two factors.

4.4.2 Teaching Methodology

To investigate teaching methodology which the principals use, they were asked to tick against a list of teaching methods. Among these methods were discussion, question and answer, illustration, experiment, demonstration, group work and lecture methods. Table 4.9 presents the results of their responses.

Table 4.9: Principals' responses on teaching methods they commonly use

Teaching methodology	Responses n = 37	
	F	%
Discussion	28	75.7
Question and Answer	26	70.3
Illustration	19	51.4
Experiment	17	45.9
Demonstration	20	54.1
Group work	12	32.4
Lecture	10	27

According to the results in Table 4.9, the main teaching methodology in CDF built secondary schools in Rachuonyo South was discussion 28(75.7%), followed by question and answer 26(70.3%) and demonstration 20(54.1%). Other methods were lecture 10(27%), illustration 19(51.4%), experiment 17(45.9%) and group work 12(32.4%). Teaching methods in the area of study were found to be more learners centered since discussion and question and answer methods

were used by many teachers. This enhances teacher student interaction thus enhancing student learning and performance.

The respondents were asked to list the teaching methods that were most commonly used by subject teachers in their schools and the 2015 subject mean score. Their responses are presented in table 4.10.

Table 4.10: Most Commonly Used Teaching Methods by Subject Teachers and the 2015 Subject Mean Score.

SUBJECT		Teaching Methods								No of teachers	Subject Mean
		A	B	C	D	E	F	G	H		
English	F	18	7	0	0	0	5	4	2	37	5.01
	%	(48.6)	(18.9)	(0.0)	(0.0)	(0.0)	(13.5)	(10.8)	(5.4)		
Kiswahili	F	18	9	0	0	0	5	4	1	37	4.834
	%	(48.6)	(24.3)	(0.0)	(0.0)	(0.0)	(13.5)	(10.8)	(2.7)		
Mathematics	F	12	10	8	0	2	2	2	1	37	3.046
	%	(32.4)	(27)	(21.6)	(0.0)	(5.4)	(5.4)	(5.4)	(2.7)		
Biology	F	7	3	6	8	8	0	3	2	37	4.499
	%	(18.9)	(8.1)	(16.2)	(21.6)	(21.6)	(0.0)	(8.1)	(5.4)		
Physics	F	4	5	4	10	8	1	3	2	37	4.873
	%	(10.8)	(13.5)	(10.8)	(27)	(21.6)	(2.7)	(8.1)	(5.4)		
Chemistry	F	4	3	3	10	10	3	3	1	37	3.804
	%	(10.8)	(8.1)	(8.1)	(27)	(27)	(8.1)	(8.1)	(2.7)		
History & Government	F	13	10	2	0	0	3	9	0	37	6.076
	%	(35.1	(27)	(5.4)	(0.0)	(0.0)	(8.1)	(24.3)	(0.0)		
Geography	F	11	8	4	0	2	5	7	0	37	4.995
	%	(29.7)	(21.6)	(10.8)	(0.0)	(5.4)	(13.5)	(18.9)	(0.0)		
C.R.E	F	12	5	1	1	0	3	10	0	37	6.015
	%	(32.4)	(13.5)	(2.7)	(2.7)	(0.0)	(8.1)	(27)	(0.0)		
Agriculture	F	7	8	2	4	6	4	5	1	37	
	%	(18.9)	(21.6)	(5.4)	(10.8)	(16.2)	(10.8)	(13.5)	(2.7)		
Business Studies	F	10	8	3	0	0	9	5	2	37	5.694
	%	(27)	(21.6)	(8.1)	(0.0)	(0.0)	(24.3)	(13.5)	(5.4)		
Total responses		116	76	33	33	36	40	55	12		

KEY

A – Discussion B -Question & Answer C – Illustration D – Experiment
E – Demonstration F - Group Work G -- Lecture H –Research

According to the results in Table 4.10, the most common teaching method across all the subjects was discussion with 116 responses followed by question and answer with 76 responses. The next most common teaching method was lecture method with 55 responses followed very closely by group work with 40 responses. Demonstration had 36 responses and illustration and experiment were less preferred with 33 responses each. Research was the least preferred teaching method with 12 responses. It reveals that each subject had a preferred teaching methodology as stated by the principals. For instance the most common teaching methodology in English was discussion then question and answer and group work whose percentage responses were 48.6%, 18.9% and 13.5% respectively. In addition lecture and research were also mentioned by 10.8% and 5.4% of the respondents respectively.

The methods that were mostly used in teaching Kiswahili in order of preference were discussion, question and answer, group work, lecture and research with response levels of 48.6%, 24.3%, and 13.5%, 10.8 % and 2.7% respectively. Similarly in teaching of Mathematics the most common method was discussion (32.4%) followed by question and answer (27%), illustration (21.6%) demonstration (5.4%), group work (5.4%) and lecture (5.4%). Research was the least used teaching method in the teaching of Mathematics with (2.1%) responses.

For the three Sciences (Biology, Physics and Chemistry), experiment and demonstration were the most common teaching methods where the responses were 21.6%, 27% and 27% respectively. In Biology the other most preferred teaching methods in order of preference were demonstration

(21.6%), discussion (18.9%), illustration (16.2%), question and answer (8.1%), and lecture (8.1%) and research (5.4%).

In Physics the most preferred teaching methods in order of preference were question and answer (13.5%), discussion (10.8%), illustration (10.8%), lecture (8.1%), research (5.4%) and group work (2.7%) and in Chemistry the most preferred teaching methods in order of preference were discussion (10.8%), question and answer, illustration, group work and lecture (8.1%). Research was the least preferred at (2.7%).

History and Government, Geography and C.R.E all had discussion (34.5%, 29.7% and 32.4%) respectively, lecture (24.3%, 18.9% and 27%) respectively and question and answer (27%, 21.6% and 13.5%) as the most preferred teaching methods in order of preference respectively. The other most preferred methods in History and Government were group work (8.1%) and illustration (5.4%), while in Geography it was group work (13.5%), illustration (10.8%) and demonstration (5.4%) and C.R.E group work (8.1%).

For Agriculture question and answer (21.6%), discussion (18.9%) demonstration (16.2%), lecture (13.5%), experiment and group work (10.8%), Illustration (5.4%) and research (2.7%) were the most preferred teaching methodologies in order of preference. In Business Studies; discussion was the most preferred method at 27% followed by group work at 24.3%, question and answer at 21.6%, lecture at 13.5%, illustration at 8.1% and lastly research at 5.4%.

Principals' were also asked to respond to how their teaching methods influence performance of students in their subject(s) at KCSE. Consequently those who responded on the discussion method said that discussion allows students to have free expression of ideas and sharing. While the other said discussion enables students to exploit and work extra hard to look for more

information for positive results. Another principal said that students' understanding like in Biology is enhanced and hence discussion improves performance in KCSE. Finally on discussion other important responses were that they do further references to the relevant books and encourage the learners to engage in group work and discussions. Concerning question and answer there was a response that use of question and answer allows the teacher to clarify issues/concepts that students may fumble with.

Some responses were that given the resources available the methods are appropriate though ICT integration in lessons would produce better results and that most students can not make their own notes hence lecture method helps.

Some principals who chose to respond on how group work teaching method influences performance of students said that group work and discussion enhances learning since the students are able to appreciate the individual abilities and also sharpen their investigative skills. On the same note one said that, group work assists the slow learners and low achievers to catch up. Yet another was particular that group work enables them to do a lot because the students are given topics per group and questions to discuss on their own before the teacher comes into class.

Some other important observation which were made on the influence of group work on performance were that group work improves participation of the learners making them part of the learning process, leading to progressive growth in subject mean score. There is improved performance when learner centered methods such as group work are used as teaching methods. Another noted that in group work they do further references to the relevant books and it encourages the learners to engage in group work. Finally there was a response that most of our students are average in terms of ability and require other method so as to understand abstract concept.

Those who responded on how experiment and demonstrations teaching methods influence performance of students said that experimentations enable students to remember facts and knowledge application on what is taught in class. While some said experiment and demonstrations enhance practical teaching and that it makes the syllabus coverage to be a bit fast hence improves performance in exams. Other worthy responses were that there is improved performance since learner centered methods such as group work, are used as teaching methods. Most of our students are average in terms of ability and require other methods such as experiments to understand abstract concept thus experiment and demonstrations enable them to understand the concepts yet another noted that experiment and demonstrations are student centered methods hence have led to better grades.

Some Principals preferred question and answer and they said the teacher is able to establish what the learners know and bridge the gap during a question and answer session where students get involved enabling them to have greater interest hence improve performance.

Teaching methodology was investigated and the results presented in table 4.11.

Table 4.11: Principals' Response on how Teaching Methods Influence Students' KCSE Examination Performance. (Total Responses n =37)

How Teaching Methods Influence Students' KCSE Examination Performance	F (%)
• The teaching methods that are students centered are learner friendly	25**(**67.6**)**
• Influences understanding and retention e.g Experiment methods	24**(**64.9**)**
• Many a times students get more interested in learning when methods used involve them	24**(**64.9**)**
• Enhances learning of complex ideas in sciences for they retain more through seeing.	23**(**62.2**)**
• The methods allow students to be active and build confidence in students	23**(**62.2**)**
• Encourage interaction among learners	22**(**59.5**)**
• Enable the students to cover wide topics	22**(**59.5**)**
• Integrating varied methods could produce better results.	21**(**56.8**)**
• Makes students be open minded exposed and ready for exams always	21**(**56.8**)**
• Reinforce concepts which help students remember facts.	21**(**56.8**)**

Table 4.11 presents principals' response on how teaching methods influence students' KCSE examination performance. The main response was that teaching methods that are students centered are learner friendly 25(67.6%), followed by the fact that it influences understanding and retention at 24(64.9%), further, many a times students get more interested in learning when methods used involve them 24(64.9%), at another level, appropriate teaching method enhances learning of complex ideas in sciences for they retain more through seeing 23(62.2%). A similar percentage of principals indicated that the teaching method allow students to be active and build confidence in them. Another, 22 (59.5%) were of the opinion that it encourages interaction among learners and a similar number said that it enables students to cover wide topics. Finally, 21 (56.8%) stated that teaching methods make students be open minded, exposed and ready for exams always. A similar number said that it reinforces concepts which make students remember facts.

4.4.3 Teacher availability

The respondents were asked whether teacher-student ratio affected teaching/learning in their schools. (87.0%) of them said it did affect performance while the remaining 13.0 % said it had no effect. Those who indicated that teacher-student ratio affected teaching/learning in their schools gave the reasons as in Table 4. 12

Table 4.12: Principals' Response on Why Teacher-Student Ratio Affected Teaching/Learning (Total Responses n = 37)

Why teacher-student ratio affected teaching/learning	F	%
• With a high number of students teachers don't give regular assignments, no revision and home work due to fear of marking	26	70.3
• Due to a low teacher student ratio individualized attention can not be achieved for better results	25	67.6
• Higher teacher-Student ratio overloads teachers	25	67.6
• Few teachers imply inadequate syllabus coverage	24	64.9
• Fewer teachers burdens the teachers and makes them less effective	24	64.9
• Low ratio leads to some lessons going untaught.	24	64.9
• Teachers may not be available for consultation by students.	23	62.2
• Lessons go unattended hence failure to complete the syllabus	23	62.2
• Higher turnover of BOM teachers brings inconsistency in teaching	23	62.2
• Students are not professionally handled by teachers on temporary terms.	22	59.5
• We resort to untrained teachers who lack confidence.	22	59.5

Table 4.12 provides the principals' responses on why teacher-student ratio affected teaching/learning. The prominent reason which greatly featured as to why teacher-student ratio affected teaching/learning was that with a high number of students the teachers do not give

regular home work and assignments due to fear of marking 26(70.3%), and that due to a low teacher student ratio individualized attention can not be achieved for better results 25(67.6%) and another 25(67.6%) noted that, higher teacher-student ratio overloads teachers. Similarly, three different groups of principals of 24(64.7%) each responded that few teachers imply inadequate syllabus coverage, then another noted that fewer teachers burdens the teachers on duty and makes them less effective, and that low ratio leads to some lessons going untaught respectively. Finally other responses given by three groups consisting of 22(59.5%) principals each as to why teacher-student ratio affected teaching/learning were that a teacher may not be available for consultation by students, lessons go unattended hence failure to complete the syllabus and that higher turnover of BOM teachers brings about inconsistency in teaching.

Asked whether the high number of CDF built secondary schools affected staffing in the sub-county the SCQASO observed that the schools are so many hence contribute to understaffing in the sub-county because once a school is registered deputy principals are promoted to take up headship positions in the newly registered schools. Some teachers are promoted to be deputy principals. This trend leads to understaffing in two ways; the new schools end up with one or two teachers who cannot efficiently implement the curriculum at the same time the releasing schools lose teachers who are hardly replaced.

In over half of the schools 17(53.1%) there was one teacher per subject followed by two teachers in a subject 10(31.3%). This proves there is an acute shortage of teachers in these schools which is in agreement with the assertion by UNESCO (2013) that the shortage of well trained and motivated teachers is of particular concern in Africa…more teachers must mean better quality learning.

Table 4.13 provides the principals responses on how staffing (adequacy or lack of requisite number of teachers per subject in a school) affected performance of principals as classroom teachers.

Table 4.13: Principals' Responses on How Staffing Affected Their Performance as Classroom Teachers (Total Responses = 37)

How Staffing Affected Their Performance as Classroom Teachers	f(%)
• Increased work load	27(73)
• Inability to teach full load or clear the syllabus	26(70.3)
• Affects administrative duties	23(62.2)
• Inadequate staff led to lessons going untaught	23(62.2)
• Poor staffing led to more lessons besides administration	23(62.2)
• Inadequate time for preparation affect preparation and delivery	22(59.5)
• Use University students and F4 leavers who lack experience and subject matter	22(59.5)
• Assessment, marking books, exams took a toll on my effectiveness as a teacher	21(56.8)
• Understaffing contributed to my dismal performance in school since it denied my classes some contact hours	21(56.8)

Table 4.13 Principals' responses on how staffing affected their performance as classroom teachers. The findings indicate that 27(73%) of the respondents said that poor staffing affected their performance by increasing workload. With few teachers, the principals are likely to sacrifice some of their administrative duties to attend to lessons. Since the principals are engaged in management duties 26(70.3%) of them opined that it would be hard for them to teach fully or clear the syllabus. It was also realized that 23(62.2)% of the principals had their number of lessons increased due to inadequate staffing with a similar percentage affirming that, inadequate staff leads to a number of lessons going untaught. Other reasons given included; poor staffing leading to more lessons besides administration 23(62.2%),inadequate time for preparation

affecting preparation and delivery 22(59.5%) and thus leading to the use of untrained teachers, some with KCSE certificates, who lack experience and subject matter 22(59.5%). Finally, the other respondents indicated that inadequate staffing denied them time to correct students' work and offer remedial instruction 21(56.8%).

The CDF built secondary schools in Rachuonyo South sub-County were found to have few trained teachers. This finding is in agreement with a finding by UNESCO (2013) which established that there is a shortage of 902,000 teachers in Sub-Saharan Africa. It is also in agreement with the MOEST's (2014) admission that in Kenya there still exist regional disparities in the distribution of teachers. The Ministry of Education Science and Technology further observed that learners must be taught by teachers who are trained, motivated and enjoy teaching and so can identify and support weak learners. Due to the significant role played by trained teachers in ensuring that quality education is realized, the Ministry of Education observed that making access to well trained teachers must be a policy priority. Teacher supply to secondary schools by TSC is done based on curriculum based establishment. Based on this criterion the MOEST (2015) recommended that TSC needs to achieve CBE at secondary level with the aim of achieving the national pupil teacher ratio of 1:32 at secondary school level.

To establish the influence of teacher quality on students' performance at KCSE, data on teacher quality (level of training, experience and teaching methods) and subject mean scores were collected and computed in order to get the relationship between the two variables and it revealed that there is a positive relationship at 0.05% level of significance. The relationship was found to be 0.412.The coefficient of determination was 0.1697 meaning teacher quality: training, experience and methodology accounts for 17% of change in KCSE mean score. Trained teachers

were found to post better KCSE mean score compared to untrained teachers, teachers who had taught for five years and above posted better mean scores followed by those who had taught for four years. Teachers who had taught for two years came last. The questionnaire findings were in agreement with Kenaz, Kiplagat and Nyongesa who concluded that the relationship between teacher qualification and performance in Mathematics and the relationship between teacher experience and performance in Mathematics was positive, strong and statistically significant. These sentiments are consistent with the findings of Birgen (2005). Birgen established that teaching is one of the duties that require both qualification and experience. Yara and Otieno (2010) in their research on teaching/learning resources and academic performance in Mathematics in secondary schools found out that lack of trained teachers was found to be significant. They further found that most teachers do not have expertise in their subjects the consequence of which is failure in examinations by students. This view is in agreement with Kinyanjui (1974) who established that the caliber of teachers in any school system forms an important in put variable which can have an impact on school outcome where resources are limited.

The finding further agrees with Crahay (2000) and Wanzare (2007). Crahay found out that good teachers exert a greater influence on the achievement of pupils from poor socio-economic backgrounds. Wanzare concluded that teacher quality and quality teaching leads to quality performance. It also concurs with Coleman (1966) who postulated that teacher variable has more pronounced effect on school achievement among pupils from modest background and ethnic.

4.5 Influence of School Facilities on Students' Performance at KCSE.

The third objective was to examine the influence of school facilities on performance of students at KCSE examination in CDF built secondary schools in Rachuonyo South Sub-County**.** In order to address this objective a null hypothesis was generated, "There is no significant relationship between physical facilities and students' performance at KCSE in CDF built secondary schools in Rachuonyo South sub-County." Data on availability of physical facilities and school means were collected and computed to establish the relationship between the two variables. Almost all the principals, 29 (91.3%), said that lack of physical facilities influences performance of students negatively. The reasons for their assertion were as presented in Table 4.14

Table 4.14: Principals' Response on why Lack of Physical Facilities has Negative Influence on Students Performance. **(Total** Responses n = 37)

Why Lack of Physical Facilities has Negative Influence on Students Performance	**f (%)**
Lack of library text books makes it impossible for learners to make references	26(81.3)
Scarcity of resource breeds unhealthy learning environment e.g. lack of toilets.	26(81.3)
Lack of laboratory denies students chance to learn by practical experience and experiment thus ill preparedness in the science subjects.	25(78.1)
Inadequate chairs and lockers leads to discomfort of students in class	24(75.0)
Inadequate classrooms , some classes may go unattended in adverse weather	24(75.0)
Students learn in unfriendly learning environment.	23(71.9)
Learners lack confidence and motivation in their school.	23(71.9)
Lowers self-esteem of the learners	22(68.8)
Limited physical facilities reduces learners exposure	21(65.6)

Table 4.14 presents principals' responses on why lack of physical facilities has negative influence on students' performance. The most common reason was that; lack of library text books makes it impossible for students to make references 26(81.3%); scarcity of resource breeds unhealthy learning environment for instance, lack of toilets 26(81.6%) followed by

response that lack of laboratory denies students chance to learn by practical experience and experiment thus ill preparedness by learners in the science subjects 25(78.1%); Inadequate chairs and lockers leads to discomfort of students in class 24(75.0%) and that when classrooms are inadequate , some lessons may go unattended in adverse weather 24(75.0%). The other reasons why lack of physical facilities has negative influence on students' performance were that students learn in unfriendly learning environment 23(71.9%) and learners lack confidence and motivation in their school because of scanty and dilapidated learning facilities 23(71.9%).

Similarly, a large percentage 25(78.1%) of the principals felt that schools can do better with improved physical facilities and the reasons were as presented in Table 4.15.

Table 4.15: Principals' Explanation on How Schools Can Do Better With Improved Physical Facilities (Total Responses n =37

How school can do better with improved physical facilities	f(%)
• Spacious classrooms with good ventilation make conducive learning environment	26(81.3)
• Both teachers and students will feel motivated by the good adequate facilities	25(78.1)
• Frequent laboratory demonstration and experiments, interaction with chemicals and apparatus will develop more confidence in them.	25(78.1)
• It will provide enough, secure and comfortable learning zones	24(75.0)
• Library would give students more access to the reference books	24(75.0)
• Laboratory enables performance of a variety of practical lessons, students go through first hand of practical experience enhancing learning	23(71.9)
• Adequate facilities boost teacher morale and giving them ample time for preparation	23(71.9)
• Adequate facilities give a conducive learning environment, students get motivated	23(71.9)
• Attract more students with higher entry behavior. Enhances student confidence	23(71.9)
• Students when given library can do their private studies and home work efficiently.	23(71.9)
• Enables extensive reading in the library hence enhancing knowledge acquisition	22(68.8)
• With offices the teachers comfort will be guaranteed .learning materials will be kept safely.	22(78.8)

Table 4.15 presents principals' opinions on how schools can do better with improved physical facilities. Consequently, the leading response which was given by most principals , 26(81.3%),

on how schools can do better with improved physical facilities was that spacious classrooms with good ventilation make conducive environment for learning, 25(78.1%) principals noted that, both teachers and students will feel motivated by the good adequate facilities and another, 25(78.1%) of them indicated that frequent laboratory demonstrations and experiments, interaction with chemicals and apparatus will develop more confidence in them followed by 24(75.0%) who said it will provide enough, secure and comfortable learning zones and a similar 24(75.0%) commented that library would give students more access to the reference books.

In addition, another considerable number 22 (68.75%) said that laboratory enables performance of a variety of practical experiments, students go through first hand of practical experience enhancing learning, with a another similar percentage (68.75%) responding that adequate facilities boost teachers morale giving them ample time for preparation, another 23(71.9%) noted that adequate facilities give a conducive learning environment, students get motivated and they attract more students with higher entry behavior and enhances students confidence, as well as that students when exposed to a library can do their private studies and home work efficiently.

The researcher used an observation check list to assess the level of adequacy of physical facilities in the CDF built secondary schools in Rachuonyo South sub-County. The result is presented in Table 4.16.

Table 4.16: Observation Check List on the Level of Adequacy of Physical Facilities

Facilities	Adequate(3) f (%)	Inadequate (2) f (%)	Unavailable (1) f (%)	Mean
Classrooms	12 (52.2)	10 (43.5)	0 (0.0)	2.435
Textbooks	0 (0.0)	20 (87.0)	3 (13.0)	1.87
Offices	1 (4.4)	13 (56.5	9 (39.1	1.652
Laboratory	4 (17.4)	10 (43.5)	1 (4.4)	1.435
Library	0 (0.0)	5 (21.7)	18 (78.3)	1.217
Computer rooms	0 (0.0)	4 (17.4)	19 (82.6)	1.174
Teachers houses	0 (0.0)	2 (8.7)	21 (91.3)	1.087

INTERPRETATION: 1.0– 1.65**Unavailable**1.65 – 2.35**Inadequate**2.35 – 3.00**Adequate**

The results obtained in Table 4.16 shows that classrooms ($\bar{X}$ =2.435) were the most adequate physical facility in CDF built secondary schools in Rachuonyo South sub-County, this was followed by Textbooks($\bar{X}$ =1.87), Offices ($\bar{X}$ =1.652) and Laboratory ($\bar{X}$ =1.435). However facilities like Library ($\bar{X}$ =1.217), Computer rooms ($\bar{X}$ =1.174) and Teachers houses($\bar{X}$ =1.087) were generally unavailable.

The Sub-County Quality Assurance and Standards Officer was asked whether the CDF built secondary schools in the sub-county had adequate facilities to support quality teaching and learning. He observed that the schools lacked basic facilities like libraries and laboratories. He even added lack of playgrounds. According to him, CDF builds classrooms but does not put up other physical facilities like libraries so the few available physical facilities in these schools cannot adequately support quality teaching and learning.

A correlation to determine the relationship between facilities and students performance at KCSE revealed that there is a positive relationship between availability and use of laboratory and performance of students. The coefficient of correlation was 0.114 at 0.05% level of significance. The coefficient of determination was 0.0129 meaning availability and use of science laboratory accounts for 1.3% of change in KCSE mean score. This finding is in agreement with Eshiwani (1983) who established that lack of laboratory facilities was a major contribution to poor performance of some schools in KCSE because candidates could not answer questions in practical science subjects. It further agrees with the findings by Kombo (1988) which established that schools with adequate resources like laboratories would stand a better chance of having better results than poorly equipped schools.

The existence and use of information technology was also found to have a positive relationship of 0.108 with students' performance. Coefficient of determination was 0.0116 meaning availability and use of computer laboratories account for 1.2% of change in KCSE mean score. Digitization of learning in CDF built secondary schools is a significant factor in students' performance in CDF built secondary schools. The null hypothesis that there is no significant relationship between physical facilities and students performance was rejected since physical facilities put together account for 14% of change in KCSE mean score.

The opinions of the principals were sought on the factors that influenced the performance of their students. Their responses were analyzed and presented in Table 4.17 below.

Table4. 17: Principals' Opinion on Factors that Influenced the Performance of the students

Principals opinions	No of respondents	Percentage
KCPE entry marks	18	48.65
Quality of teachers	12	32.43
School facilities	7	18.92
Total	37	100.0

From Table 4.17 18(48.65%) of the principals opined that KCPE entry marks influenced the performance of their students, 12(32.43%) of the principals' felt it was quality of teachers while 7(18.92%) indicated that school facilities influenced the performance of their students.

This means that according to the principals, entry behavior of learners is quite critical in determining students' performance. This is in agreement with Amburo (2011) and Jagero (2013). Amburo found out that students' performance at KCPE had a correlation of 0.452 to their performance in KCSE and Jagero discovered that there is a correlation of 0.0559 between performance in KCPE and KCSE. Jagero concluded that performance of students at KCPE can predict their performance at KCSE. As such, theperformance of CDF built secondary schools is determined by the quality of students they admit. For their performance to improve they need to have quality control measures to ensure that only students who perform well in primary schools get admitted into the secondary schools. This however, becomes an uphill task since the CDF schools have scanty teaching/learning facilities and thus unable to attract good performers as deduced by Gogo (2000). Gogo deduced that enrolment in day schools remained low due to lack of adequate physical facilities and poor performance in KCSE.

According to the Quality Assurance and Standards Officer the CDF built secondary schools admit students with as low as 120 marks. These students lack the command of language and numeracy. He further noted that the schools end up with so many poor performers who do not compete in class, they are simply satisfied with the fact that they are in a secondary school. They also do not pay school fee well so they lose nothing even if they fail. When they fail to pay school fee well the schools are starved of the much needed financial resource which can help guarantee quality performance. He concluded that when so many poor performers are in the same class or school they end up performing poorly because they lack the intrinsic motivation to learn and pass.

4.6: Descriptive Statistics

The mean and standard deviations of the variables used in the study were established to give the internal variation and consistency between them, refer to appendix v. Table 4.18 presents descriptive statistics of the variables used in the study.

Table 4.18: Descriptive Statistics of Variables Used in the Study.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Y	37	3.19	7.09	5.0441	1.11132
X_1	37	180.00	268.00	220.3784	24.34286
X_2	37	2.000	3.444	2.779	0.3428
X_3	37	22.00	67.00	46.9162	11.70559
X_4	37	1.00	3.00	1.9730	.76327
X_5	37	1.00	3.00	2.4050	.39924
X_6	37	1.00	3.00	1.1620	.44930
Valid N (list wise)	37				

Y- School performance score (KCSE results)

X_1- Entry Mark

X_2- Teacher Quality

X_3- Teacher Experience

X_4- Laboratory

X_5- Classroom Quality

X_6- Computer Laboratory

According to Table 4.18 the average performance of the learners in the schools of study was found to be a mean score of 5.0441 in the year 2015. The standard deviation was low showing that there was little variation between the school mean scores. The entry mark of the students into the CDF schools stood on average at 220 which means that most of the schools attract students with very low KCPE marks.

Schools used in the study on average had a teacher quality index of 2.779 in a Likert scale of 1-6 while slightly more than 46% of the teachers had more than three years' experience. Over 50% of the schools did not have well equipped laboratories. Slightly less than 50% of the schools had adequate classrooms. Finally, the table shows that on average only 38% of the schools had computer laboratories. That means there is limited integration of ICT in learning in the CDF built secondary schools.

A correlation analysis of the variable was done and the coefficients recorded in Table 4.19.

Table 4.19: Correlation Coefficients of Variables Used in the Study

VARIABLES	X_1	X_2	X_3	X_4	X_5	X_6
Y	0.811	0.412	0.182	0.114	0.334	0.108
X_1	1.000	-0.096	0.276	0.369	0.216	0.335
X_2	0.600	1.000	0.388	0.103	0.382	0.134
X_3	0.276	0.388	1.000	0.346	0.001	0.159
X_4	0.369	0.103	0.364	1.000	0.329	0.388
X_5	0.216	0.382	0.001	0.329	1.000	0.467
X_6	0.335	0.134	0.159	0.388	0.467	1.000

Coefficients are significant at 0.05 level

X_1- Entry Mark

X_2- Teacher Quality

X_3- Teacher Experience

X_4- Laboratory

X_5- Classroom quality

X_6- Computer Laboratory

Coefficient of determination was calculated to establish the contribution of each factor to student performance and the results presented in Table 4.20 below.

Table 4.20 Coefficients of Determination

VARIABLES	R	R^2
X_1	0.801	0.6416
X_2	0.412	0.1697
X_3	0.182	0.0331
X_4	0.114	0.0129
X_5	0.364	0.1107
X_6	0.108	0.0116

The independent variables are interdependent. This may influence the relationship between each independent variable with the dependent variable.

From Table 4.20 there is a strong positive relationship of 0.801 between student entry marks and student performance in KCSE. The coefficient of determination was 0.6416 meaning KCPE mark accounts for 64.2% change in KCSE mean score. This means that the previous ability of a student determines his/her performance in future examinations. The null hypothesis that there is no significant relationship between students' entry behavior and their performance at KCSE was rejected. There is need therefore, to enhance quality at primary school level in order to guarantee quality at secondary school level.

Teacher qualification was found to have a positive relationship with student performance at 0.05% level of significance. The correlation coefficient was strong 0.412 and the coefficient of determination was 0.1697. This means teacher qualification accounts for 17% change in KCSE outcome. It therefore, means that teacher qualification indeed determines student performance. The null hypothesis that there is no significant relationship between teacher quality and students' performance was rejected since the findings revealed that there is indeed a significant relationship between teacher quality and students performance. Teacher experience was found to have a positive of 0.182 relationship with student performance, though not strong at 0.01% level of significance. The coefficient of determination was 0.0331 meaning teacher experience accounts for only 3.31% change in KCSE mean score. Teachers with long experience are likely to have mastered the syllabus and would therefore guide students effectively thus improving performance. It is also through experience that teachers gain knowledge and training in examination setting and marking skills which help them evaluate the learners effectively.

Availability and use of science laboratory was found to be positively related to student performance though not very strongly. The coefficient of correlation was 0.114 at 0.05% level of

significance and coefficient of determination was 0.0129. This means that availability and use of a science laboratory accounts for 1.3 % of KCSE mean score. The weak correlation could be as a result of the fact that laboratories are only used for science subjects while the students' performance was measured in terms of overall KCSE results which encompassed even humanities and languages. Nevertheless, laboratory equipment enhances hands-on learning and thus improved performance. Schools without laboratories would therefore post poor performance especially in science subjects.

Availability of well-built classrooms was found to be having a moderate positive relationship of 0.364 with students' performance. Well-built and furnished classrooms protect the learners from the vagaries of harsh weather conditions apart from enhancing the learners' self-esteem which boosts their confidence thus leading to good performance.

The existence and use of information technology also had a positive relationship with students' performance. The relationship was very weak at 0.108 and the coefficient of determination was 0.0116 meaning that information technology accounts for 1.2% change in KCSE mean score. Computer laboratories and computers were generally unavailable and this could have led to the insignificant contribution of information technology to KCSE mean score of the schools. Digitization of the schools however, can help improve performance their performance.

The null hypothesis that there is no significant relationship between physical facilities and performance of students at KCSE examination in CDF built secondary schools was rejected since school facilities were found to contribute significantly to KCSE mean score.

4.7: Regression Analysis

The dependent variable was regressed against the independent variables and the findings recorded on Table 4.21.

Table 4.21: Regression Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**T**	**Sig.**
1	(Constant)	-2.769	.963		-2.867	.008
	X_1	0.394	.004	0.859	9.317	.000
	X_2	0.183	.012	0.165	1.819	.084
	X_3	0.125	.008	0.225	-2.503	.027
	X_4	0.276	.142	0.191	1.966	.064
	X_5	0.259	.297	0.236	-2.277	.035
	X_6	0.143	.256	.0094	.945	.356

Dependent Variable: Student Performance Score

X_1- Entry Mark

X_2- Teacher Quality

X_3- Teacher Experience

X_4- Laboratory

X_5- Classroom Quality

X_6- Computer Laboratory

Going by the regression coefficients a linear regression equation was developed. Taking Y as the dependent variable and X_1, X_2, X_3, X_4, X_5, X_6 as independent variables the regression equation becomes;

$$Y = -2.769 + 0.394X_1 + 0.183X_2 + 0.125X_3 + 0.276X_4 + 0.259X_5 + 0.143X_6$$

The equation illustrates the effect of each independent variable on the dependent variable. From Table 4.21, there is a positive relationship between student performance and student entry mark. The regression coefficient stood at 0.394 which means that a change of one unit in entry mark would result in an increase of students' KCSE mean by 0.394 units. Teacher qualification was found to have a regression coefficient of 0.183. This means a change of one unit in the number of qualified teachers in a CDF built school would result in an increase of students' KCSE mean by 0.183 units. Consequently the schools should be impressed upon to ensure that students are only taught by qualified teachers for improved performance. Further, teacher experience had a positive regression coefficient of 0.125. This means that a change of one unit in the years of experience of teachers in a CDF built school would result in an increase of students KCSE mean by 0.125 units.

The existence and equipping of laboratories had a regression coefficient of 0.276 with students' performance. It means that a change of one unit in availability and use of a science laboratory would result in an increase of students' KCSE mean by 0.276 units. Classroom quality had regression coefficient with student performance of 0.259. This means an additional one unit in the number of standard classrooms would result in an increase of students' KSCE mean by 0.259 units. Finally, the use of computers in learning had a regression coefficient of 0.143 meaning that a change of one unit in availability and use of computers would result in an increase of students' KCSE mean by 0.143 units. The null hypothesis that there is no significant relationship between school facilities and students' performance at KCSE in CDF built secondary schools was rejected. Going by the regression results, one would conclude that the students' entry mark is critical in determining their performance at KCSE especially in CDF built secondary schools. It

is followed by availability and use of science laboratory, classrooms, teacher quality, computer laboratory and lastly teacher experience in that order.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the findings, conclusion, recommendations and suggestions for further research.

5.2 Findings

5.2.1 The Influence of Student Entry Behavior (KCPE Marks) on Their Performance at KCSE

The findings revealed that a student's entry mark (KCPE marks) influences the student's KCSE outcome. Over half of the principals were of the opinion that KCPE marks directly influence KCSE performance of the students. According to the principals entry behavior is quite critical in determining students' performance at KCSE.

It was found that the CDF built secondary schools used in the study attract students with very low KCPE marks since their entry mark stood at 220 on average. A correlation analysis was done and it revealed that there is a strong positive relationship of 0.801 between student entry mark and student performance at KCSE. Coefficient of determination was 0.6414 meaning entry mark accounts for 64.2% change in KCSE mean score.

Regression analysis was done and a linear equation developed. It revealed that there is a positive relationship between student's entry mark and their performance at KCSE. The regression stood at 0.394 meaning that a change of one unit in entry mark would result in an increase of students'

KCSE mean by 0.394 units. Entry mark (KCPE mark) is therefore, a significant factor that influences performance of students at KCSE.

5.2.2 The Influence of Teacher Quality on Performance of Students at KCSE

The study found out that teacher qualification has a great impact on students' performance since it ensures mastery of prerequisite knowledge and content delivery skills. However, the schools were found to be acutely understaffed since they employed many BOM teachers; 160 out of 284 teachers on duty were employed by boards of management to help mitigate teacher shortage in these schools. Teacher student ratio was found to affect performance since 87.0% of the respondents said it affected teaching and learning in their schools.

Schools in the study had over 60% of their teachers qualified and slightly more than 50% of them had teaching experience of three years. Teacher qualification was found to have a positive relationship with student performance of 0.412 at 0.05% level of significance. Coefficient of determination was calculated to determine the contribution of teacher qualification to KCSE performance and it was found to be 0.1697 meaning that teacher qualification accounts for 17% of change in KCSE mean score. The regression analysis revealed that teacher qualification had a regression coefficient of 0.183 meaning that a change of one unit in the number of qualified teachers in CDF built secondary schools would result in an increase in students' KCSE mean by 0.183 units.

Teacher experience was found to have a regression coefficient of 0.125 at 0.01% level of significance with students' performance, meaning that a change of one unit in the years of experience of teachers in CDF built secondary schools would result in an increase of students' KCSE mean by 0.125 units. It had a positive relationship of 0.182 with students' performance.

Coefficient of determination was 0.0331 meaning teacher experience accounts for merely 3.31% of change in KCSE mean score. Teachers with long experience are likely to have mastered the syllabus and would therefore guide students effectively thus improving performance. It is also through experience that teachers gain knowledge and training in examination setting and marking skills which help them evaluate the learners effectively. In the CDF built secondary schools it is possible that apart from the principal and the deputy, the rest of the teachers are inexperienced and this could explain the low contribution of teacher experience to performance of students at KCSE. Teaching methodology was found to affect performance. Learner centered methods were preferred since they were learner friendly.

5.2.3 The Influence of School Facilities on Performance of Students at KCSE

School facilities were found to influence school performance. The research established that lack of facilities influence the performance of the CDF built secondary schools.

Classrooms were found to be the most adequate facility followed by offices and laboratory. Library and computer rooms were unavailable. Over 50% were found to lack well equipped laboratories and only 38% had some computers.

Availability and use of science laboratories was found to have a moderate positive correlation with student performance of 0.114 at 0.05% level of significance. The existence and use of information technology also had a positive relationship, though weak, at 0.108.

Laboratory was found to have a regression coefficient of 0.276. This means that a one unit change in availability and use of laboratory in a CDF built secondary school would result in an increase in students' KCSE mean by 0.276 units. Coefficient of determination to establish the contribution of availability and use of science laboratory to performance in KCSE was calculated

and the result was 0.0129 meaning science laboratory contributes 1.3 % of change in KCSE mean score.

Availability of computer laboratories was found to influence performance at KCSE positively. The regression coefficient stood at 0.143 meaning a change of one unit in availability of computer laboratories would result in an increase of students KCSE mean by 0.143 units. Coefficient of determination was 0.0116 meaning computer laboratories contribute 1.2% of change in KCSE mean score.

5.3 Conclusion

Based on the research findings it was concluded that the entry behavior of students admitted in CDF built secondary schools is low hence they perform poorly at KCSE since their previous ability upon which secondary school teachers can build is weak. This is in agreement with Adrian (2008) who concluded that many of the performance problems in secondary schools have their roots in primary schools. KCPE is used to select form one students to various cadres of secondary schools on the premise that their performance in KCPE will affect their performance in KCSE. The finding further agrees with Mwebi (2012) who concluded that high entry behavior leads to provision of quality education. Mosha (1997) also concluded that universities can only teach to their required levels if students enter with recognizable and adequate qualifications. This can be said of secondary schools and more so, CDF built secondary schools. The CDF built secondary schools are disadvantaged in that they happen to fall in the category of sub-county secondary schools hence select students after national, extra-county and county schools have selected form one students. This leaves them with students who did not perform well at KCPE. They are forced to admit these students because without students the schools will be closed down

and they also need a good population in order to attract government funding; Free Day Secondary Education capitation grant. The schools are caught in a kind of dilemma. For their performance to improve emphasis should be put on value addition. The government also needs to strengthen primary education so that quality teaching and learning begins at primary level. This will improve their entry behavior as they join form one and will lead to good performance at KCSE.

It was also concluded that teacher qualification is central to good performance of students at KCSE. Trained teachers have the right knowledge and skills to teach effectively and prepare learners for KCSE examinations more so learners in CDF built secondary schools which have inadequate physical facilities. This was found to be in line with Kinyanjui (1974) who pointed out that the caliber of teachers in any school system forms an important in put variable, which can have an impact on school outcome where resources are limited. Yara and Otieno (2010) in their study on performance of Mathematics in secondary schools in Bondo concluded that lack of trained teachers was found to be significant. It is therefore, imperative that Teachers Service Commission which is responsible for providing teachers to schools employ teachers to serve in these schools in order to ensure quality performance. With adequate teachers, both young and experienced, students in CDF built secondary schools can perform better. Teaching methods are also significant when looking at performance of students at KCSE. It was concluded that teachers in the CDF built secondary schools should develop new approaches to teaching and learning in order to improve quality of performance.

The research further concluded that physical facilities are significant when looking at performance of students at KCSE. Good and adequate physical facilities will ensure learning environment is learner friendly and will make teaching and learning enjoyable to both the teacher

and the learner. Dilapidated buildings, and in extreme cases, lack of essential buildings like laboratory, library, computer rooms, classrooms and even offices inhibit learning and this leads to poor performance by the students. Students in CDF built schools where conditions of learning physical facilities are poor lack the motivation to learn. This influences their performance negatively.

The regression results, therefore, leads to a conclusion that the student's entry mark is a significant factor that influences performance of students in CDF built secondary schools. Teacher qualification, teacher experience, science laboratories, computer laboratories all influence performance of students in CDF built secondary schools.

5.4 Recommendations

Based on the findings it is recommended that:

i. The government should come up with a policy that will ensure that CDF schools also get a fair share of top performers at KCPE. This will ensure their performance improves since they will admit students who are hardworking and motivated to learn. The government should also work more to strengthen primary education so that pupils can pass well at KCPE.

ii. CDF built secondary schools should be given priority by Teachers Service Commission when employing teachers since all of them are acutely understaffed. Students in CDF built secondary schools should have access to trained teachers as a matter of priority.

iii. Before a CDF secondary school opens its doors to admit students basic physical facilities like classrooms, libraries, laboratories and administration offices must be put in place. These will make the schools learner friendly and will make them attract high achievers.

5.5 Recommendation for Further Research

Taking the limitations and delimitations of the study into consideration, the researcher makes the following suggestions for further research:

i. The researcher recommends that the influence of other student characteristics like attitude, family/socio-economic backgrounds and discipline can be studied to establish the extent to which they determine the performance of the students admitted in CDF built secondary schools.

ii. The influence of teachers attitude towards students in CDF built secondary schools on the performance of the students at KCSE

iii. Impact of mushrooming CDF built secondary schools on quality of secondary education in Kenya

REFERENCES

Abdulahi OE and Onsanya SA (2010). *Effect of Teacher Effectiveness on Kwara State Secondary Students' Achievement in Mathematics,* University of Liorin Nigeria

Afulo JO (Wednesday, January 9th, 2013). *Ministry jumping the gun in calls to scrap exams,* The Standard Newspaper p27

Anyuor N (Wednesday, June 13,2012). *Quantity vs Quality Rise of 'CDF' schools: Blessing or curse?* The Standard Newspaper p28

Barry J (2005). *The effect of socio-economic status on academic achievement,* Wichita State University Department of Sociology

Basic Education Sector Analysis, Report Kenya 2012. Japan International Co-operation Agency (JICA).

Beeby CE (1996). *The Quality of Education in Developing Countries,* Harvard University Press

Blacksher E (2002). *On being poor and feeling poor: Low socio-economic status and the moral self. Theoretical Medicine.3;455-470*

Chapman DW and Carrier CA (1990). *Improving Educational Quality: A Global Perspective,* New York: Green Wood Press.

Chuck A (2009). *Disparities in the System: The Effects of Free Primary Education (FPE) on the Quality of Education in Nairobi Public Schools.*

Cobbold T (2006). *The Interaction of School Size and Socio-Economic Status on Students Performance,* Canberra, Australia.

Cohen L and Manion L (1994). *Research Methods in Education.* London: Croom Helon Limited

Dhanjis S (2012). *School resources parents and GDP: shaping the future of education.* Journal of business and policy research, vol.7 No.1 special issue pp 161-177.

Elliot M (1998). School Finance and Opportunities to Learn; Does Money well Spent Enhance Students Achievement? Sociology of Education 71, 223 – 245

Everston CM, Hawley WD & Zlotnik M (1985). Making a difference in educational quality through teacher education. Journal of Teacher Education, 36(3), 2-13

Fonseca JS & Conboy (2006). *High School Achievements; Public and Private Schools compared;* New York, Basic book.

Fuller B (1986). *Raising School Quality in Developing Countries. What investment Boost learning?* World Bank Discussion Papers. Washington DC.

Gay LR (1987). *Educational Research: Competencies for analysis and application (Third Edition).* Columbus, U.S.A. Merrill Publishing Company.

Glennerster R, Kremer M, Mbiti I and Takavarasha K (2011). *Access and Quality in Kenyan Education System: A Review of the Progress, Challenges and Potential Solutions.*

Glickman CD (1990). *Supervision of instruction. A developmental approach.* Massachusetts: Nedeem Heights

Gogo JO (2002). *The Impact of Cost-Sharing Strategy on Access, Equity and Quality of Secondary Education in Rachuonyo District, Kenya.* Unpublished MED Thesis, Maseno University.

Gogo OJ (2014). *The Quality of University Education in Kenya: The Working Environment of Lecturers.* LAMBERT Academic Publishing.

Hallahan PD, Kuaffman J.M (1982). *Exceptional Children:* Special educ prentice-Hall, inc, England.

Haki Elimu (2012). *School Children and National Examinations: Who Fails Who?* Dares Salaam, Tanzania.

Hart L (2015). *The Effect of Socioeconomic Status on Student Achievement.* Demand Media

Ingubu M and Wambua BK (2011). *Widening Education Access: Its Implications and Challenges on School Facility Exploitation*. htt://www.muk.ac.ke/ijci/, Moi University.

Jagero N (2013). *How Performance of students in Kenya Certificate of Primary Education can predict their performance in KCSE?* Educational Research International. Vol. 1, No. 3 pp11-19

Jhabani J (Ed) (1997). *Higher Education in The 21st Century*. Nairobi, Kenya.

Juma LAS and Simatwa EMW (2014). *Educational Research (ISSN 2141-5161) Vol.5(5) pp166-178, June, 2014*

Khalid B (Wednesday, August 8th, 2012). *No student, school is destined to fail.* The Standard Newspaper p30.

Kigotho W (Wednesday, January 9th, 2013). *Primary woes bigger than KCPE, experts say.* The Standard Newspaper p26.

Kigotho W (Wednesday, July 25th,2012). *Kenya faring well but can do better.* The Standard Newspaper p25

KNEC (2012). *KCSE Examination Order of Merit-Appendix J*

Kumar R (2005). *Research Methodology. London* , Sage Publications Limited.

Lake Research Partners (March, 2011). *Exploring Student Attitudes, Aspirations & Barriers to Success.* www.lakeresearch.com.

Malenya FL (2008). *The Free Secondary Education Agenda Paper Presented at the Educational Stakeholders Symposium.* Nairobi, Kenya.

Marks G (1998). *Attitudes to school life: their influences and their effects on achievement and leaving school.* Australian Council for Educational Research, LSAY Research Reports.

Mcgowen RS (2007). *The Impact of School Facilities on Students Achievement , Attendance, Behavior, Completion Rate and Teacher Turnover Rate in Selected Texas High Schools* Doctor of Philosophy Dissertation Texas A&M University.

Mobegi F and Ondigi BA (2011). *Coping with quality assurance challenges faced by secondary schools head teachers in Gucha District, Kenya*. Educational Research and Reviews,Vol.6 (12) pp746-752.

MOEST (2014). *Education For All* 2015 National Review: Kenya

Moraga GY (1983). Evaluation of 1982 in-service of secondary school teacher education programmes in Ethiopia. Department of teacher education, Ministry of Education, Ethiopia.

Mualuko NJ (2007). *The Issue of Poverty in the Provision of Quality Education in Kenyan Secondary Schools*. Educational Research Review Vol.2 (7), pp157-164.

Mugenda O and Mugenda GA (2003). *Research Methods: Quantitative and Qualitative Approaches.* ACTS Press, Nairobi.

Munda et. al (2010). *Relationship between Selected Education Facilities and Students' Academic Performance in Secondary Schools in Bungoma District – Kenya.* Kenya Journal of Education Planning, Economics and Management. Vol. 2, pp 97-106

Musili MA (2015). Influence of Teacher Related Factors on Students' Performance in Kenya Certificate of Secondary Education in Public Secondary Schools in Kibwezi Sub - County. Unpublished Master's Thesis, South Eastern Kenya University.

Mwebi B (2012). *Expansion of Private universities in Kenya and its implication on student characteristics, Access Factors, Quality and Completion Rate*. An unpublished Phd Thesis: Maseno University.

Nakhana SB (2009). *Effect of syllabus coverage on student performance in mathematics*. A case study of Kakamega South District. An unpublished MSC Thesis. MMUST

Naoreen B, Aslam S, Nausheen R, Arshad M. (2011). Impact of In-Service Teacher Training on Students Learning Achievement in Mathematics. International Conference on Social Science and Humanity IPEDR Vol 5(2) PP 168 – 174.

Ndata KK (2006). *Development and trends in Education in SSA*. Nairobi: Jomo Kenyatta Foundation.

Ndung'u M (Wednesday, June 13th, 2012). *Like many CDF schools, here 'D' is a pass.* The Standard Newspaper p29.

Ng'alu MM and Bomett JE (2014). *The Role of Constituency Development Fund in Provision of Secondary School Education in Kenya.* International Journal of Scientific & Technology Research Volume 3 Issue 8, August, 2014 ISSN 2277-8616.

Ochieng KR, Kiplagat P & Nyongesa S (2016). Influence of Teacher Competence on Mathematics Performance in KCSE Examinations Among Public Schools in Nyatike Sub -County, Migori County, Kenya. Internal Journal of Secondary Education Vol 4, Issue 5, October 2016 PP 44 – 57.

Odebero OS (Ed.), (2010). *Kenya Journal of Education Planning, Economics and Management.* Vol.2.

Ohba A (2009). *Does Free Secondary Education enable the poor gain access? A study of rural Kenya. CREATE Pathways to Access Research Monograph No. 21*

Ojiambo PCO (2009). *Quality of Education and Its Role in National Development: A Case Study of Kenya's Educational Reforms.* KSRVol.1 Number1

Okwach A (Wednesday, January 11th ,2012). *Thoughts on primary education. Research-based planning key to education sector woes.* The Standard Newspaper p27

Olel MA (2000). *Optimal Utilization of Education Resources in Secondary Schools: A Case Study of Kisumu District*. Unpublished Master of Philosophy Thesis, Maseno University.

Olel EO (2006). *Factors Influencing Quality and Standards of Education in Public Primary Schools in Homa Bay District, Kenya*. Unpublished Masters Thesis, Maseno University.

Omollo OD (2013). *Emerging Academy Resources ISSN: 2276-8475.*

Orodho JA (2004). *Techniques of Writing Research Proposals and Reports in Education.* Masole Publishers.

Otieno KO (2011). *Impact of Constituency Development Fund (CDF) on Access and Equity in Financing Secondary Education in Nyando District, Kenya.* Unpublished MED Thesis, Maseno University.

Oywa J (Wednesday, January 18th,2012). *Why more young learners are turning to suicide.* The Standard Newspaper pp29&32

Passos AF (2009). A comparative Analysis of Teacher Competence and Its Effect on Pupil Performance in Upper Primary Schools in Mozambique and other SACMEQ countries. University of Pretoria. Unpublished PhD Thesis, PP38 – 45

Psacharopoulos G and Woodhall M (1985). *Education for Development: An Analysis of Investment Choices.* New York: Oxford University Press.

Rachel G, Michael K, Isaac M and Kudzai T (2011). *Access and Quality in the Kenyan Education System: A Review of the Progress, Challenges and Potential Solutions.*

Republic of Kenya (2005a). *Sessional Paper no.1 of 2005: A policy framework for education training and research.* Nairobi, Government Printers.

Republic of Kenya Ministry of Education, Science and Technology. *National Education Sector Plan Vol.one*. Basic Education Programme Rationale and Approach 2013-2018 2015.

Republic of Kenya MOEST. *Education For All.* The 2015 National Review 2014.

Republic of Kenya. (2009). *Rachuonyo District Development Plan.* Government Printer, Nairobi.

Republic of Kenya. (2012). *Task Force on the Re-alignment of Education Sector to The Constitution of Kenya 2010 towards a Globally Quality Education for Sustainable Development*. Government Printers, Nairobi. *Research Journal in Organizational Psychology & Educational Studies 2 (3) pp76-83*

Saeed M Ur K and Wain, R. (2011). *Status of Missing Physical Facilities in Government Schools of Punjab*. Journal of Research and Reflections in Education Vol.5 No.2, pp105-127.

Shipman M (1988). *Limitations of Social Research (Third Edition).* London: Longman.

The 2015 Kenya Certificate of Secondary Education (KCSE) Examination Essential Statistics.

Trinder JC (2008). Competency standard-A measure of the Quality of a workforce.The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences Vol 37 (B6a), PP165-168

Tuver B (1987). *What Factors Raise Achievements in Third World?* Review of Education Research 57. Ag225-292

Ugodulunwa CA and Dadughun IS (2003).*An Assessment of Secondary School Students' Performance in Public Examinations.* University of Jos Jos.

UNESCO (2002). *Monitoring and learning Achievement (MLA) Project on quality Education For All (EFA)* Nairobi, Human Science Research Council.

UNESCO (Nov.2009). *Education Indicators: Technical Guidelines*.

UNESCO (1997). *Higher Education in The 21st Century: Achievements and Prospects in The Eastern and Southern Africa Region.* Nairobi, Kenya.

UNESCO (2010). *National Education Support Strategy (UNESS) for the Republic of Kenya.* Nairobi, Kenya.

UNICEF (2001). *We the Children: Meeting the promises of the World Summit for Children.* New York.

Uwezo East Africa (2012). *Are Our Children Learning? Literacy and Numeracy across East Africa.*

Wafula A (Wednesday, January 19th,2011). *Time to rethink the role of teachers in exams.* The Standard Newspaper pp30-31

Waseka LE and Samatwa MW (2015). *Students factors influencing academic performance of students in Secondary education in Kenya.* A case study of Kakamega County. Educational research (ISSN:2141-5161) Vol.7(3) pp.072-087, May 2016

Watkins K (2013). *Too Little Access, Not Enough Learning: Africa's Twin Deficit in Education*. http://www.brookings.edu/research/interactive/africa-learning-barometer.

Yara PO and Otieno KO (2010). *Teaching/Learning Resources and Academic Performance in Mathematics in Secondary Schools in Bondo District of Kenya.* www.ccsenet.org/ass Asian Social Science Vol.6 No. 12

Yount R (2006). *Inferential Statistics. A Look Ahead The Case Study Approach*

APPENDICES

APPENDIX I: INFORMED CONSENT FORM

PROJECT TITLE: Selected Factors Influencing Academic Performance in CDF Built Secondary Schools in Rachuonyo South Sub-County, Kenya.

INTRODUCTION

You are invited to join a research study to look at **performance in CDF built secondary schools in Rachuonyo South Sub-County.** Please take whatever time you need to discuss the study with your teachers and anyone else you wish to. The decision to join, or not to join, is up to you. In this research study, we are investigating the **Selected Factors Influencing Academic Performance in CDF Built Secondary Schools In Rachuonyo South Sub-County.**

WHAT IS INVOLVED IN THE STUDY

If you decide to participate you will be asked to fill a questionnaire. We think this will take you 45 minutes. The investigators may stop the study or take you out of the study at any time they judge it is in your best interest. They may also remove you from the study for various other reasons. You can stop participating at any time. If you stop you will not lose any benefits.

RISKS

There are no risks involved in this study.

BENEFITS TO TAKING PART IN THE STUDY?

It is reasonable to expect the following benefits from this research: you will benefit indirectly from the research findings which will be communicated to you and may help improve performance of students.

Others may also benefit in future from the information we find in the study.

CONFIDENTIALITY

We will take the following steps to keep information about you and your school confidential, and to protect it from unauthorized disclosure, tampering, or damage: data will be coded and will not bear your name or the name of your school, raw data will be accessed only by the principal investigator since it will be stored in a computer encrypted with a password known only by the principal investigator.

INCENTIVES

You will not receive any incentives for participating in this research.

YOUR RIGHTS AS A RESEARCH PARTICIPANT?

Participation in this study is voluntary. You have the right not to participate at all or to leave the study at any time. Deciding not to participate or choosing to leave the study will not result in any penalty or loss of benefits to which you are entitled, and it will not harm your relationship with the investigators or Maseno University.

CONTACTS FOR QUESTIONS OR PROBLEMS

Call Dr Olel M.A at 0721261325 or Dr Gogo J.O at 0703111021 if you have questions about the study, any problems, unexpected physical or psychological discomforts, any injuries, or think that something unusual or unexpected is happening.

Signature of Subject or Representative Date

_____ _____

APPENDIX II: PRINCIPALS' QUESTIONNAIRE

INTRODUCTION

The purpose of the study for which the questionnaire is designed is to collect information on selected factors that influence academic performance in CDF built secondary schools in Rachuonyo South sub-County. The questionnaire is meant to solicit your views on educational resource needs of your school. This information will help educational planners in addressing the problems related to the supply of educational resources for improving students' performance in KCSE. Please fill in the blank spaces provided with relevant responses, tick (√) where appropriate. The information will be treated with utmost confidentiality and used for purposes of the study only.

SECTION A

BACKGROUND INFORMATION

Tick or write your response where appropriate

1. When were you deployed as a principal?_____
2. For how long have you been a principal in this school?_____
3. What is your highest professional qualification? Dip. Ed ( ), PGDE( ), B.Ed ( ), M.Ed (), Masters ( ) Ph.D ( )

SECTION B: INFLUENCE OF STUDENTS' ENTRY BEHAVIOR ON ACADEMIC PERFORMANCE AT KCSE.

1. Complete the table below by filling in the number of students admitted in 2012 who got the range of KCPE marks listed and the number who got the KCSE grades listed in 2015.

KCPE Marks	**Number of students**	**2015 KCSE Grade**				
		A	B	C	D	E
351 and above						
301 to 350						
251 to 300						
250 and below						

How KCPE marks influenced KCSE outcomes	Tick (√)
• Entry behavior directly influence final results	
• Those with 250 and above marks perform well in KCSE	
• Those with low marks in KCPE perform poorly in KCSE	
• No direct correlation.	
• Those with average KCPE marks got above D+	
• Those who came with lower marks appear to have worked harder and emerged better than those who came with higher marks.	
• Average KCPE marks of students who attained grade C+ and above was higher than the average of those who got below C+	
• Most of the students did not do well in English and Kiswahili and this has overall negative impact on our quality of grades	

2. Kindly avail KCPE entry marks of 2012 cohort and their KCSE grades.
3. Did you teach candidates in 2015? Yes ( ) No ( )
4. If yes, what was your subject mean?_____

SECTION C: INFLUENCE OF TEACHER QUALITY ON STUDENTS' PERFORMANCE AT KCSE.

1. Against each subject kindly fill the highest professional qualification of each teacher and the 2015 subject mean.

Subject	Teacher qualification e.g Phd, Master's, B.Ed, PGDE Dip. Ed, KCSE	2 015 Subject Mean
English		
Kiswahili		
Mathematics		
Biology		
Physics		
Chemistry		
History & Government		
Geography		
C.R.E		
Home Science		
Agriculture		
Computer Studies		
German		
Business Studies		

2. In your opinion how does teacher qualification affect students' performance at KCSE?

How teacher qualification affect students' performance at KCSE	**Tick (√)**
• Teacher qualification has very little influence on students performance	
• It affects the mastery of content and influences the methodology, pedagogy and content delivery	
• No correlation between qualification and student performance other factors on the teachers influence performance	
• It gives them morale , confidence influenced by students attitude	
• There is direct correlation between teacher qualification and student performance	
• Qualification of up to degree or diploma level translates to good results but master and PhD may not be relevant	
• Other teachers lack seriousness since they do it for the salary	
• Teacher qualification is important because of exam techniques and skills,	
• Trained teachers with degrees sometimes lack the commitment to perform their duties	

3. Against each category of teaching experience indicate the number of teachers and the 2015 subject mean of each teacher.

Teaching Experience (years)	**Number of teachers**	**2015 subject means**
5 and above		
4		
3		
2		
1 and below		

4. In your opinion does the length of teaching experience affect performance of students at KCSE? Tick your response in the table below

Why Teaching Experience Affect Performance of students at KCSE	Tick (√)
• Mastery of content and method of delivery hence better results	
• An experienced teacher will detect challenges and individual abilities.	
• More experienced teachers teach exam class repeatedly over the years	
• They understand the length and depth of the syllabus	
• The youthful teachers post better results due to their energy and enthusiasms and ability to fit in easily with the students	
• Those with higher teaching experience have their students score higher mean	
• Experienced teachers have pedagogical approaches required to enhance performance	
• some are examiners and hence have the ability to advise students during exam preparation	
• The teacher out of his/her experience is able to prepare the students better.	
• Deep contact will impact positively in extent to which students read and work extra	

Teaching experience does not affect students' performance at KCSE. Use the table below to express your opinion.

Why Teaching Experience does not Affect Performance of students at KCSE	Tick (√)
• Syllabus coverage is most important	
• It does though commitment to ones duty plays a greater role	
• Teaching depends so much on ones zeal and desire to do well • many a times personality trait, environment and students affect performance more than experience	
• Some teachers are experienced but fatigued some are inexperienced but have vigor to deliver	
• Every year we admit students with varying academic abilities, thus their brain capacities influence their performance.	
• A good teacher will improve results even in year one	
• Even those who have served for three years can still perform	
• There is no correlation between the two factors	

5. Which of the following teaching methods do you use? You can tick more than one.

- Discussion ( )
- Question and Answer ( )
- Illustration ( )
- Experiment ( )
- Demonstration ( )
- Group work ( )
- Lecture ( )

6. How do the teaching methods influence performance of students in your subject(s) at KCSE?-

_____

_____

_____

7. List the teaching methods that are commonly used by subject teachers in your school and the 2015 subject mean score. Fill your response in the table below.

Subjects	**Teaching Methods**	**2015 mean score**
English		
Kiswahili		
Mathematics		
Biology		
Physics		
Chemistry		
History& Government		
Geography		
C.R.E		
Home Science		
Agriculture		
Computer Studies		
German		
Business Studies		

8. How does teaching method used by teachers influence performance of students at KCSE examination? Use the table below to express your opinion.

How Teaching Methods Influence Students' KCSE Examination Performance	**Tick (√)**
• The teaching methods that are students centered are learner friendly	
• Influences understanding and retention e.g Experimental methods	
• Many a times students get more interested when methods used involve them	
• Enhances learning of complex ideas in sciences and more practical method for they retain more by seeing.	
• The methods allow students to be active and build confidence in students	
• Encourage interaction among learners	
• Enable the students to cover wide topics	
• Integrating varied methods could produce better results.	
• Open minded exposed and ready for exams always	
• Reinforce concepts which help students remember facts.	

9. What is the enrolment of your school and the total number of teachers?

Number of students	**Number of Teachers**		
	TSC	**Trained B.O.M**	**Untrained B.O.M**

10. How many teachers are you in your subject area?

_____

11. How has staffing affected your performance as a classroom teacher? Use the table below to

How Staffing Affected Their Performance as a Classroom Teachers	**Tick (√)**
• Increased work load	
• Inability to teach fully or clear the syllabus	
• Affects administrative duties	
• Inadequate staff has led to lessons going untaught	
• Poor staffing has led to more lessons besides administration	
• Inadequate time for preparation. affect preparation and delivery	
• Use University students and F4 leavers who lack experience and subject matter	
• Assessment, marking books, exams take toll on my effectiveness as a teacher	
• Understaffing has contributed to my dismal performance in school since it denies my classes some contact hours	

12. How has teacher-student ratio affected teaching/learning in your school? Use the table below to express your opinion.

Why teacher-student ratio affected teaching/learning	**Tick (√)**
• High number of students the teachers don't give regular assignment, no revision , home work and assignments due to fear of marking	
• Due to a low teacher student ratio individualized attention can not be achieved for better results	
• Higher teacher-Student ratio overloads teachers	
• Few teachers imply inadequate syllabus coverage	
• Fewer teachers burdens the teachers and makes them less effective	
• Low ratio leads to some lessons going untaught.	
• Teachers may not be available for consultation by students.	
• Lessons go unattended hence failure to complete the syllabus	
• Higher turnover of BOM teachers brings inconsistency in teaching	
• Students are not professionally handled by teachers on temporary terms.	
• We resort to untrained teachers who lack confidence in subject content delivery.	

13. Do you think staffing has a direct influence on performance of students at KCSE in your school? Yes ( ) No ( ). Explain._____
_____
_____

SECTION D: INFLUENCE OF SCHOOL FACILITIES ON ACADEMIC PERFORMANCE AT KCSE.

1. Lack of physical facilities influences performance of students negatively. Do you agree? Use the table below to express your opinion. You can tick more than one

Why Lack of Physical Facilities has Negative Influence on Students Performance	**Tick (√)**
Lack of library text books and hence student cannot make references	
Scarcity of resource breeds unhealthy learning environment e.g. lack of toilets.	
Lack of laboratory denies students chance to learn by practical experience and experiment thus ill preparedness in the science subjects.	
Inadequate chairs and lockers leads to discomfort of students in class	
Inadequate classrooms , some classes may go unattended in adverse weather	
Students learn in unfriendly and not conducive environment for learning.	
Learners lack confidence and motivation in their school.	
Lowers the self-esteem of the learners	
Limited physical facilities reduces learners exposure	

2. Do you think your school can do better with improved physical facilities? Tick your response in the table below.

How school can do better with improved physical facilities	**Tick (√)**
• Spacious classrooms make good ventilation hence conducive environment for learning	
• Both teachers and students will feel motivated by the good adequate facilities	
• Frequent laboratory demonstration and experiments, interaction with chemicals and apparatus will develop more confidence in them.	
• It will provide enough, secure and comfortable learning zones	
• Library would give students more access to the reference books	
• Laboratory enables performance of a variety of practical lessons, students do first hand of practical experience enhancing learning	
• Adequate facilities boost teacher morale giving ample time for preparation	
• Adequate facilities give a conducive learning environment, students get motivated	
• Attract more students with higher entry behavior. Enhances student confidence	
• Students when given a library can do their private studies and home work efficiently.	
• extensive reading in the library enhance knowledge	
• With offices the teachers comfort will be guaranteed .learning materials will be kept safely.	

3. Against each subject fill the textbook-students ratio and 2015 KCSE mean score?

Subject	**Ratio**	**2015 Mean Score**
English		
Kiswahili		
Mathematics		
Chemistry		
Biology		
Physics		

4. How does textbook-student ratio affect performance of students at KCSE? Tick your response in the table below.

How textbook-student ratio affect performance of students at KCSE	**Tick (√)**
• When books are enough individual work and assignment can be effectively done.	
• Students would have access to the books hence reading culture spending more time reading them.	
• When books are enough they are able to read on their own and discover.	
• More text books ensure reference for learners and repeated reading which improves results.	
• Students don't read and revise well on their own because the books are shared	
• Little personal reading or exercises are done hence impeding performance	
• Enhance time management by students as don't have to travel to access the same book	
• With adequate reference books performance will be improved	
• Lower book student ratio causes inadequate syllabus coverage	

Observation Check List

Facilities	**Adequate (3)**	**Inadequate (2)**	**Unavailable (1)**
Classrooms			
Laboratory			
Library			
Computer rooms			
Textbooks			
Offices			
Teachers houses			

APPENDIX III: SCQASO'S INTERVIEW SCHEDULE

1. Comment on the performance of CDF built secondary schools.
2. The sub-County has so many CDF built secondary schools. How has this high number of CDF built secondary schools affected performance of the sub-County in KCSE over the last three years?

3. How has the high number of CDF built secondary schools affected staffing of secondary schools in the sub-County?
4. In your opinion are the facilities in CDF built secondary schools in your sub-County adequate to support quality teaching and learning?
5. What is the least KCPE marks a student needs to score to transit to a secondary school?
6. Does the KCPE marks influence performance of students of sub-County secondary schools? If so, how?
7. To what extent are the CDF built secondary schools in the sub-County viable in terms of quality performance?
8. Is there need to continue opening these school?

APPENDIX IV: TABLE OF DATA ANALYSIS

School	Entry Mark	Teacher Quality	Teacher Experience	Teaching Methodology	classrooms	Science Laboratory	Computer Room	KCSE Index
S1	218	3.444	58	3	2	1	1	4.344
S2	193	2.750	80	2	3	3	1	4.150
S3	185	3.125	56	3	3	1	1	4.100
S4	221	2.857	45	1	2	1	1	3.938
S5	208	2.287	36	2	3	2	1	3.471
S6	215	3.000	48	3	2	1	1	3.840
S7	210	2.287	22	2	3	2	1	3.727
S8	236	2.375	60	2	3	3	1	3.710
S9	225	2.250	65	1	3	1	1	3.667
S10	243	2.750	68	2	3	2	1	3.643
S11	258	2.143	56	3	3	2	1	5.133
S12	218	3.000	48	2	2	1	1	3.475
S13	188	3.222	76	2	3	2	1	3.429
S14	248	2.857	55	1	3	1	2	5.308
S15	212	3.143	54	1	2	1	1	3.200
S16	268	2.625	58	3	1	3	3	7.090
S17	235	2.750	68	2	3	2	1	4.826
S18	236	2.286	52	3	2	2	2	5.609
S19	231	2.875	58	3	3	1	1	5.128
S20	213	3.200	65	2	2	2	1	3.533
S21	222	2.286	78	2	3	1	1	4.968
S22	220	3.200	48	3	2	2	1	4.958

S23	228	2.714	36	2	2	2	1	4.947
S24	210	3.000	45	3	2	3	1	4.933
S25	238	3.000	32	2	2	3	2	5.522
S26	206	2.750	48	2	2	1	1	4.088
S27	213	2.857	55	3	3	2	1	4.825
S28	234	2.750	52	3	3	2	1	4.824
S29	221	2.889	46	3	2	2	1	4.818
S30	207	3.250	30	2	3	2	1	4.800
S31	211	2.500	28	1	2	3	1	4.609
S32	217	2.625	30	3	3	2	1	4.577
S33	212	3.000	65	3	1	1	1	4.542
S34	198	2.714	56	2	3	3	1	4.500
S35	218	3.714	45	2	2	2	1	4.375
S36	180	2.285	36	3	1	1	1	3.191
S37	258	2.000	40	3	2	3	2	5.326

APPENDIX V: MUERC APPROVAL

MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

Tel: +254 057 351 622 Ext: 3050
Fax: +254 057 351 221

Private Bag – 40105, Maseno, Kenya
Email: muerc-secretariate@maseno.ac.ke

FROM: Secretary - MUERC

DATE: 31st October, 2017

TO: Justus Okoth Ojuok
PG/MED/06023/2011
Department of Educational Management Foundations
School of Education
Maseno University
P. O. Box, Private Bag, Maseno, Kenya

REF:MSU/DRPI/MUERC/00472/17

RE: Selected Factors Influencing Academic Performance in CDF Built Secondary Schools in Rachuonyo South Sub-County, Kenya. Proposal Reference Number MSU/DRPI/MUERC/00472/17

This is to inform you that the Maseno University Ethics Review Committee (MUERC) determined that the ethics issues raised at the initial review were adequately addressed in the revised proposal. Consequently, the study is granted approval for implementation effective this 31st day of October, 2017 for a period of one (1) year.

Please note that authorization to conduct this study will automatically expire on 30th October, 2018. If you plan to continue with the study beyond this date, please submit an application for continuation approval to the MUERC Secretariat by 15th September, 2018.

Approval for continuation of the study will be subject to successful submission of an annual progress report that is to reach the MUERC Secretariat by 15th September, 2018.

Please note that any unanticipated problems resulting from the conduct of this study must be reported to MUERC. You are required to submit any proposed changes to this study to MUERC for review and approval prior to initiation. Please advice MUERC when the study is completed or discontinued.

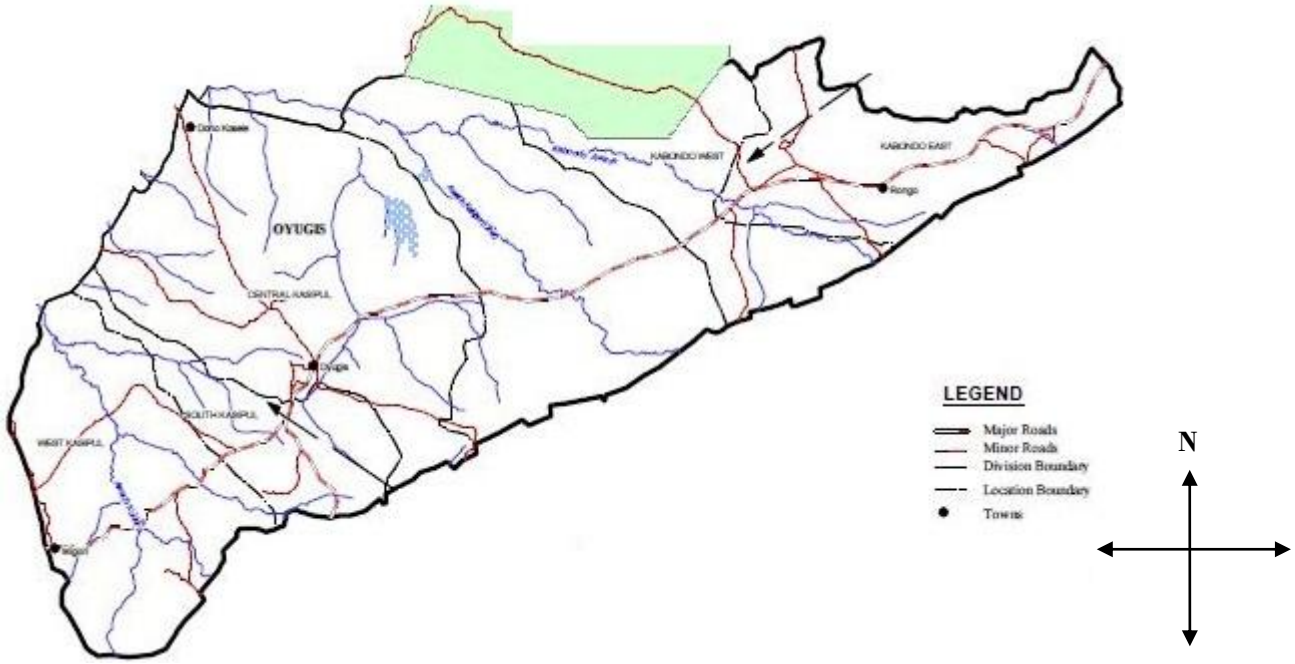
Thank you.

DIRECTORATE OF RESEARCH PUBLICATION & CONSULTANCIES 31 OCT 2017 MASENO UNIVERSITY

Dr. Bonuke Anyona,
Secretary,
Maseno University Ethics Review Committee.

Cc: Chairman,
Maseno University Ethics Review Committee.

APPENDIX VI: MAP OF RACHUONYO SOUTH SUB-COUNTY



Source: ***reliefweb.int***