FACTORS INFLUENCING PUPILS' PERFORMANCE IN MATHEMATICS IN NATIONAL EXAMINATIONS IN PUBLIC AND PRIVATE PRIMARY SCHOOLS IN NYAMACHE SUB-COUNTY, KENYA

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DECLARATION

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

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DEDICATION

This research project is dedicated to my parents, wife and children.

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The completion of this work has been through the significant contribution from several people whom I am deeply indebted. I thank God Almighty for the good health and strength that has kept me going during my study. My sincere gratitude goes to my supervisor Dr. Gakunga and Dr. Caleb Mackatiani, for their patience, indefatigable guidance, positive criticism and encouragement. I also recognize the effort of all the lectures in the Department of Educational Foundations who prepared the framework on which this work was done. I would like to appreciate the effort of all the respondents for participating in this study and in particular the Educational officer Nyamache Sub-County. Appreciation goes to Mary for her assistance in typing and analysis assistance in encoding the data into SPSS. Finally, to all my family members and friends for always being there for me during this study in prayers and moral support. Thank you all for without your support this study would not be a success.

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CAT	Continuous Assessment Test
DEO	Sub-county Education Officer
EFA	Education For All
FPE	Free Primary Education
GMR	Global Monitoring Report
GOK	Government of Kenya
KCPE	Kenya Certificate of Primary Education
MDG	Millennium Development Goals
MOE	Ministry of Education
MOEST	Ministry of Education Science and Technology
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
TPR	Textbook Pupil Ratio
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nation International Child Education Fund
UPE	Universal Primary Education

ABSTRACT

The purpose of the study was to investigate factors influencing pupils' performance in mathematics in public and private primary schools in Nyamache Sub-County, Kenya. The objectives were to determine whether provision and adequacy of teaching and learning materials, pupils' attitude, teaching methods and school curriculum influences KCPE performance in public and private primary schools. Simple random sampling was used to select 30 percent of the schools thus fourteen private schools and twelve public schools participated in the study. Four schools were purposively selected in each of the three educational zones, two best performing and two poor performers of each of the school category. Thus, the total sample for the study comprised of 26 head teachers, 130 teachers, 260 pupils and one educational officer. The data was collected through use of questionnaires, interview schedule and an observation checklist to examine the condition of learning resources and pupils' attitude in the sampled schools. The test-retest technique was used to test the consistence of the instrument. All head teachers' questionnaires were returned 100 percent, 124 teachers questionnaire 95.4 percent and 245 questionnaires were returned from pupils, representing response rate 94.2 percent. Therefore 395 questionnaires were returned a 95.0percent response rate. Collected data was analyzed both qualitatively and quantitatively. The study findings revealed that half of the head teachers in public schools indicated that teaching and learning references books are not available at all in their schools. Provision and adequacy of learning materials and pupils' attitude enhances pupils' performance which is eventually reflected in their KCPE performance. The quality of teachers and teaching is a determinant for learner achievement. The pupil-teacher ratio exceeding 40 to one is a hindrance on learner achievement thus, overcrowding is typically an educational disadvantage to learners. Syllabus coverage and performance have a direct link since pupils go to the examination room having covered all the course content. The study recommended that the government through the ministry of education should ensure early disbursement of funds for the provision of learning materials in public schools to ensure that pupils' performance is not hindered by the unavailability and inadequacy of these materials. The researcher suggests that a study should be carried out to find out to compare performance in science subjects in private and public primary school.

CHAPTER ONE
INTRODUCTION

1.1 Background to the study

Education is the process by which humans ensure that knowledge, skills, values and attitudes are passed onto the next generation (Shiundu & Omulando, 1992). According to Bishop (1995), formal education is characterized by the grouping of children into classrooms for regular instructions, administration of examinations and certification. UNESCO (2003), states that the goal of achieving Universal Primary Education (UPE) has been on the international agenda since the Universal Declaration of Human Rights affirmed in 1948, that elementary education was to be made freely and compulsorily available for all children in all nations. This objective was restated subsequently on many occasions by international treaties and in the United Nations conference declarations Millennium Development Goal number two states that by the year 2015, globally, all children need to be enrolled into schools to eradicate illiteracy and poverty.

In many parts of the world, an enormous gap persists between the number of pupils graduating from primary schools and those among them who perform well in their final examinations, so as to ensure transition to secondary education. Aims at pushing net enrolments towards 100 percent must assure quality learning conditions and opportunities in the rigidity of school programmes and schedules (GRM, 2005).

Mathematics is one of the core subjects in primary school curriculum. Performance in the subject is crucial for learners' future assimilation into scientific and technological professions. Academic performance is the degree,

to which education can be of a high standard, satisfies basic learning needs and enriches the lives of learners in their overall experience of living (GOK, 2010). According to UNESCO (2005), academic performance is the enrichment in the process of learning and outcomes of learning achievement. This is one that identifies learners' performance, cognitive developments as a major explicit objective of all education systems. Promoting values and attitudes of responsible citizenship and nurturing creative and emotional development. GMR (2005), state that education is equated with high standards as a set of criteria against which an institution or system is judged. It includes learners who are healthy, ready to learn and are supported in learning by their characteristics to improve interventions in education.

Providing relevant and equitable education to an increasing number of children, youths and adults is both a challenge and an opportunity (Cash, 1993). The rate of economic growth limits governments' budgetary allocation to meet the growing demand for education and that of population increase (Koech, 1999). According to World Bank (2004), academic achievement in learning when assessed in school systems produce a multitude of outputs, from equipping students with knowledge and cognitive skills to cultivating creative minds and fostering civic and moral values.

In USA, provision of child-centred education is key to the development of individual child's personality, talent and abilities. In recognition of the fact that every child has unique characteristics, interests, abilities and learning needs, thus primary education is not examination oriented (Psacharopoulos & Woodhall, 1985). In Australia, Aborigin learners', poor academic performance is attributed to socio-cultural effects such as poor home background and lack

of passion for school activities by the parents (Chalmers, 2007). Learning resources such as teaching and learning materials, human resource and school curriculum have an effect on the academic performance that a learner achieves in the learning process (Caskey, 2002).

Academic performance consists of learners' characteristics dimension, content dimension, enabling inputs dimension and outcomes dimension (UNESCO, 2005). For high standards in the learning process, governments need to invest steadily in teaching profession and provision of learning resources. Use of learning resources to achieve academic excellence needs building of classrooms, libraries, playing fields, clean water points, sanitation and avail safety in school environment (SACMEQ, 2011). According to GOK (2010), academic performance is determined by; availability of qualified and motivated teachers and educational personnel, a conducive environment for learning and teaching, relevant curriculum facilities, the resources available for use and tools used for evaluation. Performance needs sustained improvements of these determinants at all levels of education. GMR (2005), states that performance is reflected by a range of indicators, including government spending on education, pupil teacher ratios, teacher qualifications, test scores and the length of time pupils spend in school.

Learning resources are tools that enhance literacy in mastery of school curriculum. Availability, adequacy and use of learning resources by the teacher and pupils is evidence of better learning. Without teaching and learning resources the learning process becomes rigid, rely heavily on rote learning which places pupils in a passive role. Learning resources avails structured teaching which is a combination of direct instruction guided

practice and independent learning which creates a child-friendly school environment (Ngugi, 2006).

Success or failure of learning is in the availability, adequacy, use, and management of learning resources, pupils' attitude, experienced teachers, time on task, and content assessment (OECD, 2006). The quality, adequacy and availability of learning resources and use by teachers and pupils strongly affect what teachers can do to learner achievement (Sifuna, 2008). Learning resources are critical ingredients and curriculum cannot be implemented without them (World Bank, 2004). Academic achievement is expressed in terms of curriculum achievement as grades, and examination performance, creative and emotional development as well as changes in values, attitudes and broader socio-economic gains such as job market and societal benefit. The importance of provision and use of adequate learning and teaching resources, to support educational development and quality upgrading, has been one of the most important input that determine student performance (World Bank, 2004).

Students' attitude towards Mathematics and mathematics learning and their implications for mathematics instruction have long been a common interest among mathematics educators. Attitude towards mathematics has been considered an important factor in influencing participation and success in mathematics. Weidmann and Humphrey (2002) state that investigation into student mathematics attitude and perspective not only informs teachers, parents, and administrators about students' needs, but also serves as a catalyst for reform in mathematics education. There is research evidence showing that students' high performance in mathematics is not necessarily positively

associated with their attitudes about mathematics and mathematics learning. Results of Third International Mathematics and Science Study (TIMSS) revealed that while Japanese students outperformed students from many other countries in mathematics, they displayed relatively negative attitudes towards mathematics (Mullis, 2000). The reported gender difference in attitude towards Mathematics influenced some researchers to study some affective variables as mediators of gender differences in Mathematics achievement (Casey et al, 2001).

Learning resources when made close to classroom activities improves literacy levels. Hines (1996), observed that schools in Virginia U.S.A had eleven percent lower in substandard buildings compared to learners whose buildings were standard. According to Levin (2007), in the United Kingdom, curriculum and its implication for space, has been evaluated and reading sessions were recommended that they left the normal classroom to a special room for reading lessons. In California, textbooks and instructional materials are pointers to academic performance for they are the primary means in which learners access the knowledge and skills specified in the state content standards (Corcoran, Thomas, Lisa, Walker & Lynne, 1988). According to Sylva (2011), some European countries such as United States, Britain and Canada

have attained high levels of quality assurance in their educational human resource system as a result of some strategies and adequate attention given to teacher education, empowerment, motivation and all other aspect of motivation.

According to SACMEQ (2011), in South Africa, learning resources for the provision of education are distributed in favour of poorer schools. National

framework for education in rural areas is formulated and focused on infrastructure, improving access to curriculum resources, especially schools serving the poor. In Sub-Saharan Africa, countries like Malawi, education in primary schools are under-resourced, under-staffed and under-funded, creating extremely challenging teaching and learning conditions of pupils and teachers alike, where lessons are at times carried outside due to lack of classrooms.

There is lack of textbooks, and other learning materials and teacher pupil ratio goes up to 96:1 whilst the government recommend 60:1 ((Wildeman, 2005). According to Riddell (2003), private primary schools in Zimbambwe are better resourced and the schools stand a better chance on the influence of learning resources to pass examinations better unlike those from state schools. According to MOE (2010), public and private schools, in Kenya, existence, growth, expansion or decline has a far reaching implication on the socio-economic development of citizens. These types of schools strive to provide quality education to its pupils. MOEST, (2005), state that despite the heavy investment government puts in the public primary school sector, and resultant expansion of education, the country still register poor performance in government sponsored primary schools. However, private primary schools seem to be doing better in KCPE performance.

Saitoti (2005), observes that students from private schools are not well taught but drilled to pass examinations. Despite the continued persistence of private primary schools consequently taking up most seats in national and provincial secondary schools, they cannot be done away with since they complement the government's effort in one of its Millennium Development Goals of providing

Education For All. Okumbe (1998), states that the challenge is to ensure that the education provision in public and private primary schools is of acceptable educational quality. Uwezo (2010), found out that disappointing levels of learning among primary school children is shown on the consistent dominance of private schools in attaining high KCPE scores, which has raised concerns about the rising disparity in educational outcomes between public and private primary school.

Table 1.1: 2013 – 2017 KCPE performance in private and public primary schools Nyamache Sub-County

School type	2013	2014	2015	2017	2017
Public	296.40	232.25	269.44	230.97	215.08
Private	337.48	322.51	300.75	305.11	256.97

Source: Nyamache Sub-County Education Office (2018)

From Table 1.1 private schools in Nyamache Sub-County are performing better than their public counterpart. Further the study present2ed the performance of mathematics in both public and private primary schools to compare the performance between 2013 and 2017.

Table 1.2: 2013 – 2017 mathematics performance in private and public primary schools Nyamache Sub-County

School type	2013	2014	2015	2016	2017
Public	42.71	49.12	41.00	39.86	32.71
Private	50.19	53.07	47.09	46.42	37.89

Source: Nyamache Sub-County Education Office (2018)

Data contained in Table 1.2 shows that though mathematics is poorly performed in both category of schools, public primary schools are performing poorer than private schools in Nyamache Sub-county. Its thus against this

background that the current study sought to establish the cause of this difference.

1.2 Statement of the problem

There is widespread interest in improving the level of mathematics performance in schools. Apart from the economic benefits of better preparing young people for the numeracy demands of modern work place and raising the overall skill levels of the work force, there are also social benefits tied to improving access for larger numbers of young people to post- school education and training opportunities and laying stronger foundation to skills for lifelong learning. The interest in raising levels of performance has led to a focus on identifying the range of factors that shape performance as well as understanding how these factors operate to limit or enhance the performance of pupils.

In Nyamache Sub-County, there are more private schools (45) than public primary school (40), though with the introduction of FPE, pupil enrolment in public schools is high. The academic performance in public primary schools has been constantly lowly performed. However, private primary schools register higher mathematics scores in the KCPE examinations outshining their public school counterparts. Therefore, this study sought to establish factors that influence mathematics performance in both public and private primary schools in the sub-county.

1.3 Purpose of the study

The purpose of the study was to investigate factors influencing pupils' performance in mathematics in public and private primary schools in Nyamache Sub-County.

1.4 Objectives of the study

i. To establish whether provision and adequacy of teaching and learning facilities influence mathematics performance in public and private primary schools in Nyamache Sub-County.
ii. To investigate whether pupils' attitude influences mathematics performance in public and private primary schools in Nyamache Sub-County.
iii. To establish the extent to which teaching methods influence mathematics performance in public and private primary schools in Nyamache Sub-County.
iv. To determine whether teacher pupil ratio influences mathematics performance in public and private primary schools in Nyamache Sub-County.

1.5 Research questions

i. How does the provision and adequacy of teaching and learning materials influence mathematics performance in public and private primary schools in Nyamache Sub-County?
ii. To what extent does pupils' attitude influence mathematics performance in public and private primary schools in Nyamache Sub-County?
iii. How do conditions of teaching methods influence mathematics performance in public and private primary schools in Nyamache Sub-County?
iv. How does the teacher-pupils ratio influence mathematics performance in public and private primary schools in Nyamache Sub-County?

1.6 Significance of the study

The study hopes to provide information on the qualitative and quantitative aspects of the influence of learning resources on mathematics performance; the findings of the study may create a platform for future scholars to further research on academic performance. The information hopes to provide education stakeholders with qualitative aspects of both public and private primary schools and their effects on pupil performance. The study may enlighten the Ministry of Education on factors leading to the success or failure of influence of learning resources on the learning process in a bid to provide high academic performance.

1.7 Delimitations of the study

The study was carried out in Nyamache Sub-County and conducted in public and private primary schools in the area.

1.8 Limitations of the study

The study sought to establish the influence of learning resources on the academic performance; some respondents may be reluctant to provide useful information in fear of exposing their positive or negative weaknesses, to overcome this, the researcher assured the respondents that their identity was not revealed and the responses were only used for the purpose of the study only. The geographical topology of the sub-county hindered easy access of school to overcome this drawback the researcher used cheap and convenient means like motor bikes to access the schools.

1.9 Assumption of the study

The study was based on these assumptions;

i. Provision and use of learning resources in form of textbooks and other teaching aids can contribute significantly to the academic performance.

ii. Teachers' qualification and experience contribute greatly to the academic performance.

iii. Teacher pupil ratio and class size influences academic performance.

1.10 Operational definition of central terms

Academic performance – schools mean scores in K.C.P.E examination

Adequate – Meeting the basic essential needs such as provision of learning resources

Education resources – inputs; teachers, teaching and learning materials and pupils' attitude

Examination – The process of evaluating the curriculum development in a pupil. It tells how well a student a pupil has learnt a particular concept

Teaching and learning resources – materials and tools that pupils and teachers use in the course of their learning like textbooks, charts, globes, pens, pencils, note books, maps, chalks, dusters, radio and computers.

Physical facilities – Equipment and facilities that teachers and pupils use in the course of their teaching like classrooms, libraries, toilets, chalkwall, playground and workshops

Private primary schools – Refer to a primary school owned and managed by an individual or a non-governmental organization.

Public primary schools – Refer to those primary schools, which are fully sponsored and managed by the government through MoEST.

Quality of education – The worth or value one gets by being a consumer of education. In this context, quality of education shall be measured in terms of worth or value of merit gained in achievement of curriculum development at K.C.P.E level

Teacher pupil ratio – The average number of pupils per teacher in primary school

Teacher quality – The academic qualification, the professional qualification and the teaching experience of a teacher

Teaching methods – refer to the pedagogical processes applied by the teacher to teach mathematics to primary school pupils.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter consists of the related literature on the influence of learning resources on academic performance between public and private primary schools. It was discussed based on the concept of academic performance, provision of learning resources, pupils' attitude, teaching methods, school curriculum, summary of the literature review, theoretical and conceptual framework.

2.2 Concept of academic performance

Academic performance is an educational essential that sets means for curriculum achievement. World Declaration on Education For All (EFA) (1990), noted that, generally, poor quality of education needed to be improved and recommended that education be made both universally available and more relevant. Emphasis should be placed on assuring an increase in children's cognitive development by improving the performance of their education (MoEST, 2006). Primary school education examination should aim at quality and used as a tool for measuring and monitoring school performance and value-added improvement in student (Williams, 2000). Teaching and learning process should serve as a handy checklist to reflect whether and to what extent schools have provided the right teaching and learning environment for the achievement of high scores.

Education is measured through assessments and plays a key role in understanding the level of incidence of factors that affect the improvement of

academic performance, which is a tool of change in students' academic performance (Sifuna, 2003).

According to GMR (2005), the essential academic performance in primary schools is shown by learners' examination achievement, which determines how much and how well children learn and the extent to which their education translates to the KCPE performance. It is the teaching and learning process that brings the curriculum to life, which determines what, happens in the classroom and subsequently dictates the performance of the learning outcomes.

2.3 Influence of teaching and learning facilities on pupils' performance in mathematics in national examinations

According to Eshiwani (1993), education resources account for scholastic differences between types of schools. The provision of learning materials is the most crucial resource to educational performance. For instance, textbooks, whether designed for use in activities led by the teacher or independently by the students, offer basic instructional design formats, and has implications for academic improvements in the educational system (MoE, 2007). The Ministry of Education under the FPE policy the government continues to provide textbooks for all public primary school students each year for each core subject; Kiswahili, English, Math, Science, Social Studies and Religious Studies. The program has aimed at achieving 1:1 textbooks ratios with every student, but loss of books has prevented this from happening at certain schools (Ngugi, 2003).

According to SACMEQ Report (2011), only 78 percent of the Standard 6 pupils had at least one exercise book, a pencil or a pen, and a ruler. There is a large difference between public (77%) and private schools (90%) in the

provision of these three basic learning materials. However, with the introduction of the SIMBA accounts to be disbursed to public primary schools there has been a significant improvement in the pupil-textbook ratio in Kenya.

In 2010, the government implemented a new formula of funds for instructional resources. Schools which had fewer textbooks per pupil were to receive greater amounts of money than those schools that had more textbooks. For schools to receive these funds, they are required to submit their Textbook-Pupil Ratios (TPR) data to the Sub-county Education Officers (DEO) and Municipal Education Officers (MEO) each term. The DEOs and MEOs are required to monitor schools in their areas to ensure the prudent use of instructional resources (MoE, 2010). Insufficient conditions for learning facilities and the inadequate resource level found in many schools in developing countries, cause dismal academic performance.

According to Mackatiani (2017) public primary schools in Kenya have inadequate physical facilities that do not actualize the quality of education at primary education level. Furthermore, Sylva (2011) indicated that the comparative analysis on the provision of learning resources is better in private schools than in public or state schools.

2.4 Influence of pupils' attitude on performance of mathematics in national examinations

Pupils' attitude towards mathematics and mathematics learning and their implications for mathematics instruction have long been a common interest among mathematics educators. Attitude towards mathematics has been considered an important factor in influencing participation and success in mathematics. Weidmann and Humphrey (2002) state that investigation into

student mathematics attitude and perspective not only informs teachers, parents, and administrators about students' needs, but also serves as a catalyst for reform in mathematics education. There is research evidence showing that students' high performance in mathematics is not necessarily positively associated with their attitudes about mathematics and mathematics learning.

Results of Third International Mathematics and Science Study (TIMSS) revealed that while Japanese students outperformed students from many other countries in mathematics, they displayed relatively negative attitudes towards mathematics (Mullis, 2000). The reported gender difference in attitude towards Mathematics influenced some researchers to study some affective variables as mediators of gender differences in Mathematics achievement (Casey et al, 2001). However, little consensus existed among researchers regarding the influence of affective variables on gender and mathematics achievement. Some studies reported statistically significant effects of affective variables on the learning of Mathematics (Casey et al, 2001; Ho et al 2001, Ma and Kishor, 1997), while others indicated no relationship between attitude variables and Mathematics achievement (Papanastasious, 2000).

Moreover, there was still a controversy regarding the educational implications of the results. For example, some researchers concluded that although statistically significant, the mean effect size for the relationship between attitude towards mathematics and achievement in Mathematics was not strong enough to have useful implications for educational practice (Ma and Kishor, 1997). One explanation for inconsistent findings regarding the relationship between attitude and Mathematics achievement was that such a relationship existed only with respect to particular Mathematics content areas (Casey et

al,1997; Ma, 1997) and for specific affective variables (Ho et al, 2000). Studies have shown that factors such as motivation and attitude have impacted students' achievement (Cote and Levine, 2000; Singh, Granville and Dika, 2002). Tymm (2001) investigated 21,000 students attitude towards math and suggested that the most important factors were the teacher and students' academic level, while age, gender and language were weakly associated with attitudes. Webster and Fisher (2000) study revealed that rural and urban students' attitude in math and career aspiration positively affected their performance. Altermat and colleagues (2002) found that students' attitude changes could be predicted and influenced by types of classmates. The student's attitude towards an academics subject is crucial factor in learning and achievement in that subject. Whether a student views himself or herself as a strong or weak person in a specific subject may be an important factor in his or her academic achievement. Papanastasiou (2002) showed that there is a positive relation between Mathematics and math achievement. According to Schreiber (2002), those who have positive attitudes towards Mathematics have a better performance in the subject. In Kenya, studies done by Auma (2004) and Achieng (2007) looked at the relationship between teacher factors and student Mathematics achievement as factors affecting mathematics performance but did not consider students attitude.

2.4 Influence of teaching methods on pupils' performance in mathematics in national examinations

Classroom methodology is likened to school which depends on teacher / pupil ratio. A high school teacher / pupil ratio as 1:50 does not allow much personal attention and low ratio is not better either. However, teaching effectiveness

increases with decreased teacher pupil ratio up to a certain point. Teaching style depends upon size of class. The teacher is critical in classroom methodology. He/she has to create the learning environments, specify the nature of learning activities and decide on the suitable learning resource. According to Nyongesa (2004), the difficulties that arise for teachers' methodology include: teachers inadequate presentation, pace of work, unsuitability of learning resources, topic sequencing and language levels. Mackatiani et al (2018) concurred that when teacher centered approaches were as a result of strained resources and teacher competencies.

The teaching style and methodology that, Mathematics teaching at all levels should include opportunities for: exposition by the teacher discussion between teacher and students and between the students themselves, appropriate practical activities, consolidation and practice of fundamental skills and routines, problem solving including the application of mathematics to everyday situations and investigational work. However, the report says that the list of opportunities does not guarantee good methodology. It is the context in which these activities take place, the importance attached to it and the relationship between them that are the real determine factors.

Activity based methods of teaching depend significantly on the incorporation of suitable learning resources. The use of resources is critical in ensuring that learners develop an appreciation and enjoyment of Mathematics through a variety of appropriate practical activities. The use of resources and the resulting activities enhance students' understanding of Mathematical concepts. It is important for the teacher to identify well in advance the resources needed

for a particular lesson and develop a clear understanding of the role the teaching/learning resources will play in the lesson (Mereku, 2003).

Several studies in teaching methods of Mathematics have been carried out. Forrester (2000) investigated the role, implementation and effectiveness of practical activities of learner's post 16. The study concluded that practical activities enhance the understanding of Mathematics regardless of the learner's age. Mereku (2003) investigated the extent to which a particular activity based teaching method is employed in teacher's classroom practice and not necessarily how effectively the method has improved learners performance. The study used a range of procedures for data collection. These were analysis of moved and discourse patterns in observed lessons and a survey of teaching skills used in teachers classroom practice. The study found out that teachers should use investigation or activity methods which are directed towards learning task that encouraged inquiry, creativity and manipulative and m annual skills, Teachers should make pupils learn by activity and not passive reception of what is taught, and emphasize understanding rather than rote memorization. Too (2006) investigated the use of teaching activities.

Demonstration method is defined by Callahan and Clark in (1990), as where students learn more by seeing than by hearing and demonstration combines seeing and hearing. The steps involved in demonstration includes:- Explanation and demonstration by demonstration, Imitation by observation, Evaluation by demonstration and observation, Re-demonstration if necessary, Observer imitation, Re-evaluation by demonstration and observation. In addition to this, the teacher should also allow time for questions, clarifications and comments ad additional and ask learner to copy the point down; give

concluding remarks and give the class follow up activities if necessary. These groups could also be utilized in a wider project wherein groups 5 – 6, the audience could work on a project. Brainstorming is a technique of generating idea from the learners. It involves posing question or challenge to the learners and either the teacher or the leader of the group taking note of all the possible answers /responses before disclosing and evaluating them. The idea generated makes excellent springboard for discussion and problem solving. The study sought to establish teaching methods in Nyamache sub County ensuring that teaching and learning resources are put in proper use to achieve the desired outcomes in mathematics.

2.6 Influence of teacher pupil ration on pupils' performance in mathematics in national examinations

Teachers play an important role in the implementation of the curriculum and this particularly impacts on the quality of education offered. New Zealand has two main staffing components; that is, student number at each year level and base components which every school receives regardless of the size and special needs staffing based on the number and severity of special needs students which is calculated as 2.5 teacher hours per week for high needs students, and 5 teacher hours for very high needs students. The PTR in most developing countries is in a worrying state (UNESCO, 2006) this is similar to the Kenyan Secondary school staffing model which takes cognizance of the number of subjects taught in a school, the number of streams and the lessons per week MOE (2009).

According to the Ministry of Education (MOE 2003) there exists overstaffing in urban schools. This is due to the fact that married teacher's request to be

posted close to their spouses. However, the official policy is to have all public schools staffed with qualified teachers. According to Okwach and Odipo (1997) there were varying teacher pupil ratio in Kenyan schools depending on whether the schools are urban, rural, public or private. They indicate the ratio of 3.6.1 for rural public, 34.1 for urban public and 25.1 for private primary schools. There is a general belief that a low pupil-teacher ratio results in better pupils achievements in school. This belief is supported by Tindall (1988) who found out that large class sizes contributed to declining performance of students. According to Tindall small pupil teacher ratio was a solution to educational problems in inner city schools. The high PTR in many developing countries is as a result of large enrolments following the quest for universal primary education and the increasing teacher shortages. With such enrolments and reduced number of teachers, the available teachers face serious obstacles in an attempt to deal with over-crowded classes. These high enrolments have caused low efficiency in the schools which is one of the main reasons for the poor quality of education offered in many primary schools in the developing countries (UNESCO, 2006). Therefore, this study sought to investigate the influence teacher-pupils ratio on performance in national examinations.

2.7 Summary of literature review

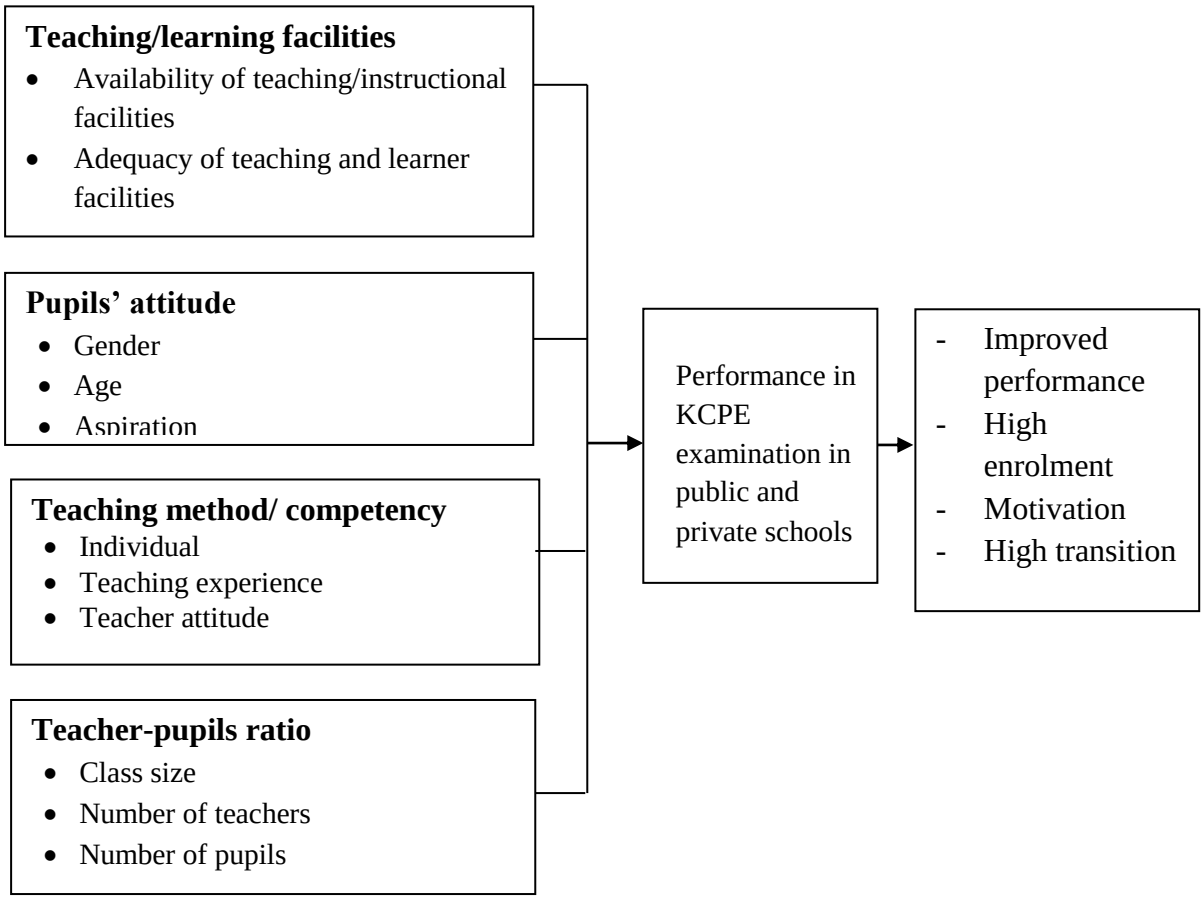
Quality teaching is the use of pedagogical techniques to produce learning outcomes for students. It involves several dimensions, including the effective design of curriculum and course content, a variety of learning contexts, soliciting and using feedback, and effective assessment of learning outcomes. It also involves well-adapted learning environments and student support services. Support for quality teaching can be manifested through a wide range

of activities that improves academic performance of students. Change is conducive to improved quality teaching and learning only to the extent that an appropriate internal organizational support is in place. Institutions are complex adaptive systems and there is no single pathway to make change happen and achieve real improvements in academic performance.

There is always a need for a mechanism to review and control the learners' academic performance delivered during a teaching and learning process with regard to the provision of learning resources. The implementation of these measures emphasize on quality, equity and the adoption of low cost strategies for the development of learning resources. This study sought to identify the influence of learning resources on the academic performance in public and private primary schools.

2.9 Conceptual framework

Figure 2.1 Relationship between variables in the factors that influence academic performance in public and private primary school



The conceptual framework indicates the following variables, which were measured against the factors that influence academic performance in both public and private primary schools. In the conceptual framework shows factors that influence academic performance. These institutional factors hamper the teaching and learning process, students need to come into contact with teachers, text books, classrooms, relevant content and other facilities. Each variable (teaching and learning resources facilities, pupils attitude, teaching methods and teacher-pupil ratio) is determined in facilitating

teaching/learning process was reflected in mathematics performance as the outcome.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology under the following topics; research design and target populations, Sample size and sampling procedures, Methods of data collection, Validity and reliability of instruments, operation definition of variables and techniques of data analysis.

3.2 Research design

A research design is a plan or blue print of how you intend to conduct the research Strydom et al, (2005). Huysmans (1993) is a plan or blue print according to which data is collected to investigate the research hypothesis or question in the most economical manner. Descriptive survey research design was used in this study because it enables the researcher to obtain information that describes existing phenomena by asking individuals about their perceptions, attitudes, behaviour and values. This design was therefore, deemed appropriate, as it enabled the researcher to reach as many respondents as possible within a short time and obtain the real picture as at the ground.

3.3 Target population

According to Mugenda & Mugenda (2003), in order to provide an accurate and reliable description of characteristics, attitude and behavior of its members a sample of the population to be studied is sufficient. For this study, the target population was drawn from Nyamache Sub-County in public and private primary schools, which are 41 and 45 in number respectively. Therefore, the target population of the study consisted of 41 head teachers, 328 teachers and 1640 pupils in public primary schools whilst, 45 head teachers, 398 teachers

and 1125 pupils in private primary schools (Nyamache Sub-County office, 2018). The educational officer in the area participated in the study.

3.4 Sample size and sampling techniques

A sample is a small proportion of a population selected for observation and analysis (Best & Khan, 2002). Mugenda & Mugenda (2003) ten percent to thirty percent (10% to 30%) of the population can be picked from a large population. Therefore forty five private schools and thirty four public schools participated in this study. To identify the individual schools the researcher used purposive sampling to select four schools in each of the three educational zones, two best performing and two poor performers of each of the school category. All the head teachers in the sampled schools participated in the study. Simple random sampling was used to get five teachers and ten class eight pupils were sampled from each sampled school. Thus, the total sample for the study comprised of 14 private schools and 12 public schools. Thus, 14 private and 12 public school head teachers, 70 private and 60 public school teachers, 140 private school pupils and 120 public school pupils and one educational officer participated in the study.

3.5 Research instruments

Mugenda and Mugenda (2003) define research instruments as instruments with which to collect the necessary information. The data was collected through use of questionnaires and an interview schedule. Questionnaires for head teachers, teachers and standard eight pupils were used to collect data. A questionnaire enables the researcher to collect information that can easily be analyzed. They also allow for anonymity of respondents. Questionnaires comprised of two

section; section A and Section B. Section A consisted of respondents' demographic information while section B consisted of information on the influence of learning resources on academic performance. In the study; the primary data was obtained by directly talking to the respondents' at office level to get reliable and accurate information. The researcher used an observation checklist to examine the condition of learning resources and pupils' attitude in the sampled schools.

3.6 Pilot study

Piloting is used by sampling few research tools to check the accuracy and appropriateness of the research method to be applied (Mugenda & Mugenda, 2003). For this study the researcher used three public primary schools from the study area to administer questionnaires to three head teachers, six teachers, and nine pupils. While two private schools were sampled where two head teacher, four teachers and six pupils were used for the pilot study.

3.6.1 Validity of data collection instruments

Validity refers to the degree to which a method, a test or a research tool actually measures what it is supposed to measure. According to Kothari (2006), instrument validity refers to accuracy and meaningful inferences made based on the results obtained. Expert judgment from the supervisors in the department was used to assess the extent of the items in the instruments, address the objectives as well as whether the format of the instruments is correct.

3.6.2 Reliability of data collection instruments

Mugenda and Mugenda (2003) define reliability as a measure of the degree to which a research instruments yields consistent results or data after repeated tests when administered a number of times. The aim of pretesting is to gauge the clarity and relevance of the instruments. The test-retest technique was used to test the consistence of the instrument. This is where the instruments were administered to the same group twice. If the instrument is reliable, the individuals taking the test are supposed to score the same or similar scores in the second test as they did the first one. To ensure reliability of the findings, there was a time lapse of two weeks between the first test and the second test for within this short period of time, the respondents were in a position to remember what they wrote in the first test. A correlation coefficient shows the size and direction of a relationship between two sets of scores.

3.7 Data collection procedures

A permit was obtained from the National Council for Science and Technology and with a clearance from the University. The first letter was presented to the Sub-County Commissioner and the Sub-County Education Office with copies for the various schools that were sampled. The researcher explained the purpose of the study, created rapport and assured the respondents of their confidentiality of their identities. Data collection took twenty working days. The questionnaires were handed to individuals within the education offices and schools. The second instrument was an interview schedule for the education officer, which was held with key informants using the checklist from different sampling points.

3.8 Data analysis techniques

Data analysis refer to a variety of activities and processes that a researcher administers to make certain decisions regarding the data collected from the field, in order to get meaning and be able to explain various features from raw materials (Mbwesa, 2009). The data was edited first to identify the errors made by the respondents. Data collected was analyzed both qualitatively and quantitatively. Quantitative data was analyzed by use of descriptive statistic technique and presented in frequency distribution tables, pie charts, bar graphs and percentages that display systematically and meaningful report was provide adequate report to the findings. Qualitative data was analyzed and interpreted by organizing data into themes or topics guided by the objectives of this study then established the relationship among these themes or topics.

3.9 Ethical considerations

This research was put into consideration ethical issues that relate to social research provision. First the research sought permission from the university to conduct data collection and follow with other relevant authorities in relevant institutions where the study was conducted. Again the researcher did not give incentives were issued in order for the respondents to participate in the study. The respondents' identity was treated with utmost confidentiality to protect the provided information.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presented and discussed the findings of the study. The study investigated factors influencing pupils' performance in mathematics in national examination in public and private primary schools in Nyamache Sub-County, Kenya. Data was collected using questionnaires for head teachers, teacher and pupils sample population. An interview schedule was used to get data from the Education officer and an observation checklist was used by the researcher to survey on the availability and condition of teaching and learning resources and pupils' attitude. Collected data was compiled into frequencies and percentages, and then presented in tables. The data was then interpreted to answer the following research questions; how provision and adequacy of teaching and learning materials, pupils' attitude, teaching methods and teacher pupil ratio influence KCPE performance in public and private primary schools.

4.2 Instrument return rate

The study sample comprised of 14 private primary schools and 12 public primary schools. Thus, 14 private schools and 12 public school head teachers, 70 private and 60 public school teachers, 140 private school pupils and 120 public school pupils participated in the study. Therefore, 416 questionnaires were administered. The 14 private and 12 public school head teachers' questionnaires realizing 100 percent return rate. In regards to teachers, 65 teachers' questionnaires were returned from private schools, which was 92.9 percent return rate, while 59 teachers' questionnaires from public primary school, realizing 98.3 percent return rate. Pupils' questionnaires from private primary schools realized 90 percent return rate, which were 126

questionnaires, while 119 public school pupils' questionnaires were returned, that was 99.2 percent return rate which was considered satisfactory as suggested by Mugenda and Mugenda (2003) that over 70 percent response rate in social science studies is satisfactory. Moreover, the response rate from public schools was higher among all the respondents than in private schools.

4.3 Demographic information of the respondents

The study sought to establish the demographic information of the respondents to give an insight on the respondents' characteristics, which included respondents' gender, age bracket and school category. The researcher sought to find out the respondents' gender distribution and presented the findings in Table 4.1.

Table 4.1 Respondents' gender distribution

Gender		**Head teachers**		**Teachers**		**Pupils**	
		F	**Percentage**	**F**	**Percentage**	**F**	**Percentage**
Male	**Public**	8	30.8	15	12.1	52	21.2
	Private	9	34.6	27	21.8	61	24.9
Female	**Public**	4	15.4	44	35.5	67	27.4
	Private	5	19.2	38	30.6	65	26.5
Total		**26**	**100.0**	**124**	**100.0**	**245**	**100.0**

Data contained in Table 4.1 revealed that 65.4 percent of the head teachers were male, while 66.1 percent of the teachers were female and 53.9 percent of the pupils were female. The findings also reveal that female teachers in private schools were slightly higher than in public primary schools.These findings are an indication that females were more than males in schools in Nyamache Sub-County.

The researcher sought to find out respondents' age brackets and the responses were tabulated in Table 4.2.

Table 4.2 Respondents' age bracket

Age bracket	Head teachers				Teachers			
	Private		Public		Private		Public	
	F	%	F	%	F	%	F	%
Below 30 years	2	14.3	0	0.0	27	41.5	4	6.8
30 – 40 years	7	50.0	0	0.0	24	36.9	42	71.2
40 – 50 years	4	28.6	2	16.7	3	4.6	5	8.5
Over 50 years	1	7.1	10	83.3	11	1.5	8	13.6
Total	**14**	**100.0**	**12**	**100.0**	**65**	**100.0**	**59**	**100.0**

Table 4.2 showed that all head teachers in public primary schools were more elderly than their counterparts in private schools. This was because all the public school head teachers were over 40 years old while only 35.7 percent of private school head teachers were over 40 years. From the teacher respondents' 41.5 percent of private school teachers were below 30 years while 71.2 percent of public school teachers were between 30 to 40 years. These findings imply that there are more elderly teachers in public primary schools than in private schools which have a higher population of younger teachers.

The researcher then sought to find out pupils' age and presented the findings in Table 4.3.

Table 4.3 Pupils' age

No of years	Public		Private	
	F	Percentage	F	Percentage
12 years	7	5.9	42	33.3
13 years	13	10.9	52	41.3
14 years	32	26.9	27	21.4
15 years	67	56.3	5	4.0
Total	**119**	**100.0**	**126**	**100.0**

The study findings showed that 51.4 percent of the pupils in public primary schools are aged fifteen years while 48.6 percent of the pupils in private schools are aged 13 years. These findings imply that more pupils in public primary schools are older than their counterparts in private primary schools who seem to complete primary education while younger.

The researcher sought to find out respondents' school category distribution and presented the findings in Table 4.4.

Table 4.4 Respondents' category of schools

Response	Head teachers		Teachers		Pupils	
	F	Percentage	F	Percentage	F	Percentage
Public	12	46.2	59	47.6	119	48.6
Private	14	53.8	65	52.4	126	51.4
Total	**26**	**100.0**	**124**	**100.0**	**245**	**100.0**

The study findings in Table 4.4 revealed the study area had more private primary schools, 53.8 percent, than public primary schools, 46.2 percent. These findings also agreed with data collected from the SCEO's office on the

list of schools and their category distribution. Teachers were more in private schools, 52.4 percent, while pupils 51.4 percent were more in public schools. These findings imply that teacher pupil ratio in public primary schools is higher than in private primary schools due to the high number of pupils and low teacher population in public schools. While teacher population in private school is high and their pupil enrolment is low.

4.4 Influence of provision and adequacy of teaching and learning materials on pupils' performance in mathematics in private and public primary schools

The study sought to establish whether availing adequate teaching and learning materials influence performance in national examination, Objective I, the researcher provided respondents with statements on a likert scale on various materials used during teaching and learning process. Head teachers responses are presented in Table 4.5.

Table 4.5 Head teachers' responses on availability and Adequacy of Teaching/learning materials

Head teachers' response	Public n = 12						Private n = 14					
	Not available		Inadequate		Adequate		Not available		Inadequate		Adequate	
	F	%	F	%	F	%	F	%	F	%	F	%
Course books	0	0.0	9	75.0	3	25.0	0	0.0	0	0.0	14	100.0
Exercise books	0	0.0	1	8.3	11	91.7	0	0.0	0	0.0	14	100.0
Reference books	6	50.0	4	33.3	2	16.7	0	0.0	0	0.0	14	100.0
Writing tools	0	0.0	11	91.7	1	8.3	0	0.0	0	0.0	14	100.0
Library books	7	58.3	4	33.3	1	8.3	0	0.0	0	0.0	14	100.0
Class-reader corner	4	33.3	8	66.7	0	0.0	0	0.0	0	0.0	14	100.0
Wall charts	0	0.0	12	100.0	0	0.0	0	0.0	0	0.0	14	100.0

Table 4.5 showed that 50 percent of the head teachers in public schools indicated that learning reference books are not available at all in their schools, while all the head teachers indicated that writing are not available. Moreover, 91.7 percent of the head teachers indicated that exercise books in public schools are adequate, while 58.3 percent, 33.3 percent and 8.3 percent of public schools do not have library books, class-reader corners. On the other hand, all head teachers in private school indicated that all teaching and learning materials are adequate in their schools with an exception of 50 percent and 91.7 percent who indicated that available materials are not adequate on learning materials and equipment was not effectively availed in all schools. Also there is an existing disparity on the provision of teaching and learning materials in public schools than in private schools.

Teachers' responses on availability and adequacy of teaching and learning materials are presented in Table 4.6.

Table 4.6 Teachers' responses on availability and adequacy of teaching and learning materials

Teachers' response	Public n = 59						Private n = 65					
	Not available		Inadequate		Adequate		Not available		Inadequate		Adequate	
	F	%	F	%	F	%	F	%	F	%	F	%
Key course books	0	0.0	0	0.0	59	100.0	0	0.0	0	0.0	65	100.0
Exercise books	0	0.0	48	81.4	11	18.6	0	0.0	0	0.0	65	100.0
Reference books	0	0.0	52	88.1	7	11.9	0	0.0	0	0.0	65	100.0
Writing tools	0	0.0	31	52.5	28	47.5	0	0.0	0	0.0	65	100.0
Library books	0	0.0	42	71.2	17	28.8	0	0.0	0	0.0	65	100.0
Class-reader corner	0	0.0	59	100.0	0	0.0	0	0.0	0	0.0	65	100.0
Wall charts	0	0.0	59	100.0	0	0.0	0	0.0	0	0.0	65	100.0

The teachers' responses in Table 4.6 concurred to the head teachers' responses on the adequacy of teaching and learning materials. Teachers in public schools indicated that 100 percent of the key course books, 18.6 percent of exercise books, 11.9 percent of references and 28.8 percent of library books were adequate. 78.6 percent teachers in public primary schools indicated that inadequacy of teaching and learning materials, while all teachers indicated that teaching and learning materials and equipment are not available in their schools. Private primary school teachers stated adequacy of all teaching and learning materials. This was an indication that adequacy of teaching and learning materials was lower in public primary schools than in private primary school.

Further, pupils' responses on the availability and adequacy of teaching and learning materials are presented in Table 4.7.

Table 4.7 Pupils responses on availability and adequacy of teaching and learning materials

Pupils' response	Public n = 119						Private n = 126					
	Not available		Inadequate		Adequate		Not available		Inadequate		Adequate	
	F	%	F	%	F	%	F	%	F	%	F	%
Key course books	0	0.0	0	0.0	119	100.0	0	0.0	0	0.0	126	100.0
Exercise books	0	0.0	0	0.0	119	100.0	0	0.0	0	0.0	126	100.0
Reference books	0	0.0	78	65.6	41	34.4	0	0.0	0	0.0	126	100.0
Writing tools	0	0.0	65	54.6	63	45.4	0	0.0	0	0.0	126	100.0
Library books	12	10.1	89	74.8	18	15.1	0	0.0	0	0.0	126	100.0
Wall charts	0	0.0	119	100.0	0	0.0	0	0.0	0	0.0	126	100.0

Table 4.7 showed that 81.3 percent of pupils in public primary schools indicated that there were adequate key course books and exercise books for their learning process. The situation was similar from the responses of pupils in private primary schools in Nyamache Sub-County. However, 74.8 percent of pupils from public primary schools indicated that library books in their schools were inadequate while 65.6 percent of them indicated of the same situation for reference books and 54.6 percent of the pupils in public primary schools stated inadequacy of writing tools. The findings showed that available teaching and learning materials are not adequate in public primary schools, while pupils in private primary school agreed that materials in their schools were available and adequate.

Further, data from the Education officer during the interview revealed that provision of teaching and learning materials was better placed in private

primary schools than in public primary school. The officer also stated that private primary schools in the study area are more than public primary schools and their performance in national examination outshined that of their public primary school counterparts. The researcher also observed that in many private primary school compounds, educational posters, mobiles and wall charts were displayed on the walls of buildings. These findings imply that provision of adequate teaching and learning materials promote academic performance and these could be the reason why private primary schools perform better than public primary schools because their learners are in contact with necessary materials at all times. This is in-line with Eshiwani 1993, and MoE 2007, who stated that education resources account for scholastic differences between types of schools. The provision of learning materials is the most crucial resource to educational performance. For instance, textbooks, whether designed for use in activities led by the teacher or independently by the students, offer basic instructional design formats, and has implications for academic improvements in the educational system.

The researcher sought to find out how many pupils shared a textbook in school and presented the head teachers' responses on Table 4.8.

Table 4.8 Head teachers' responses on pupil textbook ratio

No. of pupils	Public		Private	
	F	Percentage	F	Percentage
1:1	0	0.0	12	85.7
1:2	2	16.7	2	14.3
1:3	2	16.7	0	0.0
1:4	7	58.3	0	0.0
>1:4	1	8.3	0	0.0
Total	**12**	**100.0**	**14**	**100.0**

Table 4.8 showed that 58.3 percent of the head teachers in public primary schools indicated that four pupils in their schools share a textbook among, while in 85.7 percent of the private primary school pupils do not share textbooks among pupils. However, 14.3 percent of the private school head teachers indicated that textbooks in their schools are shared among two pupils. These findings agreed with the Education officer who stated that pupils in most public primary schools share one textbook per desk while pupils in their private primary school each child is provided for a textbook. These findings imply that pupils in public primary schools overstretch the limited teaching and learning materials in their schools.

These findings agree with MoE (2010) and SACMEQ Report (2011), only 78 percent of the Standard 6 pupils had at least one exercise book, a pencil or a pen, and a ruler. There is a large difference between public 77 percent and private schools 90 percent in the provision of these three basic learning materials. However, findings from the researchers own observation, textbooks in many public primary schools are in very bad condition since they are torn out. Head teachers' responses were presented on Table 4.9.

Table 4.9 Head teachers' responses on learning facilities

Head teachers' response	Public n =12						Private n = 14					
	Not available		Inadequate		Adequate		Not available		Inadequate		Adequate	
	F	%	F	%	F	%	F	%	F	%	F	%
Classrooms	0	0.0	9	75.0	3	25.0	0	0.0	0	0.0	14	100.0
Chalk wall	0	0.0	0	0.0	12	100.0	0	0.0	0	0.0	14	100.0
Book shelves	0	0.0	5	41.7	7	58.3	0	0.0	0	0.0	14	100.0
Dining hall	12	100.0	0	0.0	0	0.0	0	0.0	0	0.0	14	100.0
Library	8	66.7	4	33.3	0	0.0	0	0.0	0	0.0	14	100.0
Lighting and ventilation	0	0.0	10	83.3	2	16.7	0	0.0	0	0.0	14	100.0
Pupils desk	0	0.0	8	66.7	4	33.3	0	0.0	0	0.0	14	100.0
Sanitary facilities	0	0.0	1	8.3	11	91.7	0	0.0	0	0.0	14	100.0
Water supply	0	0.0	12	100.0	0	0.0	0	0.0	0	0.0	14	100.0
Playground	0	0.0	0	0.0	12	100.0	0	0.0	6	42.9	8	57.1
Teachers desk	0	0.0	0	0.0	12	100.0	0	0.0	0	0.0	14	100.0

From the findings in Table 4.9, 75 percent of the head teachers in public primary schools indicated that classes in their schools were inadequate, while 83.3 percent indicated that lighting and ventilation in the classes were inadequate, none of them indicated that their schools had dining halls. Chalk walls, play grounds and teachers' desks in public schools are adequate. However, in private primary schools, head teachers indicated that there was adequacy of learning facilities with an exception of play-grounds in their schools which 42.9 percent were inadequate. These findings imply that learning facilities in private primary schools are better availed than in public primary schools despite their limited available school land in private schools.

These findings concur with the Southern Africa Consortium for Monitoring Education Quality (SACMEQ) survey of 2001 that stated that the classroom furniture included sitting and writing places, one per pupil; and a chalkwall,

one per class. Schools also tend to be overcrowded with regard from small to average classroom space per pupil with extremely crowded sanitary facilities shared by pupils compromising pupil's health that lowers academic performance. It also agrees with UNICEF (2000) which states that public schools tend to be overcrowded with regard from small to average classroom space per pupil with extremely crowded sanitary facilities shared by pupils compromising pupil's health that lowers academic performance.

Then the teachers' responses were presented in Table 4.10.

Table 4.10 Teachers' responses on the availability and adequacy of learning facilities

Teachers' response	Public n = 59						Private n = 65					
	Not available		Inadequate		Adequate		Not available		Inadequate		Adequate	
	F	%	F	%	F	%	F	%	F	%	F	%
Classrooms	0	0.0	48	81.4	11	18.6	0	0.0	0	0.0	65	100.0
Chalk wall	0	0.0	3	5.1	56	94.9	0	0.0	0	0.0	65	100.0
Book shelves	0	0.0	51	86.4	8	13.6	0	0.0	0	0.0	65	100.0
Dining hall	59	100.0	0	0.0	0	0.0	0	0.0	5	7.7	60	92.3
Library	32	54.2	21	35.6	6	10.2	0	0.0	0	0.0	65	100.0
Lighting and ventilation	2	3.4	36	61.0	21	35.6	0	0.0	0	0.0	65	100.0
Pupils desk	0	0.0	56	94.9	3	5.1	0	0.0	0	0.0	65	100.0
Sanitary facilities	0	0.0	48	81.4	11	18.6	0	0.0	0	0.0	65	100.0
Water supply	11	18.6	41	69.5	7	11.9	0	0.0	0	0.0	65	100.0
Playground	0	0.0	0	0.0	59	100.0	0	0.0	54	83.1	11	16.9
Teachers desk	0	0.0	2	3.4	57	96.6	0	0.0	0	0.0	65	100.0

From the information contained in Table 4.10, 81.4 percent, 86.4 percent, 94.9 percent, 81.4 percent, 69.5 percent of the teachers in public primary schools

indicated that classrooms, bookshelves, pupils' desks, sanitary facilities and water supplies are inadequate respectively. However, dining halls were not available at all in their schools. This situation is contrary in private schools, where the learning facilities are adequate, though, play grounds in 82.8 percent of the private primary schools were inadequate.

Pupils were also requested to indicate the availability and adequacy of learning facilities in their schools. Their responses were tabulated in Table 4.11.

Table 4.11 Pupils' responses on the availability and adequacy of learning facilities

Pupils' response	**Public n = 119**						**Private n = 126**					
	Not available		**Inadequate**		**Adequate**		**Not available**		**Inadequate**		**Adequate**	
N = 245	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Classrooms	0	0.0	0	0.0	119	100.0	0	0.0	0	0.0	126	100.0
Chalk wall	0	0.0	95	79.8	24	20.2	0	0.0	0	0.0	126	100.0
Book shelves	0	0.0	103	86.6	16	13.4	0	0.0	0	0.0	126	100.0
Dining hall	0	0.0	62	52.1	29	47.9	0	0.0	0	0.0	126	100.0
Library	119	100.0	0	0.0	0	0.0	0	0.0	22	17.5	104	82.5
Lighting and ventilation	0	0.0	83	69.8	36	30.2	0	0.0	0	0.0	126	100.0
Pupils desk	0	0.0	119	100.0	0	0.0	0	0.0	0	0.0	126	100.0
Sanitary facilities	0	0.0	119	100.0	0	0.0	0	0.0	0	0.0	126	100.0
Water supply	0	0.0	119	100.0	0	0.0	0	0.0	0	0.0	126	100.0
Playground	0	0.0	119	100.0	0	0.0	0	0.0	0	0.0	126	100.0
Teachers desk	119	100.0	0	0.0	0	0.0	0	0.0	0	0.0	120	100.0

From the information contained in Tab 4.11 majority of the pupils concurred with both their teachers and head teachers responses on the availability and adequacy of learning facilities in their schools. However, 79.8 percent of the pupils in public schools indicated that chalk walls in their schools were inadequate, while 17.5 percent of the pupils in private schools indicated that

library books in their schools were inadequate findings that disagreed with their teachers and head teachers in both categories of schools. This was an indication that learning facilities in schools are availed though not adequate. These findings are in line with Ayot and Briggs (1992), who stated that availability of learning facilities provides evidence based on cognitive achievements of pupils that learning resources have important influence on final examination results.

The researcher sought to find out whether pupils siting in class hinder or promote pupils performance. Head teachers responses on pupil-desk ratio were presented in Table 4.12.

Table 4.12 Pupils' responses on pupil desk ratio

No. of pupils	**Public**		**Private**	
	F	**Percentage**	**F**	**Percentage**
1:1	1	8.3	11	64.2
1:2	1	8.3	3	21.5
1:3	2	16.7	1	14.3
1:4	6	50.0	0	0.0
>1:4	2	16.7	0	0.0
Total	**12**	**100.0**	**14**	**100.0**

Table 4.12 shows that, 64.2 percent of pupils in private primary schools sit on one seater desks, while 66.7 percent of the public primary schools up to four pupils sit on a desk. This was an indication that pupils in public are overcrowded in desks, hindering their utilization of their time on task which is translated in their academic performance. This realization is in agreement with

Ayot and Briggs (1992), who found out that up to six pupils will squeeze onto a desk meant for only two. Sad enough, such a huge class needs to share that single black wall irrespective of the seating position.

The researcher made observations on the existence of learning facilities in schools in the study area and presented the findings on the existence of learning facilities in table 4.13.

Table 4.13 Researchers' observation on the existence of pupils' attitude

Existence	**Public n = 12**		**Private n = 14**	
	F	**Percentage**	**F**	**Percentage**
Windows	12	100.0	14	100.0
Building roofs	12	100.0	14	100.0
Doors	12	100.0	14	100.0
Bookshelves	2	16.7	8	57.1
Water points	4	33.3	6	42.9
Buildings lighting	12	100.0	14	100.0
Learners' furniture	12	100.0	14	100.0

The study findings in Table 4.13 shows that buildings, roofs, lighting, windows, doors and learners' furniture, were present in all private and public schools. However, in both types of schools water points 66.7 percent in public schools and 57.1 percent private schools do not exist. Only 16.7 percent public schools had bookshelves in their schools. This findings imply that in most public schools' learning facilities were presents though, they were either

minimum or not in existence. These findings differed with Glewwe et al. (2007), who outline that learning facilities in public schools are minimal and classrooms are often dilapidated and sometimes non-existent. Further the researcher observed on the conditions of the learning facilities and presented the findings in Table 4.14.

Table 4.14 Existence and conditions of the learning facilities in schools

Existence	**Public n = 12**		**Private n = 14**	
	F	**Percentage**	**F**	**Percentage**
Shutable windows	6	50.0	11	78.6
Leaking roofs	8	66.7	1	7.1
Lockable doors	2	14.3	14	100.0
Firm bookshelves	3	21.4	14	100.0
Proper lighting	2	16.7	14	100.0
Broken furniture	10	83.3	0	0.0

Table 4.14 shows that the researcher observed that in 83.3 percent public schools the conditions of the various learning facilities were poor. For instance in 66.7 percent of the classrooms in public schools had leaking roofs, while only 16.7 percent had proper lighting, 83.3 percent of the furniture and 78.6 percent of the bookshelves were broken and 85.7 percent of the doors and 50 percent of the windows were not lockable. On the other hand all private schools had proper lightings, firm bookshelves and lockable doors, while 78.6 of their windows were shutable. Only 7.1 percent of the private schools had leaking roofs. This was an indication that despite the availability of the

learning facilities in public schools, their working conditions were questionable. On the other hand majority of the learning facilities in private schools were in proper working condition, thus facilitating conducive learning environment. Though in most of the private shoos classroom sizes were smaller and pupils were crowded in smaller rooms than recommended. This was in line with MOEST (2001), report that recommends that the size of classrooms in terms of length and width should be 7.5M X 5.85M and such classrooms should accommodate a maximum of 30 learners in 1 seater desks or 40 learners in 2 seater desks. Data from the DEO revealed that poor learning environment was the main challenge faced by public primary schools' pupils since funds provided by the government to finance school development from the CDF, ESP and LATIF programmes are not enough for the dilapidated conditions of the facilities schools. These findings agree with Musamas (2006) who assumes that primary education continues to experience many challenges relating to access and equity. Key among them is overstretched facilities, poor learning environment due to overcrowding and inadequate facilities. Teachers attempt to provide instructions with only a chalkwall as a teaching aid which hinders high academic scores. It is agreed that physical assets have a lot to do with moral education; that it is a fact that an attractive environment lifts the human spirit. It would be easier for a teacher in a neat, well-built school with adequate facilities.

4.6 Influence of teaching methods on pupils' performance in mathematics national examination in private and public schools

To establish whether teaching methods influence pupils' academic performance Objective III, the researcher sought for their highest professional qualification. Their responses were tabulated in Table 4.15.

Table 4.15 Head teachers' highest professional qualification

Qualification	Public		Private	
	F	Percentage	F	Percentage
P1	0	0.0	6	42.9
Diploma	2	16.7	4	28.6
B.Ed	5	41.6	3	21.4
Untrained	0	0.0	0	0.0
Master	2	16.7	1	7.1
ATS	3	25.0	0	0.0
Total	**12**	**100.0**	**14**	**100.0**

Table 4.15 shows that 41.6 percent of the head teachers in public primary schools indicated that bachelor of education as their highest professional qualification, while 42.9 percent of the head teachers in private schools were P1 certificate holders. Although, 25 percent of head teachers in public primary schools had attained various ATS levels as their highest professional qualification, while none of their counterparts in private schools had attained this qualifications. This was an indication that school heads in public schools had attained higher qualifications than the private schools heads. Thus this was

deemed not to be a reason for the widening gap in academic achievements in both types of schools.

The researcher also sought to find out teachers' highest professional qualification and presented the findings as shown in Table 4.16.

Table 4.16 Teachers' highest professional qualification

Qualification	**Public**		**Private**	
	F	**Percentage**	**F**	**Percentage**
P1	17	28.8	27	41.5
Diploma	25	42.4	14	21.5
B.Ed	13	22.0	11	16.9
Untrained	0	0.0	2	3.2
Master	4	6.8	11	16.9
Total	**59**	**100.0**	**65**	**100.0**

From the study findings 42.4 percent of teachers in public primary schools had attained Diploma in Education as their highest academic qualification, while 41.5 percent of private primary school teachers were P1 holders. This was an indication that public primary school teachers were able to attain higher professional training, implying that they are able to attend in-service training than private schools teachers. Therefore teachers in public schools are able to interact with learners better during the teaching and learning process. This is in line with SACMEQ report of (2011), that emphasizes the dynamics of the teaching and learning process as teachers and learners interact in the classroom well with learning resources that calls for better trained teachers.

The researcher then sought to find out whether teachers teaching methods and presented the findings in Table 4.17.

Table 4.17 Teachers' responses on teaching methods

Qualification	**Private**		**Public**	
	F	**Percentage**	**F**	**Percentage**
Yes	47	72.3	45	76.3
No	18	27.7	14	23.7
Total	**65**	**100.0**	**59**	**100.0**

From the study findings 76.3 percent of the public school teachers and 72.3 percent private primary school teachers are teaching methodologies. These findings imply that teachers adopt teaching methodologies thus their effectiveness during instructional process, an indication that teachers in both schools are quantified on their ability which will be translated in pupils' achievement in KCPE examination. This agrees with Graffins, 1994, who states that a teacher should be capable of passing to his students the love of the subject he/she is teaching and the necessary skills on the curriculum followed and learning resources available. Though how a teacher assimilates him or herself into a school system prior training is very essential for content delivery to pupils. A teacher leader role is one that needs to be embraced if he or she has to function effectively in the classroom. The researcher then sought for the reason for teaching methods and presented teachers' responses on Table 4.18.

Table 4.18 Reasons for selecting and evaluating teaching methods

Reasons	Private		Public	
	F	Percentage	F	Percentage
Lecture methods	0	0.0	3	21.4
Discussion methods	2	16.7	4	28.6
Assessment	5	41.6	6	42.9
Peer learning	3	25.0	0	0.0
Total	**12**	**100.0**	**14**	**100.0**

From the study findings 42.9 percent of the head teachers in public schools and 41.6 percent of head teachers in private schools indicated that they interview teachers up on appointment to assess their qualification and experience. Thus an indication that teacher's ability should be considered to ensure that teachers teaching pupils are qualified. Further, 28.6 percent of public primary school teachers indicated that they are interviewed by the TSC as discussion methods of assimilation. These findings imply that teacher assessment is important to enhance improved academic performance.

4.7 Influence of teacher pupils ratio on pupils' performance in mathematics in private and public schools

To establish whether teacher pupil ratio influence pupils' academic performance Objective V, the researcher sought to find out whether teacher pupil ratio influence mathematics performance and presented the findings in Table 4.19.

Table 4.19 Teachers' responses on whether teacher pupil ratio influence mathematics performance

Response	Private		Public	
	F	**Percentage**	**F**	**Percentage**
Yes	65	100.0	58	98.3
No	0	0.0	1	1.7
Total	**65**	**100.0**	**59**	**100.0**

From the study findings 98.3 percent of the teachers in public primary schools and all teachers in private schools indicated that in their schools teacher pupil ratio influence mathematics performance, though 1.7 percent of pubic primary school head teachers indicate that teacher pupil ratio influence mathematics performance. This is an indication that curriculum process is effective adhered to in schools in the study area thus, promoting academic achievement of the learners. The researcher then sought to find out teacher pupil ratio influence mathematics performance. The teachers' responses were presented as shown in Table 4.20.

Table 4.20 Head teachers' responses on f teacher pupil ratio influence mathematics performance

Month	Public		Private	
	F	Percentage	F	Percentage
Often	0	0.0	6	42.9
Rarely	2	16.7	4	28.6
Sometimes	5	41.6	3	21.4
Never	3	25.0	0	0.0
Total	**12**	**100.0**	**14**	**100.0**

From the study findings 42.6 percent of private schools revealed that teacher pupil ratio influence mathematics performance oftenly while 41.6 percent of the public schools teacher pupil ratio influences mathematics performance. This implied that private schools teacher pupil ratio influence mathematics performance thus have enough time for revisions. However public schools complete the syllabus late towards the end of the year thus no time is reserved for pupils to revise for the final examination. This was an indication that this difference in time frame could lead to the wide gap in pupils KCPE performance.

The researcher sought to find out respondents perspectives on the teacher pupil ratio influence mathematics performance. The respondents' responses were as shown in Table 4.21.

Table 4.21 Public schools teacher pupil ratio on curriculum process influence mathematics performance

Curriculum process	SA		A		D		SD	
N = 12	F	%	F	%	F	%	F	%
Instructional material development	9	75.0	2	16.7	1	8.3	0	0.0
Development of work plans, lesson plans records of work	5	41.7	2	16.7	3	25.0	2	16.7
Improving actual classroom instruction through better methods of teaching	2	16.7	4	33.3	5	41.7	1	8.3
Mentorship on syllabus coverage	5	41.7	1	8.3	0	0.0	6	50.0
In service training (workshops/ seminars)	8	66.7	1	8.3	3	25.0	0	0.0
Time management	10	83.3	2	16.7	0	0.0	0	0.0
Team work and collegial teaching	0	0.0	1	8.3	7	58.3	4	33.3

The study findings in Table 4.21 show that 83.3 percent of the public school head teachers indicated that time management was the most priotized curriculum process that enhances increase performance in mathematics. While 41.7 percent indicated that development of work plans, lesson plans records of work scored second followed by 75 percent who indicated that instructional material development. Moreover 16.7 percent indicated that improving actual classroom instruction through better methods of teaching, while 41.7 percent agreed that mentorship on syllabus coverage and in service training (workshops/ seminars). Team work and collegial teaching scored the lowest agreement which was 8.3 percent. This was an indication that effective implementation of the curriculum process facilitates early syllabus coverage.

To confirm if this was the case in private schools the likert scale was presented to teachers and their responses tabulated as shown in Table 4.22.

Table 4.22 Private schools teacher pupil ratio on curriculum process influence mathematics performance

School benefits	**SA**		**A**		**S**		**SD**	
N = 14	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Instructional material development	2	16.7	9	75.0	1	8.3	0	0.0
Development of work plans, lesson plans records of work	5	41.7	2	16.7	3	25.0	2	16.7
Improving actual classroom instruction through better methods of teaching	2	16.7	4	33.3	5	41.7	1	8.3
Mentorship on syllabus coverage	5	41.7	1	8.3	0	0.0	6	50.0
In service training (workshops/ seminars)	3	25.0	1	8.3	8	66.7	0	0.0
Time management	10	83.3	2	16.7	0	0.0	0	0.0
Team work and collegial teaching	0	0.0	1	8.3	7	58.3	4	33.3

Table 4.22 shows that private school head teachers concurred with the public school teachers on the effective implementation of the curriculum process on syllabus coverage. Though there was a higher disagreement on the contribution of in-service training among the private school heads which was 66.7 percent. This implies that syllabus completion had a direct influence on pupils KCPE performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings of the study, conclusions and recommendations arrived at. It also gives suggestions for further studies.

5.2 Summary of the study

The purpose of the study was to investigate factors influencing pupils' performance in mathematics in public and private primary schools in Nyamache Sub-County, Kenya. The objectives were to determine whether provision and adequacy of teaching and learning materials, pupils' attitude, teaching methods and school curriculum influences KCPE performance in public and private primary schools.

Simple random sampling was used to select 30 percent of the schools thus fourteen private schools and twelve public schools participated in the study. Four schools were purposively selected in each of the three educational zones, two best performing and two poor performers of each of the school category. Thus, the total sample for the study comprised of 26 head teachers, 130 teachers, 260 pupils and one educational officer. The data was collected through use of questionnaires, interview schedule and an observation checklist to examine the condition of learning resources and pupils' attitude in the sampled schools. The test-retest technique was used to test the consistence of the instrument.

All head teachers' questionnaires were returned 100 percent, 124 teachers questionnaire 95.4 percent and 245 questionnaires were returned from pupils, representing response rate 94.2 percent. Therefore 395 questionnaires were

returned a 95.0percent response rate. Collected data was analyzed both qualitatively and quantitatively.

5.3 Summary of the findings

Personal information of the respondents was sought to give an insight on the respondents' characteristics, which included respondents' gender, age bracket and school type. The study findings showed majority of the head teachers 65.4 percent were male, while majority of the teachers 61.3 percent were female and majority of the pupils 53.5 percent were female. These findings imply that females were more than males depicting male dominance in headship. Majority of the head teachers 69.2 percent were over 50 years old while majority of the teachers 57.3 percent were in the age bracket of 30 to 40 years. These findings imply that more elderly teachers are likely to be in headship than younger teachers. However, majority of the pupils 51.4 percent in public primary schools were aged fifteen years and above while most of the pupils 48.6 percent in private primary schools were aged 13 years. These findings imply that pupils in public primary schools are usually over-aged though their counterparts in private primary schools complete primary education while younger. This age difference depicted that pupils in public primary schools could either be repeating classes or enrolled in school late.

The study area had more private than public primary schools. Teachers were more in private primary schools while pupils were more in public schools. These findings imply that teacher pupil ratio in public primary schools is higher than in private primary schools.

To establish whether providing adequate teaching and learning materials influence performance in national examination, Objective I, the study findings

revealed that half of the head teachers in public schools indicated that teaching and learning references books are not available at all in their schools, while all the head teachers indicated that teaching and learning materials and equipment are not available. Majority of the head teachers 91.7 percent indicated that exercise books in public schools are available and adequate. However, all head teachers in private school indicated that all teaching and learning materials are available and adequate in their school with an exception of 50percent and 91.7 percent who indicated that available materials are not adequate responses that were confirm by teachers. These findings imply that provision of teaching and learning materials were better placed in private primary schools than in public primary schools, though provision of teaching and learning materials and equipment was not effectively availed in all schools. Also the findings from an interview with the SCEO revealed that public primary schools fall short of important learning materials due to the limited funds availed by the government. He further stated that allocated funds are disbursed late causing public primary schools to suffer uncalled for shortages of teaching and learning materials.

From the study findings majority of the pupils in private primary schools have a textbook for each pupil, on the other hand majority of their counterparts 96.7percent indicated that a textbook is shared among four or more pupil schools. This was an indication that pupils in private primary schools are able to effectively learn during instructional process and even in the absence of a teacher, thus improving their knowledge content acquisition in KCPE performance.

The findings revealed that, majority of the head teachers 75 percent in public primary schools indicated that classes in their schools were available but in adequate, 83.3percent indicated that lighting and ventilation in the classes were inadequate, while none of them indicated that their schools had dining halls. However, in private primary schools, head teachers indicated that there was availability and adequacy of learning facilities with an exception of play-grounds in their schools. These findings imply that learning facilities in private primary schools are better availed than in public primary schools despite their limited available school land. This was an indication that privately owned schools are built on small pieces of land leaving little room for the playgrounds. This was an indication that teaching and learning facilities in schools are availed though not adequate.

From the study findings majority of pupils in private primary schools sit on one seater desks, while majority of the public primary schools up to four pupils sit on a desk. This was an indication that pupils in public schools are overcrowded in desks, hindering their utilization of their time on task which is translated in their academic performance. Buildings roofs & lighting, windows, doors and learners' furniture, were present in all schools. However, in both types of schools water points do not exist in some of the schools. Although in most public schools the conditions of the various teaching facilities were poor. For instance in most schools the classrooms had leaking roofs, while only a minority had proper lighting, majority of the furniture and bookshelves were broken and most of the doors and windows were not lockable (respectively). This was an indication that despite the availability of the teaching facilities, their working conditions was questionable. On the other

hand majority of the teaching and learning facilities in private schools were in proper working condition, thus facilitating conducive learning environment. Though in most of the private shoos classroom sizes were smaller and pupils were crowded in smaller rooms than recommended.

Data from the SCEO revealed that poor learning environment was the main challenge that face public primary schools' pupils since funds provided by the government to finance school development from the CDF programmes are not enough for the dilapidated conditions of the facilities schools. He further stated that private schools fund their running through high cost charged on pupils' school fees.

To establish whether teaching methods influence pupils' academic performance, most of the head teachers in public primary schools indicated that bachelor of education as their highest professional qualification, while most of the head teachers in private schools were P1 certificate holders. Although, 25 percent of head teachers in public primary schools had attained various ATS levels as their highest professional qualification, while none of their counterparts in private schools had attained this qualifications. This was an indication that school heads in public schools had attained higher qualifications than the private schools heads. Thus this was deemed not to be a reason for the widening gap in academic achievements in both types of schools.

The study findings showed that majority of teachers in public primary schools had attained Diploma in Education as their highest academic qualification, while most of the private primary school teachers were P1 holders. This was an indication that public primary school teachers were able to attain higher

professional training, implying that they are able to attend in-service training than private schools teachers. Majority of the public and private primary school teachers are interviewed on appointment. This findings imply that teachers are assessed on appointment thus their effectiveness during instructional process.

From the study findings majority of the head teachers indicated that they interview teachers up on appointment to assess their qualification and experience. Further public primary school teachers indicated that they are interview by the TSC as discussion methods of assimilation. Majority of the respondents indicated that they set syllabus completion deadlines for their teachers, though 1.6 percent of pubic primary school head teachers indicate that they do not set deadlines for syllabus completion. This is an indication that curriculum process is effectively adhered to in schools in the study area thus, promoting academic achievement of the learners.

From the study findings majority of private schools revealed that they set deadline for their teachers to complete the syllabus in March while most of the public schools set September deadlines. This was an implication that private schools complete the syllabus very early in the year thus have enough time for revisions. However public schools complete the syllabus late towards the end of the year thus no time is reserved for pupils to revise for the final examination. This was an indication that this difference in time frame could lead to the wide gap in pupils KCPE performance.

Majority of the respondents indicated that time management was the most priotized curriculum process that enhances syllabus coverage. While development of work plans, lesson plans records of work scored second

followed by instructional material development, improving actual classroom instruction through better methods of teaching, mentorship on syllabus coverage and in service training (workshops/ seminars). Team work and collegial teaching scored the lowest. This was an indication that effective implementation of the curriculum process facilitates early syllabus coverage. This implies that syllabus completion had a direct influence on pupils KCPE performance.

5.4 Conclusions

The study came up with the following conclusions:

Provision and adequacy of learning materials and pupils' attitude enhances pupils' performance which is eventually reflected in their KCPE performance. The quality of teachers and teaching is a determinant for learner achievement. The pupil-teacher ratio exceeding 40 to one is a hindrance on learner achievement thus, overcrowding is typically an educational disadvantage to learners. Syllabus coverage and performance have a direct link since pupils go to the examination room having covered all the course content.

5.5 Recommendations

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

i. The government through the ministry of education should ensure early disbursement of funds for the provision of learning materials in public schools to ensure that pupils' performance is not hindered by the unavailability and inadequacy of these materials.

ii. The school community (school administration, society, parents and other stakeholders) should come up with facility development and

renovation measures so as to raise funds to build or renovate existing pupils' attitude so as to improve the condition the of learning environment.

iii. The government should provide clear policy guidelines on how school communities could provide pupils' attitude that offer proper hygiene to ensure that schools are child friendly.

iv. The government should carry out a thorough staff balancing exercise in both private and public schools to ensure that all schools have enough teachers.

v. Teachers should be taken through in-service courses to train on new ways of instruction process to improve their knowledge that will eventually be translated in pupils' academic performance.

5.6 Suggestions for further research

The researcher suggests that;

i. This study should be replicated in other Sub-Counties in the country for comparison of the results.

ii. A study should be carried out to find out to compare performance in science subjects in private and public primary school.

iii. A study should be done on the institutional factors that influence teacher motivation on pupils' academic performance.

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APPENDIX I

LETTER OF INTRODUCTION

School of Education
University of Nairobi
P.O. Box 30197- Nairobi.

The Head teacher
_____ School

Dear Sir / Madam,

REF: PERMISSION TO CONDUCT STUDY IN YOUR SCHOOL

I am a post graduate student at the Department of Education, Educational Foundations Comparative Studies, University of Nairobi. I am conducting a research project on the **influence of learning resources on the academic performance Nyamache Sub-County.** I will be grateful if you allow me carry out the research in your school.

I would like to assure you that all the information provided will be for the purpose of the research and would be treated with utmost confidentiality.

Thanks for your cooperation.

Yours faithfully,

Otieno James Nyamweya.

APPENDIX II

QUESTIONNAIRE FOR HEAD TEACHERS

Instructions: Answer the following questions as honestly as possible. The answers provided will be confidential and will only be used for the purpose of this research. Kindly you are not supposed to indicate your name and that of your school.

Section A: Demographic data

1. What is your gender Male [ ] Female [ ]
2. What is your age bracket?
   30 years and below [ ] 30 -40 years [ ] 40-50 years [ ] 50- 60 years [ ]
3. What is the category of your school? Public [ ]
   Private [ ]
4. What is your academic qualification? P1 [ ] Diploma [ ]
   B. Ed [ ] untrained teacher [ ] Masters [ ] ATS [ ] Others (specify) _____
5. For how long have you been in the teaching profession?
   Less than one year [ ] 4 – 6 years [ ]
   over 10 years [ ]
   1 – 3 years [ ] 7 – 9 years [ ]
6. For how long have you served in the current school?
   Less than 5 years [ ] 5- 10 years [ ] 10 – 15 years [ ] more than 15 [ ]

Section B: Factors influencing academic performance

7. Please rate the availability of teaching/learning resources in your school using the following scale; 1 = Not available at all, 2 = Available but inadequate, 3 = Available and adequate.

Teaching/learning materials	**1**	**2**	**3**	**4**
Sufficient key course text books.				
Sufficient exercise books				
Sufficient learning references books.				
Sufficient writing tools like pencils, pens, rulers				
Presence of ICT equipment				
Adequate teachers reference books.				

School has a library room with sufficient books				
Presence of a class-readers corner				
Presence of a globe				
Presence of wall maps				
Presence of wall charts				

8. Kindly rate the availability and adequacy of the following facilities in your school using the following scale; 1= Not available, 2 = Available but inadequate, 3 = Available and adequate.

Physical facility	**1**	**2**	**3**
Classrooms			
Chalk wall			
Book shelves			
Dining hall			
Library			
Lighting & ventilation in classroom			
Pupils' desk			
Sanitary facilities (toilets and latrines)			
Water supply (tanks, tapes)			
Hand washing tub			
Teachers chair and desk in every classroom			
Play-ground			
Flower beds			

9. Please indicate the current pupil enrolment in your school _____
10. Please indicate the current teacher population in your school _____
11. How many pupils sit on one desk in your school? One [ ] Two [ ] Three [ ]
    Four [ ] More than four [ ]
12. How many pupils share a textbook in your school? One [ ] Two [ ] Three [ ]
    Four [ ] More than four [ ]
13. Are teachers interviewed on appointment? Yes [ ] No [ ]
    b) Explain your answer _____
14. Does your school have a set deadline for teachers have to complete the syllabus? Yes [ ] No [ ]

b) If yes when? _____

15. How many hours do your pupils have a teacher with the class? 7 hours [ ] 8 hours [ ] 9 – 10 hours [ ] 10 – 12 hours [ ] Over 12 hours [ ]
16. Kindly rate the areas your school has benefitted from proper curriculum process using the following scale; Strongly Agree (SA), agree (A), Don't Know (DK), Disagree (D) or Strongly Disagree (SD). (Tick (√) where applicable)

School benefits	**SA**	**A**	**DK**	**S**	**SD**
Instructional material development					
Development of work plans, lesson plans records of work					
Improving actual classroom instruction through better methods of teaching					
Mentorship on syllabus coverage					
In service training workshops					
Time management					
Team work and collegial teaching					

17. In which ways can time management affect syllabus coverage in curriculum implementation?_____
18. What problems do teachers face during teaching/learning process due to their prior training?_____
    How can the above problems be solved?
    _____
19. In your own words what are the causes of poor academic performance in schools?
    _____

Thank you for your cooperation.

APPENDIX III

TEACHERS' QUESTIONNAIRES

Instructions: Answer the following questions as free as possible. The answers provided will be kept confidential and will only be used for the purpose of this research. Kindly you are not supposed to indicate your name and that of your school.

Section A: Demographic data

1. What is your gender Male [ ] Female [ ]
2. What is your age bracket?
   30 years and below [ ] 30 -40 years [ ] 40-50 years [ ] 50- 60 years [ ]
3. What is the category of your school? Public [ ]
   Private [ ]
4. What is your academic qualification? P1 [ ] Diploma [ ] B. Ed [ ] untrained teacher [ ] Masters [ ] ATS [ ]
5. For how long have you been in the teaching profession?
   Less than one year [ ] 4 – 6 years [ ]
   over 10 years [ ]
   1 – 3 years [ ] 7 – 9 years [ ]
6. For how long have you served in the current school?
   Less than 5 years [ ] 5- 10 years [ ] 10 – 15 years [ ] more than 15[ ]

Section B: Factors influencing academic performance

7. Please indicate your opinion on the availability of teaching/learning resources using the following scale; 1 = Not available at all, 2 = Available but inadequate, 3 = Available and adequate, and 4 = No opinion

Teaching/learning materials	**1**	**2**	**3**	**4**
Sufficient key course text books.				
Sufficient exercise books				
Sufficient learning references books.				
Sufficient writing tools like pencils, pens, rulers				
Presence of ICT equipment				

Adequate teachers reference books.				
School has a library room with sufficient books				
Presence of a class-readers corner				
Presence of globe				
Presence of wall maps				
Presence of wall charts				

8. Please indicate your opinion on the availability of teaching/learning resources using the following scale; 1 = Not available, 2 = Available but inadequate, 3 = Available and adequate, 4 = No opinion.

Physical facility	**1**	**2**	**3**	**4**
Classrooms				
Book shelves				
Chalk wall				
Dining hall				
Library				
Lighting & ventilation in classroom				
Pupils' desk				
Sanitary facilities (toilets and latrines)				
Water supply (tanks, tapes)				
Hand washing tub				
Teachers chair and desk in every class				
Play-ground				

8. How many pupils sit on one desk in your classroom? One [ ]

   Two [ ] Three [ ] Four [ ]

   More than four [ ]

9. How many pupils do you have in your class?

   Less than 20 [ ] 21 – 39 [ ] 40 – 49 [ ]

   Above 50 [ ]

10. Were you interviewed on appointment? Yes [ ] No [ ]

    b) Explain your answer

    _____

12. How many lessons do you teach in a week?

    1 – 3 ( )
    4 - 6 ( )
    7 – 9 ( )
    More than 10 lessons ( )

13. Do you offer remedial teaching to your pupils? Yes ( )

    No ( )

14. Do you give homework to your pupils? Yes ( ) No ( )

15. How often do you mark pupils' class assignments? Never [ ]

    Per lesson [ ] Per day [ ] Per week [ ]

16. Does your school have a set deadline for teachers to have completed the syllabus? Yes [ ] No [ ]

b) If yes when? _____

17. How many hours do you teach pupils in a day? 7 hours [ ] 8 hours [ ] 9 – 10 hours [ ] 10 – 12 hours [ ] Over 12 hours [ ]

18. Kindly rate the areas your school has benefitted from proper curriculum process using the following scale; Strongly Agree (SA), agree (A), Don't Know (DK), Disagree (D) or Strongly Disagree (SD). Tick (√) against only that you think applies)

School benefits	**SA**	**A**	**S**	**SD**
Instructional material development				
Development of work plans, lesson plans records of work				
Improving actual classroom instruction through better methods of teaching				
Mentorship on syllabus coverage				
In service training (workshops/seminars)				
Time management				
Team work and collegial teaching				
Teaching staff in our school is qualified and effective in promoting the learning process				

19. In which ways can time management affect syllabus coverage in curriculum implementation? _____

20. What problems do teachers face during the teaching process due to the prior teaching/learning training?_____

21. How can the above problems be solved? _____

22. In your own words what are the causes of poor academic performance in schools?

_____

Thank you for your cooperation.

APPENDIX IV

PUPIL'S QUESTIONNAIRE

SECTION A

1. Indicate your gender Male [ ] Female [ ]
2. Indicate your age _____
3. What is the category of your school? Public [ ]
   Private [ ]
4. Do you think what you learn in school will one day help you in life
   Yes [ ] No [ ]
5. Do your teachers support you enough when you are in school? Yes
   [ ] No [ ]
6. What are some of the things that you lack while at school that hinder you from performing well in your class work? Textbooks [ ] Desks [ ] Classroom [ ] Toilets[ ] Teachers [ ] (Tick more than one answer)
7. What would you like your parent to do to help improve your performance in school?_____
   _____
8. What are the things done by your teachers that affect performance in this school?
   _____
9. How often do your teachers mark your class assignments? Never [ ]
   Per lesson[ ] Per day [ ] Per week [ ]
10. Do you have remedial/preps classes with your teachers? Yes ( )No ( )

11. Do your teachers give you class assignments to your pupils? Yes ( )

No ( )

12. How often do your teachers give you homework? _____

13. Did you complete the previous class course book before joining your current class? Yes [ ] No [ ]

b) If not, did you finish the remaining work before starting on your current classwork? Yes [ ] No [ ]

14. For how long do you usually have a teacher in class per day? 5 lessons [ ] 8 lessons [ ]

10 lessons [ ] Over 10 lessons [ ]

15 Are there times that you do not have a teacher in your classroom during lessons? One lesson [ ] Two lessons [ ] More than two lessons [ ] None [ ]

16 Please indicate your opinion on the availability of teaching/learning resources using the following scale; 1 = Not available at all, 2 = Available but inadequate, 3 = Available and adequate, and 4 = No opinion

Teaching/learning materials	**1**	**2**	**3**	**4**
Sufficient key course textbooks.				
Sufficient exercise books				
Sufficient learning reference books.				
Sufficient writing tools like pencils, pens, rulers				
Presence of ICT equipment				
Adequate teachers reference books.				
School has a library room with sufficient books				
Presence of a class-readers corner				
Presence of a globe				
Presence of wall maps				
Presence of wall charts				

17. Please indicate your opinion on the availability of teaching/learning resources using the following scale; 1 = Not available, 2 = Available but inadequate, 3 = Available and adequate, 4 = No opinion.

Physical facility	**1**	**2**	**3**	**4**
Classrooms				
Chalk wall				
Readers corner				
Dining hall				
Library				
Lighting & ventilation in classroom				
Pupils' desk				
Sanitary facilities (toilets and latrines)				
Water supply (tanks, taps)				
Hand washing tub				
Teachers chair and desk in every classroom				
Play-ground				
Flower beds				

Thank you for your participation

APPENDIX V

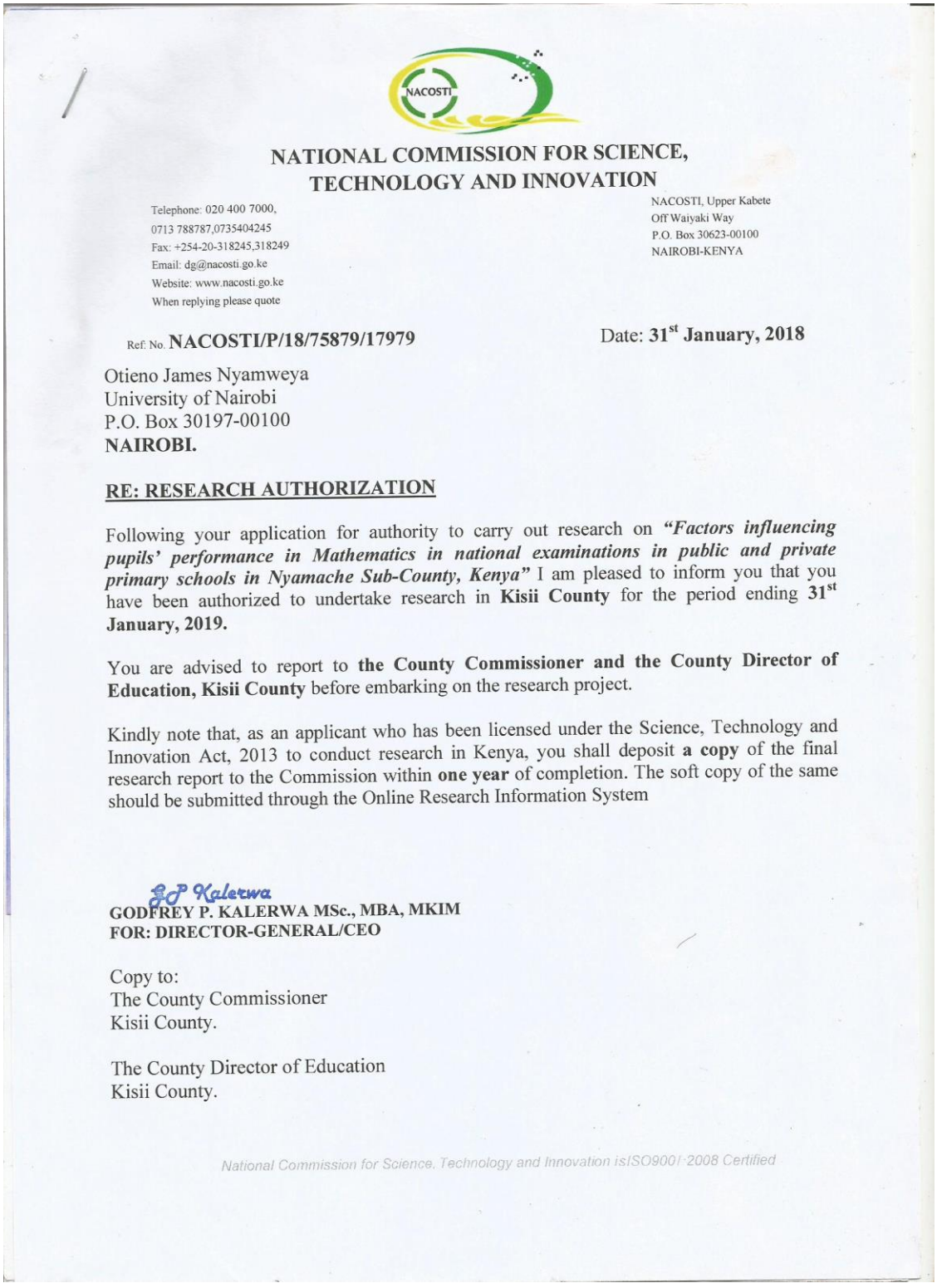
INTERVIEW GUIDE FOR THE EDUCATION OFFICER

These interview questions are meant for academic purposes only. They will not be used for any other service, prejudicial to the respondents. The information will be held in confidence. Please answer the questions as honestly as possible.

1. Position of the Education officer_____
2. Period at present station_____ years
3. What is your highest academic qualification? _____
4. How many times do you visit schools per term? Public _____ Private _____
5. Are the learning resources in schools adequate? Public _____ Private _____
6. Do the following areas of primary school curriculum promote academic performance?
    i) Time management (timetable, time on task)
    ii) Syllabus coverage
    iii) Teaching learning methods
    iv) In- service training
    v) Professional documents
    vi) Performance of the learners
    vii) Specific subjects
7. Are the conditions of pupils' attitude of the recommended standards?
8. Do you monitor how FPE funds are budgeted for in public schools?

APPENDIX VI

AUTHORIZATION LETTER



NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone: 020 400 7000,
0713 788787,0735404245
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/18/75879/17979**

Date: **31st January, 2018**

Otieno James Nyamweya
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Factors influencing pupils' performance in Mathematics in national examinations in public and private primary schools in Nyamache Sub-County, Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **Kisii County** for the period ending **31st January, 2019.**

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

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System

GP Kalerwa
GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:
The County Commissioner
Kisii County.

The County Director of Education
Kisii County.

APPENDIX VII

RESEARCH PERMIT

CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No.A 17300

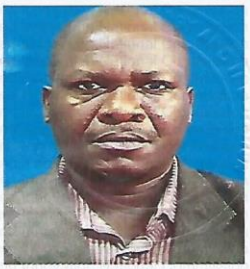
CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MR. OTIENO JAMES NYAMWEYA
of UNIVERSITY OF NAIROBI, 234-40204 OGEMBO,has been permitted to conduct research in *Kisii County*

on the topic: *FACTORS INFLUENCING PUPILS' PERFORMANCE IN MATHEMATICS IN NATIONAL EXAMINATIONS IN PUBLIC AND PRIVATE PRIMARY SCHOOLS IN NYAMACHE SUB-COUNTY, KENYA*

for the period ending:
31st January,2019

Permit No : NACOSTI/P/18/75879/17979
Date Of Issue : 31st January,2018
Fee Recieved :Ksh 1000



.....
Applicant's Signature

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