EFFECTS OF FREE PRIMARY EDUCATION ON FACTORS INFLUENCING QUALITY OF INSTRUCTION IN PUBLIC PRIMARY SCHOOLS IN NYANDARUA NORTH SUB COUNTY, KENYA

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DECLARATION AND RECOMMENDATION

Declaration

I declare that this thesis is my original work and has not been presented for a degree or any award in this or any other university.

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Recommendation

This thesis has been written under our supervision and submitted with our approval as the University Supervisors**.**

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DEDICATION

This work is dedicated to my children Anthony Kimondo and Judy Wairimu for their patience during my studies.

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ABSTRACT

Free Primary Education (FPE) was first introduced in Kenya in 1974, when fee payment for the first four years of primary education was waived. The programme was stopped in 1988 and replaced with the cost-sharing policy. FPE was re-introduced in 2003 with the aim of improving access to education through enhanced enrolment, retention, transition and completion rates. Abolition of school fees led to a significant improvement in enrolment. A study by UNESCO reveals that the re-introduction of free primary education in 2003 in Kenya experienced implementation challenges on quality of instruction factors such as student: teacher ratio, teacher workload, classroom space, availability of textbooks and assessment. This study examined factors which influence quality of instruction before and after the introduction of FPE with respect to; student: teacher ratio, teacher workload, student: textbook ratio and frequency of assessment. The study was conducted in Nyandarua North Sub County, Kenya. It adopted the comparative study research design. The accessible population was 179 head teachers and 1675 class teachers. A sample of 112 head teachers and 313 class teachers selected using purposive stratified, proportionate and simple random sampling techniques participated in the study. Head teachers and class teachers questionnaires were used to collect data. Content and face validities of the two instruments were examined by experts from the faculty of Education and Community Studies, Egerton University. Their recommendations were used to improve the instruments before they were used to collect data. Data were analysed with the aid of the Statistical Package for Social Sciences (SPSS) version 20. Frequencies and percentages were used to describe and summarise data while the t-test was used to test the hypotheses at.05 level of confidence. The findings of the study indicated that there was a significant improvement in the student: textbook ratio and frequency of assessment after the introduction of FPE. However, the student: teacher ratio and teacher workload increased after introduction of free primary education. The study concluded that introduction of Free Primary Education positively affected student: textbook ratio and frequency of assessment while it negatively affected student: teacher ratio and teachers workload. Based on the increasing number of students relative to staffing and more teaching load after introduction of Free Primary Education, the study recommends that the Ministry of Education should provide more teachers in public primary schools. Also, the Ministry of Education should establish ways of improving student: textbook ratio to a target of 1:1 in order to uphold quality of instruction in public primary schools.

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LIST OF ABBREVIATIONS AND ACRONYMS

DEO	**:** District Education Officer
EFA	**:** Education for All
FPE	**:** Free Primary Education
FY	**:** Financial Year
GER	**:** Gross Enrolment Ratio
IMF	**:** International Monetary Fund
KES	**:** Kenya shillings
KICD	**:** Kenya Institute Curriculum Development
LICs	**:** Least Industrialized Countries
MDGs	**:** Millennium Development Goals
MOEST	**:** Ministry of Education, Science and Technology
SDGs	**:** Sustainable Development Goals
SPSS	**:** Statistical Package for Social Sciences
SSA	**:** Sub- Saharan Africa
TSC	**:** Teachers Service Commission
UN	**:** United Nations
UNESCO	**:** United Nations Educational, Scientific and Cultural Organization
UPE	**:** Universal Primary Education
USAID	**:** United States Agency for International Development

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Primary education is universally accepted as the foundation of learning as it provides the structural framework on which other levels of education are anchored (Etor, Mbon & Ekanem 2013). It is key to the success or failure of education systems since other levels of learning are built on it (Ministry of Education Science and Technology [MOEST], 2015). Ngugi, Mumiukha, Fedha and Ndiga (2015) assert that primary schooling is the most critical stage of any education system as it lays the foundation for subsequent levels.

The major goal of primary education is to enhance learner's self-expression, self-reliance and self-discipline (Kenya Institute of Education, 2002).It also aims at equipping learners with critical thinking skills, desirable attitudes and behaviour, social and moral values. The objectives of education at this level are to provide learners with literacy, numeracy and communication skills (MOEST, 2005a).

Participation in primary education, however, has remained a challenge particularly in the developing countries (United Nations Educational, Scientific and Cultural Organisation [UNESCO], 2009). During the World Conference on Education for All (EFA) in Jomtein, Thailand in 1990, many countries worldwide, pledged at to achieve Universal Primary Education (UPE) and greatly reduce illiteracy by 2000 (MOEST, 2005a). It was realised that this goal had not been met and the pledge was repeated in 2000 at the education forum in Dakar Senegal with a target of 2015 (MOEST, 2005b).

Moreover, the United Nations summit held in New York in 2000 committed the UN member states to achieve Millennium Development Goals (MDGs) which included achievement of universal primary education as the second goal (UNESCO, 2009). Some of the targets of this goal were to increase school net enrolment in the developing world and to decrease the number of out of school children (UNESCO, 2015).

According to World Bank (2016) net enrolment was almost universal in developed nations, Eastern Asia and Northern Africa by 2015. Schooling at primary level is free and compulsory in most developed nations such as the United States of America and Japan whose current enrolment stands at98% in (UNESCO, 2019). Also, in most European nations, primary

education is free and compulsory. The European Union promotes policies that seek to ensure all children access and benefit from high quality education (UNESCO, 2017).

According to UNESCO (2019) most of the nations in Europe and Central Asia region have almost attained universal education at 95% and above primary school enrolment rates. The report shows that, in South Africa, while there is no tuition fee paid in public schools learners with disabilities pay fees. As a result many children with disabilities in South Africa are still not in school which has contributed to a higher percentage of out of school children (World Bank, 2016).Sub Saharan Africa had not achieved the target of attaining universal education by 2015 (UNESCO, 2017).

Abolishing fees is one of the strategies used to increase enrolment and participation rates in primary education. Some of the developing countries that have abolished fees in primary education include Ethiopia in 1994, Malawi in 1994, Uganda in 1997, Tanzania in 2001, Zambia in 2002, Kenya in 2003 and Ghana in 2005 (Riechi, 2006). There was a significant increase in enrolment as a result of abolishing fees in those countries (Oumer, 2010). One of the major challenges however, experienced in those countries in provision of primary education after abolishing fees is the quality of instruction due to shortage of teachers, inadequate textbooks and overcrowded class rooms (World Bank, 2009).

The World Education Forum in 2000 did not only emphasize the need to achieve education for all but also improve quality of education. The forum recommended improvement of all aspects of quality of education and learning outcomes especially in literacy, numeracy and essential life skills. Quality of instruction is a key aspect of quality of education (UNESCO, 2008).Quality of instruction is teaching students by effectively engaging them in a learning process and relaying relevant knowledge. Access to education can only be sustained by ensuring quality teaching and learning for acquisition of literacy, numeracy and critical life skills (MOEST, 2007). Moreover, goal number 4 of the Sustainable Development Goals (SDGs) adopted by all United Nations emphasize on provision of quality education that is relevant and leads to effective learning outcomes (UNESCO, 2019).

Provision of qualified and adequate teachers; learning materials and conducive environment are key in quality teaching and learning (World Bank, 2016).Quality teaching and learning also requires regular assessments to explore students abilities to apply academic lessons and demonstrate acquired skills (Abejehu, 2016).

Kenya has made significant progress in access to primary school education especially after the introduction of Free Primary Education (MOEST, 2007). Enrolment rates at the national level have increased and dropout rates have reduced significantly (Abuya, Admassu, Ngware, Onsomu, & Oketch. 2015). The first attempt to provide free primary education in Kenya was in 1971 when the Government, waived school fees for the economically marginalised districts (Republic of Kenya, 1976). Education was made free in 1974 for the first four years in public primary schools throughout the country and by 1980, it was extended to all the other classes (Republic of Kenya, 1988a). This resulted in a significant increase in enrolment. Despite the existence of free primary education, the schools experienced many challenges which included overcrowded classrooms, shortage of teachers and inadequate textbooks (Riechi, 2006).

The introduction of Free Primary Education in 1974, however, was not fully realized due to cost-sharing in education introduced in Kenya (Republic of Kenya, 1988a). Besides meeting the cost of infrastructure, parents were to bear the cost of tuition, textbooks, co-curricular activities and examinations while the Government's main expenditure was payment of teachers' salaries (Republic of Kenya, 1997). Table 1 shows the Government of Kenya expenditure in primary education for Financial Year (FY) 1997/1998 to FY 2001/2002, the period before introduction of Free Primary Education.

Table 1

Government of Kenya Expenditure (in KES. millions) for Primary Education for FY 1997/1998 to FY 2001/2002 Period

Expenditure	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
Recurrent Expenditure	279.40	367.40	459.89	516.16	741.90
Development expenditure	310.40	160.80	248.88	235.86	150.20
Total	**589.80**	**528.20**	**708.77**	**752.02**	**892.10**

Source: Republic of Kenya 2001: 34; Republic of Kenya, 2003: 37

Table 1 shows that expenditure in primary education before introduction of Free Primary Education fluctuated over the years. The expenditure decreased in FY 1998/1999 but in the subsequent years it increased. Development expenditure was low compared to the recurrent expenditure over the years. During this period parents had the responsibility of developing

infrastructure and providing funds for tuition, textbooks, co-curricular activities and examinations (Republic of Kenya, 1997).

The Children's Act which was enacted in 2001 recognized basic education as a right to all children (Republic of Kenya, 2001). This Act legally binds and reaffirms that it is the responsibility of the Government and the parents to provide education. The Government of Kenya reintroduced Free Primary Education in Kenya in 2003 to improve participation in education (MOEST, 2005b). Fees and levies for tuition in public primary schools were abolished. In addition to teachers' salaries, the Government of Kenya was to meet the cost of teaching and learning materials, wages for critical non-teaching staff and co-curricular activities by paying KES 1020 per year for each child enrolled in a public primary school (MOEST, 2007).

The Government commitment and introduction of free primary education significantly increased financial allocation to the education sector. Table 2 shows the Government of Kenya expenditure in primary education for FY 2002/2003 to FY 2006/2007 the period after introduction of Free Primary Education.

Table 2

Government of Kenya Expenditure (in KES. millions) for Primary Education for FY 2002/2003 to FY 2006/2007 Period

Expenditure	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007
Recurrent Expenditure	3,321.7	5,966.5	6,583.4	7,148.6	7,746.5
Development expenditure	1,552.2	2,214.1	3,196.9	1,311.6	1,424.2
Total	**4,873.9**	**8,180.6**	**9,780.3**	**8,460.2**	**9,170.7**

Source: Republic of Kenya, 2003: 37; Republic of Kenya, 2008: 48

Table 2 shows that the trend on recurrent expenditure in primary education was on the increase and at a higher rate compared to the period before introduction of Free Primary Education. After introduction of Free Primary Education, the expenditure in primary education increased from 892.1 million in FY 2001/2002 to about 8.2 billion in 20003/2004. The expenditure on development fund was also on the increase during the period except for FY 2005/2006 when there was a decrease. This shows commitment by the Government of

Kenya to increase expenditure to fund Free Primary Education. The expenditure on basic education has increased over the years as shown in Table 3.The increase is attributed to funding of Free Primary Education and Free Day Secondary Education.

Table 3

Government of Kenya Expenditure (in KES. millions) for State Department of Basic Education for FY 2013/2014 to FY 2017/2018 Period

Expenditure	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
Recurrent Expenditure	42,204.06	51,316.39	57,519.21	54,977.03	87,768.99
Development expenditure	8,843.94	11,156.42	5,258.23	8,188.86	8,023.82
Total	**51,047.96**	**62,472.81**	**62,777.44**	**63,165.89**	**95,792.81**

Source: Republic of Kenya, 2018: 237

The purpose for the heavy investment in primary education was to provide instructional materials, tuition and activity fund (Republic of Kenya, 2012).The cost of primary education before introduction of Free Primary Education shouldered by the parents resulted in low enrolment (Republic of Kenya, 2003). Table 4 shows primary school enrolment for the period before introduction of Free Primary Education.

Table 4

Primary School Enrolment (in millions) in Kenya during 1998-2002 Period

Gender	1998	1999	2000	2001	2002
Boys	2.9945	2.9930	3.1276	3.2007	3.2372
Girls	2.9251	2.8748	3.0480	3.1139	3.1339
Total	**5.9196**	**5.8678**	**6.1756**	**6.3146**	**6.3711**

Source: Republic of Kenya, 2001: 28

Table 4 shows that before introduction of Free Primary Education, enrolment in primary schools fluctuated. There was a decrease in enrolment in 1999 by about 1 million compared to 1998. In the subsequent years, the enrolment was on the increase. The decline in enrolment in primary education could be attributed to cost-sharing in education that was introduced in 1988 which required parents to meet the cost of tuition, textbooks, activities and

examinations (Republic of Kenya, 1988a). This denied many school going children access to education (Republic of Kenya, 1997).

After introduction of Free Primary Education, there was a significant increase in enrolment (Republic of Kenya, 2012). Table 5 shows enrolment in primary schools after the introduction of Free Primary Education.

Table 5

Primary School Enrolment (in millions) in Kenya during 2003-2007 Period

Gender	2003	2004	2005	2006	2007
Boys	3.6744	3.8155	3.9027	3.8966	4.2171
Girls	3.4851	3.5793	3.6888	3.7355	4.0122
Total	**7.1595**	**7.3948**	**7.5915**	**7.6321**	**8.2293**

Source: Republic of Kenya, 2003: 30; Republic of Kenya, 2008: 41

Table 5 shows that, at the inception of Free Primary Education, in 2003, enrolment in primary schools increased significantly from 6.371 million in 2002 to 7.159 million in 2003. The trend in enrolment after the introduction of Free Primary Education was on the increase over the years. This implies that introduction of Free Primary Education resulted to improved participation.

Although the number of new admissions of students in public primary schools was still going up after introduction of Free Primary Education, in 2004, transfers of students from public schools were already being experienced (MOEST, 2007). This was as a result of some parents moving their children to private schools, which are reputed for high performance in national examinations (Republic of Kenya 2012). Research findings have shown that after introduction of free primary education there were a lot of challenges which included overcrowded classrooms, high student: teacher ratio, inadequate infrastructure and shortage of textbooks (UNESCO, 2005). The increase in enrolment in primary schools has been on the rise since the introduction of Free Primary Education as shown in Table 6.

Table 6

Primary School Enrolment (in millions) in Kenya during 2013-2017 Period

Gender	2013	2014	2015	2016	2017
Boys	5.0197	5.0525	51279	5.2193	5.2939
Girls	4.8379	4.8985	49629	5.0603	5.1098
Total	**9.8576**	**9.9510**	**10.0908**	**10.279**	**10.4037**

Source: Republic of Kenya, 2003: 30; Republic of Kenya, 2008: 41

There were deep concerns expressed over quality of instruction in public schools in Kenya due to introduction of Free Primary Education in terms of teaching and learning practices. According to UNESCO (2008) there is need to focus on improvement of the learning process and outcomes especially in literacy, numeracy and essential life skills. From the foregoing concerns, there is a need to carry out an empirical study with an aim of examining factors influencing quality of instruction before and after introduction of Free Primary Education which include student: teacher ratio, teacher workload, student: textbook ratio and frequency of assessment.

1.2 Statement of the Problem

The overall objective of education was to achieve Education for all by 2015. In pursuit of this objective, the Government of Kenya introduced Free Primary Education in 2003 to improve the level of participation in primary education. This led to a significant increase in enrolment from 6.4 million to 7.2 million in primary schools. A study by UNESCO reveals that the re-introduction of free primary education in 2003 in Kenya had experienced implementation challenges, with regard to overcrowded classrooms, increased enrolment, inadequate textbooks, assessment and a high teaching load. These are the factors that education specialists have indicated as having a major influence on quality of instruction. Concerns have however, been raised over quality of education in terms of teaching and learning practices in Nyandarua North Sub County since the introduction of Free Primary Education. The study examined factors influencing quality of instruction before and after the introduction of Free Primary Education which included student: teacher ratio, teacher workload, and student: textbook ratio and frequency of assessment in Nyandarua North Sub County.

1.3 Purpose of the Study

The purpose of this study was to examine the factors that influence the quality of instruction before and after introduction of Free Primary Education namely: students: teacher ratio, teacher workload and student: textbook ratio and frequency of assessment.

1.4 Objectives of the Study

The specific objectives of the study were:

i. To establish student: teacher ratio before the introduction of free primary education and after the introduction of free primary education in public primary schools in Nyandarua North Sub County.

ii. To establish teacher workload before the introduction of free primary education and after the introduction of free primary education in public primary schools in Nyandarua North Sub County.

iii. To establish student: textbook ratio before the introduction of free primary education and after the introduction of free primary education in public primary schools in Nyandarua North Sub County.

iv. To establish frequency of assessment before the introduction of free primary education and after the introduction of free primary education in public primary schools in Nyandarua North Sub County.

1.5 Hypotheses

The research was guided by the following hypotheses:

$H0_1$: There is no statistically significant difference between student: teacher ratio before the introduction of free primary and after the introduction of free primary education in public primary schools in Nyandarua North Sub County.

$H0_2$: There is no statistically significant difference between teacher workload before the introduction of free primary and after the introduction of free primary education in public primary schools in Nyandarua North Sub County.

$H0_3$: There is no statistically significant difference between student: textbook ratio before the introduction of free primary and after the introduction of free primary education in public primary schools in Nyandarua North Sub County.

$H0_4$: There is no statistically significant difference between frequency of continuous assessment before the introduction of free primary and after the introduction of free primary education in public primary schools in Nyandarua North Sub County.

1.6 Significance of the Study

The Government of Kenya introduced Free Primary Education in 2003 with an aim of improving participation in primary education. After introduction of Free Primary Education, there was a significant increase in enrolment. The significance of this study was to provide insights on the factors influencing quality of instruction before the introduction of Free Primary Education and after the introduction of Free Primary Education in terms of student: teacher ratio, teacher workload, student: textbook ratio and frequency of assessment in Nyandarua North Sub County, Kenya. The findings of the study were considered useful to the Ministry of Education in addressing factors which influence quality of instruction to improve the gains in access to and retention in primary education. The study may also aid policy makers in formulation of better policies in provision of Free Primary Education with regard to quality of instruction. The other beneficiaries of the study findings are teacher educators who may use the information in developing strategies to improve quality of instruction in primary education. Finally, the study may be used as a source of information for further research.

1.7 Scope of the Study

This study was conducted in Nyandarua North Sub County and involved only public primary schools. It examined factors which influence quality of instruction before and after the introduction of FPE in 2003. The study focused on four qualities of instruction factors, namely; student: teacher ratio, teacher workload, student: textbook ratio and frequency of assessment. A total of 425 respondents, 112 head teachers and 313 class teachers participated in the study. Data was gathered using the head teachers and class teachers' questionnaires.

The study involved only public primary schools and was conducted in Nyandarua North Sub County. The study investigated factors influencing quality of instruction before and after introduction of Free Primary Education. The study surveyed the impact of Free Primary Education on factors which influence quality of instruction in public primary schools in Nyandarua North Sub County. The researcher chose Nyandarua North Sub County in Nyandarua County for the study since there were challenges in instructional quality.

1.8 Assumptions of the Study

The study made the following assumption:

i. Records on students' enrolment, number of teachers, number of textbooks and frequency of assessment in the sampled schools were accurate.
ii. The respondents selected for the study provided honest responses to the questionnaire items.

1.9 Limitations of the Study

The limitations of the study were:

i. Data on factors which influence quality of instruction before the introduction of free primary education covered five years before implementation of FPE programme in 2003. The respondents relied on memory, and it is possible that there were gaps in responses.

ii. There are other factors influencing quality of instruction, including teacher training, school management and parental support. These factors were not examined in the study. They, however, were addressed through random sampling.

1.10 Definition of Terms

The following are the operational definition of terms that were used in this study

Assessment: The term refers to evaluation of students' progress throughout a course of study to determine whether they have attained learning targets (Kumari & Srivastsva, 2005). In this study, it refers to the systematic, planned and documented tests and end term exams given to students in public primary schools in a term.

Class teacher: The term refers to the teacher overall in charge of a group of students, works and supervises them in a classroom (Sharma, 2002). In this study, it refers to a teacher who is in charge of a group of students in a classroom, manages the resource materials including textbooks and is the supervisor in that class.

Enrolment: The term refers to the level of participation of learners in the education system (MOEST, 2007). In this study, it refers to the number of students registered in primary schools at the beginning of the year.

Free Primary Education (FPE): This is the whereby the Government bears the cost of providing primary education (Rao, 2007). In this study it refers to provision of teaching and learning materials, critical wages for non-teaching staff and co-curricular activity fund by the Government of Kenya previously shouldered by parents in addition to payment of teachers' salaries in primary education.

Student: teacher Ratio: This refers to the proportion of students that each teacher handles in a classroom in lesson delivery in primary schools (MOEST, 2003). It is the number of students divided by the number of teachers in public primary schools.

Student: textbook Ratio: Refers to the number of students sharing a textbook (MOEST, 2007). In this study it is the number of students sharing textbooks in a class in public primary schools.

Quality of Instruction: Refers to the students' effective involvement in the teaching and learning process (Harlen, 2014). In this study, it refers to students' involvement in the teaching and learning process in primary schools as determined by the students: teacher ratio, teacher workload, students: textbook ratio and frequency of assessment.

Teacher Workload: This refers to the number of lessons allocated to a teacher in an education institution (MOEST, 2007). In this study, it refers to the number of lessons allocated to a teacher in public primary schools in a week.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents a thorough examination of the relevant literature. The sections covered are importance of education, primary education, free primary education, quality of education, quality of instruction, theoretical framework and conceptual framework. The section on free primary education examinesfree primary education in a global context, in the African context and free primary education in the Kenyan context. Quality of instruction is analysed with regard to student: teacher ratio, teacher workload, student: textbook ratio and frequency of assessment.

2.2 Importance of Education

Education is one of the basic services offered by governments and other stakeholders to empower the society economically and socially. Different scholars have defined education in various ways. According to Breton (2012) education is a process of developing cognitive, affective and physical ability by which knowledge, character and behaviour of the young are shaped and molded. Nsubuga(2003) asserts that education imparts knowledge and skills which enable the beneficiaries to function as agents of change in society economically, socially and also; in terms of values, ideas, attitudes and aspirations which are important for the development of nations. Education enhances the ability of society to preserve and utilize the environment for productive gain and sustainable livelihood (UNESCO, 2012). Education, is therefore purposeful and has aims and objectives.

The major aim of education is to develop the individual and society through acquisition of sound moral values to help individuals to grow into self-disciplined, self-reliant and integrated citizens (MOEST, 2015). Hence education is central to moral fulfillment of individuals and the wellbeing of the society in which they live. Moreover, education enables an individual to perform better in the labour market, it improves people's health and also promotes active citizenship (UNESCO, 2009). In addition, education improves productivity, creativity, entrepreneurship and technological advances which are crucial in improving economic, social progress and income distribution of a nation (World Bank, 2016).

2.2.1 Primary education

Primary education is the first stage of formal education before secondary level. The role of primary education is to ensure that all pupils are able to develop their cognitive, social,

emotional and physical skills to the best of their abilities (UNESCO, 2008). The purpose of primary education is also to provide knowledge and skills to become ethically responsible members of society (Republic of Kenya 2012).

The education provided at primary level mainly prepares students to benefit from secondary education and it is geared towards enabling students to develop essential learning skills and providing them with basic learning content (MOEST, 2010). It is expected that at the end of the primary education students would have acquired knowledge and skills in literacy, oral expression, numeracy and problem solving for the next phase of their education (Oumer, 2010). The level of content acquired should equip learners with the requisite knowledge, values and attitudes for secondary education.

Although primary education is the foundation of all other levels, many children particularly in developing nations face barriers to access due to high costs, lack of uniforms and school supplies, disability and competing family priorities (World Bank, 2009). Provision of Free Primary Education which has been adopted by most of the developing nations is a way of reducing barriers to access to education at this level (Riechi, 2006).

Benefits of Free Primary Education include; improved access in education particularly for children from the economically disadvantaged families, increased proportion of educated population in developing countries which leads to improved productivity, creativity and technological advances (World Bank, 2006). Education is therefore an essential element in the economic development of a nation. Developing nations that have introduced free primary education, however, have experienced challenges which include large numbers of students in a class, shortage of teachers and inadequate textbooks (Abuya, Oketch, &Musyoka, 2013).

2.2.2 Free primary education in global context

Industrialized nations devastated in World War 11 were able to employ massive human capital which resulted in economic development (Dunga, 2013). They initiated free primary education earlier than African and South American nations. The developed nations that introduced free elementary education include United Kingdom before the 10^{th} century, North America in 1635 and Japan in 1908 (Breton, 2012). This implies that increased level of human capital through education has an effect on economic, social and political development of nations. Sustainable development can only be achieved through investment in human capital (World Bank, 2006).

Education improves the development of any society and to expand participation, the global community in 1990, pledged at World Conference on Education for All (EFA) in Jomtein, Thailand to achieve Universal Primary Education and greatly reduce illiteracy by 2000 (Ministry of Education, Science and Technology, 2005a). The pledge was renewed at the World Education Conference in Dakar, Senegal in 2000 with a new target date of 2015 (UNESCO, 2012). The conference committed nations to provide universal and quality primary education. In pursuit of these goals, most of the nations in the world have achieved a substantial improvement in access to primary education (UNESCO, 2008). Many Asian, South American and African nations have adopted policies for provision of free primary education to improve access (World Bank, 2014).

2.2.3 Free primary education in the African context

Most African countries placed considerable importance in the role of education in promoting economic and social development after the achievement of independence (Mulligan, 2009). Education in some African countries, however, experienced problems related to access and equity during the 1980s and 1990s due to increased population and structural adjustments programmes imposed by the donor community (World Bank, 2001). The Millennium Development Goals (MDGs) set in 2000 on attainment of universal primary education gave the African countries an incentive to expand participation (United Nations, 2014). Some of the African countries introduced Free Primary Education between 2000 and 2005 as a strategy to expand participation in education which resulted in increased enrolment (UNESCO, 2008).

Africa has made the greatest progress in primary school enrolment among all the developing nations since MDGs were proposed (UNESCO, 2012). More than 40 countries in Africa are offering free primary education (Reich, 2006). Though the Government is paying tuition in some countries like Zimbabwe, Zambia, Malawi, Lesotho and Rwanda, households still bear some costs such as development of school infrastructure, transport, food and textbooks for their children which still hinder access to education for children particularly from poor families (Oumer, 2010). The focus on education in developing nations has witnessed greater access that has resulted in increased enrolment.

2.2.4 Free primary education in the Kenyan context

The Government of Kenya originally planned to start providing free primary education in 1965 (Republic of Kenya, 1976). There was, however, a delay in implementation until 1974,

when fee payment for the first four years of primary education was waived (Republic of Kenya, 1988a). The implementation of free primary education ended in 1988 due to the introduction of cost-sharing in education (Republic of Kenya, 1996). The latest re-introduction of free primary education commenced in 2003 with an aim to improve regional and gender equity through enhanced enrolment, retention, transition and completion rates (MOEST, 2005a).

Under the free primary education policy, the cost of basic teaching and learning materials, wages for critical non- teaching staff and co-curricular activities in public primary schools is met by the Government of Kenya (MOEST, 2003). The parents are however, required to provide uniforms, meals, transport, boarding facilities and health care for their children. This has resulted ina significant increase in enrolment (Republic of Kenya, 2012). Sustainable Development Goal (SDG) 4 on education aims to ensure that all children complete free, equitable, quality primary education leading to relevant learning outcomes (UNESCO, 2019).

2.3 Quality Education

Quality is a concept that is difficult to define because it is concerned with standards that are related to customers' needs and expectations that keep shifting with time (Ncube, 2004). According to Doherty (2008) quality refers to conformance to specifications or requirements which imply achieving set standards. Defining quality in education is even more difficult due to lack of educational benchmarks that are comparable over time (Kyriakides & Creemers, 2011). Many definitions of quality in education exist, testifying to the complexity and multifaceted nature of the concept.

According to UNESCO (2008) quality of education refers to a multi-dimensional concept composed of three inter-related dimensions, namely; inputs, processes and outputs. Inputs are human and material resources available; processes refer to management, teaching and learning and outputs are learning outcomes which are knowledge, skills and attitudes that are linked to national goals for education and positive participation in society. Quality education refers to education that provides learners with capabilities they require to become economically productive, develop sustainable livelihoods, contribute to peaceful and democratic societies and enhance individual wellbeing (Breton, 2012).

Economists define quality education as the amount and quality of resources invested in schooling (Dunga, 2013). Educationists on the other hand, define quality education in terms

of outcomes of the education process (Ojiambo, 2009). A widely used measure of quality education is student achievement in national examinations and other learning assessment tests (Bunyi, 2013). Other conceptions of quality education adopt an input-process-output approach (Kyriakides & Creemers, 2011). Such approaches pay attention to inputs such as numbers of teachers, amount of teacher training, number of textbooks; processes such as amount of direct instructional time, extent of active learning and; outputs such as graduation rates (Sawamura & Sifuna, 2008).

Despite the many definitions of quality of education, there is considerable consensus around its indicators. Terms such as efficiency, effectiveness and equity have often been used to define quality education (Bunyi, 2013). According to UNESCO (2012) quality education can be defined by use of the following indicators: learners who are healthy, well-nourished, ready to learn, and supported by their families and communities; environments that are healthy, safe, protective, gender-sensitive, provision of adequate resources and facilities; content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life, processes through which trained teachers use child-centred teaching approaches in well-managed classrooms, schools and skillful assessment to facilitate learning and outcomes that encompass knowledge, skills and attitudes linked to national goals for education and positive participation in society.

These definitions of quality education show that one indicator is not a guarantee for quality. This view is supported by Scheerens (2011) who argues that measuring quality is not easy, as what satisfies the customer constantly changes, and that the quality of any product or service has many scales. Scholars like Ncube (2004) use indicators like enrolment and aspects of internal efficiency like survival rate; average study time per graduate; wastage ratio to define quality education. According to World Bank (2009) there are four indicators of quality of education, namely: enrolment ratios; age specific enrolment rates; completion rates; and learning achievements. Indicators of the quality education revolve around use of information for management of access to education, reducing wastage, pass rates, supply of resources and utility of education (Dunga 2013).

The goal of all education providers is to ensure quality education is achieved. These goals include developing ability for critical thinking and logical judgement; literacy, numeracy, creativity and communication skills; self-disciplined, physically fit and healthy person; respect own country, awareness and appreciation of the environment and international

community (Breton, 2012). Hence a process where the levels of achievements are linked to national goals of education is essential to determine quality education (World Bank, 2012).

According to Breton (2012) countries such as Japan, Korea and China have been able to provide learners in primary and secondary schools with quality education. Quality education is also provided to learners in European and North American nations such as the United States of America. Provision of quality education in these countries has been attributed to education policies, availability of resources and conducive learning environments (World Bank, 2016).

Cox (2004) notes, that there is substantial evidence of serious decline in quality education in many developing countries even at a time when the governments in those countries are directing massive funds towards improvement of education. A study carried out in Malawi by Dunga (2013) revealed that many pupils are still leaving school without mastering a minimum set of cognitive and non-cognitive skills. While a child may never die from lack of education, children die every day from cholera, malnutrition and other conditions (Cohen, 2005). Those kinds of diseases however, could have been prevented had their mothers had a chance to acquire quality basic education. Development of human capital through provision of quality education results in improved people's health (World Bank, 2009).

Recent policy initiatives geared towards the improvement of quality and access to education in Kenya was introduced under the Economic Recovery Strategy for Wealth and Employment in Kenya (ERS) 2003-2007 (Republic of Kenya, 2012). The Government and the people of Kenya have invested heavily in improving both access and quality of education, in an effort to provide education to all citizens as well as to achieve the education related Sustainable Development Goals (UNESCO, 2019). The aim of this approach was to improve access, equity and in particular quality of education both at primary and secondary levels of education (Glennerster, Kremer, Mbiti & Takavarasha, 2011).

Provision of quality education in Kenya, however, remains a challenge (Milligan, 2014). This was attributed to inadequate infrastructure, teacher shortage, inadequate textbooks and an unfriendly learning environment (Sharma, 2002). According to Lawrence and Vimala (2012) a school environment that is conducive is necessary for fruitful learning and growth of the child. Spaull (2017) also established that a comfortable and caring school environment

contributes significantly towards quality education. According to Hopkins (2001) quality of instruction also significantly contributes to quality education.

According to Mulkeen, Chapman and Dejaegher (2005) the determinants of quality education include expenditure per pupil, material inputs, teaching practices, teacher quality, school management and instructional materials. The instruction process also has a major influence on quality of education (Chareonwongsak, 2005). Digolo (2003) asserts that curriculum, instructional materials, equipment, school management, teacher training and physical facilities are some of the factors that affect quality education. Lydiah and Nasongo (2009) state that schools require good leaders to organize the process of teaching, learning and supervise teachers' work by inspecting records such as schemes of work, lesson plans, records of work covered and class attendance records in order to ensure quality instruction.

2.4 Quality of Instruction

Instruction is concerned with the way content is delivered to the learners and it is a product of teaching and learning (Coe, Aloisi, Higgins & Major, 2014). Instruction is also defined as actions taken by teachers to create a stimulating learning environment for the purpose of providing guidance along with the necessary instructional tools, carrying out activities that facilitate learning and help students to develop appropriate attitudes and behaviour (Eristi & Akdeniz, 2012).

Quality of instruction in education is often defined with respect to inputs and outputs, or the relationship between the two (Milligan, 2014). Inputs include materials, behaviour and characteristics of instructors or the instructional process (Spaull, 2017). According to Bunyi (2013) outcome-based definitions of instructional quality focus on student behaviour and accomplishments which include; subjects chosen, course grades and achievement of learning outcomes like attitudes and behaviour.

Some of the key aspects that determine quality of instruction include the number of students in a class, the amount of time spent in school, the proportion of trained teachers, the number of textbooks and assessments (Ridell, 2003). The major inputs which influence the instructional process are material inputs such as relevant textbooks, availability of knowledgeable and skilled teachers in the classroom, teaching practices, actual time of learning, class size, effective teaching and assessment (Rao, 2007).

According to Harlen (2014) quality instruction is determined by the balance of input mix to support learning environments and the effectiveness of classroom processes in transforming resources into learning outcomes. Quality instruction is often associated with effective teaching which requires that the instructor has knowledge and skills in the subject area to manage classes and deliver content (Kyriakides, Christopher & Charalambous, 2013).

Effective teachers should have deep knowledge of the subjects they teach (Taylor & Tyler, 2012). Rosenshine (2012) notes that effective teachers also possess questioning and assessment skills that are essential for content delivery. Quality instruction depends on the ability of the teacher to plan for lessons, make efficient use of lesson time, coordinate classroom resources and space, and to manage students' behaviour with clear rules that are consistently enforced to maximise learning (Chetty, Friedman & Rockoff, 2011). Quality instruction is essential in educational institutions and it is key to achievement of learning outcomes.

2.4.1 Quality of instruction and teacher: student ratio

Teachers are the main agents of management in the classroom, and moderators of all that goes on in the classroom, on a day to day basis (Mulligan, 2009). Moreover, they are the main medium through whom students learn, especially during the foundation years (Harlen, 2014).The teacher gives direct instructions through their ability to describe, demonstrate, and explain the content expected to be delivered (MOEST, 2015). Thus, the role of the teacher is important for successful learning process which involves guided practice of instructions.

The implementation of Free Primary Education in Kenya led to an increase in enrolment from six (6) million in 2002 to more than seven (7) million in primary schools (World Bank, 2009). Despite this performance, primary education continues to experience many challenges relating to quality which include overstretched facilities and overcrowding in schools (MOEST, 2005a). A large number of students in a classroom reduces teacher-student interaction (Mulligan, 2009). This may result in lack of personalised attention to the students with learning difficulties. Without, personalised attention, the weak learners may not perform well (Nuthall, 2004). Moreover, students in large classes are often unruly and teachers tend to emphasize rote learning rather than problem solving skills (Brown, 2004).

Study findings by UNESCO (2005) revealed that after introduction of Free Primary Education, some public schools had overcrowded classrooms with more than the 40 students

per class recommended by the Ministry of Education. The study further revealed that some parents were transferring their children to private schools which were perceived to provide better quality of instructions in terms of teaching and learning. Multi grade and multi shift teaching was introduced in some public primary schools with a high influx of students with teachers expected to facilitate learning in those classes (MOEST, 2005a).

The teacher is the most important resource in any classroom to mediate the curriculum for each child particularly in primary education (Rao, 2007). The major challenge, however, facing many developing nations is paying teachers, expanding the teaching force to fulfill the demands of increasing enrolments and devoting resources to improve the quality of teachers (World Bank, 2012). Provision of quality instruction requires availability of adequate teachers in schools.

2.4.2 Quality of instruction and teachers' workload

Teaching workload has several dimensions which include the amount of time spent working, the number of classes taught and the number of students in each class (Mbunda, 2006). Teachers conduct classes at the times scheduled, enforce regulations and policies of governing agencies (Sellen, 2016). Besides, teachers perform other duties which include marking and correcting student's work, student counselling, engage in co-curricular activities, assessment, and participate in school management, communication and cooperation with parents (Mosha, 2006).

Effective teaching and learning require a variety of approaches with varying learning styles to meet the needs of students at different ability levels (Rao, 2007). This requires time for lesson planning. Teachers are expected to give individualized attention particularly to the slow learners which could be difficulty if the class sizes are large (MOEST, 2005a). Teachers with large classes may lack adequate time for lesson preparation and other duties which imply that teachers may work without breaks.

2.4.3 Quality of instruction and student: textbook ratio

Teacher's instructional plans are determined mainly by availability of textbooks in primary education (Rao, 2007). When adequate textbooks are available, teachers can adequately prepare for classroom activities (Harlen 2014). Improving quality of instruction involves change at the classroom level in curriculum delivery, hence, availability of textbooks is critical. Moreover, the extent to which textbooks are shared in a classroom affects quality of

instruction (Riechi, 2006). This implies that student: textbook ratio determines students' opportunity for interacting with the books and practising instructions.

Availability and use of textbooks is key to enable learning sequences, practice exercises and continuous formative assessment (Frolich & Michaelowa, 2005). At the inception of Free Primary Education, the rationale for the heavy investments was to provide adequate and relevant textbooks for students. The Government of Kenya intended to improve student: textbook ratio to 1:1 in public primary schools (Republic of Kenya, 2003). Despite the heavy investment in textbooks, there were complaints on shortage of textbooks in public primary schools due to increased enrolment (UNESCO 2005).

2.4.4 Quality of instruction and assessment tests

Assessment is a process of professional judgment based on measurement evidence through test questions and interpreting the scores (Harlen, 2014). It involves curriculum based tasks previously taught in class (Kumari & Srivastsva, 2005). Teachers administer assessment in a variety of ways overtime to allow them observe multiple tasks and to collect information about the knowledge and skills that students have attained (Hammond, 2010). Equally, students receive feedback from teachers based on their performance that allow them to focus on topics not yet mastered. Thus, teachers learn which students need remediation and the students that are ready to move on to more complex work. Assessment results help to ensure that all students make learning progress throughout the school cycle thereby improving their academic achievements (Harlen, 2014).

Effective use of assessment strategies in the learning process requires students to be regularly engaged in the process (Cox, 2004). Teachers can monitor students' progress through essays, tests, homework, classroom questions and standardized continuous assessment (Lockheed &Verspoor, 1991). While assignments and homework may help self-assessment that enable learners to continuously review and strengthen their own understanding, regular assessment can help teachers to use more transparent evaluation criteria (Chuck, 2009). Assessments that are frequent during the school year enhance teacher-student interactions (Harlen, 2014). These interactions can motivate students to continue attending school and to work hard to achieve higher levels of mastery of the content (Southern and Eastern Africa Consortium for Monitoring Education Quality [SACMEQ], 2012).

Regular assessment and feedback is a powerful diagnostic tool that enables students to understand the areas in which they are having difficulties and to concentrate on them (Kumari & Srivastsva, 2005). On one hand, frequent assessment allows teachers to continuously monitor the impact of their lessons on students achievements and on the other; they give students a measure of their progress (Chuck, 2009). Assessment may open up routes to varied teaching styles and contribute to more effective learning by identifying the aspects of the work which need to be revised (Cox, 2004).

Frequent assessment requires considerable amounts of time to assess the learner, mark the tests, analyse the results and organize remedial instructions (National Assessment Centre [NAC], 2010). After introduction of Free Primary Education, the change in enrolment and heavy investment in tuition could have brought about a change on frequency of assessment which was either positive or negative.

2.5 Theoretical Framework

This study was guided by the general systems theory. According to Meadows (2008) a system comprises of input, process and output, and is either open or closed. It is best described as a set of connected things, parts or sub systems forming a complex whole (Fox, 2009). Each sub-system is a self-contained unit but still part of the whole. The sub systems are interrelated and interact and a disturbance in one affects the others (Hannabuss, 2007). A system can therefore be considered as a dynamic network of interconnecting elements where a change in one produces changes in the others**.** The general systems theory finds application in a wide range of fields such as management, business and education (Mele, Pels&Polese, 2010). Proponents of the theory view organizations and processes as systems with inputs, processes and outputs (Chikere, Cornell &Nwoka, 2015).

The systems theory is relevant to the study because education can be considered as a system with inputs, processes and outputs. The inputs in education system include teachers, textbooks, physical facilities and tuition fees. The learners get to schools and undergo a learning process. The teachers carry out the teaching activities that facilitate the learning process. The learning and teaching process in schools is determined by availability and use of textbooks, adequate teachers, and adequate physical facilities among other inputs. Availability of more textbooks and adequate teachers could result in improved quality of instruction. The teaching and learning process can be improved through feedback by assessing students. The factors which influence quality of instruction in education system

include student: teacher ratio, teachers work load, student: textbook ratio and frequency of assessment. The introduction of Free Primary Education had an effect on these variables which affected quality of instruction. These variables are interrelated and work together for realization of quality instruction. The interactions of these variables are presented in the conceptual framework in Figure 1.

2.6 Conceptual Framework

A conceptual framework is a graphic representation of variables that show the relationships among them (Casanave and Li 2015). It depicts the link between the independent and dependent variables using a one direction flow of information Kothari (2014). The diagrammatical representation of the interaction among the study variables is depicted in Figure1.

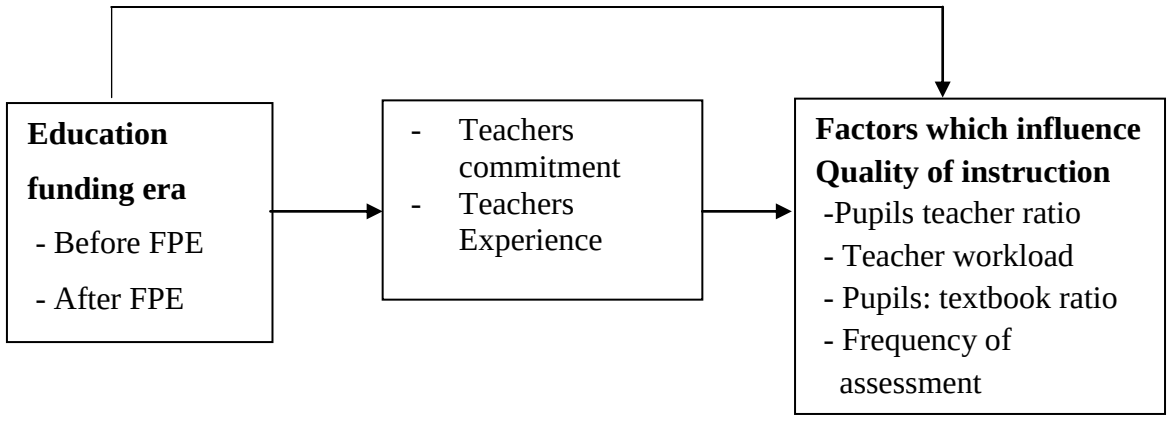

Figure 1: The Conceptual Framework showing relationship among Variables

Figure 1 shows that the independent variable was the epoch, era before and after introduction of FPE while the dependent variables were quality of instruction factors. The factors were; pupils: teacher ratio, teacher workload, pupils: textbook ratio and frequency of assessment.

The figure indicates that under ideal conditions, quality of instruction factors depend entirely on the epoch. However, under dynamic conditions, teacher commitment and experience intervenes between the independent and dependent variables. The effects of the intervening variables were minimised through random sampling. Best and Khan (2006) recommends randomization as one of the methods of reducing the effects of intervening variables as it ensures that any association between variables is not attributed to chance. The study was comparing the interaction of the variables before and after introduction of Free Primary

Education. It was anticipated that introduction of Free Primary Education brought about a change on the factors of instructional quality which was either positive or negative.

This study involved only public primary schools drawn from a single Sub County. This means that there were similarities in the characteristics of the public schools, with regard to enrolment, staffing, leadership and school type. The homogeneity in characteristics of the schools was expected to minimize the effects of the intervening variables on quality of instruction factors.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology that was used during the study. It describes the research design, study population, sampling procedure and sample size; and instrumentation. It also describes the data collection and data analysis procedures. Finally, it gives a summary of the statistics that were used to test hypotheses.

3.2 Research Design

A research design is a detailed plan that shows how a research is to be conducted (Gall, Gall & Borg, 2007). It assists in operationalising variables so that they can be measured, selecting a sample of interest to study, collecting data to be used as a basis for testing hypotheses, and analysing the results (Kumar, 2009). The study adopted the comparative research design. A comparative design is basically concerned with describing differences and similarities among events, objects or processes (Matthes, Davis & Potter, 2017).The strength of a comparative research design rests on its ability to foster concept and theory building, and identification of causes of the differences (Kothari, 2014). The design was deemed appropriate because the study examined differences in selected quality of instruction factors namely, student: teacher ratio, teachers' workload, pupil: textbook ratio and frequency of assessment before the introduction of Free Primary Education and after the introduction of Free Primary Education. The results of the comparison were then used to explain the relationship between the factors influencing quality of instruction and Free Primary Education.

3.3 Study Location

The study was conducted in public primary schools in Nyandarua North Sub County, Kenya. The Sub County had a total of 269 primary schools out of which 190 were public and 79 were private (Sub County Director Of Education, 2013). The researcher chose Nyandarua North Sub County due to declining quality of instruction (MOEST, 2007). Whereas access to education had improved significantly, there were concerns on quality of instruction in Nyandarua Sub County since the introduction of Free Primary Education (MOEST, 2010).

3.4 Population of the Study

The target population for the study was all the head teachers and class teachers in public primary schools in Nyandarua North Sub County. According to the Sub County Director of

Education (2013) the Sub County had 190 head teachers and 1845 class teachers. The accessible population was 179 head teachers and 1675 class teachers drawn from schools that were in existence by 1998. The head teachers were chosen because they are in charge of management of teaching staff, students, and school resources. The class teachers were selected because they are the curriculum implementers and are in charge of textbooks management, curriculum delivery and assessments. Table 7 presents the accessible population in the nine administrative zones of Nyandarua North Sub County.

Table 7
Population of the Study by Educational Zones

Zones	Number of schools	Head teachers	Class teachers
Shamata	23	23	185
Ndaragwa East	19	19	152
Ndaragwa West	23	23	256
Gathanji	15	15	147
Oljorook	27	27	299
Olkalou	16	16	157
Kaibaga	22	22	158
Tumaini	18	18	153
Ndundori	16	16	168
Total	**179**	**179**	**1675**

Source: MOEST, Enrolment Data 2008: (10).

3.5 Sampling Procedure and Sample Size

The sample frame comprised of all the head teachers and class teachers in public primary schools in Nyandarua North Sub County. According to Cohen and Manion (2007), Adam and Schavaeveldt (1985), a sample should be as large as possible to be a representative of the target population. The head teachers and class teachers sample sizes were determined using the formula suggested by Kathuri and Pals (1993) as follows:

$$S = \frac{X^2 NP(1-P)}{d^2(N-1) + X^2P(1-P)}$$ in which

S = required sample size

N= the given population size

P= population proportion that has been assumed to be .50

d= the degree of accuracy as the amount of error that can be tolerated in the fluctuation of a sample proportion P the value of d being .05

X^2= table value of chi square for one degree of freedom relative to the desired level of confidence which is 3.841

The sample size for class teachers was thus:

$$S = \frac{3.84 \quad 1675 \times .50\ (1-.50)}{.05^2\ (1675-1) + 3.84 \times .50\ (1-.50)} = 313$$

S=313

Sample size for head teachers was:

$$S = \frac{3.84 \quad 179 \times .50\ (1-.50)}{.05^2\ (179-1) + 3.84 \times .50\ (1-.50)} = 112$$

After determining the head teachers and class teachers sample sizes, the list of all the public primary schools in the Sub County was obtained from Nyandarua North Sub County Education Officer. Schools that were in existence since 1998 were purposively selected as the research was interested in data for the period 1998 to 2008. The selected schools were grouped into strata as based on the nine (9) zones in the Sub County. Proportionate sampling technique was used to determine the number of school heads by zone that were included in the study. Simple random sampling was then used to select the schools from each zone. Stratified proportionate and simple random sampling procedures were also used to determine the number of class teachers per zone. The sample for the study was 313 class teachers. The distribution of the head teachers and class teachers in the sample are presented in Table 8.

Table 8

Head Teachers and Class Teachers Sample Sizes by Zones

Zones	Head teachers	Class teachers
Shamata	12	35
Ndaragwa East	10	28
Ndaragwa West	17	48
Gathanji	10	56
Oljororook	21	29
Olkalou	10	30
Kaibaga	11	29
Tumaini	10	31
Ndonduri	11	27
Total	**112**	**313**

3.6 Instrumentation

Two questionnaires namely; the Head Teachers Questionnaire and the Class teachers Questionnaire were used to generate data. Questionnaires were selected because they present an even stimulus to large numbers of people simultaneously (Gay & Airasian, 2000). The Head Teachers Questionnaire had four (4) parts. Part A was used to gather data on student enrolments and teacher establishment for the period before the introduction of Free Primary Education. Part B was used to capture data on student enrolments and teacher establishment for the period after the introduction of Free Primary Education. Part C had items on average number of lessons allocated to a teacher before the introduction of Free Primary Education and Part D had items on average number of lessons allocated to a teacher after the introduction of Free Primary Education.

The Class Teachers Questionnaire had four (4) parts. Part A was used to gather data on student: textbook ratio before the introduction of Free Primary Education while Part B had items on student: textbook ratio after the introduction of Free Primary Education. Part C was used to gather data on frequency of assessment before the introduction of Free Primary Education and Part D had items on frequency of assessment after the introduction of Free Primary Education.

3.6.1 Validity

The instrument addressed face and content validities of head teacher and class teacher questionnaires. Face validity is concerned with the presentation of items in an instrument. The intent of face validity is to make the instrument easy for the respondent to follow and provide the intended data. Content validity is the extent to which the instrument solicits information to respond to objectives of the study (Fowler, 2009). Three experts in the Faculty of Education and Community Studies were given the questionnaires and the objectives of the study. They were requested to examine the instruments with regard to presentation and the extent to which the items solicit data and information which address the objective of the study. The recommendations of the experts were used to improve the instruments before piloting.

3.6.2 Reliability

Reliability is the ability of an instrument to yield the same results when used repeatedly to collect data (Mugenda & Mugenda, 1999, Fraenkal & Wallen, 2006). The study was quantitative and data collected were from school records. The head teachers and class

teachers responded to the items in the questionnaire by extracting information from school records. The researcher counter checked the information filled on the questionnaires with the school records.

3.7 Data Collection Procedures

The Egerton University Board of Post Graduate Studies issued a letter which was used to acquire the research permit from the National Council of Science, Technology and Innovation (NACOSTI). Following the receipt of research permit, the Sub County Education Office and head teachers of the schools included in the study were contacted for the authority to conduct the study. The purpose of the study was explained to the head teachers and class teachers. The dates and venues for administering questionnaires were set in consultation with the prospective respondents. On the set dates, the researcher visited the sample schools and administered the instruments. The filled head teachers' and class teachers' questionnaires were collected.

3.8 Data Analysis

The collected data were checked for errors, inconsistencies and cleaned. The data were analysed with the aid of SPSS version 20. Hypotheses one to four were analysed using t-test. The t-test was selected because it is the relevant statistical test when comparing two means. In the study the means of the factors which influence the quality of instruction were compared with regard to study variables before and after the introduction of Free Primary Education in the Nyandarua North Sub-County. Table 9 presents the summary of the statistical tests that were used in the study.

Table 9

Summary of Data Analysis

Hypotheses		**Independent Variable**	**Dependent Variable**	**Statistical Procedure**
$H0_1$:	There is no statistically significant difference between student: teacher ratio before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.	FPE • Before • After	Student: teacher ratio	Means, percentages and t-test
$H0_2$:	There is no statistically significant difference between teachers' workload before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.	FPE • Before • After	Teachers' workload	Means, percentages and t-test
$H0_3$:	There is no statistically significant difference between students: textbook ratio before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.	FPE • Before • After	Student: textbooks ratio	Means, percentages and t-test
$H0_4$:	There is no statistically significant difference between quality of assessment before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.	FPE • Before • After	Frequency of assessment	Means, percentages and t-test

3.9 Ethical Issues

Ethics is concerned with norms of conduct that distinguish between acceptable and unacceptable behaviour (David & Resnik, 2011). In research, it refers to application of ethical standards in planning a study, data collection and analysis, dissemination and use of the results (Mugenda, 2011). Ethics deals with issues such as; consent, courtesy and respect, treating people equitably, privacy, safety and freedom to withdraw consent and discontinue

participation in a research (Hammersley & Traianou, 2012). The researcher adhered to ethical standards that guide educational research by following all the legal procedures. Permission was sought from NACOSTI and other relevant National and County government bodies before collecting data. The head teachers and class teachers were formally contacted through the Nyandarua North Sub County Director of Education. The purpose of the study was explained to them and their consent sought. Instead of using names of the respondents and schools, codes were used to ensure confidentiality of the participants. Throughout the course of the study, all the references cited were acknowledged and data provided by the respondents were not altered or results modified to suit the opinion of the researcher.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction

This study investigated the effects of Free Primary Education on factors that influence instructional quality in public primary schools in Nyandarua North Sub County, Kenya. This chapter presents the results and discussion on the factors that influence instructional quality before and after introduction of free primary education in terms of student: teacher ratio, teacher workload, student: textbook ratio and frequency of assessment.

The responses from the teachers were analyzed using the Statistical Package for the Social Sciences (SPSS) version 20. The study was guided by the following objectives:

i. To establish the student: teacher ratio before the introduction of Free Primary Education and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

ii. To establish the teacher workload before the introduction of Free Primary Education and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

iii. To establish the student: textbook ratio before the introduction of Free Primary Education and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

iv. To establish the frequency of assessment before the introduction of Free Primary Education and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

Four hypotheses were drawn from the objectives and tested in the following sequence:

$H0_1$: There is no statistically significant difference between the student: teacher ratio before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

$H0_2$: There is no statistically significant difference between the teacher workload before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

$H0_3$: There is no statistically significant difference between the student: textbook ratio before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

$H0_4$: There is no statistically significant difference between the frequency of assessment before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

A total of 313 questionnaires for class teachers and 112 for headteachers were distributed as per the sampling techniques used in the study. All the 112 head teachers' questionnaires and 313 class teacher's questionnaire were collected making a return of 100.0% which the study found to be significant in achieving its objectives.

4.2 Student: Teacher Ratio

The first objective of the study was:

To establish whether there were differences in student: teacher ratio before the introduction of Free Primary Education and after the introduction of Free Primary Education in Nyandarua North Sub County.

Data on the number of students and teachers for the years 1998-2002 period were collected using Head Teacher Questionnaire (HTQ). This period covered five (5) years before the introduction of free primary education. The data were then used to calculate the student: teacher ratio for that period. The number of students was divided by the number of teachers for each year to determine the student teacher ratio. The mean was computed using the total number of students and teachers for five years before the introduction of Free Primary Education. The results are presented in Table 10.

Table 10
Student: Teacher Ratio for 1998-2002 Period

Year	Number of Students	Number of Teachers	Student: Teacher Ratio
1998	34255	1211	28
1999	35863	1231	30
2000	34444	1224	28
2001	34880	1216	28
2002	35900	1221	29
Mean	**35068**	**1221**	**29**

The results in Table 10 show that student: teacher ratio ranged from 28 to 30. This was below the maximum 40:1 ratio recommended by the Government of Kenya (MOEST, 2002).

Data on the number of students and teachers after the introduction of Free Primary Education; 2003-2007 period were, also, gathered using the Head Teacher Questionnaire. The period covered five (5) years after the introduction of Free Primary Education. The data were used to calculate student: teacher ratio for the period. The number of students was divided by the number of teachers to determine the student: teacher ratio. The mean was computed using the total number of students and teachers for five years after the introduction of Free Primary Education. Table 11 presents the results for the student: teacher ratios.

Table 11

Student: Teacher Ratio for 2003-2007 Period

Year	Number of Students	Number of Teachers	Student: Teacher Ratio
2003	38476	1169	32
2004	39429	1133	34
2005	39863	1125	34
2006	40415	1110	35
2007	44264	1096	39
Mean	**40489**	**1127**	**35**

The results in Table 11 show that student: teacher ratio was a range of 32 to 39 after the introduction of Free Primary Education. The overall student: teacher ratio for the five years was 35 after the introduction of Free Primary Education. There was an increase on average of the number of students per teacher from a range of 28 to 30 before the introduction of Free Primary Education compared to a range of 32 to 39 after the introduction of Free Primary Education. Although the overall student: teacher ratios for the five (5) years period before and after the introduction of Free Primary Education were below the of 40:1 recommended ratio by Ministry of Education there was a likelihood that student – teacher interaction could have changed hence compromising learners' personalized attention.

The hypothesis "There is no statistically significant difference between the student: teacher ratio before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County" was tested using t-test. The results are presented in Table 12.

Table 12

Student: Teacher Ratio before and after the Introduction of Free Primary Education t-test

Epoch	N	Mean	SD	df	t-value	P-value
Before FPE	112	29	10.60	222	9.575	.000*
After FPE	112	35	11.91			

The test shows that there was a statistically significance difference in the mean score in the student: teacher ratios before and after the introduction of Free Primary Education in Nyandarua North Sub County. The results further show that the difference between the two means was statistically significant at 0.05 level, $t(222) = 9.575$, $p<.05$. On the basis of these results, the null hypothesis was rejected.

A study conducted by Maganga, Nasongo and Sylvia (2011) established that after the introduction of Free Primary Education in Kenya, the student: teacher ratio increased in the country. The study established that the introduction of Free Primary Education resulted to increased student: teacher ratio. These findings concur with those of UNESCO (2005) on challenges of implementing Free Primary Education which indicated that after introduction of Free Primary Education, student: teacher ratio had increased and varied between 1:58 and 1:29 in different districts. This implies that student: teacher ratio in some districts had exceeded the recommended 40:1 ratio by the Ministry of Education. Large numbers of pupils in classes made it difficult for the teachers to give personalized attention. To cope with the large number of pupils, multi grade and multishift was introduced in some schools which would mean the same teacher would teach more than one session (MOE, 2003).

4.3 Teacher Workload

The second objective of the study was:

To establish whether there were differences in the teacher workload before and after the introduction of Free Primary Education in Nyandarua North Sub County.

The teacher workload was measured in terms of number of lessons allocated to a teacher per week. Data on the number of lessons allocated to a teacher in a week before the introduction of Free Primary Education were generated using Class Teachers Questionnaire (CTQ). The data were grouped into four (4) ranges. Table 13 presents frequency of teacher workload in ranges before the introduction of Free Primary Education.

Table 13

Teacher Workload before the Introduction of Free Primary Education

Lessons in a Week	Frequencies	Percentage (n=312)
19 or less	35	11.2
20 – 29	182	58.4
30- 39	94	30.1
40 and above	1	0.3

The results in Table 13 show that before the introduction of Free Primary Education, teachers workload (58.4%) was in the range of 20-29 lessons per week. From the table a small percentage, 0.3% of the teachers had 40 lessons and above. This implies that majority of the teachers workload in Nyandarua North Sub County was below the 35 lessons per week recommended by the Ministry of Education (MOEST, 2002). The teachers were thus not considered to be overloaded with work before the introduction of Free Primary Education.

Data on the number of lessons allocated to a teacher in a week after the introduction of Free Primary Education were, also, calculated using the Class Teachers Questionnaire (CTQ). Data on the number of lessons allocated to a teacher in a week after the introduction of Free Primary Education were generated using Class Teachers Questionnaire (CTQ). The data were grouped into four (4) ranges. Table 14 presents frequency of teacher workload in ranges after the introduction of Free Primary Education.

Table 14

Teacher Workload after the Introduction of Free Primary Education

Lessons per week	Frequencies	Percentage n = 312
19 or less	3	1.0
20-29	105	37.0
30-39	190	60.9
40 and above	4	1.1

The results in Table 14 show that the teacher workload (60.9%) was in the range of 30-39 lessons per week. From the data, there was an increase in teacher workload after the introduction of Free Primary Education. The data show that 1.1% of the teachers had forty (40) and above lessons per week. The results suggest that after the introduction of Free

Primary Education, there were more teachers with workloads ranging from 30-39 lessons per teacher per week compared to the period before introduction of Free Primary Education. This could have been due to double shift particularly when the same teacher handles both morning and afternoon shift that was introduced in some schools to cope with high enrolment after introduction of Free Primary Education (UNESCO, 2005). This implies that teacher workload was on the increase after introduction of Free Primary Education.

The means of lessons allocated to teachers per year were calculated for 1998-2002. The period covers a five (5) year period before the introduction of Free Primary Education. The data are presented in Table 15.

Table 15

Lessons per Teacher per Week in 1998-2002 Period

Year	Lessons per teacher per week
1998	29
1999	30
2000	30
2001	33
2002	35
Mean	**31**

The results in Table 15 show that the average number of lessons allocated to a teacher per week increased from 29 in 1998 to 35 in 2002. From the data, the number of lessons per teacher per week for the first four years was below the 35 lessons recommended by the Ministry of Education (MOEST, 2007). The mean of the lessons per teacher per week by 2002 had slightly exceeded the recommended 35 lessons. However, the overall mean score of lesson per teacher per week was 31 for the period before introduction of Free Primary Education. The mean was below 35 lessons. The work load of the teachers during the period was within that recommended by the Ministry of Education.

The mean number of lessons allocated to teachers per week after the introduction of Free Primary Education was also computed. Data on the number of lessons allocated to a teacher per week were gathered for the 2003- 2007 using CTQ. The data are presented in Table 16.

Table 16

Average Lessons per Teacher per Week in 2003-2007 Period

Year	Average Number of Lessons
2003	34
2004	35
2005	36
2006	36
2007	37
Mean	**36**

The results in Table 16 show that there was an increasing number of lessons per teacher per week from 34 in 2013 to 37 in 2007. The average number of lessons allocated per teacher per week for all the years, except 2003, was above the recommended 35 lessons per teacher per week.

The hypothesis "There is no statistically significant difference between the teacher workload before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County" was tested using t-test. The results are presented in Table 17.

Table 17

Number of Lessons Allocated to a Teacher per Week before and after the Introduction of Free Primary Education t-test

Epoch	N	Mean	SD	Df	t-value	p-value
Before FPE	312	31	5.10	619	12.222	.000*
After FPE	312	36	3.22			

The results in Table 17 show that there was a statistically significant difference between the mean score of the number of lessons per teacher per week before the introduction of Free Primary Education. The results further show that the difference between the two means was statistically significant at .05 level, t (619) = 12.222, p = .000. This implies that the workload of the teachers was on the increase after the introduction of Free Primary Education compared to the period before introduction of Free Primary education. This could have been as a result of increased access to education without corresponding increase in the number of

teachers. It is an indication that the introduction of Free Primary Education had a significant effect on teachers' workload. The hypothesis was therefore rejected.

The results of the study indicated that the introduction of Free Primary Education had an effect on the number of lessons allocated to a teacher per week. The findings of the study concur with those of Gakure, Mukuria and Kithae (2013) who established that teaching load in most primary schools range was 30-40 lessons per week per teacher after the introduction of Free Primary Education. Increased workload of teachers could negatively affect the quality of instruction as teachers had large numbers of students to attend to, hence it could be difficult to provide individualized attention (Kenya, 2008). Maganga, Nasongo and Sylvia (2011) pointed out that high student: teacher ratio affected classroom interaction as teachers found it difficult to give personalized attention to students. Similarly, Wasanga, Ambia and Mwai (2010) pointed out that there was a remarkable increase in class sizes and increased workload after the introduction of Free Primary Education. Large class sizes and increased workload for teachers could negatively affect discipline, teaching and learning in public primary schools (Orodho, 2014).

4.4 Availability of Textbooks to Students

The third objective of the study was:

To establish the effect of Free Primary Education on student: textbook ratio in Nyandarua North Sub County.

Data on the number of the number of textbooks available to students were collected using CTQ. The data were used to calculate student: textbook ratios before and after the introduction of Free Primary Education. The data were grouped into four (4) ranges. Table 18 presents the frequency of teachers who indicated the number of students sharing a textbook for each range.

Table 18

Students: Textbook before the Introduction of Free Primary Education

Students per Textbook	Frequency	Percentage
1-3	37	11.8
4-6	161	51.6
7-9	81	26.1
10 and above	33	10.5

The results in Table 18 show that a total of 63.4% of the teachers reported that student: textbook ratio was ranging between 1-3 and 4-6 before the introduction of Free Primary Education. The data show that the student: textbook ratio was higher than the 1:1 recommended by the Ministry of Education (MOEST, 2003).

Data on the number of students sharing a textbook for the period 2003- 2007 after the introduction of Free Primary Education were also collected using the CTQ. The data were grouped into ranges and summarized using frequencies and percentages as shown in Table 19.

Table 19

Students: Textbook after the Introduction of Free Primary Education

Students per Textbook	Frequency	Percentage
1-3	235	75.3
4-6	72	23.1
7-9	3	1.0
10 and above	2	0.6

The results in Table 19 show that 75.3% of the teachers indicated that the ratio of student: textbook was three (3) students and below. This implies that there were more textbooks available in schools after the introduction of Free Primary Education.

Data in Table 20 present student: textbook ratio on average for five (5) years before the introduction of Free Primary Education.

Table 20

Student: Textbook Ratio on Average before the Introduction of Free Primary Education

Year	Mean
1998	7
1999	7
2000	7
2001	6
2002	6
Mean	**7**

The results in Table 20 show that the mean student: textbook ratio before the introduction of Free Primary Education range was 6 - 7. This implies that there were inadequate textbooks since more than six students shared one text book.

Data on the student: textbook ratios after the introduction of Free Primary Education are presented in Table 21.

Table 21

Student: Textbook Ratio on Average after the Introduction of Free Primary Education

Year	Mean
2003	4
2004	3
2005	3
2006	3
2007	2
Mean	**3**

The results in Table 21 show that the mean student: textbook ratio after the introduction of Free Primary Education range was 2 - 4 with an overall mean of 3. The results indicate that the student: textbook ratio improved from 4 in 2003 to 2 in 2007.This means that the number of textbooks available to students was increasing during the period.

The hypothesis "There is no statistically significant difference between student: textbook ratio before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County" was tested using t-test. The results are presented in Table 22.

Table 22

Student: Textbook Ratio before and after the Introduction of Free Primary Education t-test

Epoch	N	Mean	SD	Df	t-value	p-value
Before FPE	312	7	3.17	613	16.554	.000*
After FPE	312	3	1.88			

The results in Table 22 show that there was a statistically significant difference between the student: textbook ratios before and after the introduction of Free Primary Education. This is an indication that there were more textbooks available to students after the introduction of Free Primary Education. The results also show that the difference between the two ratios was

statistically significant at .05 level, $t = (613) = 16.554$, $p = .000$. The hypothesis was therefore rejected.

The study established that introduction of Free Primary Education resulted to improved student: textbook ratio in public primary schools in Nyandarua North Sub County. These findings are consistent with those of UNESCO (2005) which established that student: textbook ratio after introduction of Free Primary Education had improved to 1:3 nationally. This ratio was however, below Government target of 1:1 student: textbook ratio.

Adequacy of textbooks is essential in the provision of quality instructions (World Bank, 2006). Availability of adequate textbooks enables teachers to develop engaging and effective learning to students (Oates, 2014). According to Mutua, Kipchirchir, Kemboi and Chesire (2010) most teachers were able to give students assignments on daily basis due to improved provision of textbooks after introduction of Free Primary Education.

4.5 Frequency of Assessment

The fourth objective of the study was:

To examine the effect of Free Primary Education on frequency of assessment in Nyandarua North Sub County

Data on frequency of assessment before the introduction of Free Primary Education were collected using CTQ. The data were organised on weekly, fortnightly, monthly and on termly basis. The results are presented in Table 23.

Table 23

Frequency of Assessment before the Introduction of Free Primary Education

Duration	Frequency	Percentage
Weekly	17	5.6
Every two weeks	67	23.6
Monthly	104	33.3
Termly	114	37.5

The results in Table 23 shows that a total of 70.8% of the teachers indicate that students were assessed either monthly or termly before the introduction of Free Primary Education. This

implies that teachers and students could not frequently get feedback on masterly of content in order to improve on teaching and learning methods.

Data in Table 24 show the frequency of assessment after the introduction of Free Primary Education.

Table 24

Frequency of Assessment after the Introduction of Free Primary Education

Duration	Frequency	Percentage
Weekly	17	5.4
Every two weeks	222	71.2
Monthly	52	18.7
Once a term	11	3.7

The results in Table 24 show that 71.2% of teachers indicated that student were assessed on two weekly basis after introduction of Free Primary Education. This implies that the frequency of assessment increased after the introduction of Free Primary Education. This could result in improved teaching and learning since the remedial teaching could be organized for students with difficulty in masterly of content revealed through assessment.

The hypothesis "There is no statistically significant difference between frequency of assessment before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County" was tested.

The effect of Free Primary Education on frequency of assessment was determined using the t-test. The responses to the item in CTQ that was used to measure frequency of assessment before introduction of Free Primary Education and after introduction of Free Primary Education were assigned sores using the scale 1= Once A Term, 2=Monthly, 3= Once fortnightly and 4= Weekly. The sum of the scores was transformed into overall means of frequency of assessment before introduction of Free Primary Education and after the introduction of Free Primary Education. The two means were then compared using the t-test. The results of the t-test are presented in Table 25.

Table 25

Frequency of Assessment before and after the Introduction of Free Primary Education t-test

Period	N	Mean	SD	df	t-value	p-value
Before FPE	312	2	0.91	611	13.567	.000*
After FPE	312	3	0.59			

The results in Table 25 show that there was a statistically significant difference in the frequency of the assessment before and after the introduction of Free Primary Education. The hypothesis was, therefore, rejected. The high mean score after the introduction of Free Primary Education is an indication that students were assessed more frequently after the introduction of Free Primary Education. The results show that the difference between the two means was statistically significant at .05 level, $t(611) = 13.567$, p=.000.

Frequent assessments reveal signs of learning problems and lead to response process which shows performance and difficulties experienced by individual students (Southern and Eastern Africa Consortium for Monitoring Education Quality [SAQMEC], 2012). Teachers can use assessment results to improve their pedagogical strategies. In addition, progress of the students can be shared with the parents and this can help to address the difficulties that a learner could be experiencing (Chuck, 2009).

The study findings are not consistent with findings of UNESCO (2005) which reported that after introduction of Free Primary Education in Kenya the number of assessments had reduced due to the large classes. National Assessment Centre (2010) argues that it requires considerable time to set, administer examinations, mark and analyse the results which was difficult after introduction of Free Primary Education due to increased number of students. The findings of this study however, are in agreement with those of Chuck (2009) and Oates (2014) which established that although teacher workload had increased after introduction of Free Primary Education, improvements in the provision of teaching and learning resources enabled teachers to assess students more often.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study, conclusions and recommendations based on the research findings. The implications of the study findings and suggestions for further research are also presented in the chapter.

5.2 Summary of Study

This study examined the factors that influence instructional quality before and after introduction of Free Primary Education in Nyandarua North Sub County, Kenya. These factors included student: teacher ratio, teacher workload, student: textbook ratio and frequency of assessment. The Government of Kenya introduced Free Primary Education in 2003 to improve the level of participation in primary education. This resulted in a significant increase in enrolment. There were concerns however, about quality of instruction in public primary schools. This study sought to establish the factors that influence instructional quality before and after introduction of Free Primary Education. They include student: teacher ratio, teacher workload, student: textbook ratio and frequency of assessment as factors which influence quality of instruction in public primary schools in Nyandarua North Sub County. To achieve these specific objectives the study adopted descriptive survey design. The population of the study was 179 head teachers and 1675 class teachers which gave a total of 1854 drawn from public primary schools in Nyandarua North Sub County. The sample was 112 head teachers and 313 class teachers who were selected using stratified, proportionate and simple random sampling procedures. Two instruments namely; CTQ and HTQ were used to gather data. Frequencies, percentages, means and standard deviations were used to analyse data. The presentation of the major study findings, conclusions and implications were guided by four hypotheses stated in null form as follows:

$H0_1$: There is no statistically significant difference between student: teacher ratio before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

$H0_2$: There is no statistically significant difference between teacher workload before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

$H0_3$: There is no statistically significant difference between student: textbook ratio before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

$H0_4$: There is no statistically significant difference between frequency of assessment before and after the introduction of Free Primary Education in public primary schools in Nyandarua North Sub County.

Based on the analyses of the research hypothesis in this study, the following summary was established:

The student: teacher ratio increased after introduction of Free Primary Education compared to the period before introduction of Free Primary Education. The t-test results showed that the increase was statistically significant.

Teachers workload increased after introduction of Free Primary Education compared to the period before introduction of Free Primary Education. The t-test results showed that the increase was statistically significant.

The study findings also showed that more textbooks were available to students after the introduction of Free Primary Education. The t-test showed that the improvement in student: textbook ratio after introduction of Free Primary Education compared to the period before the introduction of Free Primary Education was statically significant.

Frequency of assessment increased after introduction of Free Primary Education compared to the period before introduction of Free Primary Education. The t-test showed that the increase in frequency of assessment after introduction of Free Primary Education was statistically significant.

5.3 Conclusions

There were four hypotheses for the study derived from the objectives which were tested. The following conclusions were drawn from the study findings:

i. **Student: teacher ratio increased after introduction of Free Primary Education**.
   The student: teacher ratio changed from a range of 28-30 before the introduction of Free Primary Education to a range of 30-39 after the introduction of Free Primary Education. There was significant increase in student: teacher ratio after introduction of Free Primary

Education compared to the period before introduction of Free Primary Education. The teacher pupil: ratio before and after introduction of Free Primary Education was within the ratio of 1:40 recommended by the Ministry of Education. The conclusion drawn from the result was that although the student: teacher ratio increased after introduction of Free Primary Education, it was within the ratio recommended by the Ministry of Education thus there was quality of teaching and learning.

ii. **Teacher workload increased after the introduction of Free Primary Education.**

The findings indicated that teachers had a higher work load per week after introduction of Free Primary Education compared to the period before introduction of Free Primary Education. The mean 36 lessons per teacher per week after the introduction of Free Primary Education were higher than the mean 31 lessons per teacher per week before the introduction of Free Primary Education. The findings also indicated that the teachers' workload after the introduction of FPE was significantly different from the workload before the introduction of Free Primary Education. The conclusion drawn from the result was that introduction of Free Primary Education affected teacher workload negatively. This could have been as a result of double shift and additional streams due to increased enrolment.

iii. **There were more textbooks available in public primary schools after the introduction of Free Primary Education.**

The mean 3 student: textbook ratio after the introduction of Free Primary Education was less than the mean 7 student: textbook ratio before the introduction of Free Primary Education. The number of textbooks provided to students after introduction of Free Primary Education was more than double those provided before introduction of Free Primary Education. The conclusion drawn from the results was that introduction of Free Primary Education affected student: textbook ratio favourably. There were more textbooks provided hence students were able to carry reading materials home to do their homework assignments, revise on their own and read ahead of their teachers thus making learning more enjoyable. The availability of more textbooks after introduction of Free Primary Education, could enable students to easily access and interact with them which could improve quality of instruction.

iv. **Assessments in public primary schools were more frequent after introduction of Free Primary Education.**

The mean 3 for frequency of assessment after the introduction of Free Primary Education was higher than the mean 2 before the introduction of Free Primary Education. The conclusion drawn from the result was that introduction of Free Primary Education affected the frequency of assessment positively. Based on results of frequent assessments, intervention measures such as remedial teaching could be used to help students with learning difficulties and also to improve on masterly of content for topics that could be difficult thus improving quality of instruction.

5.4 Implications of Findings of the Study

The Government of Kenya introduced Free Primary Education in 2003 with the aims of improving participation in primary education and quality of learning. The study established that the re-introduction of Free Primary Education resulted in an improvement in students: textbook ratio and frequency of assessment. There was however, a negative effect on student: teacher ratio and teachers' workload after introduction of Free Primary Education. These results show that introduction of Free Primary Education had mixed effects on factors that influence quality of instruction. On the positive side, the student: textbook ratio improved from 1:7 before the introduction of Free Primary Education to 1:3 after the introduction of Free Primary Education, while the frequency of assessment increased from monthly to fortnightly. Availability of learning materials such as textbooks significantly affected the quality of instruction and learning outcomes since teachers could prepare adequately for classroom activities. Assessment enhances quality of instruction as teachers are able to collect information about what students know based on their performance that allow them to focus on topics not yet mastered.

The quality of instruction would still be a challenge in education if the factors that were negatively affected by Free Primary Education are not addressed. The student: textbook ratio was still below the 1:1 ratio recommended by the Ministry of Education despite the Government funding. The study established that there was a remarkable increase in the number of lessons allocated to a teacher per week and student: teacher ratio after the introduction of Free Primary Education. Teachers would have a challenge in giving personalized attention to the students since their workload and student: teacher ratios were high. These factors not only affect the quality of teaching but also learning outcomes. The

Ministry of Education should, therefore, put in place mechanisms that will ensure that more teachers are provided since enrolment was on the increase. School administrators should provide teachers with adequate resources to prepare assessments and administer them more frequently.

5.5 Recommendations

The following recommendations were made:

5.5.1 Recommendations for policy

Based on the findings of this study, the following recommendations for policies were made:

i. The Ministry of Education should establish ways of improving student: textbook ratio to the target ratio of 1:1 in public primary schools.

ii. The Ministry of Education should provide more teachers in public primary schools to address the increasing teacher workload.

iii. The Ministry of Education should ensure that teachers in pre-service and in-service are trained on how to effectively assess students in primary schools to improve the quality of instruction in the era of Free Primary Education.

5.5.2 Suggestions for further research

i. Further research need to be done on factors that may affect quality of instruction in Free Primary Education era.
ii. Further research also needs to be done on reforms in education for relevance in Free Primary Education era.

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APPENDICES

Appendix A: Letter of Introduction to Headteachers

Dear Respondent,

I am a Post Graduate student at Egerton University currently undertaking research in Education Management on the topic:**"Effects of Free Primary Education on Factors Influencing Quality of Instruction in Public Primary Schools in Nyandarua North Sub County, Kenya"** You have been identified as a respondent for the study. The National Council of Science and Technology has given a permit allowing the research to be conducted. The District Education Office has authorized data collection from the schools in the District. Any information you provide will be treated as confidential and will be used only in this study.

Yours Faithfully,

Susan Wanjohi

Researcher

Appendix B: Letter of Introduction to Class Teachers

Dear Respondent,

I am a Post Graduate student at Egerton University currently undertaking research in Education Management on the topic: **"Effects of Free Primary Education on Factors influencing Instructional Quality in Public Primary Schools in Nyandarua North Sub County, Kenya."** You have been identified as a respondent for the study. The National Council of Science and Technology has given a permit allowing the research to be conducted. The District Education Office has authorized data collection from the schools in the District. Also the head teacher has granted permission for data collection needed for this study from the class teachers. Any information you provide will be treated as confidential and will be used only in this study.

Yours Faithfully,

Susan Wanjohi

Researcher

Appendix C: Head Teachers Questionnaire on Factors Influencing Quality of Instruction in Public Primary Schools, Nyandarua North Sub County, Kenya, Before and After the Introduction of Free Primary Education

PART A: Data on student enrolments and teacher establishment for the period before the introduction of Free Primary Education

1. Instructions: Please provide from the records in your school data on student enrolments and teacher establishment for the period 1998-2002 in the following table:

Before the Introduction of Free Primary Education	Year				
	1998	1999	2000	2001	2002
Number of TSC teachers employed in the school					
Number of students in the school					

PART B: Data on student enrolments and teacher establishment for the period after the introduction of Free Primary Education

2**. Instructions:** Please provide from the records in your school data on student enrolments and teacher establishment for the period 2003-2007 in the following table:

After the Introduction of Free Primary Education	Year				
	2003	2004	2005	2006	2007
Number of TSC teachers employed in the school					
Number of students in the school					

PART C: Average number of lessons allocated to a teacher before the introduction of Free Primary Education

3. **Instructions:** Please provide from the records in your school the average number of lessons allocated to a teacher per week for the period 1998-2002.

Before the Introduction of Free Primary Education	Year				
	1998	1999	2000	2001	2002
Average number of lessons allocated to a teacher per week in the school					

PART D: Average number of lessons allocated to a teacher for the period after introduction of Free Primary Education

4**. Instructions:** Please provide from the records in your school the average number of lessons allocated to a teacher per week for the period 2003-2007

After the Introduction of Free Primary Education	Year				
	2003	2004	2005	2006	2007
Average number of lessons allocated to a teacher per week in the school					

Thank you for your contribution.

Appendix D: Class Teachers Questionnaire on Factors Influencing Quality of Instruction in Public Primary Schools, Nyandarua North Sub County, Kenya, Before and After the Introduction of Free Primary Education

PART A: Data on student: text book ratio for the period before the introduction of Free Primary Education

1. **Instructions:** Please provide from the school records the number of students that were in the class in which you are currently the class teacher and the total number of textbooks issued for all the subjects for the period 1998-2002 in the following table:

Before the Introduction of Free Primary Education	Year				
	1998	1999	2000	2001	2002
Number of students					
Number of textbooks					

PART B: Data on student: text book ratio for the period after the introduction of Free Primary Education

2. **Instructions:** Please provide from the school records the number of students that were in the class in which you are currently the class teacher and the total number of textbooks for all the subjects for the period 2003-2007 in the following table:

After the Introduction of Free Primary Education	Year				
	2003	2004	2005	2006	2007
Number of students					
Number of textbooks					

PART C: Data on continuous assessment for the period before the introduction of Free Primary Education

Instructions: Please use a tick (√) to answer item number 6

3. From the school records, how often were the students in the class in which you are currently the class teacher given continuous assessment before the introduction of Free Primary Education.

(a) On weekly basis ☐

(b) After every two weeks ☐

(c) After every month ☐

(d) Once a term ☐

PART D: Data on continuous assessment after the introduction of Free Primary Education

Instructions: Please use a tick (√) to answer item number 7

4. From the school records, after implementation of Free Primary Education, continuous assessment for the class in a term were given

(a) On weekly basis ☐

(b) After every two weeks ☐

(c) After every month ☐

(d) Once a term ☐

Thank you for your contribution.

Appendix E: Letter of Research Authorization

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349, 254-020-2673550
Mobile: 0713 788 787 , 0735 404 245
Fax: 254-020-2213215
When replying please quote
secretary@ncst.go.ke

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: NCST/RCD/14/013/1216

Date: 4th July, 2013

Susan Warukira Wanjohi
Egerton University
P.O.Box 536-20115
Njoro.

RE: RESEARCH AUTHORIZATION

Following your application dated *3rd July, 2013* for authority to carry out research on "***Effects of Free Primary Education on selected factors which influence quality of instruction in public primary schools: A case of Nyandarua North District, Kenya,***" I am pleased to inform you that you have been authorized to undertake research in **Nyandarua North District** for a period ending **31st December, *2013*.**

You are advised to report to **the District Commissioner and the District Education Officer, Nyandarua North District** before embarking on the research project.

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

DR. M. K. RUGUTT, PhD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:

The District Commissioner
The District Education Officer
Nyandarua North District.

"The National Council for Science and Technology is Committed to the Promotion of Science and Technology for National Development".

Appendix F: Research Permit

PAGE 2

THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Susan Warukira Wanjohi
of (Address) Egerton University
P.O.Box 536-20115, Njoro.
has been permitted to conduct research in

Nyandarua North Location
Central District
Province

on the topic: Effects of Free Primary Education on selected factors which influence quality of instruction in public primary schools: A case of Nyandarua North District, Kenya.

Applicant's Signature

for a period ending: 31st December, 2013.

PAGE 3

Research Permit No. *NCST/RCD/14/013/121*
Date of issue *4th July, 2013*
Fee received *KSH. 1,000*

for Secretary
National Council for
Science &Technology

CONDITIONS

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

GPK6055(3mt10/2011

REPUBLIC OF KENYA

RESEARCH CLEARANCE PERMIT

(CONDITIONS—see back page)