EFFECT OF PUPIL-TEACHER RATIO ON CURRICULUM IMPLEMENTATION PRACTICES IN PUBLIC PRIMARY SCHOOLS IN MWINGI NORTH SUB COUNTY, KENYA
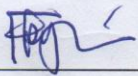
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A Research Project Submitted in Fulfillment of the Requirements for the Degree of Master of Education in Educational Administration of South Eastern Kenya University
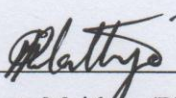
2019

DECLRATION

I understand that plagiarism is an offence and therefore declare that this project is my original work and has not been presented to any other institution for any other award.

Signature_____ Date __21/2/19__

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DEDICATION

This project is dedicated to my family members Grace Katunge, Dorcas, Mawia, Ndambuki and Mutee David.

ACKNOWLEDGEMENT

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ABSTRACT

This study investigated the effect of pupil-teacher ratio on curriculum implementation practices in public primary schools in Mwingi North Sub County. The specific objectives of the study were: to assess the effect of Pupil Teacher Ratio on teacher workload in public primary schools in Mwingi North Sub-County; to investigate the effect of Pupil Teacher Ratio on formative evaluation practices in public primary schools in Mwingi North Sub-County; to examine the effect of Pupil Teacher Ratio on teacher lesson attendance and to establish the effect of individual subject performance in public primary schools in Mwingi North Sub-County. The study sample consisted of 135 respondents comprising of 44 head teachers, 88 teachers and 3 education officers. The head teachers and teachers were selected using simple random sampling while the Teachers Service Commission Sub-County Director, Sub-County Quality Assurance and Standards Officer and Chief Education Officer were purposively selected. The study used questionnaires for head teachers and teachers and a common interview schedule for the three education officials: the Teachers Service Commission Sub-County Director, Sub County Quality Assurance and Standards Officer and Chief Education Officer. Validity of the instruments was ascertained through expert judgment at the school of education while reliability was determined using Pearson's Product Moment correlation coefficient. Quantitative data was analyzed using descriptive statistics and presented in percentages, frequencies, means and standard deviation. The null hypotheses were tested using Chi square analysis at the .05 level of significance. Qualitative data was analyzed based on the themes emanating from the study objectives. The findings of the study revealed that, at the 5% level of significance, Pupil Teacher Ratio had a statistically significant effect on teaching workload at 0.05 and that Pupil Teacher Ratio had a significant effect on formative evaluation process at 0.085. Similarly, it emerged that Pupil Teacher Ratio had a significant effect on teacher lesson attendance and that Pupil Teacher Ratio had a statistically significant effect on the performance in individual subjects. Likewise, Pupil Teacher Ratio had a statistically significant effect on the rate of formative evaluation and affected the way schools conducted their formative assessment and its thorough supervision. This study concluded that schools in the area under study had a higher pupil to teacher ratio which had a significant negative effect on academic performance. The study recommends, among other things, that the Teachers Service Commission should employ more teachers in the study area in order to solve the problem of teacher shortage currently experienced and that schools should employ more teachers on Board of Management teams.

ABBREVIATIONS AND ACRONYMS

CEO - Chief Education Officer

DF - Degree of Freedom

EFA - Education for All

EMIS - Education Management Information Systems

FPE - Free Primary Education

IMF - International Monetary Fund

JKF - Jomo Kenyatta Foundation

KCPE - Kenya Certificate of Primary Education

KICD - Kenya Institute of Curriculum Development

KNEC - Kenya National Examination Council

MOEST - Ministry of Education Science and Technology

MDG - Millennium Development Goals

P - Probability Value

PPMCC - Person's Product Moment Correlation Coefficient

PTR - Pupil Teacher Ratio

SCD-TSC - Sub County Director Teachers Service Commission

SCQASO – Sub County Quality Assurance and Standards Officer

TSC – Teachers Service Commission

UNESCO - United Nations Educational Scientific and Cultural Organization

UNICEF – United Nations Children Educational Fund

USAID - United States of America International Development

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

One measure of education quality is the pupil-teacher ratio which refers to the number of pupils per teacher in a school. As global school attendance rates have climbed upward over the past few years and the world moves closer to the goal of education for all, this issue of pupil teacher ratio attracts increasing attention (Hubler, 2008). The United Nations Educational Scientific and Cultural Organization puts emphasis on individual tested subjects which allows students to focus on deep analysis in solving problems (UNESCO, 2006). However, the results of high pupil–teacher ratio are lower academic achievement (Hubler, 2008). Teachers of a large class can't dedicate ample time to each pupil and the students find it difficult to concentrate on the content and learn.

Sharon (2011), in her study titled 'Singapore is Cracking Down in Education' revealed that examinations determine a student's future. In Singapore students are placed in subject based bands (small groups) at the age of 10 and the individual subject scores determine whether they will join a junior college or not. Hence, as Brian (2014) found in his study on standardized testing, teachers have to focus on preparing students for tests on the individual tested subjects. Since better student engagement leads to improved problem solving and academic grades in the national examination, high Pupil-Teacher Ratio (PTR) is a hindrance; it leads to poor individual subject performance and poor overall grading in an academic performance.

Globally, 27 countries out of 194 have 40 or more pupils per teacher (UNESCO Institute for statistics Data Centre May, 2008). Furthermore, the PTR in majority of developing countries is in a remarkably worrying state. UNESCO (2006) estimated

that over 84 percent of classrooms had over 40 pupils per teacher and that school enrolment has outnumbered the number of teachers in schools regardless of their teaching assignments. Among those countries, the highest pupil-teacher ratio is found in Sub-Saharan Africa where the average teacher-pupil ratio is 46:1 compared to 14:1 as found in developed countries (UNESCO region circle, 2006). According to UNESCO (2012) the number of pupils enrolled in schools divided by the number of teachers (PTR) is high thus significantly affecting academic performance as measured in national examination results.

Atkins, Carter and Nichole (2002) in their study on the relationship between teacher workloads and class size found that assessment planning highly depended on class size and preparation. They further noted that reducing class size reduced workload per teacher and thus produced better grades. On the same note, Luka (2010) in a study on the effect of attendance on academic performance found class attendance had a significant impact on academic performance. The overall results indicate that low PTR improves the morale for both teachers and learners to attend lessons. He adds that statistically attendance has a significant and quantitative relevant effect on student's academic achievement. Similarly, Weston (2014) added that, whenever the PTR is ideal, teachers spend more time in order to improve teaching and learning, lesson planning, sourcing for and creating resources, one to one feedback and collaborative time with colleagues.

Howie (2003) in a South African study on factors affecting secondary student's performance in Mathematics revealed that proficiency in English for Mathematics and science was a strong predictor of overall performance. South Africa attempted the third international mathematics and science and pupils were given Mathematics, Science and English to write in large and small classes. Pupils in small classes scored high grades in the three individual subjects and highly in the overall results. Moyasere (2015) in Nigeria in a study on formative assessment and mathematics achievement among students in different class sizes found that when formative tests

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are administered to students in groups1, 2 and 3 (small, medium and large), the small group scored highly in terminal scores.

Gwambombo (2013) in Tanzania in a study the effect of teachers' workload on students' academic performance in community secondary schools revealed that lower teacher workload yielded high academic performance as compared to high teacher work load which deter good academic performance. Another study by Oghuvbu (2006) in Nigeria in a study on attendance and academic performance of students in secondary schools found that there is a correlation between lesson attendance and academic performance in secondary schools where lesson attendance was found to be high with low PTR and low with high PTR.

The Highest pupil-teacher ratio exists in: Philippine 65:1, Malawi 45:1, Pakistan 41:1 and Nigeria 40:1, Eretria 65:1, Nicaragua 39:1 and Nepal 37:1. The Lowest pupil teacher ratios are found in Bermuda 6:1, Portugal 7:1, Croatia 7:1, Georgia 7:1, Sudan 7:1 and Russia 7:1 (Hubler,2008).

In Philippines the average student teacher ratio scenario is 65:1(Perez, 2010) which has been caused by the policy implementation of Millennium Development Goals (MDG) and Education for All (EFA) goals by the government. Students' performance in achievement tests has gone from bad to worse or stagnated. In Nepal student-teacher ratio in secondary schools is going high while the ratio in primary schools has already been higher than the UNESCO standard of 40:1. The education policy in Nepal aims at 30:1 while UNESCO sets it at 40:1, but the situation is different with PTR in primary being 50:1 and secondary 36:1 (UNESCO Annual Sector Performance Report, 2014). Such a high pupil-teacher ratio makes it impossible for teachers to adopt competency based teaching approach in classrooms leading to poor performance (Rasheda, 2017).

In Bangladesh the 50:1 ratio in government primary schools and 36:1 in secondary schools were realities on average. In one of the government schools, Naber Berbagh

primary in Mirpur, there were 8 teachers against 800 students, taking the pupil per teacher ratio100:1 (UNESCO, 2012).As a result teachers could only concentrate on only a few classes and the scenario was quite acute and severely compromised academic performance on national examinations.

According to Vernwimp (2013) in Ethiopia on a study measuring the quality of education in two levels found that both teachers supply and the quality of academic performance is a big issue. Following the increase in enrolment since the year 2000, Ethiopia needed to increase the number of teachers to match the continuing increase in enrolment. For now academic performance continues to deteriorate as a result of high PTR. In Rwanda PTR is 64:1 and double shift is also practiced; teacher shortage is acute partly as a consequence of the internal war and genocide (Hazel & Eric, 2008).

Locally in Kenya, PTR shot up highly to 60:1 and above since 2003 after the primary and day secondary education was made free and compulsory(MOEST, 2004).Consequently the academic performance began to decline. This was prompted by the Kenya government's commitment to such international declarations and protocols on education as the 1990 World Conference on Education for All (EFA) in Jomtien and the 2000 Dakar declaration. Notable in this regard include implementation of Free Primary Education (FPE) by the government of Kenya in 2003 with increased enrolments from 6.06million pupils in 2002 to 7.18million pupils in 2003, an increase of 18%. Non-schoolgoing children enrolled in schools and increased the enrollment, leading to high PTR. Since then academic performance on national examination has kept on gradually deteriorating (MOEST, 2009).

Wambugu and Changeiywo (2007) in a quasi-experiment on student's achievement in Physics in Nyeri County found that mastery of content in low PTR classes was high and students achieved higher grades in the subject. On the other hand, Njiru

(2015) in his study on formative evaluation on learner performance in mathematics in secondary schools in Embu County argued that formative evaluation is effective with low PTR. On the same note, Wakoli (2016) in a study on effects of workload on the teachers' performance in Kanduyi, revealed that low PTR leads to low work load on teachers and exerts less demands on them leading to a good teaching and learning environment. High workload among teachers directly stresses and strains teachers at their work place thus leading to poor teaching and learning.

Although the government of Kenya through the MOEST and TSC had pledged for employment of more teachers, only replacement is done to those who exit teaching through natural attrition. As a result the number of teachers enrolled compared to that of students was really wanting (Sifuna & Swamura, 2008). The increased student enrolment suggests similar increment for teachers to bridge the PTR gap. Hence, the reduced number of teachers has led to difficulties in dealing with the overcrowded classrooms (UNESCO, 2008).

According to UNESCO (2015) in its report on the challenge of teacher shortage and quality, it was revealed that the pupil-teacher ratio has become worse since the inception of the Free Primary Education in Kenya due to financial constraints. Wanjala (2016) in a study on level of teachers' efficiency in work performance in secondary schools in Wajir Sub-County-, indicated that teachers' utilization of time has correlation to PTR. He further stated that Kenya has not been able to meet the international PTR standard of 40:1. The study also revealed that low PTR leads to good level of time utilization and preparedness which are critical to high academic performance. To achieve good quality education and performance the government should provide thoroughly qualified teachers and meet the UNESCO standard PTR of 40:1.

1.2 Statement of problem

The introduction of FPE in the year 2003 by the then Government of Kenya led to increased enrolment in public primary schools without a corresponding increase in the number of Teachers Service Commission (TSC) employed teachers (Ministry of Education Science and Technology, 2009). In a survey conducted by the Government of Kenya, it was found that there was a difference in students' achievement as a result of varied PTRs in different public primary schools across the country. According to the survey, the pupil-teacher ratio in public primary schools on average was 52.1 in 2007 and 46.1 in 2013.

In recent years, Mwingi North Sub-County has had a significant drop in academic performance and this has been worrying education stakeholders. Most of the public primary schools in Mwingi North Sub- County recorded a very high PTR of up to 125 pupils against one teacher soon after the introduction of FPE in 2003 (Ministry of Education Science and Technology, 2004), thus affecting the curriculum implementation approaches by the teachers. Consequently the academic performance has been on the decline trend year after year. According to records from the sub-county education office, academic performance in terms of KCPE mean scores has been on a declining trend since the year 2011 (Edu/kyu, 2015). The records further revealed that students in all subjects have had a mean score of below 50 in KCPE for five consecutive years since 2011. It is against this backdrop that this study was conducted to establish the effect of Pupil-Teacher Ratio on curricular implementation practices as no known study had been conducted in the said study location.

1.3 Purpose of the study

The purpose of this study was to investigate the effect of PTR on curricular implementation practices in public primary schools in Mwingi North Sub-County.

1.4 Specific objectives of the study

The study was guided by the following objectives:-

i. To investigate the effect of Pupil teacher ratio on teacher workload in public primary schools in Mwingi North Sub-County.

ii. To investigate the effect of Pupil teacher ratio on formative evaluation practices in public primary schools in Mwingi North Sub-County.

iii. To examine the effect of Pupil Teacher Ratio on teacher lesson attendance in public primary schools in Mwingi North Sub-County.

iv. To establish the effect of Pupil Teacher Ratio on individual subject performance in public primary schools in Mwingi North Sub-County.

1.5 Hypotheses

The following null hypotheses were tested at the .05 level of significance

Ho1: There is no significant relationship between PTR and teacher workload in public primary schools in Mwingi North Sub County.

Ho2: There is no significant relationship between PTR and formative evaluation practices in public primary schools in Mwingi North Sub County.

Ho3: There is no significant relationship between PTR and lesson attendance by teachers in public primary schools in Mwingi North Sub County.

Ho4: There is no significant relationship between PTR and individual subject performance in public primary schools in Mwingi North Sub-County.

1.6 Significance of the study

The study on effect of PTR on curriculum implementation practices was envisaged to be of importance to all stakeholders in education. However in particular, the study would be found beneficial in many ways.

The headteachers would use the findings of the study to determine the ideal PTR which in turn enhances ideal time utilization resulting to good academic performance. Schools' subject panels could use the study findings to analyze individual subject performance within their departments with a view to improving performance. The Mwingi North Sub-County Education Officers could also use the findings during academic results analysis to compare performance trends within a given period of time. Furthermore, the County Education Board of Management could also use the findings to make appropriate planning, management and supervision of education within the county.

Beyond a sub-county level, the TSC could use the findings to employ more teachers and post them in places where there is understaffing. The MOEST could also use the findings of this study to formulate and draw education policies and distribute resources equitably. Donor partners in education (World Bank, UNICEF, USAID, IMF, and British Council) could use the findings of the study to advise the Kenyan government on proper PTR in schools and also identify educational gaps which might need their intervention. Last but not the least, the study could be used by SAGAS, (KICD, KNEC. KLB and JKF) to review curriculum and develop appropriate content.

1.7 Limitations of the study

The study was limited to PTR and academic performance in public primary schools in Mwingi North Sub County study area and the findings may not be generalized to other areas. Some respondents did not return their questionnaires and thus their responses were not included in the study findings and analysis. However it was common that most schools were far apart and therefore there were difficulties of long distance travel when it came to the data collection. The study was limited to the prior related research studies on the topics of citation .Also data analysis and interpretation was limited to the study sample size.

1.8 Delimitations of the study

This study was delimited to the public primary schools which sit for the national examination in Mwingi North Sub-County. The study focused on curriculum implementation practices such as teaching workload, formative evaluation and lesson attendance and individual subject performance by teachers to determine students' performance on national examination. The study used questionnaires and interview schedules for headteachers, teachers and education officers respectively. The study targeted a population of 135 respondents from public primary schools in Mwingi North sub-county. Data was analyzed using descriptive statistics.

1.9 Assumptions of the study

This study was carried out with the following assumptions in mind:

i) Respondents would give accurate information on the performance of their students.

ii) Respondents had adequate and relevant information on the PTR and national examination performance.

iii) That all the purposively sampled respondents would accept to participate and cooperate in the study.

1.10 Operational definition of terms

Curriculum implementation practices: aspects of teaching and learning leading to quality academic performance.

Enrolment: refers to the number of national examination candidates in a primary school.

Formative evaluation: refers to assessment activities by teachers and students to provide feedback information so as to modify national examination performance.

Headteacher: A public primary school administrator.

Individual subject performance: refers to scores obtained from a pupil for a particular subject.

Ratio: refers to comparison of number of pupils per teacher in a public school.

Performance in KCPE: refers to mean score of pupils in Kenya Certificate of Primary Education exams.

Pupil-teacher ratio: refers to the number of pupils per teacher in a KCPE primary school.

Teacher workload: refers to amount of time spent teaching and interacting with pupils within and without the classroom per teacher per week in a KNEC-centered public primary school.

Public Primary: a school maintained through public expense for education with candidates, teachers and national examination center.

Individual subject: singular knowledge taught to a particular student.

Teacher lesson attendance: refers to time in class spent for a lesson by a teacher preparing pupils for academic performance.

1.11 Organization of the study

This study is organized in six chapters. Chapter one of the study discusses background of the study, statement to the problem, purpose and objectives of the study. The chapter also discusses the significance of the study, limitations and delimitations of the study. It further discusses assumptions underlying the study, gives operational definition of terms and the organization of the study. Chapter two of the study presents a review of related literature in relation to this study. The chapter reviews scholarly works by different scholars globally, regionally and nationally in relation to the variables of this study. The chapter further discusses the theoretical and conceptual frameworks. Chapter three of the study outlines the

research methodology. Chapter four of the study presents data analysis and presentation of research results based on the four objectives of the study in Mwingi North Sub-County. Chapter five of the study gives discussions of the findings and interpretation thereof. Finally, chapter six presents conclusions and recommendations based on the information and research findings obtained after the data was analyzed. The chapter further suggests further research based on the limitations of the current study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The chapter presents available literature related to the pupil teacher ratio and performance in national examinations as viewed by other scholars globally, regionally and nationally.

The chapter also comprises of the theoretical framework from which the study is anchored and conceptual framework which shows the interrelationship between independent and dependent variables. Finally the chapter provides a synopsis of the reviewed literature.

2.2 Pupil-Teacher Ratio and Teaching workload

According to the study by Lawrence (2005) in Australia, the total average teacher worked hours was 43 per week. This excluded management and other classroom duties. Teacher's workload was described as heavy and period workload exceeded their capacity to manage. This affected their teaching capabilities and performance Mjiand Makgato (2006) in a South African study on factors that associate with poor performance among high school learners found that teacher shortage in South Africa was the stumbling block to performance of Mathematics. This means that increased PTR leading to huge work load hindered proper teacher pupil interaction and negatively affected performance in the National Examinations.

Locally, a study by Manjanga, Nasongo and Sylvia (2010) in Nakuru County-Kenya, found that, in schools with high number of pupils per teacher, teachers had excess workload and spent most of the time controlling pupils leading to indiscipline and poor academic performance. The study also found that private

schools performed better than public primary schools due to the excessive workload allocated to teachers in the latter.

Wakoli (2016) found out that teacher overload affects examination results by lowering the mean scores in Kanduyi, Bugoma Sub-County. Similarly, majority of teachers complained of teaching many lessons per day per week. Tedious marking and processing of examinations, over-enrolment of students, understaffing of teachers as well as un-regarded student discipline measures also contributed to poor academic performance. This study therefore sought to establish the effect of PTR on teacher workload and the overall impact on academic performance in Mwingi North Sub County.

2.3 Pupil-Teacher Ratio and student formative evaluation practices

Black and William (2009) opine that assessment refers to all those activities undertaken by teachers and their students in assessing themselves. It is that which provides information to be used as a feedback to modify teaching and learning activities. However such an assessment becomes formative assessment when the evidence is actually used to adapt the teaching to meet student's needs. They further observed that students who frequently receive formative assessment perform better in a variety of achievements than those who do not. Frequency of formative assessment is linked to academic performance of students even for summative test scores that is it builds up good academic performance once realized at the end of an education cycle.

Low PTR in Indiana State enabled teachers to diagnose students' needs through regular assessments which improved final academic performance (Simpson & Weiner, 1996). Comparatively, Rwanda experienced acute teacher shortage and as such, a high PTR made it impossible for teachers to adopt competency in assessment and evaluation leading to poor performance in national examinations (Hazel & Eric 2008). Hazel and Eric further asserted that frequent assessment

enables students attain high performance standards. In yet another study, it was further argued that the higher the frequency of formative evaluation, the greater the performance (Barret, Sarama & Clement, 2011). That study also revealed that student's performance in any subject depends on the type and rate of assessment used. Consequently assessment must closely match the learning objectives for to be truly effective and it should also be formative; identifying and responding to student's needs.

According to a study by Kalawole (2016) in Kenya, the essence of tests and other evaluation instruments during the instructional process is to guide, direct and monitor students learning progress towards attainment of a good performance. This relates to World Bank's (2012) findings that formative evaluation not only measures progress made by students but also identifies their learning needs and respond to them. In yet another study by Njiru (2015) in Embu County on formative evaluation and learner performance in Mathematics, it was found that formative continuous assessment tests provide evidence concerning students' achievements which when interpreted helps the assessors' measure for further improvement and performance. This study sets out to establish the effect of PTR on students' frequency of formative evaluation practices in Mwingi north Sub County and its overall impact on academic performance.

2.4 Pupil-Teacher Ratio and Teachers lesson attendance

According to Park and Olives (2007), the role of lesson attendance is statistically significant in explaining students' academic performance. The research demonstrated that, the difference in teacher lesson attendance was statistically significant in explaining why students received a D rather than an A or B or a C grade in a specific subject. The tests employed in this study found that regular lesson attendance was a significant determinant in student's chances of receiving higher grade in a subject. Moreover, Luca (2010), in his study on effect of student's

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performance in science subjects in Malaysia, identified teacher's lesson attendance as one of the determinants of a student's good performance. Attending classes yields positive impact on examination performance while teacher subject non-attendance has shown negative results at the final grade.

Oghuvbu and Kamla (2010) in a study in Delta State in Nigeria found that academic performance had a correlation with lesson attendance of secondary school teachers and that daily lesson attendance by teachers produced better scores. The study also found that positive improvement in lesson attendance could increase students' academic performance. The relationship between teacher lesson attendance and academic performance of students in secondary schools is fairly and positively correlated, that is, attendance affects academic performances.

Locally, in a study by Kurgat (2008) in Eldoret Kenya, it was found that absenteeism and truancy hinders smooth progress of the learning process. The study was conducted to establish whether teachers and student's absenteeism effects performance. It was discovered that lack of teacher student lesson attendance affects performance in Biology tests negatively.

This study therefore sought to establish whether PTR has an effect on teacher lesson attendance which could have an overall impact on academic performance.

2.5 Pupil-Teacher Ratio and individual subjects performance scores

According to an educational study by Simpson and Weiner (2013) in the USA, academic performance of a student can be regarded as the observable and measurable behavior of a student in a standardized series of tests in particular situation or subject. For instance, the academic performance of a student in social studies includes observable and measurable behavior of a student at any point in time during the course. According to Hanushek (2015), in the Indiana State USA, it

was revealed that there is a higher student achievement outcome in their individual subjects with low PTR.

According to a study by Muller and Hoffer (2015) in Illinois USA, it was revealed that achievement of Mathematics scores relied on enrolment size and school location. In this study, class size was significant in determining the development of Mathematics achievement. According to Verwimp (2013) in a study measuring the quality of education at two levels, basic and secondary in Ethiopia, it was found that there was a positive impact on performance in a small class. Similarly, Miji and Makgato (2006) in South Africa (on factors that associate with high school learners' poor performance) revealed that teacher shortage and high student teacher ratio hindered teacher pupil interaction and negatively affected performance in national examinations.

A survey by the Government of Kenya (2008) revealed that the variation in pupil teacher ratio across the country had a negative impact on national examination performance in public primary schools. A study carried by Majanga, Nasongo and Sylvia (2010) in Nakuru County- Kenya, noted that due to over-enrolment in Kenya leading to high PTR, general performance in most of the schools subjects continued to decline. For example learning of core subjects like mathematics and English which require frequent teacher interaction could not be well managed and performed.

Performance in primary school is evaluated across 5 subjects: English, Kiswahili, Maths, Science and Social studies/CRE. In Mwingi North Sub-County the situation on individual subject performance in terms of mean score was as follows for each subject in 2013; 40.49, 42.54, 44.43, 42.18and 42.41 (Edu/Kyu, 2013) respectively and thus the need for this study to establish the influence of PTR on individual subject performance.

2.6 Summary of Literature Review

According to Simpson and Weiner (1996) in their study (prime time in Indiana State USA) there is higher student achievement outcome in their individual subjects with low PTR. They further argued that low PTR enabled teachers diagnose students' needs through regular assessments as opposed to the case of high PTR. Miji and Makgato (2006) in South Africa found that teacher shortage was the stumbling block to performance of mathematics. On the same note, according to a study by Muller and Holfer (2015) it was found that achievement of mathematics scores relied on school location and enrolment size. Thus this information used as feedback and for modification of teaching of learning activities greatly determines academic performance (Black & William, 2009).

However, in his study, Ehrenberg (2001) argued to the contrary that there was no significant evidence that variations in class size explain improvement in student performance. According to Abagi and Olweya (2015) there seems to be no consensus on the existence of a significant study which had been carried on PTR.

Based on these arguments therefore, this study sought to establish the effect of PTR on curriculum implementation practices and subsequent effect on academic performance in public primary schools in Mwingi North Sub County.

2.7 Theoretical frame work

This study was anchored on the social learning theory as proposed by Albert Bandura (1986). According to this theory, social learning occurs within social situations and contexts. The theory therefore considered how learners learnt from each other including related social learning concepts such as observational learning, imitation and behavioral modeling. Banduara further says that human learning and self-regulation involves a complex interplay between the cognitive-affective aspect, behavioral, and environmental determinants in the learners' immediate environment at home and at school. According to Social Learning Theory (SLT), learners are more likely to engage in certain behaviors when they believe they are capable of

executing them appropriately with minimum effort. In SLT, the role of the teacher is likely to be that of providing the essential teaching/learning materials, facilitating active participation of all the learners, providing varied, challenging but creative tasks, taking care of the individual learner differences and enhancing active participation in experimental work in classroom instruction.

With low PTR the SLT is very much applicable as individual leaner differences and facilitation of active participation would be enhanced leading to good academic performance. Provision of good learning environment has an implication on the pupil teacher ratio which was the main variable under the study. Teachers being the custodians of knowledge need to evaluate the school prevailing conditions and the role of the learners in their holistic development when choosing strategies to use as well as the overall benefits to the entire society.

This theory is relevant to this study since the study focuses on the social context in which curricular is implemented. The context variables defined in the study include: individual subject performance, teaching workload, formative evaluation practices and teacher lesson attendance. Implementation of these variables takes place in a social milieu which is affected by the PTR and eventually has an overall effect on learners' academic performance.

2.8 Conceptual framework

The conceptual framework of this study shows the interrelationship between the dependent variable (curriculum implementation practices) and independent variable (PTR). PTR is considered as either being less than adequate, adequate or more than adequate. Curriculum implementation practices unpacks into individual subject performance, frequency of formative evaluation, teacher workload and teacher lesson attendance as shown in figure 1

Independent variable

| **Pupil to Teacher Ratio**
• Low
• Adequate
• High | Curriculum Implementation Practices

• Good individual Subject Performance
• Manageable Teacher Workload
• Regular Formative Evaluation
• High Lesson Attendance |

Intervening variables

• Government policy on PTR
• Teaching/learning environment
• Availability of Instructional materials
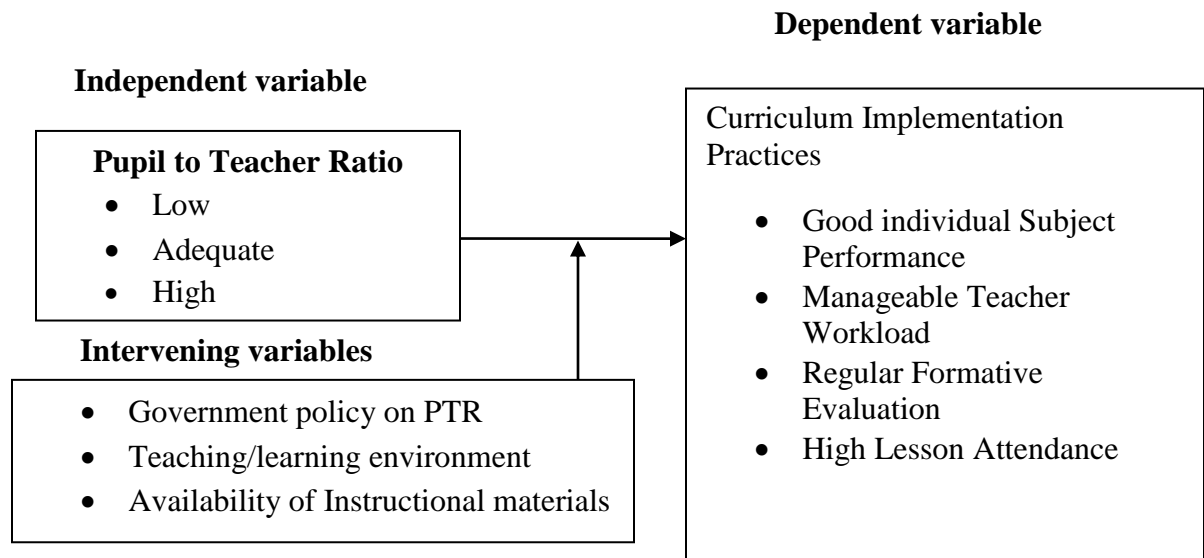
Figure 1: Interrelationship between independent and dependent Variables

The independent variable of this study was pupil-teacher ratio and the dependent variable was the curriculum implementation practices. The aspects of the curriculum implementation practices under study were individual subject performance, frequency of formative evaluation, teacher work load and teachers' lesson attendance. It was envisioned in this study that better individual subject performance would enhance the general performance of KCPE examination. If there is proper subject evaluation, learners' abilities would be measured and those requiring extra academic assistance would be given such assistance in good time. Optimum teacher workload ensures teachers are not overburdened hence they have enough time for lesson preparation and diagnosing individual learners needs to improve academic scores. If schools adhere to government policy on PTR of 40:1, and adequate instructional materials are availed and would provide a good teaching and learning environment, the overall academic performance would be high. If the government policy is not adhered to and the learning materials are inadequate, then the learning environment would be poor and the pupils' academic performance low.

CHAPTERTHREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter consists of the research methodology that was used for the study. The chapter is presented in the following sections: research design, target population, sample size and sampling procedure, data collection instruments, data collection procedure, validity and reliability of research instruments, data analysis and ethical considerations.

3.2 Research Design

According to Orodho (2009), a research design is a scheme or plan used to generate answers to research questions. Paul and Diana (2012) observed that selection of research design is governed by research methods and techniques of data collection. This study adopted a descriptive survey design. The design was considered appropriate for the study because it seeks to describe the effect of PTR on curriculum implementation practices and their overall impact on learners' performance at the end of the education cycle. The design was appropriate to collect information from respondents on pupil-teacher ratio and curriculum implementation practices in public primary schools in Mwingi North sub-county. Khan (2003) recommends descriptive survey design for its ability to produce clear statistical data information about aspects of education.

3.3 Target population

The target population for this study involved 217 public primary schools spread in nine sub-county educational zones namely: Kyuso, Katse, Kandwia, Ngomeni, Tharaka, Kakuyu, Mivukoni, Tseikuru and Masyungwa in Mwingi North Sub-County. There were approximately 1,302 classroom teachers spread across all the

primary schools in Mwingi North Sub County (Kyuso Education Office, 2017). Therefore the target population of respondents included 217 head teachers, 1,302 teachers, a Sub County Director from TSC, a Sub County Quality Assurance and Standards Officer and the Chief Education Officer.

3.4 Sample Size and Sampling Procedure

The public schools in Mwingi North sub-county were stratified according to the 9 educational zones. A sampling of 20% was used to select schools from each zone according to (Borg and Gall 2003). Therefore a sample of 44 head teachers was selected representing 20% of 217.

Table 3.1 Educational Zones in Mwingi North Sub County

S/NO	Zone	No. of Schools	Sample size 20%
1	Kyuso	29	6
2	Mivukoni	18	4
3	Ngomeni	29	6
4	Kandwia	11	2
5	Kakuyu	25	5
6	Katse	25	5
7	Tharaka	24	5
8	Tseikuru	35	7
9	Masyungwa	17	4
	Total	**217**	**44**

Source: Education office Kyuso 2017

Since each school had approximately 6 teachers, the study chose randomly 2 teachers from each school thus representing 20% of the teachers in the schools selected. Thus a total of 88 teachers were selected to participate in the study. The SCD-TSC, CEO and the SCQASO were purposively selected to participate in the study. The total sample size therefore was 135 respondents.

3.5 Research Instruments

This study used questionnaires and interview schedules as tools for data collection. The study relied on two questionnaires namely; head teachers' and teachers' questionnaires respectively for data collection. On the other hand one common interview schedule for SCD, TSC, CEO and SCQASO was used for data collection. The items in the questionnaires were mainly concerned with PTR and curriculum implementation practices.

3.5.1 Questionnaires

The study used two questionnaires, one for the head teachers and another for the teachers. The questionnaires were structured in sub-sections and parts in line with the study objectives. Section A was used to collect demographic characteristics, Section B academic performance and section C collected data guided by the 4 study objectives. The objectives were structured in parts. Part A, the effect of PTR on teacher work load, part B, the effect of PTR on formative evaluation practices, part C, the effect of PTR on teacher lesson attendance and part D, the effect of PTR on individual subject performance.

3.5.2. Interview Schedules

The interview schedule consisted of open-ended questions to collect data from the SCD TSC, CEO and SCQASO on current staffing status, National examination results for the last 5 years, current pupil teacher ratio and challenges faced in the effort to attain ideal PTR and higher academic standards in the study area. The interview schedules were structured in accordance with research objectives and yielded both open ended and closed ended responses.

3.6 Validity of Research Instruments

According to Cozby (2011), validity is the degree to which a test of a research tool measures what it is purported to measure. The researcher established content validity of research instruments by first making consultations and discussions with the two university supervisors. Secondly a copy of questionnaires and interview schedules was submitted to NACOSTI and a go-ahead to collect data was awarded. This procedure assisted in establishing whether questionnaires and interview schedules actually measured what they were supposed to measure. In addition validity of instruments was arrived at by ensuring that all aspects of the research objectives were captured in all questionnaires and interview schedules.

3.7 Reliability of the research instruments

Reliability test was done to determine the stability and consistency of the research instruments in determining the effect of the independent variable on dependent variable. According to Cozby (2011) reliability is a judgment of the extent to which a test or a method or a tool gives consistent results across a range of settings as used by a range of studies. In this study, reliability was arrived at through the use of test retest technique to measure the reliability of research instruments. First the questionnaires were validated in two schools outside the sampled 44 schools but with similar characteristics to those of the study location. Questionnaires were then

administered to the respondents selected from the pilot schools and then picked after a period of two weeks.

The same questionnaires were then administered again to the respondents in the pilot schools. After collecting the data in the two intervals, the Pearson's Product Moment correlation coefficient was determined. The two questionnaires yielded a reliability coefficient of 0.83 and 0.85 for teachers and head teachers respectively. These test scores were greater than + 0.8 thus the instruments were considered reliable and fit to be used in the study.

3.8 Data Collection procedures

Data on PTR and curriculum implementation practices was collected following a researcher introduction letter obtained from SEKU Board of Postgraduate Studies Kitui, and issuance of research permit from National Commission for Science, Technology and Innovation (NACOSTI). The researcher then proceeded to get consent from Mwingi North Sub-County Education Office in order to visit schools to collect information on the study variables. Thereafter, consent was sought from the head teachers of the respective schools. Respondents were given a period of one week to respond to the questionnaires. The questionnaires were self-administered using a drop and pick method. The data collection took a period of one month with two reminders in between.

3.9 Data Analysis Techniques

According to Mugenda and Mugenda (2003), data analysis is the process of bringing order, structure and meaning to the qualitative mass of information collected. The study yielded both qualitative and quantitative data. The quantitative data was ordered, organized and analyzed using the SPSS version 21 computer program. All the hypotheses were tested using Chi square at the 0.05 level of

significance. Qualitative data collected through interview schedules was reported based on objectives and a comprehensive explanation in relation to the report given in themes.

3.10 Ethical Considerations

The researcher ensured that ethical principles were followed while executing this study by letting respondents participate voluntarily. Respondents were assured of confidentiality by being required to keep their details anonymous and were further assured that the information collected was for purposes of advancing knowledge in education and not for other purposes. A well-informed consent from all respondents before administering the data collection instruments was also sought. In furtherance to the fore-mentioned, a research permit was sought from NACOSTI and Mwingi North Sub-County Education office.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1   Introduction

This chapter presents the study findings as collected from the teachers and head teachers of public primary schools, SCD-TSC, SCQASO and the CEO in Mwingi North Sub County. The chapter presents the questionnaire response rate and then goes on to give analyzed results of the demographics of the respondents and the data analysis in line with the study objectives and the hypotheses that were tested along with the study objectives.

4.2 Response Rate

All the 44 questionnaires issued to the head teachers were duly filled and returned thus representing a return rate of 100 percent. On the other hand, of the 88 questionnaires distributed to the teachers, only 55 were duly filled and returned thus representing a return rate of 62.5 percent. According to Mugenda and Mugenda (2003), a response rate of above 50 percent is considered ideal for data analysis.

Table 4.1: **Gender for Head teachers and Teachers**

	Head teachers		Teachers	
	Frequency	Percent	Frequency	Percent
Male	36	81.8	23	41.8
Female	8	18.2	32	58.2
Total	**44**	**100.0**	**55**	**100.0**

4.3 Demographic Characteristics of the Respondents

Respondents' demographic characteristics in terms of gender, age, teaching experience, and professional qualification were sought from the respondents. Results of this analysis are as shown in sections 4.3.1 to 4.3.4

4.3.1 Respondents Gender

Respondents' gender was captured in terms of dichotomous responses as either male or female and results presented as shown in Table 4.1 above. Analysis of the responses from Table 4.1 shows that nearly 81.8 percent of the head teachers in the study location were male while 18.2 percent of them were female. On the other hand, the table shows that female teachers were more than males within the study location. In particular, there were 41.8 percent male teachers while female teachers were 58.2 percent. Though female teachers were many in teaching as class teachers the number of female head teachers was less than that of their male counter parts. Similarly, the sub county has not attained the one-third gender rule as proposed by the government. According to the government of Kenya (2011) all public institutions are supposed to maintain a one-third gender rule in view of public appointments. On the basis of this therefore, one could expect that the ratio of female head teachers' representation be maintained at least at 30 percent to that of male head teachers.

4.3.2 Age Distribution of Respondents

The study further sought to find out the distribution of the age of the respondents. Age being a continuous variable was captured in the final analysis as a categorical variable. In this respect therefore, the researcher created four mutually exclusive categories of age ranges namely: below 30 years, between 30 and 39 years, 40-49 years and above 50 years. Analysis of these results is as presented in Table 4.2 below.

Table 4.2: Age of Head teachers and Teachers

	Head teachers		Teachers	
	Frequency	Percent	Frequency	Percent
Below 30 years	1	2.3	4	7.3
30-39 years	7	15.9	18	32.7
40-49 years	21	47.7	28	50.9
Above 50 years	15	34.1	5	9.1
Total	**44**	**100.0**	**55**	**100.0**

As can be observed from Table 4.2, 47.7 percent of the head teachers were aged between 40 and 49 years followed by those in the age bracket of 50 years and above at 34.1 percent. While 15.9 percent of the head teachers were aged between 30 and 39 years, 2.3 percent were below 30 years of age. On the other hand, 50.9 percent of the classroom teachers were aged between 40 and 49 years, which corresponds with the age category where majority of the head teachers lie. Similarly, 32.7 percent of the teachers were aged between 30 and 39 years while 9.1 percent of the teachers were aged above 50 years and 7.3 percent were aged below 30 years. Clearly from the analysis, it can be inferred that appointment to headship positions was based on the age of the respondents considering that nearly 81.8 percent of the head teachers were above 40 years of age.

4.3.3 Teaching Experience of the Head teachers and Teachers

As with the other two preceding variables, the teaching experience was measured as a categorical variable in which discrete mutually exclusive responses were designed by the researcher. Based on a class size of five, the responses were categorized as follows: below 5 years, 5-9 years, 10-14 years, 15-19 years and above 20 years. Analysis in view of this variable was done and presented as shown in Table 4.3

Table 4.3: **Teaching Experience of Head teachers and Teachers**

	Head teachers		Teachers	
	Frequency	Percent	Frequency	Percent
Below 5 years			5	9.1
5-9 years	4	9.1	20	36.4
10-14 years	11	25.0	22	40.0
15-19 years	17	38.6	6	10.9
above 20 years	12	27.3	2	3.6
Total	**44**	**100.0**	**55**	**100.0**

Table 4.3 shows that majority (38.6%) of the head teachers had a teaching experience of between 15-19 years while 27.3 percent of them had over 20 years of teaching experience. Similarly, 25 percent of the head teachers had a teaching experience of between 10 and 14 years while 9.1 percent had an experience of between 5-9 years. It can therefore be deduced that just like the age of the respondents (Table 4.2), the position of being a school head teacher, solely depends on one's experience as a teacher. This implies that one must be mature professionally for him/her to be appointed as an academic leader of an institution of learning.

On the other hand, the teaching experience distribution for teachers shows that majority, constituting 40 percent of teachers, had taught for between 10 and 14 years, followed by 36.4 percent of them who had taught for between 5 and 9 years. While 10.9 percent of teachers had taught for 15-19 years, 9.1 percent for 5 years and below, 4 percent had taught for over 20 years.

4.3.4 Academic Qualification of Head teachers and Teachers

The basic categories in terms of academic qualification of the respondents were P1 certificate which is the lowest level for one to enter the teaching service at the primary school level, followed by diploma and degree qualification as the highest in that order. The results of this analysis are presented in Table 4.4

Table 4.4Academic Qualification of Head teachers and Teachers

	Head teachers		Teachers	
	Frequency	Percent	Frequency	Percent
P1 certificate	8	18.2	21	38.2
Diploma	25	56.8	27	49.1
Degree	11	25.0	7	12.7
Total	**44**	**100.0**	**55**	**100.0**

From Table 4.4, it can be seen that 56.8 percent of the head teachers had a diploma qualification followed by 25 percent of the head teachers with degree qualification. 18.2 percent however, had a P-1 certificate qualification. On the other hand, majority (49.1 percent) of the teachers had a diploma qualification followed by 38.2 percent with P-1 qualification. Meanwhile 12.7 percent had a degree level of qualification. From this finding, it is clear that most head teachers had higher levels of qualification than the teachers whom they are leading thus showing a mark of academic leadership. Clearly it is important to note that 81.8 percent of head teachers had either a diploma or degree qualification compared with 61.8 percent of the teachers with similar qualifications.

4.3.5 Length of teaching in current school

Besides the total years of teaching experience, respondents were further required to supply information with regard to the number of years that they have stayed in the current school. In this case, response categories were grouped into three mutually exclusive sub ranges from less than 5 years, 5-10 years and more than 10 years as analyzed and presented in Table 4.5.

Table 4.5: Length of stay in current school of Head teachers and Teachers

	Head teachers		Teachers	
	Frequency	Percent	Frequency	Percent
Less than 5 years	13	29.5	18	32.7
5-10 years	26	59.1	29	52.7
More than 10 years	5	11.4	8	14.5
Total	**44**	**100.0**	**55**	**100.0**

Results from Table 4.5 show that majority (59.1 percent) of the head teachers had stayed in the current school for a period of 5- 10 years followed by 29.5 percent who had stayed for less than 5 years while 11.4 percent had stayed for more than 10 years in the current station. On the other hand, majority (52.7) of the teachers had stayed for between 5 and 10 years while 32.7 percent had stayed for less than 5 years in the current station. However, 14.5 percent of the teachers had stayed for more than 10 years in the current station.

4.3.6   Current school enrollment

Head teachers were asked to state the current levels of school enrollment. Enrollment levels were measured in three discrete mutually exclusive categorical scales such as less than 250 pupils, 250- 500, 500-750 and above 750 pupils. Analysis of these data is presented in Table 4.6.

Table 4.6 Current enrollment in schools

	Frequency	Percent	Cumulative Percent
Less than 250	9	20.5	20.5
250-500	32	72.7	93.2
500-750	3	6.8	100.0
Total	**44**	**100.0**	

From the findings as shown in Table 4.6, majority of the head teachers (72.7 percent) reported that they have an enrollment of between 250 and 500 pupils while 20.5 percent had pupil population of less than 250. Only 6.8 percent of the head teachers said that they had a pupil population of between 500 and 750.

4.3.7   Pupil Teacher ratio in school

Pupil-Teacher ratio, being a critical independent variable, was of paramount significance worthy of study consideration. In this case, the measure of pupil to teacher ratio followed the conventional guidelines as laid by UNESCO (2006). According to this UN body, a teacher pupil ratio of 1: 40 is considered ideal. Therefore, on the basis of this criterion, three mutually exclusive response categories for teacher to pupil ratio i.e.,1:<40; 1: =40 and 1: > 40; representing l to less than or equal to or more than ideal ratios were generated by the researcher and analyzed as shown in Table 4.7.

Table 4.7 Pupil Teacher Ratio (PTR)

	Frequency	Percent
1:<40	9	20.5
1: =40	3	6.8
1: > 40	32	72.7
Total	**44**	**100.0**

Clearly from Table 4.7, majority of the schools (72.7 percent) as reported by the respective head teachers had high pupil to teacher ratio meaning that there were more than 40 pupils in a class being served by one teacher. Similarly, 20.5 percent of the schools had a low pupil to teacher ratio implying that one teacher was handling an average of less than 40 pupils in a class. Finally, 6.8 percent had an ideal ratio of 40 pupils to one teacher implying that one teacher was handling only 40 pupils in a class which is the ideal population as per the UNESCO standards.

Similarly, teachers were asked a related question on the number of pupils that they handle in their classes as they go to teach. Analysis of these results is shown in Table 4.8.

Table 4.8 No of pupils taught in class by individual teacher

	Frequency	Percent	Cumulative Percent
Less than 40	2	3.6	3.6
40 pupils	8	14.5	18.2
more than 40 pupils	45	81.8	100.0
Total	**55**	**100.0**	

It can also be seen from Table 4.8 that 81.8 percent of the teachers who in this case constitute the majority felt that they handle more than 40 pupils in their respective classes. Then 14.5 percent of the teachers argued that they handled only 40 pupils

while 3.6 percent handled less than 40 pupils in their classes. Clearly, considering the views of head teachers and the teachers with regard to the parameter of pupil teacher ratio, it can be inferred that the pupil to teacher ratio is undeservedly high against the UNESCO standards. This could imply teachers are overworked as they are understaffed and consequently this may lead to poor curriculum implementation in schools. To achieve the required teacher to pupil ratio, education officers who were interviewed however, advised that head teachers and the county education officers should be sending requests regularly to TSC to employ more teachers and post them to the area until the shortage is completely minimized.

4.4 KCPE Performance for the last 5 years

Head teachers were asked to supply information concerning the KCPE performance trends of their school for the last five years before the study period. In this case performance results between 2012 and 2017 were sought and analyzed as shown in Table 4.9.

Table 4.9 KCPE performance results in schools

	Minimum	Maximum	Mean	Std. Deviation
KCPE Average Score-2012	165	264	218.26	21.121
KCPE Average Score-2013	157	289	218.09	30.616
KCPE Average Score-2014	171	252	210.28	20.343
KCPE Average Score-2015	178	271	213.09	20.684
KCPE Average Score-2016	126	284	212.70	25.718

From Table 4.9, it shown that in the year 2012, the lowest performing school in the study area had a mean performance index of 165 while the highest had a mean performance index of 264 marks out of a possible cut off points of 500 marks. During the same year, the mean KCPE performance index was 218.26 with a standard deviation of 21.12. Similarly, in the year 2013, the lowest performing

school had an index of 157 representing a negative deviation of 8 points from the previous years while the highest performing school had a performance index of 289 showing a positive deviation of 25 points from the previous year. However, the mean KCPE performance index for schools in the sub county was 218.09 thus showing a marginal negative deviation of 0.17 from the previous year. Clearly, the score range between the lowest performing and best performing school in the sub county was wide as shown by the standard deviation of 30.62.

Table 4.9 also shows that in 2014, the lowest performing school had a mean performance index of 171 while the highest performing had a score index of 252. These results show that whereas there was improvement in terms of the lowest performing school from the previous year by a positive deviation of 14 points, the highest performing school had dropped from the previous year's performance indicating a negative deviation of 37 points. Overall, the mean performance index for the sub county was 210.28 with a standard deviation of 20.34 thus showing a significant drop from the previous year's results.

The performance scores in 2015 also depict similar trend as reported in the previous years. Specifically, the lowest performing school in the particular year had an average KCPE performance index of 178 while the best school had a performance index of 271. The mean performance index for all the schools in the sub county was 213.09 with a standard deviation of 20.68 thus representing some marginal improvement from the previous year.

Finally, the performance indices for the year 2016 shows a very negative high deviation in terms of the performance index for the lowest performing school with a mean of 126 while the best performing school had an index of 284. The mean KCPE performance index for all the sub county schools during the year was 212.70 with a standard deviation of 25.71.

Overall, a critical look at the KCPE performance indices for the years 2012-2016 depicts that the sub-county never registered a mean score of more than 220 marks. Clearly the performance is even below the average of 250 marks out of a possible total of 500 marks.

When asked about other factors that contributed to the poor performance, majority of head teachers indicated in their open responses to this question that the said performance was as a result of several factors including but not limited to: understaffing (few teachers); fewer teacher contact hours; transfer of teachers; negative attitude on education, large classes, poor lesson attendance, poor teaching methods, absenteeism by both teachers and learners, poor infrastructure and ignorance by parents.

Teachers were also asked to rate the schools KCPE average performance indices on a scale of mutually exclusive nominal sub ranges. The mean index ranges were converted into descriptive nominal ranges which were assigned as follows: Very Poor below 100 marks Poor= 100 -199 marks; Average = 200-299 marks; Very Good = 300- 399 mark; Excellent = 400 marks and above; Analysis of this parameter is as shown in Table 4.10

Table 4.10Performance of schools as indicated by teachers

	Frequency	Percent	Cumulative Percent
Poor	1	1.8	1.8
Average	22	40.0	41.8
Very Good	31	56.4	98.2
Excellent	1	1.8	100.0
Total	**55**	**100.0**	

It can be seen from Table 4.10 that most schools had either average or very good performance according to the teachers. In particular, majority (56.4%) of the

teachers said that performance in their schools could be described as very good meaning that they had an average performance index of between 300-399 marks. While 40 percent of the teachers could describe the performance of their schools as average implying that the mean performance index was between 200 and 299 marks, only 3 percent of the teachers could describe the performance as either poor (less than 100 marks) or excellent (more than 400 marks).

4.5 Effect of PTR on Teacher Workload in Public Primary Schools

The first research objective sought to establish the effect of Pupil to Teacher Ratio (PTR) on teaching workload in public primary schools within the study location. In this case, the effect was measured through a variety of questions that were formulated to measure the extent to which PTR affected teacher workload related areas and different indices were computed to that effect using a likert scale wherein descriptive measures regarding level were assigned numerical measures as follows; Level 5, Level 4, Level 3, Level 2 and Level 1. Analysis of these results based on the views of teachers and head teachers are presented in sections 4.5.1.1 and 4.5.2 that follow.

4.5.1Headteachers View of the Effect of PTR on Teacher Workload

Head teachers views were sought to establish the effect of the PTR on teacher workload in primary schools. The responses gathered were analyzed in percentage and mean indices generated for the various indicator areas that were designed to measure teacher workload related areas. Table 4.11 shows this analysis and presentation of the results descriptively using percentages and mean indices.

Table 4.11Responses of Head teachers on Effect of PTR on Teaching Workload (%)

	Level of 5	Level of 4	Level of 3	Level of 2	Level of 1	Mean
Number of lessons taught per teacher	72.7	27.3	0	0	0	4.73
Number of subjects taught per teacher	61.4	38.6	0	0	0	4.61
Hiring of contract teachers (BOM teachers)	11.4	27.3	50	11.4	0	3.39
Teacher participation in extracurricular activities	9.1	31.8	50	6.8	2.3	3.39
Teacher involvement in administrative duties	6.8	13.6	63.6	15.9	0	3.11
Admission of new pupils	6.8	4.5	59.1	25	4.5	2.84
Release of teachers on transfer	47.7	38.6	4.5	6.8	2.3	4.23
To what extent does the pupil to teacher ratio (PTR) affect teacher work load in your school?	27.3	70.5	2.2	0	0	4.25

From Table 4.11, it can be shown that majority (72.7%) of the head teachers were of the opinion that PTR affected the number of lessons taught per teacher at Level 5 while 27.3 percent of them held that it affected at Level 4. Based on the mean index of 4.73, this could imply that most of the head teachers felt that PTR had a great effect on the number of lessons taught per teacher in schools. PTR also had a great

effect on the number of subjects taught per teachers as shown by mean = 4.61. In particular, 61.4 percent of head teachers held that PTR affected number of subjects taught per teacher at Level 5 while 38.6 percent felt that it affected it Level 4. Most head teachers were however ambivalent with regard to the extent to which PTR affected hiring of contract teachers under the BOM terms at a mean = 3.39. In view of this, 50 percent of the head teachers held the view that it affected at Level 3, while only 11.4 percent held that it affected at Level 5.

27.3 percent of the head teachers however, held that it affected at Level 4 11.4 percent felt that it affected to a little extent. Similarly most head teachers were of the view that PTR affected teacher participation in extracurricular activities at Level 3. Specifically, 50 percent of the head teachers were of the view that PTR affected participation in extracurricular activities at Level 3, while 31.8 percent held that it affected at Level 4. While 9.1 percent however observed that participation in co-curricular activities was affected by PTR at Level 5, 6.8 percent of them said it affected at Level 2 while 2.3 percent said that it affected at Level 1. This therefore implies that whether the PTR was high or not, teachers still participated in co-curricular activities.

Involvement of teachers in administrative duties was said to be affected moderately by PTR as shown by mean =3.11. In particular, 63.6 percent of the head teachers held that PTR affected teacher involvement in administrative duties at Level 3 while 13.6 percent said it affected at Level 4 and 6.8 percent at Level 5. Only 15.9 percent of the head teachers however held that PTR affected teacher involvement in administration at Level 2.

Majority (59.1%) of the head teachers also were of the view that PTR affected admission of new pupils at Level of 3 while 25 percent of them held that it affected at Level 2 and 4.5 percent were of the view that it affected at Level of 1.6.8 percent

however said PTR affected admission of new pupils at A Level of 5 and 4.5 percent said that it affected at level 4. Overall, the extent to which PTR affected admission of new pupils was moderate at a mean = 2.84. This implies that in spite of the High pupil to teacher ratio, schools continue to admit new students perhaps to keep in line with the governments' directive on increase in access to education through the FPE and in consonance with the Education for All (EFA) goals.

With regard to the release of teachers on transfer, 47.7 percent of the head teachers agreed that PTR affected release to a Level of 5 and 38.6 percent of them said it affected to a Level of 4. 6.8 percent of them held the view that it affected to a Level of 2 while 4.5 percent of them felt that it affected to a Level of 3 and 2.3 percent others were of the view that it affected to a Level of 1. In general, the effect of PTR on the release of transferred teachers was to a Level of 4 as shown by mean = 4.23. In general, when head teachers were asked to indicate the extent to which PTR affected teaching work load, majority averred that it affected to a Level of 4 (mean = 4.25).

4.5.2: Teachers View of PTR on Teacher Workload

Teachers' views were also sought to determine their levels of agreement to statements that were put forth to determine the effect of PTR on teaching work load. Response categories were measured on a likert scale and numerical values assigned agreement levels as follows: Level 5; Level 4; Level 3; Level 2 and Level 1. Responses were analyzed descriptively and presented using percentages and mean indices for each indicator as shown in Table 4.12.

Table 4.12Teachers View on the Effect of PTR on Teacher Workload

	Strongly agree	agree	Undecided	Disagree	Strongly disagree	Mean
My teaching workload is at maximum limit	74.6	20	3.6	1.8	0	4.67
I handle many other administrative duties in addition to handling maximum teaching load	49.1	40	7.3	1.8	1.8	4.33
There are so many students in my class that I cannot be able to offer individualized attention to each one of them	34.5	52.7	5.5	3.6	3.6	4.11
The pupil to teacher ratio in my class is 40:1	3.6'	7.3	14.5	23.6	50.9	1.89
I teach many subjects since there are no enough teachers	16.4	72.7		3.6	7.3	3.87
I handle a sufficient number of lessons per week	1.8	3.6	21.8	25.5	47.3	1.87
My involvement in extracurricular activities adds strain to my already heavy workload	1.8	30.9	50.9	10.9	5.5	3.13
Valid N (list wise)						

From Table 4.12, it is clear that teachers work load was at the maximum (mean = 4.67). Specifically, majority (74.6%) of the teachers strongly agreed that the work load was at its maximum limit while 20 percent of them just agreed. While 1.8 percent disagreed with the statement 3.6 percent were undecided.

Most teachers were of the view that they handle many other administrative duties in addition to the maximum workload as shown by mean = 4.33. It is clear from Table 4.12 that 49.1 percent of the teachers strongly agreed with the statement while 40 percent simply agreed. While 7.3 percent of the teachers were undecided while 2 percent disagreed with the statement that they handled many administrative duties in addition to the teaching workload. Teachers also held the view that they were handling many students thus making it difficult to offer individualized attention to them as shown by mean = 4.11. Specifically, 52.7percent of the teachers agreed while 34.5 percent of them strongly agreed with the statement. While 3.6 percent in each case either strongly disagreed or disagreed while 5.5 percent of the teachers were undecided with regard to the statement that there are so many students in class to be able to provide individualized attention to all of them.

In addition, most teachers also strongly disagreed with the statement that pupil to teacher ratio in their classes was ideal i.e. 40:1 at a Mean = 1.89. 50.9 of teachers disagreed that the pupil to teacher ratio was 40: 1 while 10.9 percent of them agreed with the statement although 14.5 percent of them were undecided

Most teachers 72.7% were of the view that they teach many subjects as there are no enough teachers as shown by mean =3.87. This view was shared by majority of the teachers who agreed and 16.4 percent of them who strongly agreed with the statement. While 7.3 percent of them disagreed with the statement and 3.6 percent were undecided.

With regard to the number of lessons a teacher handles per week, most teachers were of the view that the number of lessons handled by them per week was not

sufficient as shown by mean =1.87. This view was also supported by 72.8 percent of the teachers who either disagreed or strongly disagreed while 5.4 percent of them either agreed or strongly agreed with the statement although 21.8 percent of the teachers were undecided with regard to whether they handled sufficient number of lessons per week

Majority of the teachers were ambivalent in opinion with regard to whether teacher involvement in extracurricular activities adds strain to their strained workload as shown by mean = 3.13. Clearly, most (50.9%) of them were undecided, while 32 percent of the teachers either agreed or strongly agreed with the statement and 16.4 percent of them either disagreed or strongly disagreed with the statement that involvement in extracurricular activities added strain to the already heavy load workload.

Finally, in order to establish the relationship between Pupil to Teacher Ratio (PTR) and teaching workload in public primary schools within the study location, the first null hypothesis of the study was tested. This hypothesis stated that: "There is no statistically significant relationship between PTR and Teacher workload in public primary schools in Mwingi North Sub County".

The assumption of this hypothesis was that teacher work load and pupil teacher ratio was statistically independent. In order to show the validity of this claim and owing to these variables being measured, a Cross tabulation table was first generated in order to give rise to the chi square statistics as shown on Tables 4.13and 4.14.

Table 4.13 Pupil Teacher Ratio and Teacher Workload

		To what extent does the pupil to teacher ratio (PTR) affect teacher work load in your school?			**Total (%)**
		Moderate extent	Great extent	Very great extent	
Teacher- pupil ratio	1:<40	0	20	0	**20**
	1: =40	0	3	4	**7**
	1: > 40	3	47	23	**73**
Total		**3**	**70**	**27**	**100**

As can be seen from Table 4.13, 20 percent of schools had a teacher-pupil ratio of 1:<40 meaning 1 teacher for less than 40 pupils in a class, 7 percent of the schools had a teacher- pupil ratio of 1: 40, meaning that one teacher handles exactly 40 pupils in a class. Similarly, majority (73%) of the schools had a teacher to pupil ratio of 1: > 40, implying that one teacher handled more than 40 pupils in class. This means that most schools have an acute shortage of qualified teachers. On the other hand, 70 percent of the schools' head teachers held that small pupil to teacher ratio affected teaching workload to a great extent while 27 percent of them held that PTR affected teacher workload to a very great extent.

In order to ascertain whether these views were in agreement, a chi square analysis was run at the .05 level of significance and the following results were obtained as shown in Table 4.14.

Table 4.14: Chi-Square Tests on PTR and Teacher Workload

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.530[a]	4	.013
N of Valid Cases	44		

As shown from Table 4.14, the chi square results showed that there was a significant relationship at 5 % level of significance on PTR and teaching workload $\chi^2 = 16.53, df = 4; p \leq .5$. This implies that PTR and teacher workload is not statistically independent of each other. Therefore on the basis of this finding, the null hypothesis which stated that there is no statically significant relationship between PTR and teacher workload was rejected in favor of the alternative form: that there is a statistically significant relationship between pupil teacher ratio and teacher workload in public primary schools in Mwingi North Sub County.

The sub-county director TSC on the other hand agreed that though the performance has been on a downward trend. There was some improvement especially in the year 2016 and 2017. The chief education officer was however quick to mention that these were slight improvements. He cited reasons causing the performance trends in the sub county as follows: lack of enough teachers; lack of learning materials; absenteeism of pupils and lack of proper supervision. The Sub-county Quality Assurance and Standards Officer on the other hand indicated that absenteeism of pupils and teachers, heavy workload and high rate of teacher turn-over affected the academic performance. Further, the Sub-county Director TSC indicated that majority of teaches were handling maximum workload of 40 lessons per week. On the same note the chief education officer reviewed that teachers were performing administrative duties as was forced due to handling many pupils. Thus therefore PTR affected teacher workload in the public primary schools.

4.6 Effect of PTR on Formative Evaluation

The second objective of this study sought to investigate the effect of PTR on formative evaluation practices in public primary schools in Mwingi North Sub-County. Data was collected from both teachers and head teachers measuring the extent of the effect of PTR on each of the predetermined indicators of formative evaluation. Analysis of the findings in view of the head teachers and teachers responses in line with this objective are presented in sections 4.6.1 and 4.6.2

4.6.1 Head teachers View of the Effect of PTR on formative Evaluation

Views of head teachers were sought regarding the effect of PTR on implementation of formative evaluation practices in schools. The bottom-line was to find out whether high pupil to teacher ratios could affect the teachers in terms of giving assignments and marking students' assignments among others. Measurement of the effect of PTR on the formative evaluation was done on a five point scale in the head teachers' questionnaire where likert scale numerical was assigned: Level 5, Level 4, Level 3, Level 2, and Level 1. Analysis of this parameter is presented in form of percentages and mean indices in Table 4.15

Table 4.15Headteachers' views on the effect of PTR and Formative Evaluation practices

	Level of 5	Level of 4	Level of 3	Level of 2	Level of 1	Mean
Schools' formative evaluation policy	75	25	0	0	0	4.75
Regular assessment of pupils through CATs	70.5	27.3	0	2.3	0	4.66
Decisions on the conduct of weekly tests	61.4	31.8	4.5	0	2.3	4.50
PTR affects supervised classroom assessment	54.5	34.1	9.1	2.3	0	4.41
Homework	6.8	40.90	43.2	6.8	0	3.43
Setting of internal tests	25	56.8	13.6	4.5	0	4.02
buying test materials from vendors to evaluate our pupils	6.8	15.9	52.3	20.5	4.5	3.00
Participation in interschool formative evaluation contests	6.8	20.5	47.7	25	0	3.09
Performance in county mock examinations performance	25	52.3		18.2	4.5	3.75
To what extent does PTR affect formative evaluation of pupils in your school?	**9.1**	**79.5**	**6.8**	**4.5**		**3.93**

Results from Table 4.15 show that PTR affected the schools' formative evaluation policy to a Level of 5at a mean = 4.75. This view was supported by majority (75%) of the head teachers who said it affected to a Level of 5 while 25% of them said it affected to a Level of 4. Similarly, pupils assessment through regular CATs was affected by PTR to a very great extent at a mean =4.66. In particular, 70.5 percent of the head teachers and 27.3 percent of them said that PTR affected regular assessment through CATs either to a very large extent or to a great extent respectively. In addition, PTR affected decisions by the school to conduct weekly tests to a great extent as shown by mean =4.50. In view of this, 61.4 percent and 31.8 percent of the head teachers respectively reported that PTR affected decisions on the conduct of weekly tests to either a level of 5 or to a Level 4.

As to the effect of PTR on supervised classroom assessment, majority of the head teachers said that PTR affects supervised classroom assessment to a very large extent. While 34.1 percent of the head teachers held that it affected to a large extent, 2.3 percent of the head teachers had the view that PTR affected supervised class assessment to a little extent. Indeed it can be inferred that PTR affects supervised classroom assessment to a large extent at a mean =4.41.

Regarding the effect of PTR on homework, majority (43%) of the head teachers said that PTR affected homework moderately while 40.9 percent said it affected to a large extent and 7 percent held that it affected to a Level of 5. However based on the mean index, it is easier to see that PTR affected homework to a Level of 3 at as shown by mean = 3.43.

Further, the study sought to determine the effect of PTR on setting of internal tests. From the findings it is noticeable that 56.8 percent of the head teachers held the view that PTR affected setting of internal tests to a Level of 4 and 25 percent of the head teachers held that it affected to a Level of 5. From the mean index, it can be deduced that PTR affected the setting of internal examination to a Level of 4 as shown by mean = 4.02.

Most head teachers held the view that PTR affected the purchase of test materials from vendors to evaluate pupils to a moderate extent as shown by mean = 3.00. In this regard, 52 percent of the head teachers supported to a Level of 3, while 22 percent of them said it was to a Level of 4 while 20.5 percent said that it affected to a level of 2. As to the participation in interschool formative evaluation contests, PTR affected to a level of 3 to mean =3.09 with 48 percent of the head teachers supporting this view while 28 percent of them averred that it affected to a level of 4.

Further, PTR affected the performance of schools in county mock examinations to a great extent as shown by mean =3.75 as supported by 52 percent of the head teachers who said it affected to a level of 4 and 25 percent who held that it affected to a level of 5. However 18 percent of the head teachers were of the opinion that PTR affected performance in mock examinations to a level of 2.

Indeed from the responses of the open ended questions, head teachers agreed that the high pupil to teacher ratio led to understaffing and it affected teaching workload. As a consequence, there is no time for several assessments. Equally the PTR affected timely marking; setting of subject panels and teacher devotion.

4.6.2Teachers View of the Effect of PTR on Formative Evaluation

The teachers' views were also sought with regard to formative evaluation practices and how these practices could be affected by the PTR. The teachers questionnaire was structured to measure levels of agreement on a five point continuum scale wherein 5 represented strongly agree; 4= agree; 3= undecided; 2= disagree and 1= strongly disagree. The teachers were required to indicate their level of agreement to the statements given based on the number of pupils they handled in their respective classes/schools. Results in view of the indicators used to measure formative evaluation practices as given by the teachers are presented in Table 4.16 using percentages and means

Table 4.16 Teachers view on Effect of PTR on Formative Evaluation

	Level of 5	Level of 4	Level of 3	Level of 2	Level of 1	Mean
I conduct formative evaluation on a regular basis through CATS	1.8	7.3	10.9	67.3	12.7	3.82
I ensure all my classes do weekly tests	1.8	25.5	41.8	29.1	1.8	3.04
I ensure all assignments given are marked on time	1.8	14.5	36.4	45.5	1.8	3.31
I monitor the examination readiness of my pupils by conducting regular surprise tests		20.0	41.8	36.4	1.8	3.20
I ensure the pupils homework has been checked by parents	12.7	25.5	47.3	12.7	1.8	2.65
I monitor the progress of my pupils in class always	1.8	3.6	18.2	67.3	9.1	3.78

As shown on Table 4.16 based on the number of pupils that they handled, majority of the teachers agreed that they conduct formative evaluation on a regular basis at a mean = 3.82. This view was supported by majority (67%) of the teachers who agreed with the statement while 8 percent of them disagreed with the statement. Similarly, on the basis of the PTR in their schools majority of the teachers were undecided as shown by mean =3.04 as to whether they will ensure their classes do weekly tests. In this regard, 41.8 percent of teachers remained noncommittal as to whether they can ensure weekly tests are done considering the pupils they handle in class. While 29.1 percent of the teachers agreed with the statement and 27 percent disagreed with the statement. Teachers were also undecided with regard to marking assignments on time considering the number of pupils they handle as shown by

mean = 3.31. Specifically, 46 percent of the teachers agreed that they ensure assignments are marked on time while 36 percent of them remained undecided as to the marking of assignments on a timely basis given the numbers of pupils they handle.

Similarly majority of the teachers were undecided as shown by mean =3.20 with regard to the statement as to whether they monitor examination readiness of their pupils by conducting regular tests. In this regard, 42 percent of the teachers were undecided while 36 percent of them agreed with the statement and 20 percent of them disagreed.

As to whether they ensured pupils homework is checked by parents, most teachers disagreed that with the current number of pupils they handle, it was difficult to ensure that pupils assignments are checked by parents as shown by mean =2.65. This view was supported by 36.4 percent of the teachers who disagreed with the statement, 47 percent undecided and 12.7 percent agreed.

In general, the collated views from both the head teachers and teachers indicate that PTR affected implementation of formative evaluation practices to a great extent. To ascertain the level of relationship, the second null hypothesis for the study which stated that: "There is no statistically significant relationship between PTR and formative evaluation practices in public primary schools in Mwingi North Sub County was tested". This hypothesis held the assumption that pupil to teacher ratio and the formative evaluation processes were statistically independent. In view of this, a contingency table showing the descriptive statistics in percentages for teacher workload and formative evaluation practices was generated as shown in Table 4.17.

Table 4.17 PTR and formative evaluation of pupils.

Cross tabulation

		formative evaluation of pupils				Total
		Level of 2	Level of 3	Level of 4	Level of 5	
Teacher- pupil ratio	1:<40	0	0	18	2	**20**
	1: =40	0	0	7	0	**7**
	1: > 40	4	7	55	7	**73**
Total		**4**	**7**	**80**	**9**	**100**

From Table 4.17, it is important to note that most (80%) head teachers of schools described the extent to which PTR effects formative evaluation as great while 9 percent of the schools described the extent as very great. However 7 percent however described it as moderate while 4 percent described it as little.

In order to establish the effect of PTR on formative evaluation, a chi square analysis was run on the contingency Table 4.17, at the 0.05 level of significance to test the null hypothesis that had been formulated. Results of the chi square statistics were as presented in table 4.18.

Table 4.18 Chi square Test for PTR and formative evaluation practices

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.531	6	.005
N of Valid Cases	44		

From Table 4.18, it can be seen that PTR had a statistically significant effect on formative evaluation practices $\chi^2 = 15.53, df = 6; p \leq .5$. This therefore means

that the two variables are not statistically independent of each other. Therefore the hypothesis that "there is no statistically significant relationship between PTR on formative evaluation practices in public primary schools in Mwingi North Sub County" was rejected in favor of the alternative form that there is a statistically significant relationship between PTR and formative evaluation practices in public primary schools in Mwingi North Sub County. In addition the Sub county Quality Assurance and Standards Officer on the other hand said that evaluation of the learners was affected as it is not done as per the syllabus coverage. Similarly the chief education officer indicated that commercial exams done in schools don't go in tandem with content covered and thus affecting proper and relevant assessment. The SCD-TSC viewed that, high PTR affected formative evaluation process in public schools sin the Sub-county. He further argued that, setting, processing, testing, marking and analyzing examinations for the large number of pupils was a tedious exercise with fewer teachers. In fact this led to examination results, being delayed and released the following term.

4.7Effectof PTR on Lesson Attendance by Teachers

The third objective of this study sought to examine the effect of PTR on teacher lesson attendance by teachers in public primary schools in Mwingi North Sub-County. Views regarding this parameter were sought from teachers and head teachers as the main respondents in the study. Analyses of the responses from the two categories of respondents are presented in sections 4.7.1 and 4.7.2.

4.7.1 Head teachers views of effect of PTR on Lesson attendance by teachers

Head teachers were asked to indicate the extent to which PTR affected selected areas regarding lesson attendance by teachers. In this regard the questions were framed to be responded on a five point scale in which numerical values assigned described the scale in a continuum and calibrated as: level of 5; Level of 4; Level of

3; Level of 2; Level of 1. Table 4.19 shows the analyzed results from head teachers' responses.

Table 4.19 Head teachers view of the Effect of PTR on lesson attendance by teachers

	Level of 5	Level of 4	Level of 3	Level of 2	Level of 1	Mean
Class attendance of teachers	63.6	29.5	4.5	0	2.4	4.52
Giving individualized attention to learners	56.8	36.4	4.5	2.3	0	4.48
Marking class work by teachers	54.5	40.9	0	2.3	2.3	4.43
Making and writing class notes	25	50	13.6	9.1	2.3	3.86
Teacher absenteeism	27.3	43.2	15.9	11.4	2.3	3.82
Observation of lessons by head teacher in class	34.1	56.8	2.3	4.5	2.3	4.16
Teaching resources in classroom	38.7	45.5	6.8	4.5	4.5	4.09
Conducting remedial classes	27.3	45.5	11.4	9.1	6.8	3.77
To what extent does PTR affect lesson attendance by teachers in your school?	25	68.2	0	4.5	2.3	4.14

Table 4.19 shows that PTR affected class attendance of teachers to a great extent as shown by mean =4.52. This view was supported by 93.1 percent of the head teachers who when combined either agreed to a level of 5 or to a level of 4. Similarly, PTR affected provision of individualized attention to learners to a level of 4 as shown by mean = 4.48. In this regard, 56.8 percent of the head teachers supported this view to a level of 5 and 36 percent supported it to a level of 4. Marking of class work by teachers was also affected by PTR to a level of 4as shown by mean =4.43 as supported by 95.4 percent of the head teachers who either agreed

to a level of 5 or to a level of 4.It is noticeable also that PTR affected making and writing of class notes to a level of 4 as shown by mean= 3.86. While 75 percent of the head teachers supported the view that PTR affects making and writing class notes to a level of 4 while 9.1 percent agreed that it affected to a level of 2.

Regarding teachers absenteeism, majority of the head teachers held that PTR affected teacher absenteeism to a great extent at a mean = 3.82 with While 63.6 percent of the teachers supporting this view. Moreover, observation of lessons by head teachers was also affected greatly by the PTR at a mean = 4.16 as opined by while 91 percent of the respondents in support of the statement. On the same note the teaching resources in classroom were affected to a great extent by the PTR at a mean = 4.09 similar to conducting remedial classes as shown by mean = 3.77.

From the open responses, head teachers further agreed that PTR affected lesson attendance by teachers skipping of lessons; it also affected proper preparation and presentation of subject matter and Curriculum content coverage.

4.7.2 Teachers views of Effect of PTR on Lesson attendance

The extent of the effect of PTR on lesson attendance as viewed by teachers was sought and results analyzed in terms of percentages and mean indices per each of the indicators used to measure lesson attendance on a scale where 5 represented to a very great extent and 1 represented no extent at all. The results are as shown in Table 4.20.

Table 4.20Teachers view on Effect of PTR on lesson attendance

	Level of 5	Level of 4	Level of 3	Level of 2	Level of 1	Mean
PTR affects my class attendance	69.1	29.1	1.8	0	0	4.67
PTR affects the extent of offering individualized attention to learners	61.8	34.5	3.6	0	0	4.58
PTR affects the frequency of marking class assignments	58.2	40	0	1.8	0	4.55
PTR affects writing class notes on the chalkboard	27.3	54.5	5.5	9.1	0	3.93
PTR effects Teacher absenteeism	5.5	5.5	23.6	21.8	43.6	2.07

From Table 4.20, most teachers were of the view that PTR affected their class attendance to a great extent as shown by mean = 4.67. This view was supported by 98 percent of the respondents while 1.8 percent felt that PTR affected class attendance to a level of 3. With regard to whether PTR affected the teachers offering of individualized attention to learners, the study found that 61.8% percent of the teachers' believe that it affects to a level of 5 while 34.5% percent held that it affected to a level of 4. Only 4 percent held that it affected to a level of 3. Generally, PTR affected offering of individualized attention to a great extent at a mean = 4.58. It is also important to note that PTR affected the frequency of marking assignments to a great extent as shown by mean = 4.55 as supported by 98 percent of the teachers. Additionally, most teachers held the view that PTR affected writing

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of class notes on the chalkboard to a level of 4 as shown by mean =3.93. In particular, 27 percent of the teachers felt that PTR affected writing of notes on chalk board to a level of 5, 55 percent said it affected to a level of 4, 5.5 percent to a level of 3, 9 percent to a level of 1 while 0 percent held that it affected to level of 1. Regarding the effect on teacher absenteeism, majority of the teachers held the view that PTR does affect teacher absenteeism to a little extent. In fact 43.6 percent of the teachers felt that PTR does not affect teacher absenteeism in class. 11 percent of the teachers however felt PTR affects teacher absenteeism. On the other hand the SDC – TSC reported that lesson attendance largely relied on the number of teachers on duty in the school. Adequate teachers enhance efficiency and attend lessons promptly compared to teachers who out of fatigue relax and not attend classes.

Generally, on the basis of the views gathered from both the head teachers, education officers and teachers, it is easy to deduce that PTR affects lesson attendance to a great extent. However, in order to establish if the effect of PTR on lesson attendance was statistically significant, the third null hypothesis of the study was formulated thus: "There is no statistically significant relationship of PTR on lesson attendance by teachers in public primary schools in Mwingi North Sub County". This hypothesis laid a claim with a general assumption that PTR and lesson attendance by teachers were statistically independent of each other, and therefore a Chi square statistics were run at the .05 level of significance. Results from the chi square statistics are presented in Tables4.21 and 4.22respectively.

Table 4.21 shows the descriptive statistics in form of percentage frequencies observed as a result of the interaction between the two variables i.e. PTR and lesson attendance by the teachers.

Table 4.21 Pupil, Teacher ratio and lesson attendance by teachers

		Lesson attendance				Total
		Level of 2	Level of 3	Level of 4	Level of 5	
Teacher- pupil ratio	1:<40	0	0	18	2	**20**
	1: =40	0	0	7	0	**7**
	1: > 40	2	4	44	23	**73**
Total		**2**	**4**	**69**	**25**	**100**

It is clear from the contingency Table4.21 that PTR affects lesson attendance to a great extent as reported in 69 percent of the schools. In 25 percent of these schools, PTR affected lesson attendance to a very great extent while in 4 percent, it affected to a moderate extent and to a little extent in 2 percent of the schools under study. In order to test the validity of the hypothesized claim, the statistics shown in table 4.22 reveal that there was a statistically significant effect of PTR on lesson attendance by teachers at 5% level of significance $(\chi^2 = 14.445, df = 6; p \leq .5)$.

Table 4.22 Chi-Square Tests on PTR and lesson attendance

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.445[a]	6	.017
N of Valid Cases	44		

Table 4.22 clearly demonstrates that PTR and lesson attendance by teachers were not statistically independent of each other as claimed. Therefore the null hypothesis that "there is no statistically significant relationship between PTR and lesson attendance by teachers in public primary schools in Mwingi North Sub County was rejected in favor of the alternative form that there is statistically significant to

relationship between PTR and lesson attendance. Similarly the chief education officer and the SCD – TSC upon interview said that PTR affected teacher lesson attendance to a great level. The SCD – TSC averred that in those schools with optimum PTR the lesson attendance was high and good academic performance realized as compared to schools with high PTR which continued to perform well. However the SCQASO was quick to note that even though the PTR was high in some schools still others with low PTR continued to perform poorly as a result of laxity in lesson attendance by teachers.

4.8 Effect of PTR on Individual Subject Performance

The fourth and final objective of this study sought to establish the effect of PTR on individual subject performance in public primary schools in Mwingi North Sub-County. In this regard, indicators of subject performance were formulated and measured on a five point scale for both the head teachers and teachers' questionnaire. Results in view of this objective from head teachers and teachers' perspectives are presented in sections 4.8.1 and 4.8.2

4.8.1 Head teachers view of effect of PTR on individual subject performance

Using a five point scale in which calibration was such that a numerical were assigned as follows; Level 5, Level 4, Level 3, Level 2 and level 1.Views of head teachers on the PTR effect on individual subject performance were analyzed descriptively using percentages and means and presented as shown in Table4.23.

Table 4.23 Head teachers' views on PTR and the performance on individual subject

	Level of 5	Level of 4	Level of 3	Level of 2	Level of 1	Mean
Teaching of individual subjects	65.9	31.8	2.3	0	0	4.61
Allocation of teachers to teach subjects	59.1	34.1	6.8	0	0	4.52
Methods of teaching the individual subjects	52.3	38.6	0	9.1	0	4.34
Monitoring teaching of the individual subjects	45.5	43.2	9.1	0	2.3	4.30
Pupil performance in the individual subjects	45.5	40.9	6.8	4.5	2.3	4.23
To what extent does PTR affect performance of individual subjects in your school?	20.5	75.0	4.5	0	0	4.16

Table 4.23 shows that the PTR affected to a very great extent on how individual subjects are being taught as indicated by mean =4.61. 65.9 percent of the head teachers held the view that PTR affected teaching of individual subjects to a Level 5, while 31.6 percent felt it affected to a level of 4. Similarly, PTR affected to a level of 4 the allocation of teachers to teach subjects as shown by mean =4.52. This view was supported by 59.1 percent of the head teachers who said that PTR affected subject allocation to teachers to either to a level of 4 or to level of 4. Additionally, PTR affects the methods used to teach the individual subjects to a great extent as supported 96.7 percent of the respondents at a mean = 4.34. Moreover, PTR affected the monitoring of the teaching of the individual subjects to a level of 4 as shown by mean = 4.30 as supported by 90 percent of the head teachers. Majority of

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the head teachers also held that PTR affected pupil performance in the individual subjects to a level of 4 at mean = 4.23.

4.8.2 Teachers view of the effect of PTR on individual subject performance

Like the head teachers, teachers were also subjected to items measuring individual subject performance on a scale ranging from very great extent to no extent at all. Percentages and means were used in the analysis of the results as presented in Table 4.24.Like the head teachers and teachers, the SCQASO indicated that, there was a decline in individual subjects performance namely: English, Kiswahili, Mathematics, Science and Social Studies. Individual subjects were scored a mean of below 45 between 2012 and 2016. In 2015 alone, the KCPE mean scores were as follows: English 40.49, Kiswahili 44.43, Mathematics 42.1, Science 42.18 and Social Studies 42.41. This could have been due to unmanageable workload leading to unpreparedness and lack of content mastery.

Table 4.24Teachers views on PTR and individual subject performance

	Level of 5	Level of 4	Level of 3	Level of 2	Level of 1	Mean
Teaching of individual subjects	50.9	45.5	1.8	0	1.8	4.44
Allocation of teachers to teach subjects	38.2	56.4	3.6	0	1.8	4.29
Methods of teaching the individual subjects	34.5	60.0	3.6	0	0	4.31
Monitoring teaching of the individual subjects	32.7	61.8	3.6	1.8	0	4.25
Pupil performance in the individual subjects	41.8	54.6	3.6	0	0	4.38

Results from Table 4.24 shows that PTR affected the teaching of individual subjects to a great extent at mean = 4.44 as supported by 96 percent of the teachers. On the same note, allocation of teachers to teach subjects was also affected by PTR to a level of 4 as indicated by94 percent of the teachers at a mean =4.29. Further, PTR affected the methods of teaching individual subjects to a great extent as viewed by 96.4 percent of the respondents as shown by mean = 4.31. Most teachers also said that PTR affected the monitoring the teaching of individual subjects to a level of 4 as shown by mean = 4.25. Finally, PTR affected pupil performance in the individual subjects as held by 96 percent of the teachers as shown by a mean = 4.31 on 4.24. From the descriptive analysis of this fourth objective, it is easy to infer that PTR affected the performance in individual subjects to a level of 4. However, in order to find out if the effect of PTR was significant on individual subject performance, the fourth and final null hypothesis was formulated. This hypothesis stated thus: "There is no statistically significant relationship between PTR and individual subject performance in public primary schools in Mwingi North Sub-County". The hypothetical claim generally assumed that PTR and performance in individual subjects were statistically independent.

In order to test the validity of this claim, chi square statistics were generated as shown in Tables4.25 and4.26.

Table 4.25 Pupil teacher ratio and performance in individual subjects

		Performance in individual subjects			**Total**
		Level of 3	Level of 4	Level of 5	
	1:<40	0	20	0	**20**
Teacher- pupil ratio	1: =40	2	5	0	**7**
	1: > 40	2	50	21	**73**
Total		**4**	**75**	**21**	**100**

From Table 4.25, it is noticeable that 75.75 percent of the respondents described that PTR affected individual subject performance to a level of 4. 21 percent of the respondents said it affected to a level of 5 while 4 percent of them held that it affected to a level of 3.

In order to prove the validity of the hypothesized claim on the basis of the percentage observed frequencies as obtained in Table 4.25, a chi square statistical analysis was run at the .05 level of significance and results shown in table 4.26.Table 4.26 shows the contingency table with regard to the interaction effect of PTR and individual subject performance in the studied schools

Table 4:26Chi-Square Tests on PTR and Individual subject performance

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.340a	4	.035
N of Valid Cases	44		

Results in Table 4.26 reveal that at 5% level of significance, there was a statistically significant effect of PTR on performance in individual subjects$\chi^2 = 10.34, df = 4; p = .035$. This finding implies that PTR and individual subject performance were not statistically independent of each other. Therefore the hypothesis that "There is no statistically significant relationship between PTR and individual subject performance in public primary schools in Mwingi North Sub-County was rejected in favor in favor of the alternative that there is a statistically significance relationship between PTR and individual subject performance in public primary schools in Mwingi North Sub County.

In support of this view an interview conducted with chief education officer said that the reasons why teachers could be absent from class included: demonstrations or teacher strikes, taking long time to do their course works and poor administration and supervision. However, the SCD- TSC retorted that some classes are not taught due to shortage of teachers as a result of high PTR. He further viewed that effective lesson attendance was not attained. Similarly the SCQASO on teacher lesson attendance reported that, some teachers missed lessons even when present at school. Lesson attendance registers marked by class secretaries showed that missed lessons and assignments were not recovered. This could have been caused by over working due to high PTR.

CHAPTER FIVE

DISCUSSION AND INTERPRETATION OF THE RESEARCH FINDINGS

5.0 Introduction

The study objectives were; to find the effect of Pupil to teacher ratio on teaching workload, formative evaluation, lesson attendance and performance in individual subjects. This chapter therefore gives the discussion of the results in line with the objectives of the study. Further interpretation of the results is done in line with the existing literature as was discussed in chapter two.

5.1 Effect of Pupil Teacher Ratio on teaching workload in public primary schools

The study found out that pupil teacher ratio had a significant effect on the teaching workload at 5 percent level of significance ($\chi^2 = 16.53, df = 4; p \leq .5$). The null hypothesis which stated that, "there is no statistically significant effect of PTR on teaching workload in public primary schools in Mwingi North Sub County" was rejected. As was established from the descriptive analysis of the results, many schools in the study area had a pupil teacher ratio of more than 40 implying that there were more than 40 students being served by one teacher. This is against the UNESCO PTR standards which sets PTR at 40:1. The overall implication of this high pupil to teacher ratio was that teachers were teaching maximum number of teaching lessons thus offering limited or no individualized attention to the learners as shown in Table 4.13.

Furthermore according to the head teachers, the high PTR also affected the number of subjects taught and the lessons handled per teacher in addition to release of teachers who wanted to transfer. As shown on Table4.12 some teachers were forced

to take high work load and subjects which they did not have experience. Teachers were forced to practice double shifting where two classes of different levels were put together and one teacher made to teach them in shifts. For others, the understaffing forced teachers to create more time especially very early in the morning or after 3:10pm or on Saturdays to cover their workload. The high PTR could also mean that teachers are unable to frequently give CATS and assignments to assess the level at which learners are grasping concepts. This consequently leads to poor performance during the term and finally at the KCPE. In spite of these challenges however, it was further revealed that the high pupil to teacher ratio did not stop schools from admitting new students as reported by the head teachers.

Equally important is that the pupil to teacher ratio did not greatly affect teachers' participation in either extracurricular activities or administrative duties as part of teacher work. Moreover, the head teachers agreed that the high pupil to teacher ratio led to understaffing which consequently affected teaching workload. High PTR limits the ability of a teacher to socially guide his or her learners as proposed by Bandura (1986) in his Theory (SLT). According to the social learning theory the role of the teacher is basically to provide essential teaching learning resources, facilitating active participation of all learners, providing varied challenging but creativity tasks, taking care of individual learner differences, and enhancing active participation in experimental work in the classroom.

In addition the findings of this study are also in agreement to those of Manjanga, Nasongo and Sylvia (2010) who did a study in Nakuru County- Kenya, and found those schools with high number of pupils per teacher had poor performance and high number of indiscipline cases due to teachers having excess workload and spending most of the time controlling pupils. The study also found that private schools performed better than public primary schools due to maximum workload allocated to the teachers. Most of public primary schools were said to perform poorly due to excess workload allocated to their teachers due to high PTR. On the

other hand, Lawrence and Kleinhenz (2005) in South Africa described in their findings the teacher's workload as heavy and thus exceeding the capacity to manage. Consequently, this led to teacher-learner non interaction which resulted to poor academic performance. In a study by Miji and Makgato (2006) it was found that increased PTR leading to huge work load hindered proper teacher pupil interaction and negatively affected performance in national examination. According to Too (2005), in his study on quality of free primary education in Kenya, high PTR overstretches teaching and learning thus leading to poor academic performance due to excess workload. Wakoli (2016) found out that teacher overload effects examination results by lowering the mean scores. While majority of teachers complained of teaching many lessons per day per week. From the study findings as well as those found in literature it is therefore important to note that teaching workload increases as a result of high pupil to teacher ratio.

On the other hand, through interviews, the CEO and the SCD TSC indicated that, heavy workload affected performance in many public schools across the Sub-county. It was noted that, the heavily overloaded teachers failed to control pupils' discipline thus hindering proper teaching and learning process. The high PTR, hindered teachers from giving frequent assessment tests to gauge the level at which learners are grasping concepts, identifying areas of difficulty and developing the diagnostic measures for remedial action. Thus it was difficult for teachers to facilitate active participation of all learners and to take care of individual learner differences. On the same note the SCQASO felt that despite the heavy workload school administrators lacked modern skills to supervise curriculum which gave way to many discipline issues at their schools which disrupted teaching and learning.

5.2 Effect of Pupil Teacher Ratio on formative evaluation

The study also established that Pupil to Teacher Ratio had a statistically significant effect on formative evaluation practices $(\chi^2 = 15.53, df = 6; p \leq .5)$hence the

null hypothesis that "there is no significant effect of Pupil Teacher Ratio on formative evaluation practices in public primary schools in Mwingi North Sub-county was rejected. As was established, the high pupil to teacher ratios in most schools affected the way schools conducted their formative evaluation. In particular, most of the head teachers held the opinion high pupil teacher ratios affected regular assessment of pupils through Continuous Assessment Tests; it also affected greatly the conduct of supervised classroom assessment and setting of internal tests besides performance in examinations as shown on Table 4.15. According to the teachers, the high number of pupils handled by them affected their decisions in terms of timely marking of assignments, monitoring the progress of their learners besides regular assessment of the pupils to monitor their readiness for national examinations as shown in Table 4.16. As per the head teachers, the high Pupil Teacher Ratio means that there is no time for several assessments. Equally the Pupil Teacher Ratio affects timely marking; setting of subject panels and teacher devotion. Education officers on the other hand reported that evaluation of the learners was affected as it was likely not to be done as per the syllabus coverage. This concurs with the SLT theory by Bandura (1986).

Teachers being custodians of knowledge need to evaluate the school prevailing conditions and the role of learners when choosing strategies to use during the evaluation. The findings of this study agree with those of Hazel and Eric (2008) in a study conducted in Rwanda. They found that a high Pupil Teacher Ratio made it impossible for teachers to adopt competency in assessment and evaluation thus leading to poor performance in national examinations. They further argued that frequency of formative evaluation increases with low Pupil Teacher Ratio. Similarly, Simpson and Weiner (1996) argued that low Pupil Teacher Ratio enables teachers to diagnose students' needs through regular assessments than in the case of high PTR. According to Wakoli (2016) high PTR has a negative effect on examination results by lowering the mean scores. Too (2005), also supports this

claim that high PTR leads to poor academic performance. The Sub-county SCD TSC agreed that low PTR provides the necessary environment for teaching and learning leading to good academic performance and vice versa. He further averred that, the frequency at which formative evaluation was conducted was affected by PTR. The CEO held that, high PTR negatively affected regular setting, administering and marking of exams and analyzing of the results. He however indicated that, if PTR was low, formative evaluation could have been regular and as a result yielded good academic performance. Similarly, on teacher lesson attendance, the SCQASO averred that high PTR greatly affected the teachers' decisions and ability to attend classes and supervise lessons in the classrooms. It was notable that high PTR made teachers to be present but not attending lessons. This could have been due to fatigue and lack of motivation caused by overworking.

5.3 Effect of Pupil Teacher Ratio on lesson attendance

Lesson attendance by the teachers plays a critical role in syllabus coverage. As was found in this study, most of the respondents reported that PTR affected lesson attendance by teachers to a great extent. Indeed it was found in this study that PTR affected significantly the class attendance by teachers $(\chi^2 = 14.445, df = 6; p \leq .5)$ at the 5 percent level of significance). This therefore led to the rejection of the null hypothesis that had been formulated thus: "there is no significant effect of PTR on lesson attendance by teachers in public primary schools in Mwingi North Sub-County". According to the teachers, the high pupil to teacher ratio greatly affected their decisions on class attendance and the extent of offering individualized attention to learners besides marking assignments and writing class notes on the chalkboard. Managing large classes may have caused fatigue to teachers who became less effective in teaching leading to poor content delivery hence poor academic performance. High pupil teacher ratio was however not one of the reasons as to why teachers could be absent from school as shown in Table 4.20. Similar views were also shared by the head teachers who also agreed

that high pupil to teacher ratio greatly affected the teachers' class attendance, giving of individualized attention to learners and marking class work by teachers. It also affected supervision of lessons in class by head teachers and conducting of remedial classes besides straining the teaching resources in school as shown in Table 4.19. Contrary to the teachers views however, head teachers held that pupil to teacher ratio greatly affected teacher absenteeism. On the same note, as viewed by the SCD TSC, PTR affected the methodology, upon which individual subjects were taught, subject allocation and effective monitoring of teaching and learning process. PTR therefore further affected pupils performance at the individual subject level. Similarly, The CEO and the SCQASO shared common views with the head teachers and teachers concerning teacher lesson attendance.

Studies have shown a correlation between PTR and teachers lesson attendance. Specifically, a study by Luca (2010) established that high PTR affected teacher lesson attendance in a subject, while attending classes' yields positive impact on examination performance. He further noted that the impact of teacher subject non-attendance had negative results on students' final grade. Oghuvbu and Kamla (2010) pointed out that PTR had a relationship with lesson attendance of secondary school teachers and that daily lesson attendance by teachers produced better scores. The study found that positive improvement in lesson attendance could increase students' academic performance. Kurgat (2008) on the other hand established that PTR was related with teacher absenteeism which concurs with the findings of the current study.

5.4 Effect of PTR on performance in individual subjects

Further, this study revealed at 5 percent level of significance, that there was a statistically significant relationship between PTR and performance in individual subjects where $\chi^2 = 10.34, df = 4; p = .035$. This therefore led to the rejection of the null hypothesis which stated that "there is no significant effect of PTR on

performance in individual subjects in public primary schools in Mwingi North Sub County". Clearly as per the teachers, the analysis revealed that PTR affected to a great extent the decisions on how individual subjects are taught, subject allocation and monitoring teaching of subjects. Similarly, they averred that PTR affects teaching methods and pupils' performance in the individual subjects as shown in Table 4.25. Similar views were also shared by the head teachers who agreed that pupil to teacher ratios affected greatly the teaching of individual subjects, allocation of teachers to teach subjects and methods of teaching the individual subjects. Interviews from the CEO and SDC TSC revealed that poor individual subject performance ultimately led to overall poor academic grades.

This study is therefore in agreement with Harushek's (1999) findings which revealed that there is a higher student achievement outcome in their individual subjects with low PTR. Similar findings were obtained by Miller and Hoffer (1998) in Illinois USA, who revealed that achievement of Mathematics scores relied on enrolment size and school location. Therefore the findings underscored that class size was significant in determining the development of Mathematics achievement.

 According to Verwimp (1999) in a study measuring the quality of education at two levels, basic and secondary in Ethiopia, it was found that there was a positive impact on performance in a small class. Miji and Makgato (2006) in South Africa on factors that associate with high school learners' poor performance revealed that teacher shortage and high student teacher ratio hindered teacher pupil interaction and negatively affected performance of subjects at the individual level.

A study carried out by Majanga, Nasongo and Sylvia (2010) in Nakuru County-Kenya, noted that due to over enrolment in Kenya leading to high PTR, general performance in most of the schools subjects continued to decline. For example learning of core subjects like Mathematics and English which require frequent teacher interaction could not be well managed and performed. Similarly, the

Government of Kenya survey (2008) revealed that the variation in pupil teacher ratio across the country had a negative impact on national examination performance in public primary schools and particularly in individual subjects (Edu/Kyu, 2013).

The current study revealed that most schools had an enrolment ratio of above 40:1. Some schools like Mughero primary had as high as 65:1. This subsequently led to their poor academic performance (Edukyu 2016).Teacher workload is overwhelmingly high with teachers being unable to cover their syllabus and curriculum content in due time. The high PTR had caused obstruction to individualized learning attention which is a consequence of poor individual subject performance.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6. 0 Introduction

This chapter focuses on the conclusions of the study in line with the study objectives. Recommendations are also derived from the findings thereof. Finally the chapter gives suggestions for further research based on the limitations of the study.

6.1 Study Conclusions

Teacher pupil ratio will continue being a critical factor to be considered for quality improvement of educational outcomes. This study revealed that most schools in the study area had a higher pupil to teacher ratio than expected which is likely to affect various facets of education. Against this backdrop, the following conclusions are drawn:

6.1.1 Effect of PTR on teaching workload

This study concludes that PTR significantly affects the teaching workload of a teacher in public primary schools. This therefore means that PTR and teaching workload are not statistically independent of each other. Due to the effect that PTR has over the teaching work load, it can also be concluded that PTR has a direct effect on number of subjects taught by a teacher and provision of individualized attention to learners by the teachers. Overall, high pupil teacher ratios are likely to negatively affect learners' achievement of educational outcomes and teacher morale due to overworking.

6.1.2 Effect of PTR on formative evaluation

Formative evaluation plays a critical role in the final evaluation of educational outcomes of a leaner. Though formative evaluation is affected by different factors, it concluded in this study that PTR significantly affects the formative evaluation practices in public primary schools in Mwingi North Sub County. It is important to note that the frequency of formative evaluation increases with low pupil to teacher ratios and vice versa. It is also easy to conclude that timely marking of assignments and submission of students' grades is greatly affected by the PTR. Therefore the higher the PTR the slower the formative evaluation processes.

6.1.3 Effect of PTR on lesson attendance by teachers

Although most studies in the existing literature tend to attribute a relationship between lesson attendance and performance of students in national examinations, this study concludes that PTR significantly affects lesson attendance by teachers. This implies that high teacher pupil ratios are likely to negatively affect teacher lesson attendance and offering individualized attention.

6.1.4 Effect of PTR on performance on individual subjects

The study finally concludes that there is significant effect of PTR on performance in individual subjects. Therefore PTR and performance in individual subjects are not independent of each other. This means that a lower PTR is likely to lead to an improvement in performance of individual subjects. Consequently when fewer students are taught by the teacher, there is individualized attention or teaching given thus leading to higher achievements in terms of scores in individual subjects.

6.2 Recommendations of the Study

The study makes the following recommendations based on the conclusions and objectives of the study.

On the basis of the finding that high PTR affects teaching workload, the study recommends as follows:

i) The TSC employs more teachers in the study area in order to solve the problem of teacher shortage currently experienced
ii) Schools Boards of Management should employ more teachers to cushion the teacher shortage problem so that teachers' workload can be managed effectively.

Secondly, considering that the study found PTR to affect formative evaluation practices, it recommends that:

i) Teachers adopt other means of formative evaluation instead of overreliance on CATs which may take time to mark and grade. In this regard, formative evaluation can be done using either group assignments, projects work and through panel discussions and interview protocols.
ii) Parents should also be encouraged to check their children's work on a regular basis to supplement the efforts of the teacher. This can be achieved through sensitization during PTA meetings.

With regard to the fact that PTR affects lesson attendance by teachers, the study recommends that:

i) There be reorientation of the teachers on mechanisms of handling large classes without compromising quality.

ii) Ministry of Education and parents to help schools so that they can have sufficient supply of resources.

iii) Schools to adopt mechanisms of motivating teachers handling large classes to encourage lesson attendance.

Since this study found that PTR affects performance in individual subjects including methodology of teaching, the study recommends that:

Teachers should be in-serviced on the methodology to be employed while teaching large classes. To this effect, blended teaching methods should be explored through use of computer technology.

6.3   Suggestions for Further Research

One of the major limitations of the study was that it was limited to Mwingi North sub county thus making generalizations to schools outside the study scope implausible. It is therefore suggested that;

i) A similar study should be replicated to other sub counties within the county or nationally

i)   A comparative study should be done to establish the effect of PTR on curriculum implementation practices in public and private primary schools

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APPENDICES

APPENDIX A:

INTRODUCTION LETTER TO RESPONDENTS

Dear Sir/Madam,

RE: REQUEST FOR DATA COLLECTION

I am Kyambi D. Fredrick; a Master of Education student at the South Eastern Kenya University. I am undertaking a study titled "**Effect of pupil - teacher ratio on curriculum implementation practices in public primary schools in Mwingi north sub county, Kenya".**

You have been picked as a respondent for the study through a rigorous random process. The purpose of this letter is therefore to request you to spare a few minutes of your time to fill in the attached questionnaire to the best of your ability and with utmost diligence and honesty. Please note that the information obtained will be kept strictly confidential and will be used for academic purposes only.

I appeal for your consent and cooperation.

Yours Sincerely

Kyambi D. F

APPENDIX B

QUESTIONNAIRE FOR HEADTEACHERS

This questionnaire is used to collect data on the effect of PTR on curriculum implementation practices. Kindly answer the following questions or tick in the appropriate box.

Section A: Demographic Characteristics of the Respondents

1) Please indicate your gender

    a) Male   b) Female

2) Please indicate your age

    a) Below 30 years   b) 30-39 years c) 40-49 years d) 50-59 years

        e) Above 60 years

3) Teaching experience

    a) Below 5 years   b) 5-9 years   c) 10-14 yearsd) 15-19 years

        d) above 20 years

4) Professional qualification

    a) P1 certificate   b) Diploma   c) Degree   d) Post graduate

        e) other (please specify)

5) For how long have you served as a head teacher in this school?

    a) Less than 5 years b) 5-10 years   c) More than 10 years

6) What is the current level of pupil enrollment in your school?

    a) Less than 250   b) 250-499   c) 501-749   d) above 750

7) What is the approximate teacher- pupil ratio in your school?

    a) 1:<40   b) 1: =40   c) 1: > 40

Section B: Academic Performance

8) What is the average performance of your school for the past five years?

Year	2012	2013	2014	2015	2016
KCPE Average Score					

9) In your opinion, what factors do you think effects this performance?

SECTION C

Part A: The effect of PTR on Teacher workload

Indicate the level to which the pupil- teacher ratios affect the following teacher workload related areas in your school. Use the Likert scale; Level 5, Level 4, Level 3, Level 2, and Level 1.

	5	4	3	2	1
i. Number of lessons taught per teacher					
ii. Number of subjects taught per teacher					
iii. Hiring of contract teachers (BOM teachers)					
iv. Teacher participation in extracurricular activities					
v. Teacher involvement in administrative duties					
vi. Admission of new pupils					
vii. Release of teachers on transfer					

10) To what level does the pupil to teacher ratio (PTR)affect teacher work load in your school?

a)   Level 5   b) Level 4   c)Level 3

d)   Level 2 e) Level 1

Part B: The effect of PTR on Formative Evaluation

Indicate the level to which the pupil- teacher ratios affect implementation of the following formative evaluation practices in your school. Use the Likert 1 – 5.

		5	4	3	2	1
i.	Schools' formative evaluation policy					
ii.	Regular assessment of pupils through CATs					
iii.	Decisions on the conduct of weekly tests					
iv.	PTR affects supervised classroom assessment					
v.	Homework					
vi.	Setting of internal tests					
vii.	buying test materials from vendors to evaluate our pupils					
viii.	Participation in interschool formative evaluation contests					
ix.	Performance in county mock examinations performance					

11) Explain the other ways in which Pupil teacher ratio affect implementation of formative evaluation in your school

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12) To what level does PTR affect formative evaluation of pupils in your school?

a) Level of 5 b) Level of 4   c)Level of 3d)Level of 2 e) Level of 1

Part C: The effect of PTR on Teacher Lesson Attendance

Indicate the level to which the pupil- teacher ratios affect the following areas related to lesson attendance by teachers in your school. Use the Likert scale Level 5; Level 4; Level 3; Level 2; Level 1

	5	4	3	2	1
i. Class attendance of teachers					
ii. Giving individualized attention to learners					
iii. Marking class work by teachers					
iv. Making and writing class notes					
v. Teacher absenteeism					
vi. Observation of lessons by head teacher in class					
vii. Teaching resources in classroom					
viii. Conducting remedial classes					

13) What other ways does PTR affect lesson attendance in your school?

_____

14) To what level does PTR affect lesson attendance by teachers in your school?

    a) Level 5   b) level 4   c)level 3

    d) Level 2   e) Level 1

Part D: The effect of PTR on Performance of Individual Subjects

Indicate the level to which the pupil- teacher ratios affect the following areas related to individual subject performance in your school. Use the Likert scale (Level 1 – 5)

	5	4	3	2	1
i. Teaching of individual subjects					
ii. Allocation of teachers to teach subjects					
iii. Methods of teaching the individual subjects					
iv. Monitoring teaching of the individual subjects					
v. Pupil performance in the individual subjects					

15) To what level does PTR affect performance of individual subjects in your school?

      a) Level 5   b) Level 4   c)Level 3

      d) Level 2   e) Level 1

APPENDIX C

QUESTIONNAIRE FOR TEACHERS

This questionnaire is used to collect data on the effect of PTR on curriculum implementation practices .kindly answer the questions or tick in the appropriate box.

SECTION A: Demographic Characteristics of the Respondents

1) Please indicate your gender

   a. Male   b) Female

2) Please indicate your age

   a. Below 30 years   b) 30-39 years c) 40-49 years d) 50-59 years   e) Above 60 years

3) Teaching experience

   a. Below 5 years   b) 5-9 years   c) 10-14 yearsd) 15-19 years   d) above 20 years

4) Professional qualification

   a. P1 certificate   b) Diploma   c) Degree   d) Post graduate   e) other (please specify)

5) For how long have you been a teacher in this school?

   a. Less than 5 years b) 5-10 years   c) More than 10 years

6) What is the approximate number of pupils that you handle in your class?

   a. Less than 40   b) 40 pupils   c) more than 40 pupils

SECTION B: ACADEMIC PERFORMANCE

7) Using the given scale, describe the performance of this school for the last five years in the KCPE examinations?

   a) Excellent b) Very Good c) Average   d) Poor   e) Very Poor

   Scale: Excellent = 400 marks and above; Very Good = (300- 399 marks); Average = (200-299 marks); Poor= (100 -199 marks); Very Poor (Below 100 marks)

8) In your own view, what factors do you think effect KCPE performance in your school?

SECTION C

Part A: The effect of PTR on teaching workload

The sections below are about teacher work load related activities. By ticking (√) in the appropriate box on your Right Hand Side, indicate your level of agreement with the statements on the Left Hand Side with regard to how you implement the stated curricular practices. In each of the parts, use the Likert scale: (1 – 5)

		5	4	3	2	1
i.	My teaching workload is at maximum limit					
ii.	I handle many other administrative duties in addition to handling maximum teaching load					
iii.	There are so many students in my class that I cannot be able to offer individualized attention to each one of them					
iv.	The pupil to teacher ratio in my class is 40:1					
v.	I teach many subjects since there are no enough teachers					
vi.	I handle a sufficient number of lessons per week					
vii.	My involvement in extracurricular activities adds strain to my already heavy workload					

9) To what level does the PTR affect teaching work in your school?

    a) Level 5   b) Level 4   c)Level   3

         d) Level 2   e) Level 1

Part B: The effect of PTR on Formative Evaluation Practices

Indicate your level of agreement to the statements below based on the number of pupils you handle in your class/school: use the scale 5 = strongly Agree; 4 = Agree; 3 = Undecided; 2 = disagree and 1 = Strongly Disagree

		5	4	3	2	1
i.	I conduct formative evaluation on a regular basis through CATS					
ii.	I ensure all my classes do weekly tests					
iii.	I ensure all assignments given are marked on time					
iv.	I monitor the examination readiness of my pupils by conducting regular surprise tests					
v.	I ensure the pupils homework has been checked by parents					
vi.	I monitor the progress of my pupils in class always					

10) To what level does PTR effect formative evaluation of pupils in your school?

        a) Level 5   b) Level 4   c)Level 3   d) Level 2   e) Level 1

Part C: The effect of PTR on Teacher Lesson Attendance

Indicate the extent to which the pupil- teacher ratios affect your lesson attendance as a teacher in your school. Use the Likert scale Level 5, Level 4, Level 3, Level 2, Level 1.

	5	4	3	2	1
i. PTR affects my class attendance					
ii. PTR affects the extent of offering individualized attention to learners					
iii. PTR affects the frequency of marking class assignments					
iv. PTR affects writing class notes on the chalkboard					
v. PTR effects Teacher absenteeism					

11) To what level does the PTR affect lesson attendance by teachers in your school?

         a) Level 5   b) level 4

         c)Level 3   d) Level 2

e) Level

Part D: The effect of PTR on Performance of Individual Subjects

Indicate the level to which the pupil- teacher ratios affect the following areas related to individual subject performance in your school. Use the Likert scale (Level 5, Level 4, Level 3, Level 2, Level 1)

	5	4	3	2	1
i. Teaching of individual subjects					
ii. Allocation of teachers to teach subjects					
iii. Methods of teaching the individual subjects					
iv. Monitoring teaching of the individual subjects					
v. Pupil performance in the individual subjects					

APPENDIX D

This interview is intended to collect data on the effect of PTR on curriculum implementation practices.

INTERVIEW SCHEDULE FOR EDUCATION OFFICERS AT THE SUB COUNTY LEVEL

1. What are the performance trends in Mwingi North Sub County for
2. Does PTR affect the teachers workload in public primary schools
3. Do you think the teaching load by the teachers in the sub county is sustainable? If not, what corrective measures do the county have or have initiated to control the anomaly?
4. Do you think PTR affects the way learners are evaluated?
5. In what ways does the pupil teacher ratio affect formative evaluation of learners in the sub county?
6. Do you have reported cases of teacher absenteeism?
7. What are the reasons for teachers not attending to their classes?
8. How does the PTR effect class attendance by teachers?

SOUTH EASTERN KENYA UNIVERSITY
OFFICE OF THE DIRECTOR
BOARD OF POST GRADUATE STUDIES

P.O. BOX 170-90200   TEL. 020-4213859 (KITUI)
KITUI, KENYA
Email. info@seku.ac.ke   Email. directorbps@seku.ac.ke

Our Ref: E55/KIT/20395/2013   Date: 24th November, 2017

Kyambi Fredrick
Re g. No. E55/KIT/20395/2013
Masters of Education in Educational Administration and Planning
C/O Dean, School of Education

Dear Kyambi

RE: PERMISSION TO PROCEED FOR DATA COLLECTION

This is to acknowledge receipt of your Master in Educational Administration and Planning Proposal document entitled: *"Effects of Pupil – Teacher Ratio on Curriculum Implementation Practices in Public Primary Schools in Mwingi North Sub County, Kenya"*.

Following a successful presentation of your Masters Proposal, the School of Education Board of Examination in conjunction with the Directorate, Board of Postgraduate Studies (BPS) have approved that you proceed on and carry out your research data collection in accordance with your approved proposal.

During your research work, you will be closely supervised by Dr. Selpher Cheloti and Dr. Redempta Maithya. You should ensure that you liase with your supervisors at all times. In addition, you are required to fill in a Progress Report *(SEKU/ARSA/BPS/F-02)* which can be downloaded from the University Website.

The Board of Postgraduate Studies wishes you well and a successful research data collection exercise as a critical stage in your Master of Education in Educational Administration and Planning.

PROF. FELIX NGUNZO KIOLI, PH.D
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

Copy to: Deputy Vice Chancellor, Academic, Research and Students Affairs
Dean, School of Education

APPENDIX E

ARID TO GREEN ....   ISO 9001: 2008 CERTIFIED   TRANSFORMING LIVES

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APPENDIX F

Teachers service commission

Private bag

Nairobi

25/2/2018

TSC UNIT

MIGWANI SUB-COUNTY

FREDRICK D. KYAMBI

TSC NO. 427965

RE: PERMISSION TO COLLECT DATA

The above refers

The officer has permission granted to allow him to collect data on his research project.

Accord him the necessary cooperation.

GERALD KAMUDI

SCD. TSC

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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

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

Ref: No. **NACOSTI/P/18/90684/21049**   Date: **20ᵗʰ February, 2018**

Fredrick David Kyambi
South Eastern Kenya University
P.O. BOX 170-90200
KITUI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *"Effects of pupil teacher ratio on curriculum implementation practices in public primary schools in Mwingi North Sub County"* I am pleased to inform you that you have been authorized to undertake research in **Kitui County** for the period ending **20ᵗʰ February, 2019.**

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

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

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

Copy to:

The County Commissioner
Kitui County.

The County Commissioner
Kitui County.

National Commission for Science, Technology and Innovation is ISO9001:2008 Certified

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APPENDIX H

THIS IS TO CERTIFY THAT:
MR. FREDRICK DAVID KYAMBI
of SOUTH EASTERN KENYA UNIVERSITY,
0-90200 KITUI,has been permitted to
conduct research in *Kitui   County*

on the topic: *EFFECTS OF PUPIL
TEACHER RATIO ON CURRICULUM
IMPLEMENTATION PRACTICES IN PUBLIC
PRIMARY SCHOOLS IN MWINGI NORTH
SUB COUNTY*

for the period ending:
20th February,2019

Permit No : NACOSTI/P/18/90684/21049
Date Of Issue : 20th February,2018
Fee Recieved :Ksh 1000
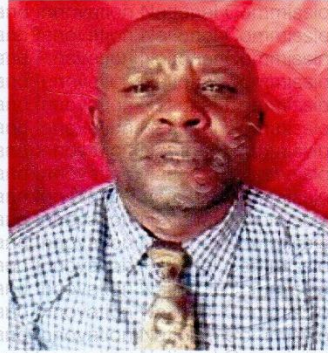
....
**Applicant's
Signature**

G.P Kalerwa
....
**Director General
National Commission for Science,
Technology & Innovation**

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CONDITIONS

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

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No.A 17497

CONDITIONS: see back page

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