THE INFLUENCE OF CLASS SIZE ON PUPILS' ACHIEVEMENT OUTCOMES
THE CASE OF PRIMARY SCHOOLS IN BUKOMBE DISTRICT COUNCIL

By

Nzemo Renatus

A Dissertation Submitted to the School of Public Administration and Management In Partial Fulfilment of the Requirements for the Award of Master Degree of Science in Human Resource Management of Mzumbe University.

2013

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation/thesis entitled **The influence of class size on Pupils' achievement Outcomes. The Case of Primary Schools in Bukombe District Council,** in partial/fulfillment of the requirements for the award of the Master's degree of Science Human Resource Management

Signature

_____

Major Supervisor

Signature

_____

Internal Examiner

Signature

_____

External Examiner

Accepted for the board of the school of Public Administration and Management

Signature

_____

Chairperson School of Public Administration and Management /Directorate Board

DECLARATION

I, NZEMO RENATUS, I declare that this research report is my own original work and has never been presented to any other academic institution within or outside Tanzania for similar purpose or for any other professional award. The work, however, contains ideas and material from other academicians and authors as citations.

Signature_____

Date_____

COPYRIGHT

ACKNOWLEDGEMENT

This dissertation has been the product of many efforts from different individuals although it is not easy to mention all of them. I wish to express my sincere gratitude to a few. First and foremost, I thank the Almighty God my sustainer and protector to enable me to accomplish this research report. To Him be all the glory and honor.

I also thank my sponsor Prof Kulikoyela Kanalwanda KAHIGI (MP) for granting me a scholarship to pursue a master degree at Mzumbe University. Without his support it could be difficult for me to accomplish this master's programme.

I deeply owe a special word of thanks to my supervisor **Moses Kwayu** for his tireless support, devotion of his time and enthusiasm to read my work again and again. His sharp trained eye and constructive comments enabled this work to be in the present form.

I also wish to extend my sincere gratitude to the Head of School of Public Administration and Management Dr Stella Malangalila KINEMO for her commitment and support and hot discussion in the classroom that stimulated my academic endeavors. I also say thanks to all my fellow students in MSC HRM programme for the co-operation they gave me during the period of study.

I also deeply owe a word of thanks to my little brother Dennis JITUNGO, Mwl Ngassa, Ramadhani KILEWA, Emmanuel M.JUMBE and Jitungo NZEMO for their words of encouragement to me to work hard together with positive regard. I will always appreciate your support.

However, despite the acknowledgement of the above mentioned contributions from different individuals in the production of this work, I remain solely responsible for errors and mistakes which might be found in this report.

DEDICATION

I dedicate this work to my father Mathias KADELIA and my mother MARTHA LIMI RENATUS who always felt proud of educating the boy child, and my son JACOB who should emulate the love to education for his successful and brighter future.

LIST OF ABBREVIATIONS

ESDP	Education Sector Development Program
ETP	Education and Training Policy
GER	Gross Enrolment Ratio
GPI	Gender Parity Index
MoEC	Ministry of Education and Culture
MoEVT	Ministry of Education and Vocational Training
NER	Net Enrolment Ratio
PEDP	Primary Education Development Plan
UPE	Universal Primary Education

ABSTRACT

There have been increase of new classroom construction from 2002 to 2006; still the problem of pupils-teacher ratio is alarming in both urban and rural primary schools in Tanzania. This study was concerned with the influence of class size and pupils-teacher ratio on pupils' achievement outcomes in primary schools in Bukombedistrict.

The theoretical framework was grounded on conflict theory by Karl Marx 1864-1920 in attempting to explain teachers' recruitment and retention in relation to school decentralization in ward secondary schools. The study was essentially quantitative in approach and it employed 100 primary schools. Empirical data were collected through pupil's achievement outcomes analysis sheet that was developed by the researcher. Classroom Observation form was used to gather information from the classroom and from documentary evidence. The study finding revealed community participation in classroom construction, increasing teachers' recruitment, enrolling the number of students in relation to the classroom available, paying high salary to the teaching profession to attract people to join the teaching profession, as the strategies for solving the issue of class size, pupils teacher ratio and pupils academic performance in public primary school.

Furthermore the study indicates no relationship between pupils' teacher ratio and pupils' academic performance but that there was relationship between class size and pupils academic performance. The findings indicate also that, there is relationship between class size and pupils' academic performance because when the class size decreases pupils' academic performance is shown to increase.

From the above findings the study recommends that, to reduce the intensity of pupils' teacher ratio and class size there is a need for constructing more and enough classes as well as recruiting many teachers so as to reduce pupils' congestion in the classrooms and to balance the ratio as recommended. Based on the most significant finding in this particular piece of research, it is concluded that class size and pupils-teacher ratio are very crucial issues in influencing pupils to acquire knowledge, skills and attitude that may be employed in different sectors of economy such as agriculture, industry, tourism to improve the economic advancement in the country.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

CHAPTER ONE

INTRODUCTION

1.0 Preamble

The main purpose of this chapter is to briefly express the preliminary premise that underpins the influence of the class size on pupils' achievement outcome in primary schools in Bukombe district council. Moreover the introduction brings into light the study with the research problems, statement of the problem, and significance of the study. The introduction ends with the study questions and the study organization.

1.1 Background to the problem

Universal Primary Education (UPE) was introduced in Tanzania for the first time in 1974. In 1995, Tanzania formulated its Education and Training Policy (ETP) in which UPE was re-emphasized. Among the main features of the ETP were: the decentralization of the management and administration of primary education to local government and communities; compulsory enrolment of all school-age children; and full attendance (Ministry of Education and culture (MoEC), 1995).

At the end of 2001 the school fees for primary schools were abolished by the Tanzanian Government (UNESCO, 2003). A policy was founded in 1995 to improve education and training in Tanzania. This policy, the Education and Training Policy was the guiding principle for the whole educational system (ESDP, 2003). In 1999 the Tanzanian Government introduced a first version of an Education Sector Development Programme (ESD1P). The previous policies and plans that had been formulated were now to be implemented by the Tanzanian Government. A constituent of the ESDP is the Primary Education Development Plan (PEDP). The purpose with PEDP is among others to expand the enrolment and improve the quality. (ESDP, 2003).

In 2002, Tanzania initiated the Primary Education Development Programme, Phase I in an effort to realize the Education for All (EFA) goals (MoEC, 2006a). This programme was implemented in phases, and it is currently in Phase II (Primary Education Development Programme (PEDP) 2007-2011).

Under the PEDP, school fees were abolished and schools are not allowed to collect contributions from parents unless they are granted permission by the Commissioner for Education. Before this permission is granted, parents have to agree to these contributions and the proposal has to be endorsed by the district education authorities.

Under the PEDP, the enforcement of the law on compulsory primary education for all children of school-going age was renewed. Over-age children were enrolled through a tailored initiative, namely, Complementary Basic Education (COBET). The impact of these efforts resulted in a large expansion in enrolments with net enrolment ratios increasing impressively to 97.3 percent in 2007 from 58 percent in 2000 (MoEC, 2006b; MoEC, 2010).

Class size and pupils-teacher ratio (PTR) is a problem on pupil achievement outcomes in Tanzanian primary schools in both urban and rural areas. The statistics show that the PTR has increased to 59:1 in 2004 from 46:1 in 2001, precisely before the school fees were abolished. This is a considerable increase, making the classrooms even more crowded and chaotic, placing an enormous strain on under-motivated and ill-equipped teachers and further eroding quality of education (Rajani and Sumra 2003, p. 5).

Statistics issued by Ministry of Education and Vocational Training showed that the mean pupils-teacher ratio among primary schools was 47. This mean was slightly above the country's set benchmark of 40. However, in 2007, the mean had risen to 63 pupils per teacher, and thus the mean was far beyond the set benchmark. Nevertheless, the mean for urban schools (46) was nearer the set national benchmark, and much better than the mean for rural schools (71). In 2007, there were large variations in the mean pupils-teacher ratios among the zones, and no zones had means within the set benchmark. The means for Eastern (43) and Kilimanjaro (44) were, however, close to the national benchmark.

The mean ratios were particularly bad in Western (87) and Mwanza (83), with the average numbers of pupils per teacher in these zones exceeding the national benchmark by 47 and 43 pupils, respectively (MoEVT, 2009).

In 2000, the average number of Standard 6 pupils per class among primary schools in Tanzania was 42. This number was just slightly above the country's set benchmark of 40. However, in 2007, the number had risen to 56 pupils per class, and thus the number was well beyond the set benchmark. The number for urban schools (64) was worse than the number for rural schools (52). The recommended pupils-teacher ratios and class size for primary schools in Tanzania are 40 pupils per teacher and 40 pupils per class, respectively (MoEVT, 2009).

In recent years from 2009 to 2011, the achievement outcomes in Primary leaving National Examination have decreased and illiterate levels among primary schools pupils both still in schools and those who completed standard VII has increased. In that context therefore, there was a need to investigate the influence of the class size and pupils-teacher ratio if it had contribution on pupil achievement outcomes in primary schools in Bukombe district, Shinyanga Tanzania.

1.2 Statement of the problem

Primary education in Tanzania faces many challenges. One of those challenges involves few numbers of new teachers recruited from the colleges in comparison with the increase of enrolment of new pupils in the primary schools. As a result of this, one teacher in some of the primary schools teaches more than recommended number of pupils in the classroom (40 pupils per one teacher). The report of World Bank which was last reported in 2010 shows that primary education teachers in Tanzania are 164,668.0 and the shortage is 58000 teachers. Despite the increase of new classroom construction from 2002 to 2006, still the problem of pupils-teacher ratio is alarming in both urban and rural primary schools in Tanzania.

However there is no study that has been conducted in Bukombe district regarding the influence of class size and pupils-teacher ratio on student achievement outcomes.

The research problem was intended to bridge this gap by evaluating the influence of class size and pupils-teacher ratio on student achievement outcomes in primary schools.

1.3 Objectives

1.3.1 General objective

The general objective of the study was to investigate the influence of class size and pupils-teacher ratio on student achievement outcomes in primary schools.

1.3.2 Specific objectives

The specific objectives of the study are to:

(i) To identify the total number of pupils, pupils' teacher ratio, class size, number of teachers, and pupils' academic performance in standard five and six. (2010-2012)

(ii) To examine the pupils' teacher ratio and class size if it meets that recommended by the government.

(iii) To examine the academic performance of standard five and six in terminal and annual examinations from 2010-2012.

(iv) To find out the relationship between pupils teacher ratios, class size and pupils' academic performance.

(v) To examine the suggestions for improvement of pupils' teacher ratios, class size and pupils' academic performance in primary schools.

1.4 Research questions

(i) What are the total numbers of pupils, pupils teacher ratio, class size, number of teachers and pupils' academic performance in standard five and six (2010-2012?)

(ii) Do pupils teacher ratio and class size meet those recommended by the government?

(iii) What are the academic performance of standard five and six pupils in terminal and annual examination from 2010-2012?

(iv) What is the relationship between pupil teacher ratios, class size and pupil's academic performance?

(v) What are the suggestions for improvement of pupils' teacher ratio and class size and pupils' academic performance in primary schools?

1.5 Significance of the study

The findings of the study are meant to help teachers, researchers, key educational policy-makers and other education experts, on the possibilities of developing more effective ways of improving class size and pupils-teacher ratio in primary schools. Study results will also provide clarity to the educational community as to which treatment, class size or pupils – teacher ratio, influences student achievement more positively. This clarification allows school district personnel to move in the appropriate direction and improve the schooling condition for learners by choosing class-size organization or pupils-teacher ratio organization

1.6 Scope of the study

The primary populations for this study was primary school teachers and standard IV and VII pupils in class size and pupils-teacher ratio class settings, during the 2009 to 2012 school years, who had outcome-test results.

1.7 Rationale, and/or justification of the study

Education in Tanzania as in many of the developing countries is seen as a solution to all problems. It is taken to be essential for sustainable development, environmental protection, improvement in maternal and child health and participation in democratic social and political processes. Education is also currently becoming the most important contributor to national economic growth. Both class size and pupils-teacher ratio have been identified as very serious problem on education which can readily decrease pupil achievement outcomes in primary schools. However there is a scarcity of research on how the class size and pupils-teacher ratio in primary schools and its impacts on student achievement outcomes in Tanzania.

The studies which do exist mostly describe the quality of an educational system in terms of 'input' into the teaching process or look at student achievement in relation to these inputs. Thus, the present study sought to evaluate class size and pupils-teacher ratio, the impact of class size and pupils-teacher ratio on student achievement, identifying its trends and suggesting appropriate ways of combating the problem in order to attain the Millennium Development Goal of Universal Primary Education. Pupils-teacher ratio is a common phenomenon in Tanzania. The number of pupils per teacher has increased with almost 50 percent since 1999. This indicates that the recruitment of new teachers has not been able to keep up with the enrolment expansion as indicated in Table 1.1. (*HakiElimu, 2004)*

Table 1.1 Pupils Teacher Ratio 1999-2004

Year	Pupil Teacher Ratio
1999	40:1
2000	41:1
2001	46:1
2002	53:1
2003	57:1
2004	59:1

1.8 Organization of the dissertation

Chapter 1 provides an introduction, background to study, statement of the problem, research questions, objectives, scope of the study, significance of the study, the rationale for the study and organization of the dissertation.

Chapter 2 discusses the Literature review including theoretical and empirical parts, conceptual framework and research model and hypotheses on influence of class size and pupils-teacher ratio on the pupil achievement outcomes.

Chapter 3 describes the research methodology including the type of the study, study area, study population, units of analysis, variables and their measurements, sample size and sampling techniques, types and sources of data, data collection methods, validity issues, and data analysis methods.

Chapter 4 deals with data presentation and analysis of findings. The data are presented and analyzed in line with the research objectives that guided the study

CHAPTER TWO

LITERATURE REVIEW

2.0 Preamble

This chapter explains some literature as has already been discussed by different writers and some theoretical literature review, as well as literature review from earlier studies.

2.1 Theoretical Literature Review

2.1.1 Class size

Discussion about the class size has developed to a considerable body of research on class size reduction because of expenditures it involves. STAR project in Tennessee was conducted on the class size effect. It was a longitudinal study (1985-1989) of math and reading achievement. The study included 6,829 K-3 students as the sample of the study. Students and teachers were randomly assigned to the classes of different sizes from Kindergarten to Class III. Then students were randomly assigned to smaller and larger classes (Word et al., 1990). STAR recommended the positive achievement effect of small class size during the lower classes or early school years. However, there was no evidence about the class size effects in the later or higher classes.

Many other studies analyzed the STAR data and drew conclusions. According to Mosteller (1995), the effect of class size on student achievement is very large in the STAR project experiment. Likewise, students out performed in the small classes in the regular and the regular with aid classes by a great margin. However, the students carried out and continued their better performance after returning to the regular classes. Their performance was better than those students who remained in a regular class size with or without a teacher's aid. Similarly, Krueger (1999) analyzed the STAR project experiment and found that smaller class size positively affected the standardized test scores.

Most of the other studies of class size were also conducted at the lower grades including STAR. Finn & Achilles (1999) study was conducted at the primary level. The STAR study concluded that small class size increased the student math performance by about one third of a standard deviation. Many studies of class size reduction were carried out in Wisconsin (SAGE Program) and North Carolina. These studies described significantly higher achievement test scores in the smaller classes than in the larger classes of primary grades (Molnar, Smith, & Zahorik, 1998; Molnar et al., 2000). Likewise, Krueger & Whitmore (2001) conducted a follow up analysis of small class size in the lower grades and concluded positive effects in the later period. Small class size in the lower grades directed to take a college entrance exam with higher probability but to some extent higher test scores, especially for minority students.

Furthermore, Angrist and Lavy (1999) used a regression discontinuity design to analyze the effect of class size on student achievement. The class sizes were determined by the Maimonides' rule" in Israel. According to that rule, the maximum class size is 40. Two classes are automatically created if the total enrolment is greater than 40. Likewise, there will be three classes if the numbers of students is greater than 80 and so on. The researchers exploited these irregular changes. This study found that class size has a positive and significant effect on student achievement in Reading comprehension and mathematics. Some studies showed that students in the large classes desired to spend less time on class assignments (Blatchford & Mortimore, 1994; Klein, 1985). However, students in smaller classes desired to participate more in addition to spending more time on schoolwork. The class size is reported large in the developing countries and the Asian countries in that regard. Hanushek (1995) described that one of the biggest problems faced by large classrooms is the quantity and quality of learning materials available to all the students in the developing countries.

According to Biggs (1999) and Jin and Cortazzi (1999), class size in the Asian countries is quite large. However, the students in these countries consistently get highest scores in international math achievement tests. In Singapore and China, students from elite classes get higher scores than the average. Similarly, class size is also larger in the TIMSS participant countries than the international average. However, the achievement levels are above the international average. Furthermore, the ethnographic studies show that Japanese and Chinese teachers note little relationship between class size and learning outcomes in schools.

However, many studies suggested that the success of large classes in China and Japan is due to the central role of groups in the Confuscian heritage. Likewise, Benbow, Mizrachi, Oliver and Said-Moshiro (2007) described that large class size is an inevitable feature of the developing countries. The study found that there is the substandard teaching and learning process in these countries. This process can be improved by enhancing the capability of teachers and school leaders to handle this setting and identifying ways for students to be successful. Fuller & Clarke (1994) also contributed part to this discussion.

Furthermore, Bonesronning (2003) investigated the effects of class size on student achievement in Norway. Contrary to Fuller & Clarke (1994), Bonesronning (2003) found that effect varies among student sub-groups. This effect was larger in schools with a higher proportion of students from intact families; however, it was conditional on student effort.

Rivkin et al (2000) concluded that effects of class size were small. The study also concluded that it raised doubts whether more funds would raise achievement significantly. This seemed impossible under the existing organizational structures of institutions. However, Michaelowa (2001) concluded an inverse correlation between class size and learning outcomes. It showed the decreased student learning with the increased class size; however, learning effectively stopped as once class size exceeded 62.

Furthermore, Finn (2003) concluded that the students became occupied in the small class size, both academically and socially. Therefore, their strong engagement caused academic achievement to improve. Similarly, Lindahl (2005) found the significant effects of smaller class sizes on student achievement. The study examined the effect of class size in natural variation by using longitudinal approach. The study used a sample of a total of 556 students in 16 schools in Stockholm. The students were examined by a standardized test in mathematics on three occasions. The average student's percentile rank was between 0.37 and 0.98 units (depending on model specification) with a reduction in class size by one student. The study also showed more gains for immigrant students than native Swedes from the smaller class sizes.
Hanushek (2006) studied resource policies in the developing as well as the developed countries especially USA. The study concluded that policies, in general, concerning the resource inputs did not improve the student performance. However, small classes or additional resource inputs had an impact in some situations. Likewise, the use of resource inputs could be improved with the altered sets of incentives.

Tow (2006) analyzed the cross-sectional and panel data of research study on the school funding and its effects on the student achievement. The study found that class size was found as one of the important indicators of student achievement. Most of the studies concluded that smaller class size has significant impact on student achievement (Klein, 1985; Mitchell et al, 1989; Blatchford & Mortimore, 1994; Mosteller, 1995; Angrist & Lavy, 1999; Finn & Achilles, 1999; Krueger, 1999; Nye, Hedges, & Konstantopoulos, 1999; Michaelowa, 2001; Bonesronning, 2003; Finn, 2003; Lindahl, 2005). However, some studies found very small or no effect of class size (Hanushek, 1995; Rivkin et al, 2000; Hanushek, 2006). Likewise, class size effects in upper grades were not evident (Fuller & Clarke, 1994). Contrary to the above, despite that class size in the Asian countries is quite large, the students in these countries consistently get highest scores (Biggs, 1999; Jin & Cortazzi; 1999). The teaching and learning process in the developing countries is substandard. This is the key and real issue. However, this process can be improved by enhancing the capability of teachers and school leaders to handle this setting and identifying ways for students to be successful (Benbow, Mizrachi, Oliver & Said-Moshiro (2007).

Fuller & Clarke (1994) described that class size effects in the upper grades were not evident from the data of many countries, including Botswana, Philippines, and Thailand. However, in Tanzania, there was found a positive effect of class size on achievement. Concerning pupils-teacher ratios and class size, research evidence shows that lower values are desirable for better quality education. It is thought that, to a certain limit, lower values on these two indicators are associated with more interaction between teachers and pupils, resulting in better quality education. Pupils-teacher ratios and class size are also key indicators for checking if expansion in participation rates is accompanied by adequate provision of teachers and classrooms. The recommended pupil-teacher ratios and class size for primary schools in Tanzania are 40 pupils per teacher and 40 pupils per class, respectively (MoEVT, 2009).

In 2000, the average number of Standard 6 pupils per class among primary schools in Tanzania was 42. This number was just slightly above the country's set benchmark of 40. However, in 2007, the number had risen to 56 pupils per class, and thus the number was well beyond the set benchmark. The number for urban schools (64) was worse than the number for rural schools (52).

2.1.2 Pupils teacher ratio

It is easy for a teacher to teach, evaluate and feedback if pupils are lesser in number in a classroom. It is considered that lower pupils' teacher ratio (PTR) gives better results than those of higher PTR. However, there are many cases where higher PTR results in higher scores. Likewise, there are also examples of lower PTR achieving lower scores. Overall, PTR is one of the most important variables in the teaching learning process.

Research project on the Students Teacher Ratio (STAR) was conducted in grades K-3 with the sample of 6,829 students. Students were assigned randomly to either a regular class of 22-26 students with one teacher (PTR), a class of 22-26 students with one teacher (PTR) and an instructional aid, or a low-size class of 13-17 students with a teacher (STR).

The STAR study found that academic achievement was increased significantly in the smaller class size (lower PTR) in the regular classes. However, there were no positive results found for the regular size classes with the additional instructional aid. Many other research studies, particularly Tennessee's Project Challenge (Achilles, Nye, & Zaharias, 1995) and Wisconsin's SAGE program (Maier, Molnar, Percy, Smith, & Zahorik, 1997; Molnar, Smith, & Zahorik, 1998) were conducted.

Levacic et al, (2005) conducted a study on KS 3 and found that reduction in the PTR had a statistically significant positive effect on math achievement. However, science achievement had not any impact on student achievement in English. Many studies concluded that PTR has some positive effects (Lee & Barro, 1998; Graddy and Stevens, 2003). However, Hanushek (1998) and Alderman, Orazem and Paterno (2001) concluded the negative effect of PTR; whereas, Levacic et al, (2005) showed mixed results.

The Pupils-teacher ratio in primary schools in Tanzania was last reported at 50.76 in 2010, according to a World Bank report released in 2011. The primary school Pupils-teacher ratio in Tanzania was 53.70 in 2009, according to the World Bank report, published in 2010.The Pupils-teacher ratio in primary schools in Tanzania was reported at 52.39 in 2008, according to the World Bank. Primary school pupils-teacher ratio is the number of

Pupils enrolled in primary school divided by the number of primary school teachers (regardless of their teaching assignment).

2.2 Literature review from Earlier Studies

The empirical part presents statistical data regarding the primary education in Tanzania. The statistical data includes tables and gives a clearer picture regarding the primary education.

The table below shows enrolment in primary schools in Tanzania since 1995 to 2005

Table 2.1 Standards I – VII Enrolment in Primary Schools, 1995 – 2005

	Year	**Pupils enrolled**
	1995	3877643
	1996	3942888
	1997	4057965
	1998	4042568
	1999	4189816
	2000	4382410
	2001	4881588
	2002	5981338
	2003	6562772
	2004	7083063
	2005	7541208

Source: Ministry of Education and Culture (2005b)

The table above shows that the increase of pupils enrolled in primary school had its peak with about 1.1 million children in year 2002. In the end of 2001 the Government abolished the school fees in primary school. It has been followed by a steady increase since then and between the years 1995 and 2005 the enrolment nearly doubled

Table 2.2 Total Enrolment, Population and Enrolment Ratios (GER and NER) in Primary Schools, 1995 – 2005 Tanzania

	Year	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
	Total. Gd I-VII	3877643	3942888	4057965	4042568	4189816	4382410	4845185	5972077	6562772	7083063	7541208
	Population7-13 years	4996963	5067965	5209198	5279500	5427156	5646293	5743255	6054257	6229830	6665347	6859282
	7-13 years in Gd I-VII	2768317	2853272	2953615	2994027	3098846	3309977	3790622	4884385	5515793	6034526	6499581
	NER	**55.4**	**56.3**	**56.7**	**56.7**	**57.1**	**58.6**	**66.0**	**80.7**	**88.5**	**90.5**	**94.8**
	GER	**77.6**	**77.8**	**77.9**	**76.6**	**77.2**	**77.6**	**84.4**	**98.6**	**98.6**	**106.3**	**109.9**

Source: Ministry of Education and Culture (2005b)

NER stands for Net Enrolment Ratio and is the number of pupils in the official age group for a given level of education enrolled in that level expressed as a percentage of the total population in that age group. GER stands for Gross Enrolment Ratio and is the number of pupils enrolled in a given level of education, regardless of age, expressed as percentage of the population in relevant official age group. In the year 2005 the NER was 94.8 percent and if the trend continues they would be expected to reach 100 percent within a couple of years. The GER has since the year 2003 exceeded 100 percent indicating that there are overage pupils enrolled in primary school. Between the year 2000 and 2005 the NER has increased with 36 percent units which is a remarkable change in such a short time period.

Table 2.3 Primary Schools Net Enrolment Ratio (NER) by Sex and Gender Parity Index (GPI), 1995-2005

Year	Male	Female	Average	GPI
1995	55,9	54,8	55,4	0,98
1996	55,9	56,7	56,3	1,01
1997	58,1	57,2	56,7	0,98
1998	56,0	57,3	56,7	1,02
1999	56,4	57,8	57,1	1,02
2000	58,6	59,1	58,8	1,01
2001	65,8	65,2	65,5	0,99
2002	82,1	79,3	80,7	0,97
2003	90,4	86,7	88,5	0,96
2004	91,4	89,7	90,5	0,98
2005	95,6	93,9	94,8	0,98

Source: HakiElimu (2004)

The table given above shows that the number of pupils per teacher has increased with almost 50 percent since 1999. This indicates that the recruitment of new teachers has not been able to keep up with the enrolment expansion.

Table 2.4 PEDP Enrolment Related Targets 2002-2006

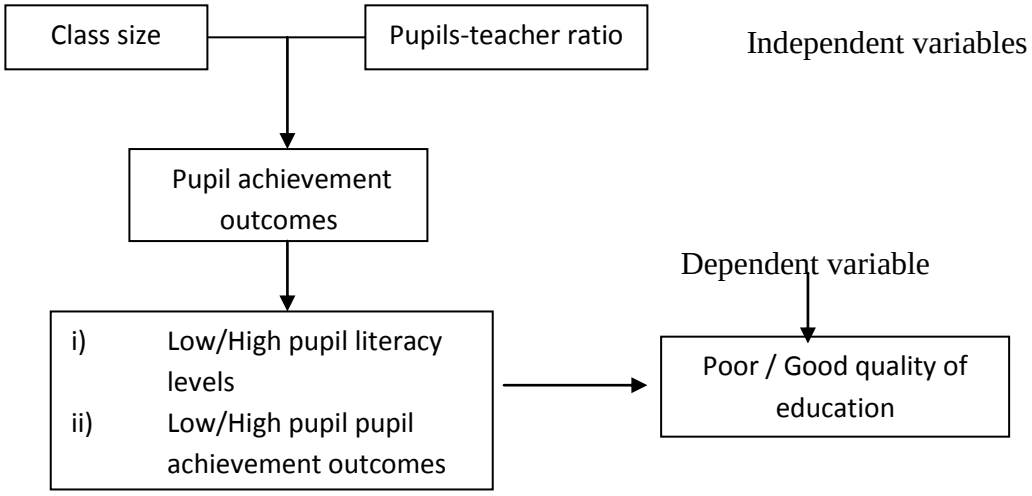
Year	Number of Pupils	Number of Teachers	Pupil Teacher Ratio
1999	4,182,677	103,731	40:1
2000	4,370,500	107,111	41:1
2001	4,875,764	105,921	46:1
2002	5,960,368	112,109	53:1
2003	6,531,769	114,660	57:1
2004	7,041,829	119,773	59:1

The table above shows that the recruitment of teachers has decreased in the last two years. It is striking that there has been more classrooms built compared to the recruitment of teachers.

2.3 Conceptual Framework and research model

Class size and pupil-teacher ratio leads to low literacy as well to poor achievement outcome. Literacy and pupil achievement outcomes as a result of class size and pupil-teacher ratio determine the rates of quality of education in primary schools (Hadal, 1990).

Fig. 2.1 Theoretic model for understanding the influence of class size and pupil-teacher ratio on student-achievement outcomes.



It is expected that the class size should be 40 pupils, this is a standard class, and the pupils teacher ratio should be 1:40.

2.4 Hypothesis

Ho- There is no relationship between pupils teacher ratio and pupil academic performance

Hi- There is relationship between the pupils' teacher ratio and pupils' academic performance

In order to ascertain conclusions the researcher undertook to calculate the Pearson's product moment correlation coefficient (r)

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Preamble

This chapter explains the methods used during data collection about research design and area, population.

3.1 Research design

This study used survey research design. The research design is chosen because of the nature of the research approach.

3.2 Research area

The study was conducted in Bukombe District. The district lies in the western apex of Shinyanga region, Tanzania, between longitudes 31-32° east and latitudes 3-3.30° south. The district covers an area of 10,482 km^2 (4,047 mi^2); of this, 6,133 km^2 (2,368 mi^2) is estimated to be public land while 4,349 km^2 (1,679 mi^2) is forest reserves. Administratively the district is divided into the Masumbwe, Siloka and Mbogwe divisions; the population is about 396,423 people, predominantly from the closely related Sukuma and Sumbwa ethnic groups. Selection of this area was based on the fact that it is one of the districts found in Tanzania in which its primary schools faces many challenges including rapid increase of enrolment of new pupils and decrease of numbers of teachers' recruitment.

3.3 Population of the Study

The population of this study comprised pupils and teachers of all selected schools which were involved in the study. Individual pupils and teachers were also involved.

3.4 Units of analysis, variables and their measurements

This study used both individual and groups unit of analysis. The group unit of analysis was used to compare the pupils and teachers in primary schools that were involved in the study. The variable of interest was class size, pupils-teacher ratio, and pupils achievement outcomes in examinations/tests. Number of pupils in the classrooms, number of teachers and percentage of passed in examination for pupils were used as a measurement.

3.5 Sample size and sampling techniques

3.5.1 Sample size

Primary schools were involved.

Formula: Sample Size s = n / [1 + (n/schools)]

In which $n = \frac{NZ^2 p(1-p)}{(N-1)d^2}$

(**Source**, Masanja, 2010) 1-337

Where: s = Minimum sample size required

N = Number of schools

Z= Standard normal deviate (1.96)

p= Estimate population schools (0.5 is used)

d= Degree of accuracy (0.05)

So, N = 143, Z = 1.96, p = 0.5 and d = 0.05.

Then, $n = \frac{143x1.96^2 x0.5x(1-0.5)}{(143-1)0.05^2} = 217$

But sample size, s = n / [1 + (n/population)]

$$s = \frac{217}{1+(\frac{217}{143})} = 100$$ The required sample size is 100

Therefore, the sample size involved one hundred (100) government primary schools

3.5.2 Sampling techniques

Simple random sampling is a sampling technique whereby each and every member of the population has an equal chance of being selected. The researcher employed this method in order to minimize biasness in getting data from the schools and therefore avoid discrimination. This technique was used to obtain the sample of primary schools. The researcher got the number of schools with the help from the district education office involving the Statistics Logistic Officer (SLO), and therefore procedure of obtaining sample size from teachers and pupils were employed. That is;

Exact sample size from each school =Total number of schools required sample size

Exact number of schools

A simple random sampling technique was employed in this study. A list of all primary schools in the district was written each on the piece of paper and placed in a container for randomly selection of samples of schools that was involved in the study. All 100 schools involved in the simple random selection were governments which were used as a representative samples from 143 primary schools in Bukombe district.

3.6 Types and sources of data

Quantitative data were collected from the study area. The sources of data involed the academic documents from the head teacher's office and academic office including tests and standard IV National Examination results. Other sources of data involved previous researches, reports, statistical data from the Ministry of Education and Vocational Training and NGOs.

3.7 Data collection methods

Data regarding number of pupils and teachers, class size and pupils' scores were collected using pupils achievement outcomes analysis sheet that was developed by the Researcher. Classroom Observation form also designed by the researcher was used to gather information from the classroom.

3.8 Validity of the instruments for data collection

Pre-test, which is a smaller version of the study, was carried out to obtain information to improve the pupils achievement outcome analysis sheet and classroom observation form that were used for data collection. In order to ensure reliability and validity, the instruments for data collection in the pre-test data collection was carried out on five schools with similar attributes in Bukombe district to check the clarity of the information in the sheet and classroom observation form and identify vague or non-acceptable information. Adjustments were made based on the outcome of the pre-test results. The data collected during the pre-test were not a part of the main study.

3.9 Data analysis methods

The collected data were summarized at the school level. The summarized data showing the between school variation were analyzed using the SPSS Version 16.0 software computer program with the assistance of a statistician. The Pearson Correlation Coefficient was used to analyze and find out the value of relationship between pupils – teacher ratio, class size, and academic achievement.

CHAPTER FOUR

PRESENTATION ANALYSIS OF FINDINGS

4.0 Preamble

This chapter deals with data presentation and analysis of findings. The data are presented and analyzed in line with the research objectives that guided the study. These were firstly to identify pupils' enrolment and number of teachers for calculating pupil teacher ratios and class size. Secondly was to identify academic performance of standard four and seven in terminal and annual examinations for the years from 2010 to 2012. Thirdly involved to assess the pupils' teacher ratios and class size; fourthly was to find out the relationship (association) between pupils teacher ratios, class size and pupils' academic performance. Lastly was to obtain the suggestion for improving pupils' teacher ratio, class size and pupils' academic performance in primary schools. With these objectives in mind the research questions were as follows;

- What is the total number of pupils and teachers in primary schools?
- Do pupils teacher ratio and class size meet those recommended by the government?
- What are the academic performance of standard five and six pupils in terminal and annual examinations from 2010-2012?
- What is the relationship between pupils teacher ratios, class size and pupils' academic performance?
- What are the suggestions for improvement of pupil's teacher ratios, class size and pupils' academic performance in primary schools?

The study involved 100 primary schools which were provided with data collection sheet to fill it.

4.1The total number of teachers and pupils enrolment in primary schools

This section presents data from field related with the number of teachers and pupils enrolment in primary schools.

4.1.1 Number of teachers in primary schools

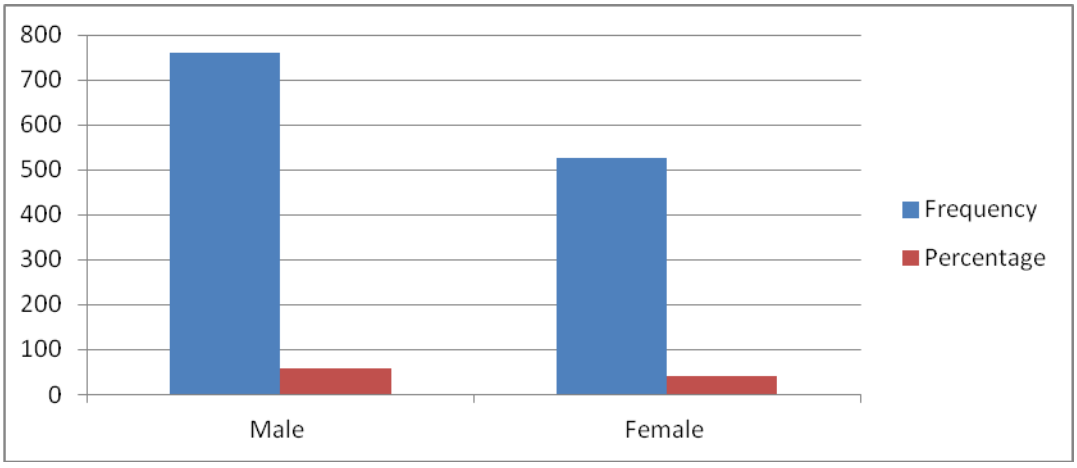
The study sought to investigate the of number teachers in the 100 primary schools sampled. The results through the data collection sheet are as indicated in table 4.1.

Table 4.1. Number of teachers in surveyed primary schools 2013

Respondent category	Frequency	Percentage
Male	760	59
Female	526	41
Total	1286	100

Source: Field data (2013)

Figure 4.1. Number of teachers in primary schools



Source: Field data (2013)

From figure 4.1, above 760 (59%) of the teachers were male, 526(41%) were females and the total number of teachers surveyed in primary school was 1286 teachers.

4.1.2 The number of pupils' enrolled in primary schools 2010-2012

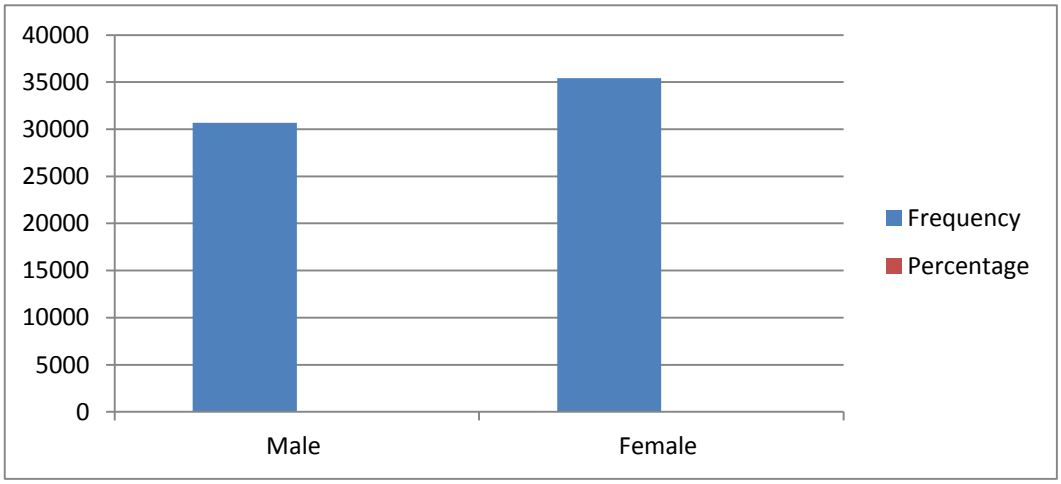
The study sought to investigate the number of pupils' enrolment in the sampled primary schools. The results obtained through the data collection sheet are as indicated in table 4.2.

Table 4.2. The number of pupils' enrolment in primary schools

Respondent category	Frequency	Percentage
Male	30680	46
Female	35400	54
Total	66080	100

Source: Field data (2013)

Figure 4.2. The number of pupils' enrolment in primary schools



Source: Field data (2013)

From figure 2, the numbers of pupils' enrolment in primary school were 66080 pupils. 30680 (46%) of the pupils were male and 35400(54%) were female.

4.1.3 The number of pupils present in primary school

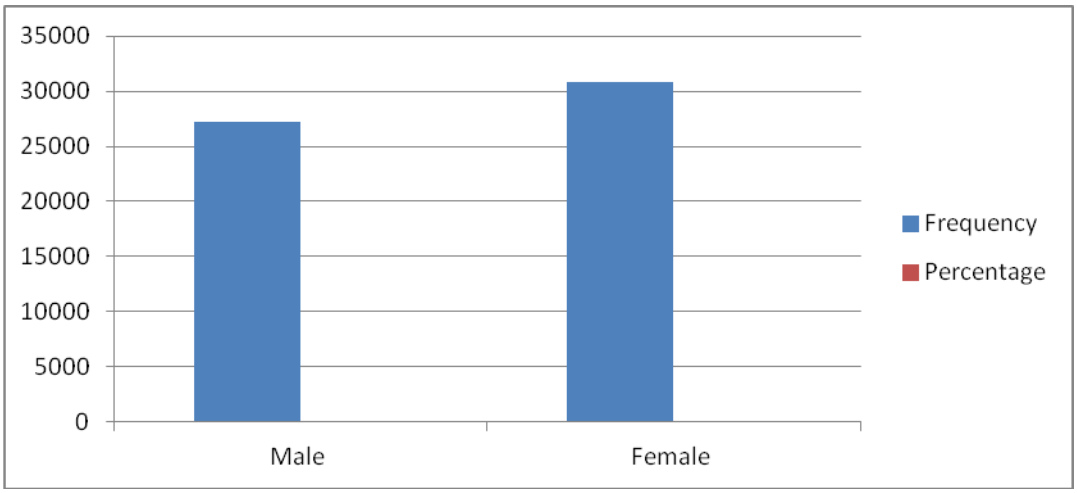
The study wanted to find out the number of pupils present in primary schools. The results obtained through the data collection sheet are as indicated in table 4.3.

Table 4.3The number of pupils present in primary schools

Respondent category	Frequency	Percentage
Male	27,220	47
Female	30,800	53
Total	58,020	100

Source: Field data (2013)

Figure 4.3.The number of pupils present in primary school



Source: Field data (2013)

From figure 4.3, the number of pupils present in primary schools was 58,020. where 27,220 (47%) of the pupils present were males and 30,800 (53) were females.

4.1.4 Number of pupils in standard five

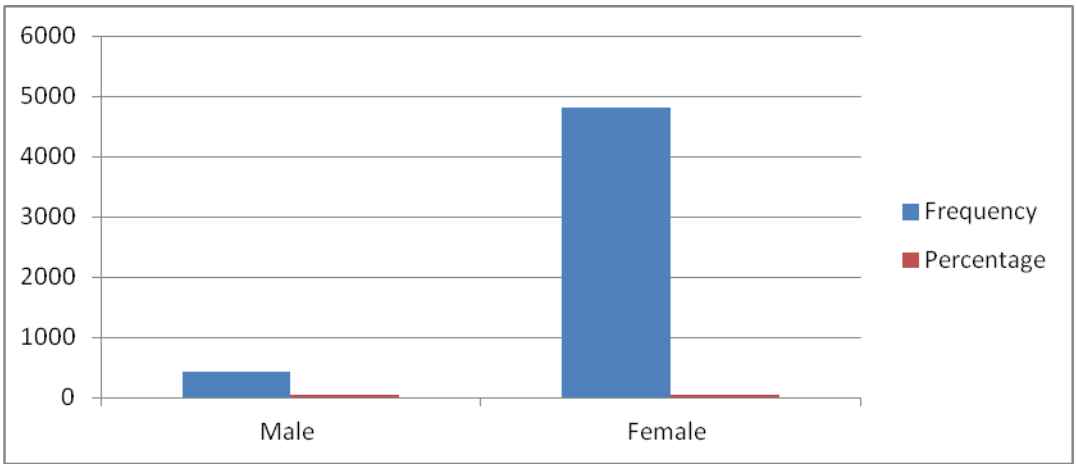
The study also sought to identify the number of students in standard five. The items in the data collection sheet were indicated on table 4.4

Table 4.4 Number of pupils in standard five 2010-2012

Respondent category	Frequency	Percentage
Male	4400	47
Female	4820	53
Total	9220	100

Source: Field data (2013)

Figure 4.4. Number of pupils in Standard five



Source: Field data (2013)

From figure 4, 4400 (47%) of the students in standard five were male, 4820 (53%) of students in standard five were female and the total number of pupils in standard five was 9220 pupils.

4.1.5 Number of pupils in standard six

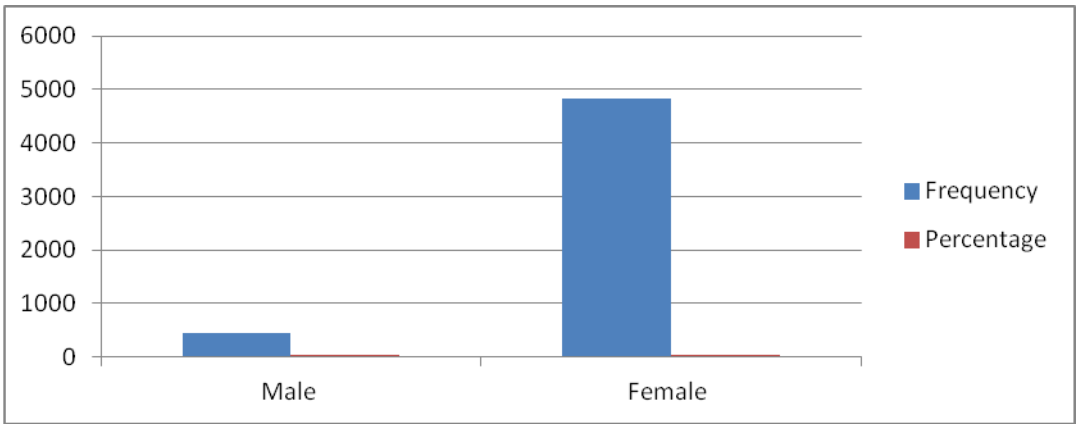
This study intended to investigate on the number of pupils in standard six 2010-2012. The findings through the data collection sheet are as indicated in table 4.5

Table 4.5. The number of pupils in Standard six

Respondent category	Frequency	Percentage
Male	4400	47
Female	4820	53
Total	9220	100

Source: Field data (2013)

Figure 4.5The number of pupils in Standard six 2010-2012



Source: Field data (2013)

From figure 5, 4400 (47%) of the pupils in standard six were male, 4820(53%) were female and the total number of pupils were 9220 pupils.

4.1.6 The number of regular classroom teachers who work with pupils in their classroom each day

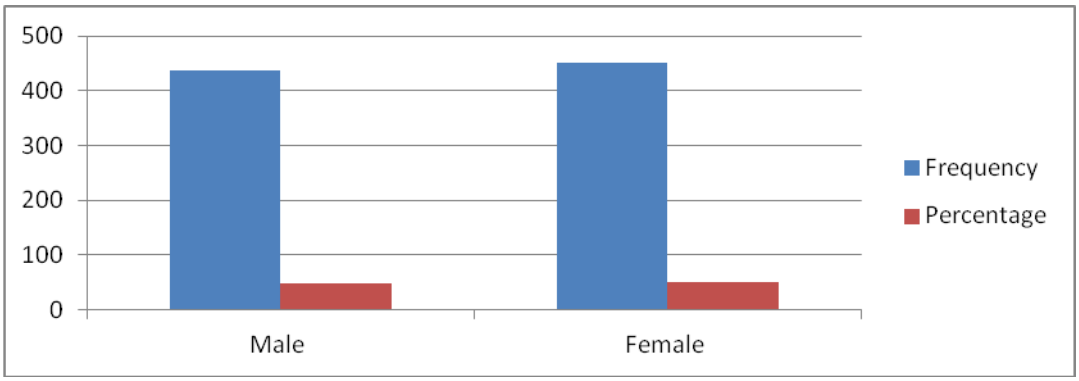
The study also intended to find out the number of regular classroom teachers who work with pupils in their classroom each day. The results as per data collection sheet are as indicated in table 4.6

Table 4.6. The number of regular classroom teachers who work with pupils in their classrooms each day.

Respondent category	Frequency	Percentage
STD V	438	49
STD VI	450	51
Total	888	100

Source: Field data (2013)

Figure 4.6 The number of regular classroom teachers who work with pupils in their classroom each day



Source: Field data (2013)

From figure 4.6, 438(49%) of the regular teacher who works with pupils each day were in standard five 1450(51%) are in standards six. The total number of teachers who works with pupils each day was 888 teachers.

4.1.7 The mean of class size in primary schools

The study also wanted to find out on the mean of class size in primary schools .

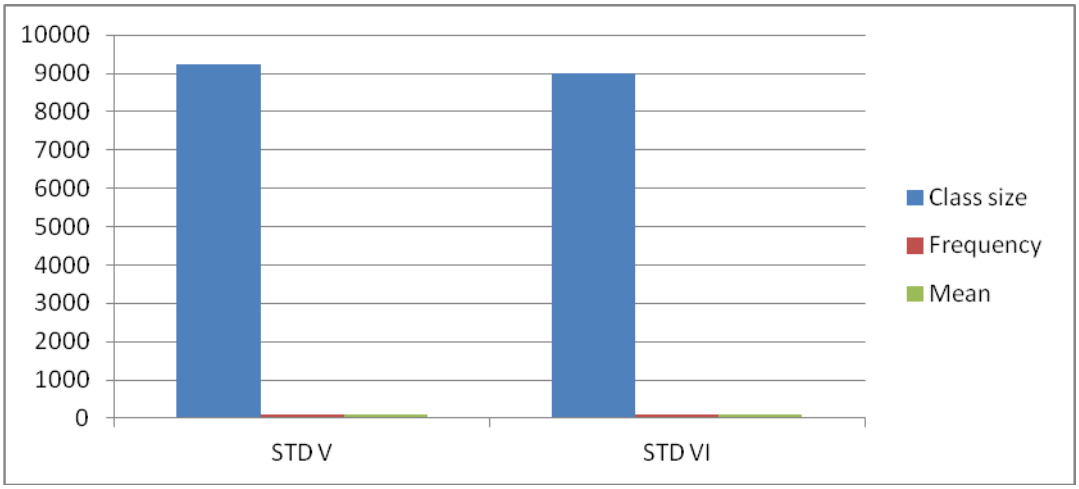
The results as per data collection sheet were as indicated in table 4.6

Table 4.7 The mean of class size in primary schools 2010-2012

Response category	Class size	Frequency	Mean
STD V	9229	100	92
STD VI	8980	100	89

Source: Field data (2013)

Figure 4.7 The mean of class size in primary schools



Source: Field data (2013)

From figure 4.7, the mean of class size in primary schools consisted of 92 pupils in standard five and 89 pupils in standard six

4.2 The pupils' teacher ratios in primary schools from 2008 to 2012

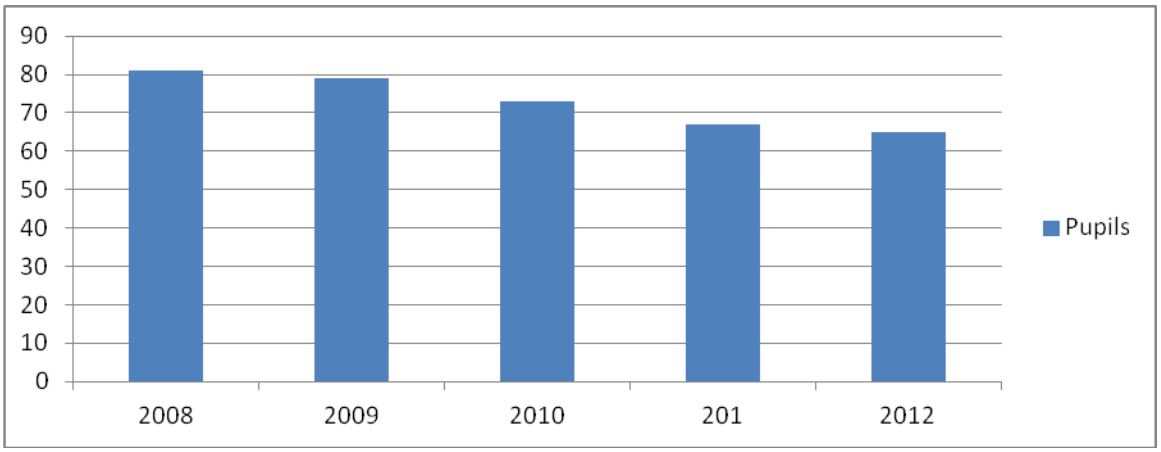
The study intended to find out the pupils teacher ratio in sampled primary school. The data collection sheet results were as indicated in table 4.8.

Table 4.8 Pupils' teacher ratio in primary schools from 2008 to 2012

Years	Pupils teacher ratio
2008	81:1
2009	79:1
2010	73:1
2011	67:1
2012	65:1

Source field data (2013)

Figure 4.8 Pupil's teacher's ratio in primary schools from 2008 to 2012



Source field data (2013)

From figure 7, the teacher pupil ratios were one teacher into 81 pupils in 2008, one teacher into 79 pupils in 2009, one teacher into 73 pupils in 2010, one teacher into 67 pupils in 2011 and one teacher into 65 pupils in 2012.

4.3 The academic performance of standard five and six in terminal and annual examinations from 2010 to 2012

This section presents summarized data from the field on the academic performance of standard five and six pupils for terminal and annual examinations from 2010 to 2012.

The information re present the data on the academic performance for standard five in 2012 and the academic performance of standard six for terminal and annual examination from 2010-2011.

4.3.1 The academic performance of standard five pupils in terminal and annual examinations from 2010 to 2012

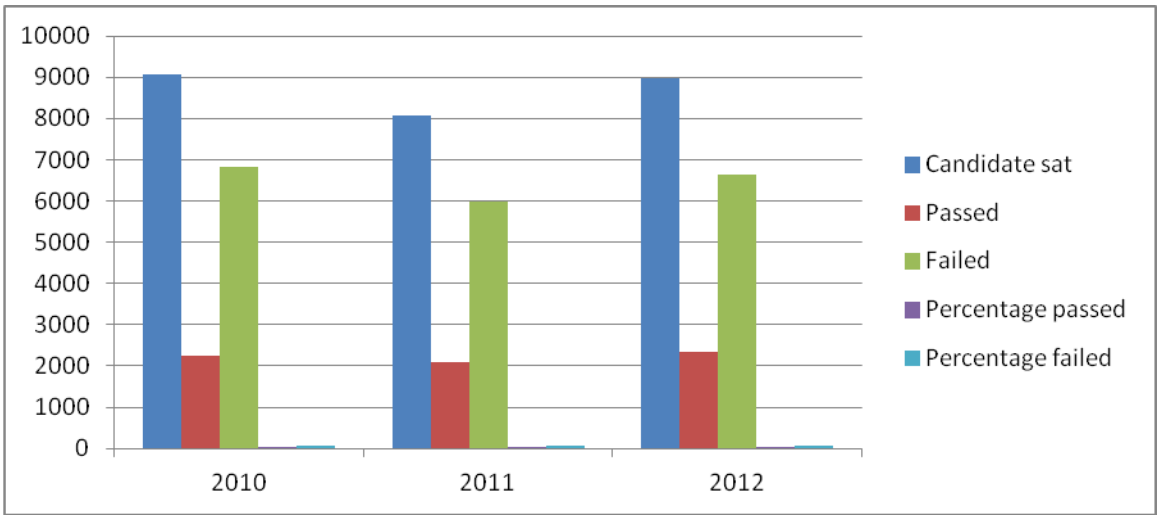
The study sought to find out the academic performance of standard six pupils in terminal and annual examinations from 2010 to 2012. The results are indicated as shown on table 4.9 and 4.10

Table 4.9 Academic performance results of standard five pupils in terminal examinations from 2010-2012

Years:	Candidates sat	Passed	failed	Percentage passed	Percentage failed
2010	9080	2260	6820	24%	76%
2011	8060	2080	5980	25%	75%
2012	8968	2328	6640	26%	74%

Source: Field data (2013)

Figure 4.9 Academic performance of standard five in terminal examination from 2010-2012



Source: Field data (2013)

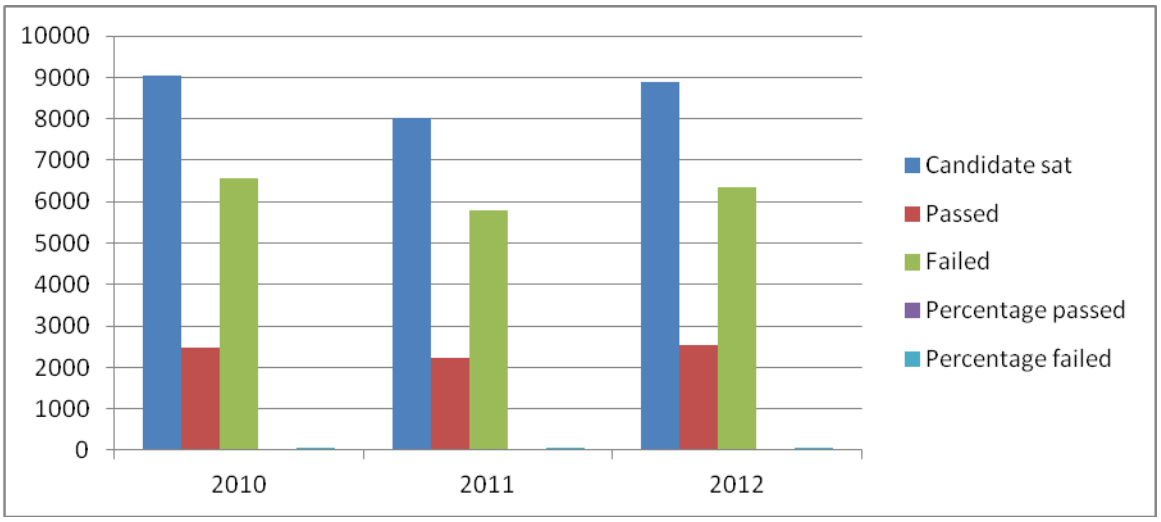
From figure 4.9, 2260 (24%) of the standard five pupils who sat for the terminal examinations passed the exams and 6820 (76%) failed the annual examination in 2010. In 2011 some 5980 (75%) failed the terminal examination .In 2012, 2328 (26%) of the pupils passed their terminal examination and 6640 (74%) failed their terminal examination.

Table 4.10 Academic performance of standard five in annual examination from 2010-2012

Years: Candidates sat	Passed failed Percentage passed	Percentage failed
2010 9040	2480 6560 27%	73%
2011 8020	2240 5780 27%	72%
2012 8900	2550 6350 28%	72%

Source: Field data (2013)

Figure 4.10 Academic performance of standard five in annual examination from 2010-2012



Source: Field data (2013)

From figure 4.10, 2480 (27%) of the pupils in standard five passed their annual examination in 2010 while 6560 (73%) failed their annual examination.

In 2011, only 2240 (28%) passed their annual examination against 5780 (72%) who failed their annual examination.

In 2012, 2550 (29%) of the standard five pupils passed their annual examination and 6350 (72%) failed their annual examination.

4.3.2 The academic performance of standard six in terminal and annual examination from 2010 to 2012

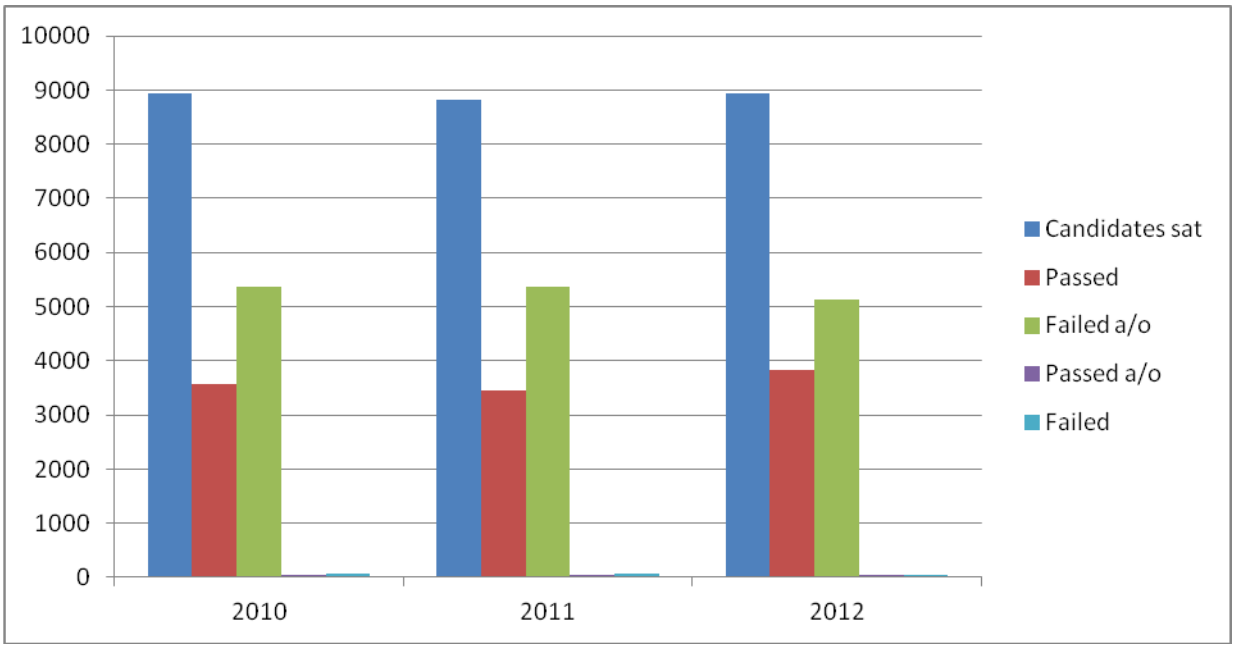
The studies also wanted to find out the academic performance of standard six in terminal and in the data collection sheet were as indicated in table 10 and 11.

Table 4.10 The academic performance of standard six terminal examinations from 2010 to 2012

Years: Candidates sat	Passed failed a/o	Passed a/o failed
2010 8950	3580 5370	40 60
2011 8820	3460 5360	39 61
2012 8940	3820 5120	42 58

Source: Field data (2013)

Figure 4.11 The academic performance of standard six terminal examinations from 2010 to 2012



Source: Field data (2013)

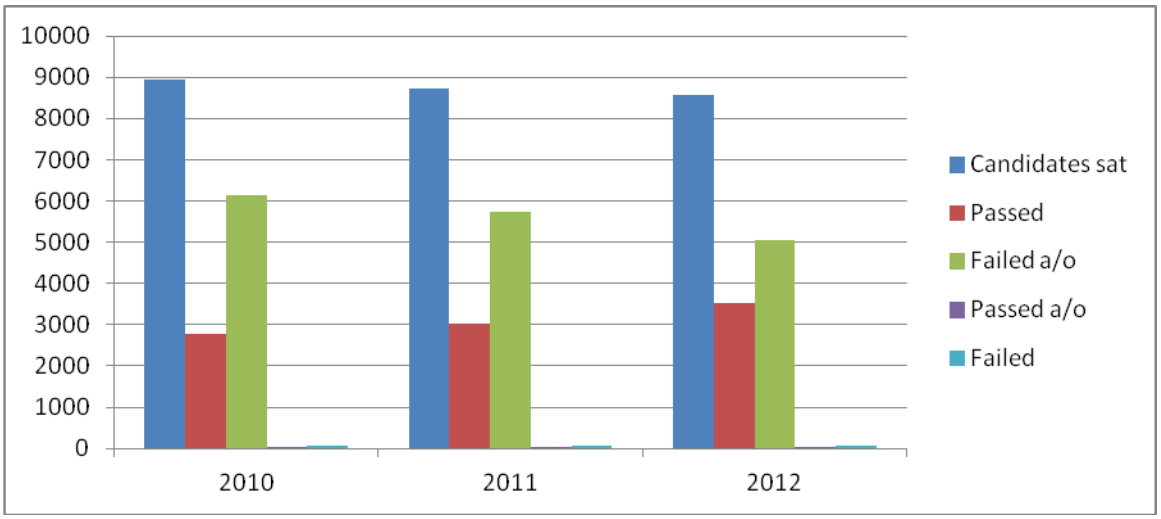
From Figure 4.11, 3580 (40%) of the standard six were passed their annual examination in 2010 and 5370 (60%) failed their annual examination .In 2011, 3460 (39%) passed their annual examination and 5360 (51%) failed their annual examination. In 2012, 3820 (42%) had passed their annual examination and 5120 (58%) failed their annual examination.

Table 4.12. The academic performance of standard six pupils annual examinations from 2010 to 2012

Years: Candidates sat	Passed failed	Passed failed
2010 8950	2780 6128	31 69
2011 8742	3012 5730	34 66
2012 8568	3520 5048	41 59

Source: Field data (2013)

Figure 4.12 The academic performance of standard six annual examinations from 2010 to 2012



Source: Field data (2013)

From Figure 4.12, 2780 (31%) of the standard six pupils passed their annual examination in 2010 while 6120 (69%) failed their annual examination. In 2011, 3012 (34%) of the standard six pupils who sat the annual examination passed and 5730 (66%) failed their annual examination .In 2012, 3520 (41%) passed their annual examination and 5048 (59%) failed their annual examination.

4.4. The relationship between the pupils teacher ratio, class size and pupils' academic performance

This section presents data from the field on the relationship between pupils' teachers' ratios, class size and pupils academic performance.

4.4.1The relationship between the pupils teacher ratio and pupils' academic performance

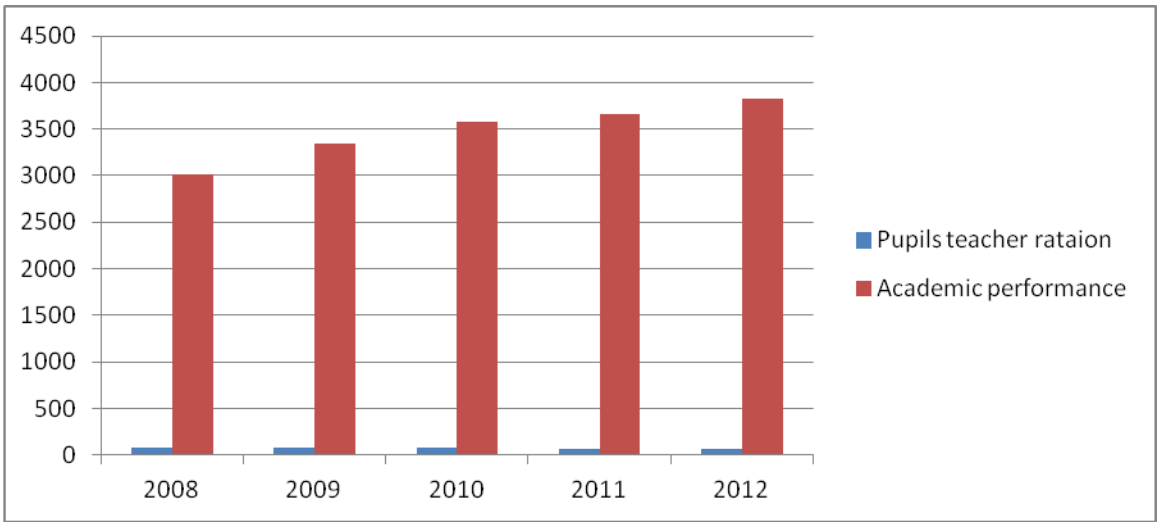
The study sought to investigate on the relationship between pupil teacher ratio and pupils' academic performance in primary schools. In Order to understand if there was relationship between them the researcher collected data through pupils achievement analysis sheets and classroom observation forms. The table 4.13 below shows the performance academically of the total candidates attempted the final exams and those who passed from 2008 to 2012 in all sampled schools in standard VII.

Table 4.13 Pupil's teacher's ratio and pupils' academic performance from 2008 to 2012

Years	Pupils teacher ratio	Academic performance
2008	81:1	3010
2009	79:1	3342
2010	73:1	3580
2011	67:1	3660
2012	65:1	3820

Source field data (2013)

Figure 4.13 Pupils' teacher ratio and pupils' academic performance from 2008 to 2012



Source field data (2013)

Table 4.14. Class size and pupil academic performance correlation results

Pearson's		Students t-test	
Calculated value	-0.9	Calculated value	-0.49
Critical value	.878	Critical value	5.841
Level of significance	.005	Level of significance	.005

Source field data (2013)

From the above statistical calculation, the Pear sons' Product Moment Correlation Coefficient is

-0.9 and student t- test is -0.49.Since the calculated value is less than the table value, the null hypothesis is accepted at confidence level 0.05.The findings indicate that there is no relationship between pupils teacher ratio and pupils' academic performance.

4.4.2 The relationship between class size and pupils academic performance

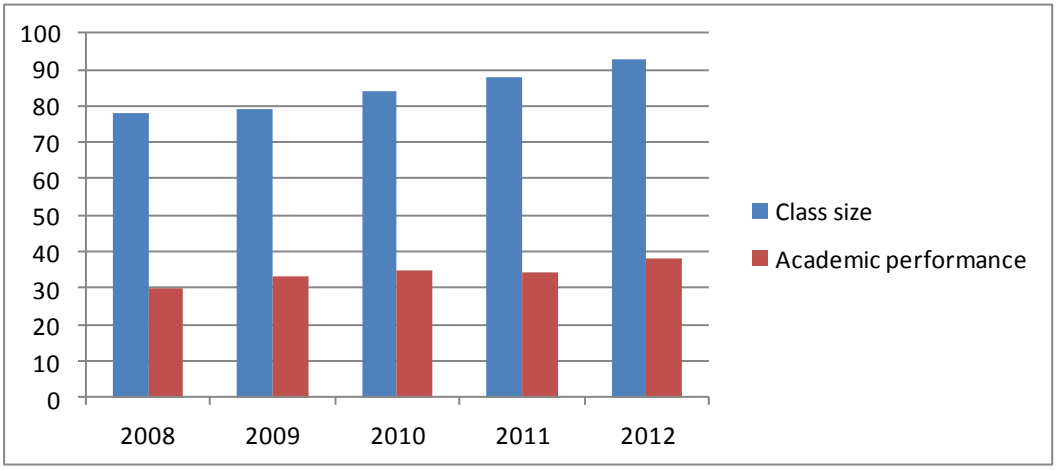
The study sought to investigate on the relationship between class size and pupils' academic performance in sampled primary schools. The findings are as indicated in table 4.15

Table 4.15. The relationship between class size and pupils' academic performance from 2008-2012

Years	Class size	Academic performance
2008	78	30%
2009	79	33%
2010	84	35%
2011	88	34%
2012	93	38%

Source field data (2013)

Figure 4.15. The relationship between class size and pupils academic performance



fro m 2008-2012

Source field data (2013)

From figure 14, in 2008 the class size was 78 pupils and academic performance was 30 pupils, in 2009 the class size was 79 pupils and academic performance was 33 pupils, in 2010 the class size was 84 pupils and academic performance was 35 pupils, in 2011 the class size was 88 pupils and academic performance was 34 pupils, in 2012 the class size was 93 pupils and academic performance was 38 pupils.

Table 4.16. Class size and pupil academic performance correlation results

Pearson's		Students t-test	
Calculated value	1.8	Calculated value	0.2
Critical value	.878	Critical value	5.841
Level of significance	.05	Level of significance	.005

Source field data (2013)

From table 4.16, it is indicated that there is relationship between the class size and pupil academic performance because the calculated value is greater than the table value (critical value) hence the null hypothesis was rejected and the alternative hypothesis was accepted .So result shows that it is significant.

4.5 Suggestion for improving class size pupil teacher ratio and academic performance

The study further intended to find out suggestion for improving performance. The study revealed community participation in classroom construction, increasing teachers recruitment, enrolling the number of students in relation to the classrooms available, paying high salary to the teaching profession to attract people to join the teaching, provision of accommodation facilities and improving working environment were mentioned as the strategies for solving the issue of class size, pupils teacher ratio and pupils academic performance in public primary schools.

From the findings then seven main themes arose which involved pupil teacher ratio, class size, number of teachers, pupils' enrollment, pupils' academic performance, relationship between pupils' teacher ratio and pupils academic performance and

relationship between class size and pupils' academic performance. Each of these themes will be discussed in chapter five.

CHAPTER FIVE
DISCUSSION OF FINDINGS

5.0 Preamble

This chapter is concerned with the discussion of the research findings. It will first discuss each of the central themes as indicated in the previous chapter. As stated earlier in the previous chapter, this section discus the major themes extracted from the findings as follows

5.1 The total number of teachers and pupils' enrolment in primary schools

The researcher had wanted to identify the number of teachers and pupils' enrolments in sampled primary schools where the total was 66080 pupils. The findings indicated that the total numbers of teachers in primary school were 1286 teachers against the number of enrolment in primary schools were 66080 pupils. Therefore pupils' enrolment is high in primary schools, as has been caused by PEDP programmes. The findings are in line with those that been found in other literatures which supported that, under the PEDP, the enforcement of the law on compulsory primary education for all children of school-going age was renewed. Over-age children were enrolled through a tailored initiative, namely, Complementary Basic Education (COBET). The impact of these efforts resulted in a large expansion in enrolments with net enrolment ratios increasing impressively to 97.3 percent in 2007 from 58 percent in 2000 (MoEC, 2006b; MoEC, 2010).

5.2 The number of pupils present in primary school

The study wanted to find out the number of pupils present in primary schools in 2013. The findings indicated that, the numbers of pupils present in primary schools were 58,020.

5.3 Number of pupils in standard five and six

The study also sought to identify the number of students in standard five, The findings indicated that, the total number of pupils were 9220 pupils in standard five and 9220 pupils in standard six.

The number of regular classroom teachers who work with pupils in their classroom each day was 888 teachers.

5.5 The mean of class size in primary schools

The study also wanted to find out on the mean of class size in primary schools. The findings indicated that, the means of class size in primary schools were 92 pupils in standard five and 89 pupils in standard six. This shows that there is high class size in primary schools in Tanzania which exceed 40 pupils per class as recommended by government policy. The findings are with those of Rajani and Sumra (2003, p. 5). Who state that, class size and pupil-teacher ratio is a problem on pupil achievement outcomes in Tanzanian primary schools in both urban and rural areas. MOEVT (2009) provides that, in 2010, the average number of Standard 6 pupils per class among primary schools in Tanzania was 42. This number was just slightly above the country's set benchmark of 40. However, in 2007, the number had risen to 56 pupils per class, and thus the number was well beyond the set benchmark. The number for urban schools (64) was worse than the number for rural schools (52).

However the data also reveal that the PTR increased to 59:1 in 2004 from 46:1 in 2001, precisely before the school fees were abolished. This is a considerable increase, making the classrooms even more crowded and chaotic, placing an enormous strain on under-motivated and ill-equipped teachers and further eroding quality of education" (MoEVT, 2009).

Benbow, Mizrachi, Oliver & Said-Moshiro (2007) described that large class size is an inevitable feature of the developing countries. The study found that there is the substandard teaching and learning process in these countries in this case Tanzania inclusive (Nzemo 2013).

This process can be improved by enhancing the capability of teachers and school leaders to handle this setting and by identifying ways for students to be successful.

5.6 The teacher pupil ratios in primary schools from 2008 to 2012

The study intended to find out the pupils teacher ratio in primary school from 2008 to 2012. The findings indicated that the teacher pupil ratios were one teacher into 81 pupils in 2008, one teacher into 79 pupils in 2009, one teacher into 73 pupils in 2010, one teacher into 67 pupils in 2011 and one teacher into 65 pupils in 2012.

The findings are in line with those of MoEVT (2009) that indicated the mean pupil-teacher ratio among primary schools was 47. This meant it slightly higher than the country's set benchmark of 40. Thus, in 2007 the mean had risen to 63 pupils per teacher, this being far beyond the set benchmark. Nevertheless, the mean for urban schools (46) was nearer the set national benchmark, and much better than the mean for rural schools (71). In 2007, there were large variations in the mean pupils-teacher ratios among the zones, and no zone had means within the set benchmark. The means for Eastern (43) and Kilimanjaro (44) were, however, close to the national benchmark. The mean ratios were particularly far higher in Western (87) and Mwanza (83), with the average numbers of pupils per teacher in these zones exceeding the national benchmark by 47 and 43 pupils, respectively. In 2000, the average number of Standard 6 pupils per class among primary schools in Tanzania was 42. This number was just slightly above the country's set benchmark of 40. However, in 2007, the number had risen to 56 pupils per class, and thus the number was well beyond the set benchmark. The number of for urban schools (64) was worse than the number for rural schools (52).

The recommended pupils-teacher ratio and class size for primary schools in Tanzania are 40 pupils per teacher and 40 pupils per class, respectively. Haki Elimu (2004) observed that pupil-teacher ratio is a common phenomenon in Tanzania.

Where the number of pupils per teacher has increased with almost 50 percent since 1999. This indicates that the recruitment of new teachers has not been able to keep up with the enrolment expansion.

5.7 The academic performance of standard five and six terminal and annual examinations from 2010 to 2012

The findings indicated that 2260 (24%) of the standard five pupils who sat for the terminal examination passed the exams where 6820 (76%) had failed the annual examination in 2010. In 2011the total of 5980 (75%) failed the terminal examination .In 2012, some 2328 (26%) of the pupils passed their terminal examination while 6640 (74%) failed their terminal examination.

The findings further indicated that 15, 2480 (27%) of the pupils in standard five passed their annual examination in 2010 and 6560 (73%) failed that annual examination. In 2011, only 2240 (28%) passed their annual examination and 5780 (72%) failed their annual examination. In 2012, some 2550 (29%) of the standard five pupils passed their annual examination while 6350 (72%) failed their annual examination.

In case of standard six the study found that, 3580 (40%) of the standard six had passed their annual examination in 2010 while 5370 (60%) failed their annual examination .In 2011, some 3460 (39%) passed their annual examination and 5360 (51%) failed their annual examination.

In 2012, 3820 (42%) pupils passed their annual examination and 5120 (58%) failed their annual examination. Some 2780 (31%) of the standard six pupils passed their annual examination in 2010 whereas 6120 (69%) failed their annual examination.

In 2011, 3012 (34%) of the standard six who sat for the annual examination passed where 5730 (66%) failed their annual examination .In 2012, 3520 (41%) passed their annual examination and 5048 (59%) failed their annual examination.

5.8 The relationship between the pupils teacher ratio and students' academic performance

The study sought to investigate on the relationship between pupils teacher ratio and pupils academic performance. The findings indicate that there is no relationship between pupils' teacher ratio and pupils' academic performance.

The findings are central to those of research project on the pupils Teacher Ratio (STAR) conducted in grades K-3 which found that there is relationship between pupils' teacher ratio and pupils' academic performance because academic achievement was increased significantly in the smaller class size (lower PTR) in the regular classes. (Achilles, Nye, & Zaharias, 1995).

Levacic et al (2005) conducted a study on KS 3 and found that reduction in the PTR had a statistically significant positive effect on math achievement. However, science achievement had not any impact on student achievement in English.

Many studies concluded that PTR has some positive effects (Lee & Barro, 1998; Graddy and Stevens, 2003). However, Hanushek (1998) and Alderman, Orazem & Paterno (2001) concluded the negative effect of PTR; whereas, Levacic et al, (2005) showed mixed results.

5.9 The relationship between class size and students' academic performance

The study sought to investigate on the relationship between class size and students' academic performance.

The findings indicate that, there is relationship between class size and pupils' academic performance because when the class size decreases pupils' academic performance increases.

The findings are in line with those of Finn & Achilles (1999) study which was conducted at the primary school level. The study concluded that small class size increased the student math performance by about one third of a standard deviation.This also resembles those by many studies of class size reduction which were carried out in Wisconsin (SAGE Program) and North Carolina. These studies described significantly higher achievement test scores in the smaller classes than in the larger classes of primary grades (Molnar, Smith, & Zahorik, 1998; Molnar et al., 2000). Likewise, Krueger & Whitmore (2001) conducted a follow up analysis of small class size in the lower grades and concluded positive effects in the later period. Small class size in the lower grades directed to take a college entrance exam with higher probability but to some extent higher test scores, especially for minority students.

Found that class size has a positive and significant effect on student achievement in reading comprehension and mathematics. Some studies showed that students in the large classes desired to spend less time on class assignments (Blatchford & Mortimore, 1994; Klein, 1985).

However, students in smaller classes desired to participate for more time in addition to spending more time on schoolwork. The class size is large in the developing countries and the Asian countries (Hanushek,1995).

However, Michaelowa (2001) concluded an inverse correlation between class size and learning outcomes. It showed the decreased student learning with the increased class size; however, learning effectively stopped as once class size exceeded 62.

5.10 Suggestions for improving class size pupil teacher ratio and academic performance

The study further intended to find out suggestion for improving performance .The study revealed community participation in classroom construction, increasing teachers recruitment, enrolling the number of students in relation to the classroom available,

paying high salary to the teaching profession to attract people to join the teaching, provision of accommodation facilities and improving working environment were mentioned as the strategies for solving the issue of class size and pupils teacher ratio and pupils academic performance in public primary school.

CHAPTER SIX

SUMMARY, CONCLUSIONS, AND POLICY IMPLICATIONS

6.1 Summary of the study findings

This chapter has presented the findings from this study based on data derived from data collection sheet. The findings illustrated that, the issue of the influence of class size and Pupils teacher ratio on pupils' academic performance in primary school is fairly complex that perhaps needed the creation and establishment of positive relationship between primary schools parents and government. It is this relationship that may facilitate and enhance participation so that class size and pupils' academic performance can be improved.

In this study it was found that, the total numbers of teachers in the sampled primary schools were 1286 teachers whereby Males were 760(59%) and females were 5265 (41%)

The number of pupil enrollment were 66080 involving 30680 boys and 35400 girls (46%) the study also found that the total number of students present were 58,020 .Where boys were 27,220(47%) and girls were 30,800(55%)

The numbers of pupils in standard five were 9220 constituting 4400 (47%) males and 4820 (53%) females .The number of pupils in standard six were 8980 involving 4200 (46%) boys and 4780 (54%) girls.

The finding further indicated that the number of regular classroom teachers who worked with pupils each day in standard five were 438(49%) and 450 (51%) in standard six.

The mean class size in primary schools were found to be 92 in standard five and 89 in standard six. The pupils teacher ratio constituted one teacher into 81 pupils in 2008, one teacher into 79 pupils in 2009, one teacher into 73 pupils in 2010, one teacher into 67 pupils in 2011 and one teacher into 65 pupils in 2012.

The findings also showed that the pupils' academic performance in standard five terminal examination only 2260(24%) of the pupils passed their examinations in 2010, 2080 (25%) passed in 2011 and 2328 (26%) passed in 2012.

While in annual examination, 6560 (27%) passed in 2010, 2240 (28%) passed in 2011 and only 2550 (28%) passed their annual examination in 2012. In case of the standard six pupils academic performance the findings indicated that 3580 (40%) passed their terminal examination in 2010, 3460 (39%) passed in 2011 and 3820 (42%) passed.

In standard six annual examination the findings showed that 2780 (31%) passed in 2010 3012(34%) of the pupils passed in 2011 and 3520 (41%) were passed in 2012.

Furthermore the study indicates that there is no relationship between pupils teacher ratio and pupils' academic performance but there is relationship between class size and pupils' academic performance

6.2 Conclusion

The main aim of this study was to investigate the influence of class size and pupils-teacher ratio on student achievement outcomes in primary schools in Bukombe district. This chapter has presented the findings from this study based on data derived through data collection sheet.

The findings illustrated that, the issue of the influence of class size and pupil teachers ration on pupils academic performance in primary school is a fairly complex that needed the creation and establishment of positive relationship between primary schools parents and government. It is this relationship that may facilitate and enhance participation so that class size pupils' academic performance can be improved.

The finding also indicated that, the numbers of teachers in primary schools were 1286 teachers where by Male were 760(59%) and female were 5265 (41%). The number of pupil enrollment were 66080 where by male were 30680 and female were 35400 (46%) the study also found that the total number of students present were 58,020 .

Whereby males were 27,220(47%) and female were 30,800(55%). The number of pupils in standard five were 9220 where by male were 4400 (47%) and female were 4820 (53%) .The number of pupils in standard six were 8980 where by male were 4200 (46%) and female were 4780 (54%) percentage.

The finding further indicated that the number of regular classroom teacher who work with students each day in standard five were 438(49%) and 450 (51%) in standard six. The mean class size in primary school are 92 in standard five and 89 in standard six. The pupil teacher ratio are one teacher into 81 pupils in 2008, one teacher into 79 pupils in 2009, one teacher into 73 pupils in 2010, one teacher into 67 pupils in 2011 and one teacher into 65 pupils in 2012.

The findings also shows that the pupils academic performance in standard five terminal examination only 2260(24%) of the pupils passed their examinations in 2010, 2080 (25%) passed in 2011 and 2328 (26%) passed in 2012. While in annual examination, 6560 (27%) passed in 2010, 2240 (28%) passed in 2011 and 2550 (28%) passed their annual examination in 2012.

In case of the standard six pupils academic performance the findings indicated that 3580 (40%) passed their terminal examination in 2010, 3460 (39%) passed in 2011 and 3820 (42%) passed.

In standard six annual examination the findings showed that, 2780 (31%) passed in 2010 3012(34%) of the pupils passed in 2011 and 3520 (41%) were passed in 2012.
Furthermore the study indicates that there is no relationship association between pupils teacher ratio and pupils academic performance and also there are relationship between class size and pupils academic performance.

Based on the most significant finding in this particular piece of research, it is concluded that class size and pupil-teacher ratio are very crucial issues in influencing pupils to acquire knowledge, skills and attitude that are employed in different sectors of economy such as agriculture, industry, tourism to improve the economic advancement in the country.

6.3 Policy implications

A policy implication refers to something which is implied or suggested as naturally being inferred or understood in a certain policy. It is a consequence or meaning that is implied by a statement or an action. According to this study it implies that there is the need to change the policy from the ratio of 1:40 to 1:30 because it has been seen that when the number of learners increases the possibility of them to fail is also large.

6.3.1 Recommendations for policy formulation

Based on the findings the study comes up with the following recommendations:
It is recommended that to reduce the above problem and to boost pupils' education in the developing countries, a number of mechanisms should be designed. One of the best solutions for this problem is constructing enough quality classrooms so as to reduce pupils' congestion in the classrooms.

Recruitment of primary teachers in teaching profession so as to solve pupils' teacher ratio in primary schools to meet that of one teacher per 40 pupils as stipulated by Ministry of education and vocational training.

6.3.1 Recommendation for further study

This study was conducted in a single district. Therefore there is need for a much larger, national wise quantitative survey. It is also recommended that further research be conducted on the influence of instructional materials on pupils' academic achievement in primary schools.

REFERRENCES

Achilles, C.M., Nye, B.A., & Zaharias, J.B., 1995, *Policy use of research results: Tennessee's Project Challenge,* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA. Africa:Determinants of learning achievement and efficiency considerations, *World*

Alderman, H., Orazem, P., & Paterno, E., 2001, School Quality, School Cost, and the Public/Private School Choices of Low-Income Households in Pakistan, *Journal of Human Resources. 36*, pp. 304-326.

Bonesrønning, H., 2003, Class Size Effects on Student Achievement in Norway: Patterns and Explanations, *Southern Economic Journal 69 (4)*, pp. 952-965. (Accessed 30 March 2012)

Angrist J., & Lavy, V., 1999, Using Maimonides' rule to estimate the effect of class size on scholastic achievement, *Quarterly Journal of Economics, 114*(2), pp. 533–575, Available at http://links.jstor.org/sici?sici

Babbie E. R. (1990) Survey Research Methods second edition wards worth, Basic Education Development Committee (BEDC) (2001). *ESDP – Primary Education Development Plan (2002-2006).* [Online] Available from: ttp://www.tanedu.org/pedp_doc.pdf [Accessed 17 April 2012]

Benbow, J. (Ed.D.), Mizrachi, A., Oliver, D., & Said-Moshiro, L., 2007, *Large Class Sizes in the Developing Countries: What Do We Know And What Can We Do?* ducational Quality Improvement Program, Classroom, Communities, Schools & USAID, American Institutes for Research under the EQUIP LWA.

Biggs, J.B., 1999, Teaching for Quality Learning in University, Society for Research Higher Education and Open University Press, Buckingham.

Blatchford, P., & Mortimore, P., 1994, The issue of class size in schools what can we learn from research? *Oxford Review of Education, 204*, pp. 411-428.

Davidson, Euan (2004). *The Progress of the Primary Education Development Plan (PEDP) in Tanzania: 2002-2004.* Dar es Salaam: HakiElimu (Working Paper Series No. 2004.2) *Development 10*, pp. 1699-1716.

Finn, J.D., & Achilles. C.M., 1999, Tennessee's class size study: Findings, implications, misconceptions, *Educational Evaluation and Policy Analysis, 21*(2), pp. 97-109.

Fuller, B., & Clarke, P., 1994, Raising School Effects While Ignoring Culture? Local Conditions and the Influence of Classroom Tools, Rules and Pedagogy, *Review o f Educational Research, 64*, pp.19-57.

Graddy, K., & Stevens, M., 2003, *The Impact of School Inputs on student Performance: An Empirical Study of Private Schools in the United Kingdom*, Discussion Paper Series, Oxford: Department of Economics, University of Oxford.

Haddad, W. D. et al. (1990). *Education and Development: Evidence for New Priorities*. World Bank Discussion Papers 95, Washington, D. C.: The World Bank.

HakiElimu (2004). *Three Years of PEDP Implementation: Key Findings from Government Reviews.* Dar es Salaam: HakiElimu

Hanushek, E.A., 1995, Interpreting recent research on schooling in developing countries, *The World Bank Research Observer, 10*(2), pp. 27-246.

Hanushek, E.A., 2006, *The evidence on class size*. Occasional Paper 98 (1), Institute of Political Economy, University of Rochester. Retrieved May 17, 2012 from www.jstor.org/stable/3590138

Hoxby, Caroline (2000). "The Effects of Class Size and Composition on Student Achievement: New Evidence from Natural Population Variation." *Quarterly Journal of Economics*, pp. 1239-85.

Klein, F., 1985, The master teacher as curriculum leader. *Elementary School Journal, 86*(1), pp. 35-43.

Krueger A. & Whitmore, D., 2001, The effect of attending a small class in the early grades on college-test taking and middle school test results: evidence from project STAR, *Economic Journal, 111*(468), pp. 1–28.

Lee, J.W. & Barro, R.J., 1998, *Schooling Quality in a Cross Section of Countries.* Development Discussion Paper No. 659, Harvard Institute for International Development, Harvard University, Harvard, MA.

Levacic, R. et al., 2005, *Estimating the Relationship between School Resources and Pupil Attainment at Key Stage 3: Report to Dfes January 2005*, University of London, Institute of Education, London.

Lindahl, M., 2005, Home versus school learning: a new approach to estimating the effect of class size on achievement, *Scandinavian Journal of Economics, 107*(2), pp. 375–394.

Maier, P., Molnar, A., Percy, S., Smith, P., & Zahorik, J., 1997, *First-year results of the Student Achievement Guarantee in Education program*, Centre for Urban Initiatives and Research, University of Wisconsin-Milwaukee, Milwaukee, WI.

Masanja, J.(2010).Migration and Female Empowerment in Mwanza City, Tanzania: A Thesis Submitted Fulfillment for the Requirement of Degree and PHD. Open University of Tanzania p.1-337.

Michaelowa, K., 2001, Primary education quality in francophone sub-Saharan

Mitchell, D., Carson, Ch., & Badarak, G., 1989, *How Changing Class Size Affects Classrooms and Students*, California Educational Research Cooperative, University of California, Riverside, CA.

MoEC (1991). *Policy on production and distribution of school/college books*. Dar es Salaam:United Republic of Tanzania.

MoEC (1995). Education *and training policy.* Dar es Salaam: United Republic of Tanzania.

MoEC (2006a). *Education sector development programme: primary education development programme I(2002-2006*). Dar es Salaam: United Republic of Tanzania.

MoEC (2006b). *Basic education statistics in Tanzania, national data*. Dar es Salaam: United Republic of Tanzania.

MoEC (2010). *Basic education statistics in Tanzania, national data*. Dar es Salaam: UnitedRepublic of Tanzania.

MoEVT (2009). *Basic standards for pre- and primary education in Tanzania*. Dar es Salaam: United Republic of Tanzania.

Molnar, A., Smith, P., & Zahorik, J., et al., 1998, *1997-98 Evaluation Results of the SAGE Program*, University of Wisconsin-Milwaukee, Milwaukee, WI

Molnar, A., Smith, P., Zahorik, J., Palmer, P., Halbach, A., & Ehrle, K., 2000, Wisconsin's Student Achievement Guarantee in Education (SAGE) Class size Reduction Program: Achievement Effects, Teaching and Classroom Implications. National Research Center on Education in the *Inner Cities Review, 9*(2), pp. 12-13.

Mosteller, F., 1995, The Tennessee study of class size in early grades, *The Future of Children, 5*(2), pp. 113-127.

Nye, B., Hedges, L.V., & Konstantopoulos, S., 1999, The long-term effects of class size: A five year follow-up of the Tennessee class size experiment, *Educational Evaluation and Policy Analysis 2 1* (2), pp. 12 7-42. Publishing Company, Belmont, California.

Rajani, Rakesh & Sumra, Suleman (2003). *Is Extra Funding for Primary Education Making a Difference? Conceptual and Measurement Challenges.* Dar es Salaam: HakiElimu (Working Paper Series No. 2003.3)

Rivkin, S.G., Hanushek, E.A. & Kain, J.F., 2000, *Teachers, Schools, and Academic Achievement*, Working Paper No. 6691 (revised), National Bureau of Economic Research, Cambridge, Mass.

Tow, Ch., 2006, The Effects of School Funding on Student Academic Achievement: A study of California School Districts 2000-2004, University of California, Berkeley.

UNESCO (2003). *Education – The Price of school fees.* [Online] Paris: UNESCO Available from: http://portal.unesco.org/education/en/ev.php

Word, E., Johnston, J., Bain, H. P., Fulton, D. B., Boyd-Zaharias, J., Lintz, M. N., Achilles,

C. M., Folger, J., & Breda, C., 1990, *Final Report: Student/teacher achievement ratio (STAR): Tennessee's K-3 class size study*, Tennessee State Department of

Education, Nashville, TN. Retrieved May 12, 2012 from http://www.herosinc.org

LIST OF APENDICIES

APPENDIX I:

CLASS-SIZE AND PUPIL-TEACHER RATIO DATA COLLECTION SHEET

1. Name of School: _____

2. Total School Enrolment: _____

3. Total Number of Pupils present: _____

   Male: _____ Female: _____

4. Number of Teachers: _____

   Male: _____ Female: _____

5. Total Number of Pupils in Standard V: _____

   Male: _____ Female: _____

6. Total Number of pupils in Standard VI: _____

   Male: _____ Female: _____

7. Number of Regular Classroom Teachers – (Teachers who work with students in their classroom each day):

Standard V: _____

Standard VI: _____

8. Class Size

Standard V: _____ Standard VI: _____

APPENDIX II:

PUPIL ACHIEVEMENT ANALYSIS COLLECTION SHEET

Table 1: Primary School Standard V Annual Examination, Results 2010 – 2012.

Year	Subject	**Candidates Sat**	**Passed**	**% Passed**
2010	Mathematics			
	English Language			
	Science			
2011	Mathematics			
	English Language			
	Science			
2012	Mathematics			
	English Language			
	Science			

Table 2: Primary School Standard VI Annual Examination, Results 2010 – 2012.

Year	Subject	**Candidates Sat**	**Passed**	**% Passed**
2010	Mathematics			
	English Language			
	Science			
2011	Mathematics			
	English Language			
	Science			
2012	Mathematics			
	English Language			
	Science			

APPENDIX III:

CLASS SIZE –PUPIL TEACHER RATIO CLASSROOM OBSERVATION FORM

1. Name of school: _____
2. Class: Std V/VI _____
3. Number of Students in the Classroom: _____
4. Number of Student Desks or Tables in the Classroom: _____
5. Number of Teacher Desks: _____
6. Size of Classroom: _____ Square Metre: _____
7. Available Square Metre for Circulation: _____

APPENDIX IV

TIME FRAME AND SCHEDULE OF ACTIVITIES

ACTIVITY	**2012**	**2012**	**2012**	**2012**	**2012**	**2012**	**2013**	**2013**
	July - Aug	**Aug**	**Aug**	**Sept-Oct**	**Nov**	**Dec**	**Jan-Feb**	**March**
Proposal writing and submission								
Preparation of instruments for Data collection								
Pre-testing Instruments for data collection								
Data collection								
Data analysis								
Report writing Submission of First draft of Report								
Correction of the First draft of report and Submission of the final Report								

APPENDIX V:

THE BUDGET

ITEM	**QUANTITY**	**AMOUNT**
1. Stationery		
Ream paper	5 Reams	50,000.00
Cartilage (printer's ink)	1 pc	150,000.00
Travel expenses	30 days	300,000.00
Substance	30 days	975,000.00
Typing	100 pages	100,000.0
Binding	6 copies	90,000.00
2. Proposal Development (Internet, typing, printing and binding costs)		100,000.00
3. Data Analysis		300,000.00
Total Costs		**2,065,000.00**
Contingency Costs (10%) of total costs		**206,500.00**
Grand Total		**2,271,500.00**