

**CLASSROOM-BASED FACTORS INFLUENCING TEACHING AND
LEARNING IN PUBLIC PRIMARY SCHOOLS IN UKWALA DIVISION
OF SIAYA COUNTY, KENYA**

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DECLARATION

This research project is my original work and has not been presented for award of degree in any other university.

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DEDICATION

This work is dedicated to my loving Mother Mary Anyango and Dad Thomas Onyango. My dear wife Maureen Anyango and children, Emma Atieno, Francis Oduor, Vincent Odhiambo and Charles Omondi. To you all thank you very much.

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ABBREVIATIONS AND ACRONYMS

ANOVA: Analysis of Variance

DEO: District Education Officer

DQASO: District Quality and Standards Officer

EDUSA: Education satellite

EFA: Education for All

FPE: Free Primary Education

FTA: Flander Interaction Analysis

FTI: Fast Track Initiative

GMR: Global Monitoring Report

GoK: Government of Kenya

ICT: Information Communication and Technology

INSET: In-Service Training

KESI: Kenya Education Staff Institute

MDG: Millennium Development Goals

MoE: Ministry of Education

MOEST: Ministry Of Education and Science and Technology.

PTR: Pupil Teacher Ratio

SACMEQ: Southern and Eastern Africa Consortium for Monitoring Educational
Quality

SEF: Self Evaluation Form

SPSS: Statistical Package for social Science

TSC: Teachers Service Commission

UNESCO: United Nations Educational, Scientific and Cultural Organisation

UNICEF: Nations Children's Fund

WEI: World Economic Indicator

Z QASO: Zonal Quality Assurance and Standards Officer

ABSTRACT

The purpose of this study therefore was to investigate the classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division Siaya County, Kenya in relation to Teacher: Pupils Ratio, Classroom Space, Adequacy of Teaching/Learning Materials and Classroom Interaction Patterns. The study employed a descriptive survey research design. The target population was 538 respondents comprising of 48 head teachers, 487 teachers and 3 education officers in Ukwala Division in Ugenya District, Siaya County. The sample size was 118 respondents which was made up of 9 head teachers, 108 teachers and 1 Zonal Quality Assurance and Standards Officers (ZQASOs). Data analysis was done using descriptive statistics after data cleaning and coding. Quantitative data was analyzed using frequency counts, means and percentages while qualitative data was analyzed by tallying the numbers of similar responses. Results of data analysis were presented using frequency distribution tables, bar graphs and pie charts. The study established that overcrowded classroom occasioned by high pupils' enrolment led to higher Teacher: Pupil Ratio and limited classroom space. This strains the use of the available teaching and learning resources and leads to poor classroom interaction resulting in inadequate and ineffective curriculum delivery. The study therefore recommends for employment of more teachers by the Government to cater for the increasing pupils population in public primary schools, and also to provide more funds to cater for the purchase of enough teaching and learning materials. The study also

recommended child-centered teaching method for effective classroom interaction through creation of a conducive and child-friendly classroom atmosphere.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Education forms the basis upon which economic, social and political development of any nation is founded. Investment in quality education can help to foster economic growth, enhance productivity, contribute to national and social development, and reduce social inequality (World Bank, 1998). United Nations Educational, Scientific and Cultural Organization (UNESCO 2005) argue that the level of a country's education is one of the key indicators of its level of development. Globally, education is recognized as a basic human right.

Bishop (1989) indicates that in 1948 the Universal Declaration of Human Rights laid down Article 26 which states that everyone has a right to education and that this education shall be free and compulsory. It went on to say that education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. If education is viewed as a human right, then EFA implies education for everybody since everybody must have that right. The challenge towards this drive is how to indeed make education available to all and in good quality (UNESCO, 2005).

Primary education is the first stage of compulsory education. It is preceded by pre-school or nursery education and is followed by secondary education. This stage of education is usually known as elementary education. In most countries, it

is compulsory for children to receive primary education although it is permissible for parents to provide it. The major goals of primary education are achieving basic literacy and numeracy amongst all pupils, as well as establishing foundations in science, mathematics, geography, history and social sciences. (Harrington, 2008)

Quality education is the sixth goal of Education for All (EFA), and after a period of focus on access and implementation of free primary education in Kenya, there is increasing attention being paid to the quality of 'free education' or the impact of the 'free education' on the quality of education on offer. There are several ways of assessing quality, some based on empirical evidence, others on intuitive judgment and perceptions. What is clear according to research is that how well pupils are taught and how much they learn have an impact on the kind of interest they will have in schooling (Fehrer, 2007).

Parents send their children to particular schools depending on judgments they make about the quality of teaching and learning provided in those schools (Guzman, et al (2008). According to Ministry of Education, Science and Technology, MOEST (2002) the variables of quality education are: The type of curriculum offered, teaching/learning materials, equipments, physical facilities, finance, teaching force, and school and institutional management.

The key characteristics of quality teaching can be summarized as: Highly focused lesson design with sharp objectives; High demands of pupil involvement and engagement with their learning; High levels of interaction for all pupils;

Appropriate use of teacher questioning and teaching resources, modeling and explaining; An emphasis on learning through dialogue, with regular opportunities for pupils to talk both individually and in groups; An expectation that pupils will accept responsibility for their own learning and work independently; Regular use of encouragement and authentic praise to engage and motivate pupils (Schmoker, 2006).

The world conference on EFA held in Jomtien – Thailand in 1990 and subsequently in Dakar Senegal in 2000 initiated a significant global educational agenda. An agenda that not only emphasized the need for improved access to education of all school aged children but also learning and acquisition of quality basic education and skills training, thereby enabling the possessor to participate actively in the various economic activities of a nation as articulated in Global Monitoring (GM 2008). The Kenya Government became a partner in this great global educational agenda in 2003 through the introduction of Free Primary Education.

Obiero (2005) carried out the study on Assessment of the impact of Free Primary Education (FPE) in Gucha District, Kenya using a descriptive survey method. He said FPE has positive and negative impacts on quality of education in schools. In some cases teachers commented positively that FPE has improved performance. On the negative side FPE has declined the quality of education in schools. Since pupils were not allowed to repeat classes, those who performed poorly proceeded to the next class without merit. Also understaffing of teachers due to few teachers

and large classes has contributed to the decline in quality of education. This study did not mention factors related to classroom that led to decline in quality of education.

Gakuru (2005) also carried out the same study in Mwingi District, Kenya using same study methodology. The findings of the study revealed that the quality of education in the district had improved remarkably because pupils spent more time in school and teachers were able to complete the syllabus. It was also reported that the quality of education had improved as a result of sufficient teaching and learning materials provided by the government. At the same time the provision of charts and maps made learning of science and social studies easier for the pupils. Although, some groups argued that the introduction of FPE had led to deterioration in the quality of education. They argued that there were larger numbers of pupils and classes were too big to manage. Teacher pupil interaction was minimal and one can only move with the brighter pupils in class leaving the slow learners unattended. The decline in the quality was also related to the inadequacy of facilities, such as desks and textbooks (Gakuru, 2005).

Wasanga (2005) carried out the same study in Nairobi. He also concurred with the above researchers. He noted that teaching and learning materials are of great importance to pupils' performance. Provision of textbooks has made teaching easier. Since pupils have textbooks, they can now read ahead of the teacher. This has improved the quality of education.

This study therefore sought to investigate in specific terms the classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division, Siaya County.

1.2 Statement of the problem

Free Primary Education (FPE) as currently practiced in Kenya, has led to abolition of school fees, and provided instructional materials such as textbooks and reference materials, besides other illustrational materials. To some extent funds for co-curricular activities are also provided. School levies that prevented many children from attending school have now been minimized (Aduda, 2005).

This situation has led to increased enrolment by children from diverse backgrounds with some children being over age. Teachers have had to cope with large class sizes. The school facilities such as classroom sitting and writing spaces are greatly strained. Textbook to Pupil ratio has gone up standing at 1:5. Some Teachers especially in rural areas handle two classes owing to big enrolment of pupils. Close interaction between teachers and pupils is not possible. Teachers are busy all the time as they have too much work (Mwenda, 2009).

A UNESCO (2005) study has commended the FPE on grounds that it has increased access to education and provided instructional materials which were a big hindrance to quality education therefore alluding to the fact that the quality of education has improved. On the other hand, the same study casts doubt on the

education provided due to increased enrolment that has made the work of teachers difficult besides having a heavy strain on the physical facilities of schools.

The UNESCO study did not pinpoint in specific terms how increased class size with children of diverse backgrounds have affected classroom instruction and consequently teaching and learning. Further the study did not state how increased teachers/pupil ratio, Pupils classroom space, Scarcity or unavailability of teaching and learning materials as well as classroom interactions have influenced teaching and learning in Public Primary Schools. This study therefore was to address these concerns and articulate in specific terms the classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division Siaya County, Kenya.

1.3 Purpose of the study

The purpose of this study was to investigate the classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division, Siaya County, Kenya

1.4 Research objectives

The following objectives guided the study:-

- i. To establish the influence of Teacher/Pupils ratio on teaching and learning in public primary schools in Ukwala Division, Siaya County.

- ii. To assess how adequacy of teaching and learning materials influences teaching and learning in public primary schools in Ukwala Division, Siaya County.
- iii. To establish the influence of pupils' classroom spacing on teaching and learning in public primary schools in Ukwala Division, Siaya County.
- iv. To investigate how classroom interactions influence teaching and learning in public primary schools in Ukwala Division, Siaya County.

1.5 Research questions

From the objectives of the study, the following research questions were formulated:-

- i. How does Teacher/Pupils ratio influence teaching and learning in public primary schools in Ukwala Division, Siaya County?
- ii. How does the adequacy of teaching and learning materials influence teaching and learning in public primary schools in Ukwala Division, Siaya County?
- iii. What is the influence of pupils' classroom spacing on teaching and learning in public primary schools in Ukwala Division, Siaya County?
- iv. To what extent does classroom interactions influence teaching and learning in public primary schools in Ukwala Division, Siaya County?

1.6 Significance of the study

With the implementation of FPE policy in public primary schools, it is of great importance that teachers establish effective instructional methods /techniques to meet the needs of the learners. The information proposed by this study would be useful to the teachers.

The findings would be useful to the Kenya Education Management institute (KEMI) in designing in-services training (INSET) courses geared towards developing the capacity of Quality Assurance and Standards Officers (QASOs) to improve and/or maintain the quality of teaching and learning in class.

The study would also add to the body of knowledge on teaching and learning in primary education besides filling gaps in research which could prompt other researchers to do similar studies in other regions or levels of education.

1.7 Limitation of the study

The study had certain limitations because it depended on the co-operation of the respondents. The researcher did not have control over the attitudes of the respondents which could affect the validity of the responses. The respondents might have given the socially acceptable answers to avoid offending the researcher, but not honest. The responses provided in the study could also be affected by wrong interpretation by the respondents and therefore affected the validity and reliability of the study. To overcome these limitations the researcher used well constructed data collecting instruments to avoid ambiguity. The purpose

of the study was also stated at the beginning of every questionnaire and verbally explained to assure them that their responses serve no other purpose except for study.

1.8 Delimitation of the study

The study was carried out in Ukwala Division Siaya County, Kenya. The Division has three zones namely: Gaula Zone, Sega Zone and Nyaharwa Zone. The study was address Classroom-Based factors influencing teaching and learning in public primary schools in Ukwala Division, Siaya County in relation to Teacher/Pupil Ratio, Pupils classroom space, Adequacy of teaching and learning resources and classroom interactions. Nine (9) Head teachers and one hundred and eight (108) teachers participated in the study, together with the one (1) Zonal Quality and Standards Officer (ZQASO) from Ukwala Division. Data was collected using questionnaires for head teachers and teachers. Interview schedule was used for ZQASO. Observation checklist was employed during classroom observation.

1.9 Basic Assumptions of the study

This study was based on the following assumptions:

- i. The respondents would provide accurate, truthful and honest responses to the items.
- ii. Most public primary schools had proper guidelines and clear insight on the Ministry of Education policy on Quality Education.

- iii. That all schools in Ukwala Division had implemented FPE policy and were participating in all programs under FPE.
- iv. That all primary schools in Ukwala Division had basic facilities and resource materials for teaching and learning.
- v. ZQASO's conduct regular supervision in primary schools in Ukwala Division to enhance the quality of teaching and learning as the standards of Ministry of Education.

1.10 Definition of significant terms

Teaching and learning: refers to the interaction between the teacher and the pupils' in which the former impart knowledge, skills and attitude to the latter during the teaching-learning process.

Classroom-based factors: refers to the elements within the classroom set up that influence the teaching-learning process. Such includes teacher: pupil ratio, teaching/learning materials, and classroom spacing and teacher/learner interactions.

Teacher/Pupil Ratio: refers to the average ratio of teacher to pupil in a class.

Pupils' classroom spacing: refers to classroom physical space in relation to the number of pupils' within the classroom. In particular it entails the number of pupils' sitting per desk as well as the accommodative aspect of the classroom for teaching and learning process.

Teaching and learning materials: refers to materials used in the teaching and learning process. Such Includes textbooks, charts, wall maps, concrete object and other learning aids used by the teacher for reinforcement of the lesson

Classroom interaction: refers to the interaction between the teacher and the pupils' during the teaching and learning.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, the researcher presents a review of literature related to the study. The chapter first covers literature on the concept of teaching and learning and global status of teaching and learning. Then literature is reviewed on the challenges related to classroom-based factors influencing teaching and learning in public primary schools in Kenya, among them are challenges related to Teacher/Pupil ratio, Pupils classroom space, Adequacy of Teaching and Learning resources and Classroom interaction. Finally, summary of literature reviews, theoretical framework and conceptual framework of the study are presented.

2.2 Concept of teaching and learning

Teaching can be defined as a dialogical process through which person A brings about learning in person B in a responsible and authoritative manner (Olela,1988). Learning is a relatively permanent change in behavior potentiality which occurs as a result of reinforced practice (Kimble, 1961). Learning is a relatively permanent process resulting from and reflected in a change in performance (Logan, 1969). Most classroom learning is not accompanied by observable changes in pupils' behavior. However in order to demonstrate that learning has actually occurred, it is necessary to use the criterion of overt behavior change. This observable behavior change can take forms in the classroom. It can for

instance, be improvement in the scores obtained on a test, or it can be an improvement in the speed at which a given task is performed (Munavi, 1992).

2.3 Global status of teaching and learning

Basic primary education underpins the success of a society. The goal of education is to enable children learn, realize their full potential and participate meaningfully in society. In spite of increasing enrolment due to universal primary education (UPE) policy, too many children are learning far less than what they are taught about or what they ought to learn (UNICEF,2006).This low learning achievement is most frequently due to a combination of factors that includes inadequate learning environment, inappropriate teaching method and frequently unmotivated teachers and pupils’.

A World Bank survey in Bangladesh for instance found four out of five children who had completed five years of primary schooling failed to attain a minimum learning achievement. A study of more than 60 countries on the monitoring of learning achievement project revealed that only 5% of primary school pupils surpassed the minimum level of learning achievement (UNESCO, 2000).

The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ, 2008) survey found that over half the Grade 6 pupils in many African countries reported learning in classrooms that did not have a single book. Retention and learning are also hampered when pupils attend school in dilapidated or overcrowded buildings, in noisy or unsafe environments, or,

especially, in classrooms that are inadequately supplied or poorly lit and ventilated. In the SACMEQ countries, 47% of school buildings were reported to need major repairs or complete rebuilding; only 13% were listed in 'good' condition.

Teacher shortage is a major problem, particularly in the developing world, where Pupil/Trained teacher ratios (PTR) can reach 40:1 or more (the average for North America and Western Europe is 15:1). In the developing world this shortage is exacerbated by an even more acute shortage of adequately trained teachers. Exceedingly high PTRs (above 100:1) were found in Afghanistan, Chad, Madagascar, Mozambique and Nepal, and high ones (above 40:1) in Sub-Saharan Africa (SACMEQ, 2008).

2.4 Teaching and learning in public primary schools in Kenya

In Kenya all education stakeholders recognize that quality education at all levels will enable Kenyans to utilize their natural resources efficiently and effectively in order to attain and maintain desirable lifestyles for all Kenyans (Munavu, 2008).

Following the National Rainbow Coalition Government (NARC) intervention in January 2003, the numbers of primary school going children rose from 6.3 million to 7.6million by the end of the year there was an increase of 1.3million in enrolment. (UNESCO, 2005).However, while primary education has increased enrollment of pupils in schools, it has at the same time created considerable problems such as inadequacy of teaching and learning resources, higher

teacher/pupil ratio, inadequate classroom space and poor interaction between teachers and learners.

Gichuru (2005) carried out a study entitled “Free Primary Education assessment Report in Embu District”. Findings from the study revealed that, teachers complained of lack individual attention, due to the large numbers of pupils. This has greatly contributed to the poor quality of instruction; parents complained that quality of instruction had gone down because of the influx of pupils, inadequate teachers and enrolment of school dropouts.

Wasanga (2005) carried out the same study in Nairobi. He also concurred with the above researchers. He noted that teaching and learning materials are of great importance to pupils’ performance. Provision of textbooks has made teaching easier. Since pupils have textbooks, they can now read a head of the teacher. This has improved the quality of education.

2.5 Classroom-based factors influencing teaching and learning in public primary schools

The goal of this study was to find out the classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division, Siaya County. These factors are related to Teacher-Pupil ratio (TPR), Adequacy of teaching and learning materials, Pupils classroom spacing and Classroom interactions. Some of the expected challenges are presented below.

2.5.1 Teacher-pupil ratio as a factor influencing teaching and learning

Teacher – Pupils ratio refers to the number of pupils who attend school divided by the number of the teachers in the institution. According to Benbow (2007) an ideal pupil-teacher ratio should be 40:1. In Ethiopia, Verwimp (1999) found a negative correlation between the quality of teaching and the pupil-teacher ratio. However, the Ethiopian study is quick to acknowledge that class size is not a relevant variable in the quality debate while time allocation of teacher is.

A study covering 11 of the 19 countries in the World Economic Indicators (WEI) program reports lower pupil-teacher ratios for the participating countries. Most WEI-countries (India, Philippines, Malaysia, Sri Lanka, Tunisia, Peru, Argentina, Brazil, Chile, Paraguay and Uruguay) had pupil teacher ratios in the range of 20 to 30. India had the highest number (59), especially in villages (Zhang, 2008). Malaysia had the lowest number, with an overall pupil-teacher ratio of 18, but 15 pupils per teacher in village schools. In Kenya the pupil-teacher ratio in public primary schools was 43 in 2005 and 50 in 2007 (Government of Kenya, 2008). An indication that either the number of teachers is declining or the number of pupils is growing at a much faster rate than that of teachers.

The recommended pupil-teacher ratio for public primary schools in Kenya is 40 (Teachers Service Commission, 2005). Advocates of smaller class-sizes argue that they provide better instruction, more individual attention to students, and

accommodate the growing diversity in schooling. This study was to find out how Teacher-Pupil Ratio influences teaching and learning at the classroom level.

2.5.2 Adequacy of teaching and learning materials as a factor influencing teaching and learning

The adequacy and use of teaching and learning materials affects the effectiveness of a teacher's lesson. Teaching and learning resources enhances understanding of abstract ideas and improves performance. Schneider (2003) found out that school facilities have a direct effect on teaching and learning. Text books enable the pupils to follow the teacher's sequence of presentation and aids in understanding of lessons (Ubogu, 2004). With the provision of resources by the Free Primary Education (FPE) children are expected to be responsible for their learning using the provided resources.

Textbooks are an important resource in teaching and learning. With the introduction of FPE in 2003, the Ministry of Education provided a list of approved textbooks in all subjects. Schools following the 8-4-4 curriculum were expected to choose from the approved list of books. Approval is made based on the recommendations of the Kenya Institute of Education, which is a government agency charged with curriculum development in all public learning institutions under the Ministry of Education except universities. Government policy on pupil-textbook ratio stipulates that lower primary grades 1-4 should have a ratio of at

most 3:1 while upper primary should have a ratio of at most 2:1 in all main subjects (Ministry of Education 2010).

2.5.3 Pupils' classroom spacing as a factor influencing teaching and learning

According to UNESCO (2006) the minimum student classroom space should be 1.5 square meters per pupil with one-seater desk, which would translate to 67.5 square meters for a room expected to hold 45 students. The Ministry of Education recommends a 7.5m x 6.0m classroom (Government of Kenya, 2000). This translates to 45 square meters or about 1 square meter per child in a room with 45 children. Currently, the Ministry is working on a standard of a classroom area of 61.9 square meters for 40 pupils with a one-seater desk. Most schools had student spaces that were below the required benchmark. In Kenya, Government-owned schools had the least student average physical space. This is largely due to the large class sizes witnessed after the introduction of FPE.

The main concerns of the classroom physical space include: safety and accessibility to learning; arrangement of furniture; and the teachers' use of physical resources. Adequate space allows the teacher and student, for example, to plan a display of work, move furniture to facilitate a group project, or to shift supplies to improve traffic flow (UNESCO, 2006).

In a typical Kenyan classroom, desks are lined up in the traditional neat rows, facing the teacher's desk. In a few occasions and when space allows, teachers arrange desks in cooperative groups of few learners or the U-shaped configuration, where everyone has a front row seat (Ministry of Education, 2010). This study therefore was to find out how the classroom physical spacing influence teaching and learning in public primary schools.

2.5.4 Classroom interaction as a factor influencing teaching and learning

Interaction or human interaction has been defined as a process whereby two or more people engaged in reciprocal actions. Interaction in the classroom is an essential part of teaching learning process. This action may be verbal or nonverbal Interaction occurs every day in the classroom activities between the teacher and the learners (Celce-Murcia, 1987).

Cameron (2001) emphasizes that teaching is a process to construct opportunities for learning and to help learners take advantages of them. In a teaching learning process, the teachers should be able to help the students in constructing understanding towards the lesson.

Flanders (1970) originally developed a research tool, namely Flanders Interaction Analysis (FIA). FIA is a system of classroom interaction analysis and became widely used coding system to analyze and improve teaching skills. Flanders coding system consists of ten categories of communication which are said to be inclusive of all communication possibilities. Seven categories are used to

categorize various aspects of teacher talk and two are used to categorize student talk. The last category is used when there is silence or confusion in the class.

Walberg (1986) in Inamullah (2005) collected more than 3,000 studies, and then carefully analyzed them to determine how important each particular element was in student learning. From his result, he compiled a list of weighted factors selected from his overall list of elements that are very closely related to teacher behavior in the classroom. The selected elements consisted of academic learning time, use of positive reinforcement, cues and feedback, cooperative learning activities, classroom atmosphere, high order questioning, and use of advance organizers.

The quality of teacher/student interactions (in terms of encouragement or discouragement), and the way in which classes are grouped randomly or by ability will all affect not only the effectiveness of the teacher in imparting knowledge and developing skills but also the quality of classroom experience for the students. This study therefore was to find out the classroom interaction patterns that influence the teaching and learning in public primary schools Ukwala Division, Siaya County.

2.6 Summary of the literature review

This chapter outlines some of the major studies carried out in relation to the teaching and learning process. UNESCO (2000) carried out a study on the

monitoring of learning achievement in primary schools. Gichuru (2005) carried out a study entitled “Free Primary Education assessment Report in Embu District. Schneider (2003) carried out a study on the effect of school facilities on teaching and learning. Verwimp (1999) carried out a study on correlation between the quality of teaching and the pupil-teacher ratio in Ethiopia among other studies. None of these studies addressed the classroom-based factors which influence teaching and learning in primary schools. This study therefore aimed at providing information to fill this gap.

2.7 Theoretical framework

The study employed Dick & Carey system approach model to find out the classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division, Siaya County. This model is one of the most influential design system oriented model. Like most models, it bears the conventional core elements of Analysis, Design, Development and Implementation also known as ADDIE model (Dick & Carey (2001).

The components for the model stated by Dick & Carey (2001) consist of nine procedural steps or linear sequences. Each of the components is dependent upon one another. The sequential steps for the design or model are as follows: Assess needs to help identify learning goals; Conduct instructional analysis and analyze learners and context; Write performance objectives; Develop and select instructional material; Design and conduct formative evaluation; Revise

instruction based from formative evaluation; Design and conduct summative evaluation(Dick Carey & Carey 2001,Gustafon &Branch 2002).

The applicability of the theory in the study can be seen in the fact that all the theoretical Concepts – need assessment instructional analysis, performance objectives, instructional materials and evaluation – have a bearing on teaching and learning. Using the theory, the study was to unearth the classroom-based factors influencing teaching and learning in public primary school in Ukwala Division, Siaya County.

2.8 Conceptual framework

Fig. 2.1: Classroom-based factors influencing teaching and learning in public primary schools.

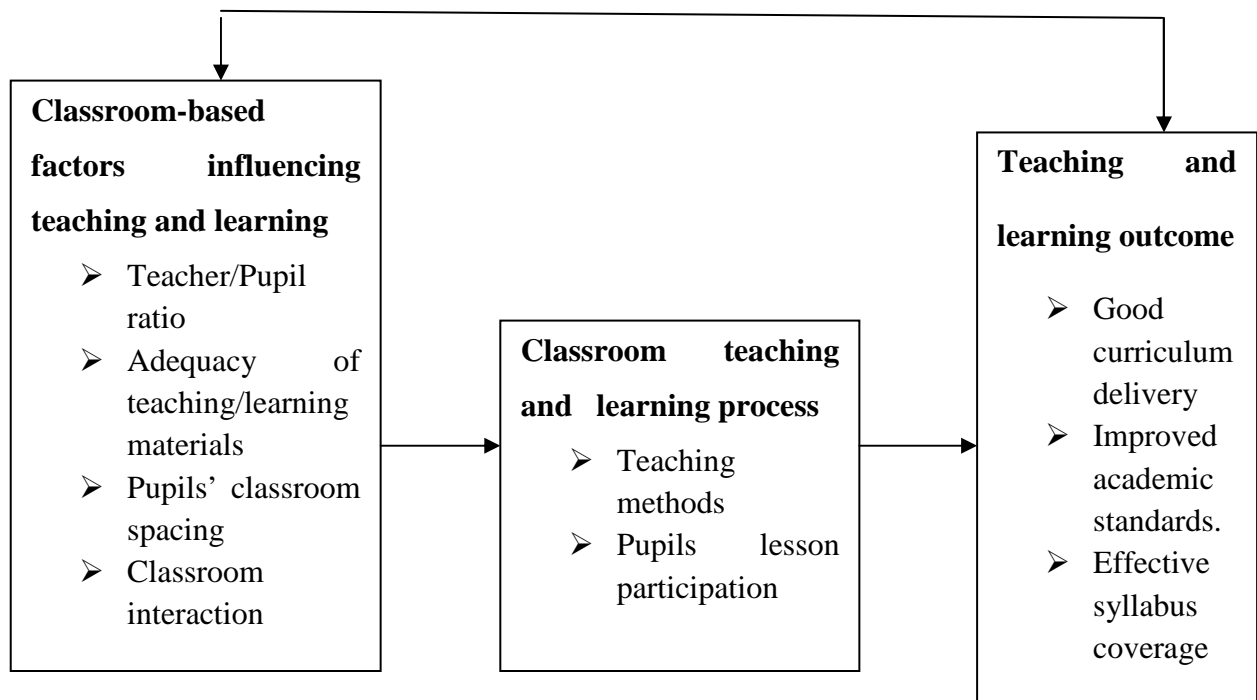


Figure 2.1 shows the relationship between the dependent and independent variables of the study. As shown in the figure, Teaching and Learning which is the dependent variable could be affected by Teacher-Pupil Ratio, Adequacy of teaching and learning materials, Pupils classroom spacing and Classroom interactions. The outcome of the teaching and learning process in the classroom will reflect good curriculum delivery, improved academic standards and effective syllabus coverage. The study clearly showed the relationship between these variables.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the descriptions of methods that were used to carry out the study. The subsections includes research design, target population, sampling procedures and sample size, research instrumentation and their validity and reliability, methods of data collection and data analysis.

3.2 Research design

The study employed a descriptive survey research design. Descriptive survey research designs are used in preliminary and exploratory studies to allow researchers to gather information, summarize, present and interpret for the purpose of clarification (Orodho, 2002). Lawson (1971) descriptive research is concerned with conditions that already exist, practices that are held, processes that are ongoing and trends that are developing. Descriptive survey research design is most appropriate when the purpose of study is to create a detailed description of an issue (Mugenda & Mugenda, 1999). Descriptive survey studies are concerned primarily with determining “what is” (Mutai, 2000). Therefore, descriptive survey in education while simple in design and execution can yield important information about a phenomenon. Descriptive survey design is thus most appropriate for this study because the purpose of the research is to create a

detailed description of a phenomenon surrounding classroom-based factors influencing teaching and learning in public primary schools.

3.3 Target population

Target population is defined as all the members of a real or hypothetical set of people, events or objects to which a researcher wishes to generalize the results of the research study (Borg & Gall, 1989). The target population of this study was 538 respondents which consisted of 48 head teachers, 487 teachers from the 48 public primary schools within Ukwala Division of Siaya County and three (3) Zonal Quality Assurance and Standards Officers (ZQASOs).

3.4 Sampling size and sampling procedure

Sampling means selecting a given number of subjects from a defined population as representative of that population. Any statements made about the sample should also be true of the population (Orodho, 2002). It is however agreed that the larger the sample the smaller the sampling error (Gay, 1992). Gay (1992) recommends that when the target population is small (less than 1000 members), a minimum sample of 20% is adequate for educational research. From the 538 members of the target population, the researcher used proportionate sampling to select 118 participants. This formed 21.9% of the target population, which is in line with Gay's (1992) recommendation. Using proportionate sampling, there were 9 head teachers and 108 teachers. The 3 ZQASOs were purposively selected.

Table 3.1 presents the sampling matrix.

Table 3.1: Sampling Matrix

Description	Population	Sample size
Head teachers	48	9
Teachers	487	108
ZQASOs	3	1
Total	538	118

3.5 Research instruments

The main tools of data collection for this study were questionnaires, interview schedules and observation checklist.

3.5.1 Questionnaires

The questionnaires were used for data collection because they offered considerable advantages in the administration. They also presented an even stimulus potentially to large numbers of people simultaneously and provided the investigation with an easy accumulation of data. Gay (1992) maintains that questionnaires give respondents freedom to express their views or opinion and also to make suggestions. It is also anonymous. Anonymity helps to produce more candid answers than is possible in an interview. The questionnaires will be used to collect data from head teachers and teachers. The researcher constructed the

questionnaires and personally delivered them to various schools which the respondents filled and returned them after two weeks.

3.5.2 Questionnaires for head teachers'

The questionnaire for head teachers comprised of four sections. Section 1 collected the background information of head teachers. Each of the other three sections collected information related to Teacher/Pupil Ratio, Adequacy of teaching/ learning resources, Pupils classroom space and Classroom interactions patterns. The questionnaire will have both close-ended and open-ended items.

3.5.3 Questionnaires for class teachers'

The questionnaire for teachers consisted of four sections: Section one collected the background information of teachers. Each of the other three sections captured information related to Teacher/Pupil Ratio, Adequacy of teaching/ learning materials, Pupils classroom space and Classroom interaction pattern.

3.5.4 Interview schedules

Interview schedules were used to guide interviews to be conducted with the ZQASOs on the classroom-based factors that influence the quality of education in public primary schools in Ukwala Division. The interview guides contained items covering all the objectives of the study. The researcher took a maximum of 30 minutes to interview the ZQASO.

3.5.5 Observation checklist

This method was employed because it is a qualitative primary research instrument for gathering data in a more natural way that ensures validity and reliability. In this study, the researcher made direct observation in the classroom to collect data concerning the classroom interaction patterns. Direct observations technique is suitable for such a descriptive study because it is objective –unbiased and facilitates derivation of more authentic data.

3.6 Validity

Validity is defined as the accuracy and meaningfulness of inferences, which are based on the research results (Mugenda & Mugenda, 1999). In other words, validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under study. Validity, according to Borg and Gall (1989) is the degree to which a test measures what it purports to measure. All assessments of validity are subjective opinions based on the judgment of the researcher (Wiersma, 1995). The pilot study would help improve face validity of the instruments. According to Borg and Gall (1989) content validity of an instrument is improved through expert judgment. As such, the researcher got assistance from his supervisors, who are experts in research to improve content validity of the instruments.

Before the actual data collection, the researcher conducted a pilot study from the six schools which were not included in the final study from Gaula zone, Ukwala

Division. From each of the schools, the head teacher and two teachers were selected randomly. One Zonal Quality and Standard Officer who was not included in final study was involved in the piloting.

3.7 Reliability

Mugenda and Mugenda (2003) define reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trial. The pilot study enables the researcher to assess the clarity of the questionnaire items, so that those items found to be inadequate or vague will be modified to improve the quality of the research instrument thus increasing its reliability. Split-Half technique of reliability testing was used, whereby the pilot questionnaires were divided into two equivalent halves and then a correlation coefficient for the two halves computed using the Spearman Brown Prophecy formula. The coefficient indicates the degree to which the two halves of the test provide the same results and hence describe the internal consistency of the test. According to Kiess and Bloomquist (1985) a minimum correlation coefficient of 0.65 is recommended as indicating that an instrument is reliable, and therefore the coefficient lies within this range.

3.8 Data collection procedure

A research permit was obtained from the National Council for Science and Technology after approval by the University of Nairobi, Department of

Educational Administration and Planning. Thereafter, Ukwala Division Education Office through the District Education Office was contacted before the start of the study. The researcher personally administered the questionnaires to the head teachers, teachers and interview the ZQASOs as well as carry out the classroom observation. The selected head teachers were visited in their schools and the questionnaires administered to the respondents. Classroom observation was conducted by the researcher. The head teachers and teachers were given one week to fill in the questionnaires after which the filled-in questionnaires were collected. A face-to-face interview was conducted with ZQASO.

3.9 Methods of data analysis

After the data collection from the questionnaires, interview schedules and observation checklist, the researcher conducted data cleaning which involves identification of incomplete or inaccurate responses, which were corrected to improve the quality of the responses. After data cleaning, the data was coded and entered in the computer using statistics package for social sciences (SPSS) for analysis. Qualitative data was analyzed qualitatively using content analysis based on analysis of meanings and implications emanating from respondents information and documented data. Likert scale was used to gather qualitative data. As observed by Gray (2004) qualitative data provides rich descriptions and explanations that demonstrate the chronological flow of events as well as often leading to serendipitous (chance) findings. On the other hand, quantitative data

was analyzed using various statistics including measures of central tendency and dispersion. Simple descriptive statistics was employed to analyze quantitative data. The statistics used included frequency counts, means and percentages.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter covers analysis of data and the findings of the study. The general objective of the study was to investigate the classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division, Siaya County, Kenya. The first section of the chapter presents the demographic data of the respondents. Section two presents data on teacher-pupils ratio and its influence on teaching and learning process in public primary schools in Ukwala Division. Section three of the chapter covers data on availability of teaching and learning materials and its influence on teaching and learning process in public primary schools in Ukwala Division. Section four covers data on classroom spacing and its influence on teaching and learning process in public primary schools in Ukwala Division. Finally section five presents data on classroom interaction patterns and its influence on teaching and learning process in Ukwala Division.

4.2 Questionnaire return rate

From a sample of 9 head teachers, all filled the questionnaires making a response rate of 100%. Besides, out of 108 class teachers' sampled, 91 responded by filling-in the questionnaires making a response rate of 84.3%. However 17

questionnaires were unusable representing 15.7%. Table 4.1 shows the response return rate.

Table 4.1: Response return rate

	Sampled	Returned	Percentage
Head teachers'	9	9	100
Class teachers'	108	91	84.3
Total Questionnaires	117	100	85.4

This response rate was excellent for statistical inference as it conforms to Mugenda and Mugenda(1999) stipulation that a response rate of 50% is adequate for analysis and reporting, a rate of 60% is good and a response rate of 70% and over is excellent.

4.3 Demographic characteristics of the respondents

The study sought demographic data of the respondents including gender, level of education, and work experience. The study was carried out in public primary schools in Ukwala Division, Siaya County, Kenya. It was conducted among 9 head teachers and 108 teachers and 1 Zonal Quality and Standard Officer. There was an even number of male and female class teachers who participated in the study, 50% males and 50% females. The ZQASO was a male and had a Masters Degree and had worked for 14 years in different stations as a quality and standard

officer. 74.8% of the head teachers were males and 25.2% females. The study sought to find out the education levels of head teachers. Table 4.2 shows the respondents' level of education.

Table 4.2: Education levels of head teachers'

Education level	Frequency	Percentage
Masters Degree	0	0.0
Bachelor's Degree	2	22.0
Diploma	3	33.0
P1	4	44.0
Total	9	100

Table 4.2 shows 44% of head teachers had PI certificates, 33% had Diploma certificate and 22% had Bachelors' degree. None had a Master degree.

An item was included in the questionnaire to find out the education level of class teachers' as shown in Table 4.3.

Table 4.3: Education levels of class teachers'

Education level	Frequency	Percentage
Masters Degree	0	0.0
Bachelor's Degree	10	10.9
Diploma	27	29.6
P1	54	59.3
Total	91	100

Table 4.3 above shows that 59.3% of class teachers had PI certificate, 29.6% had a Diploma certificate and 10.9% of the teachers had a Bachelor's degree. None had a Masters degree. Teachers need various skills in order to cope with the demands of their teaching tasks. Such skills can be attained through formal training and also in the field. It is encouraging to note that some class teachers had Bachelor's degrees.

The researcher sought to establish the head teachers work experience in the schools. The number of years worked were grouped as 1-3 years,4-6 years,7-10 and over 10 years. Figure 4.1 shows their response.

Fig. 4.1: Head teachers' working experience

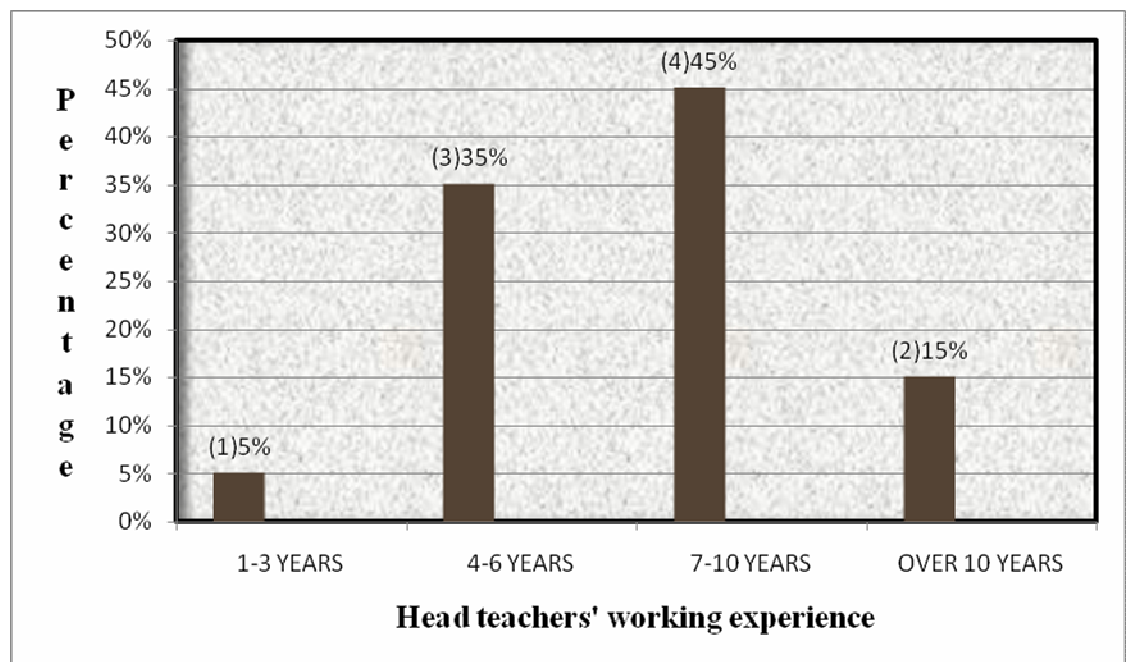
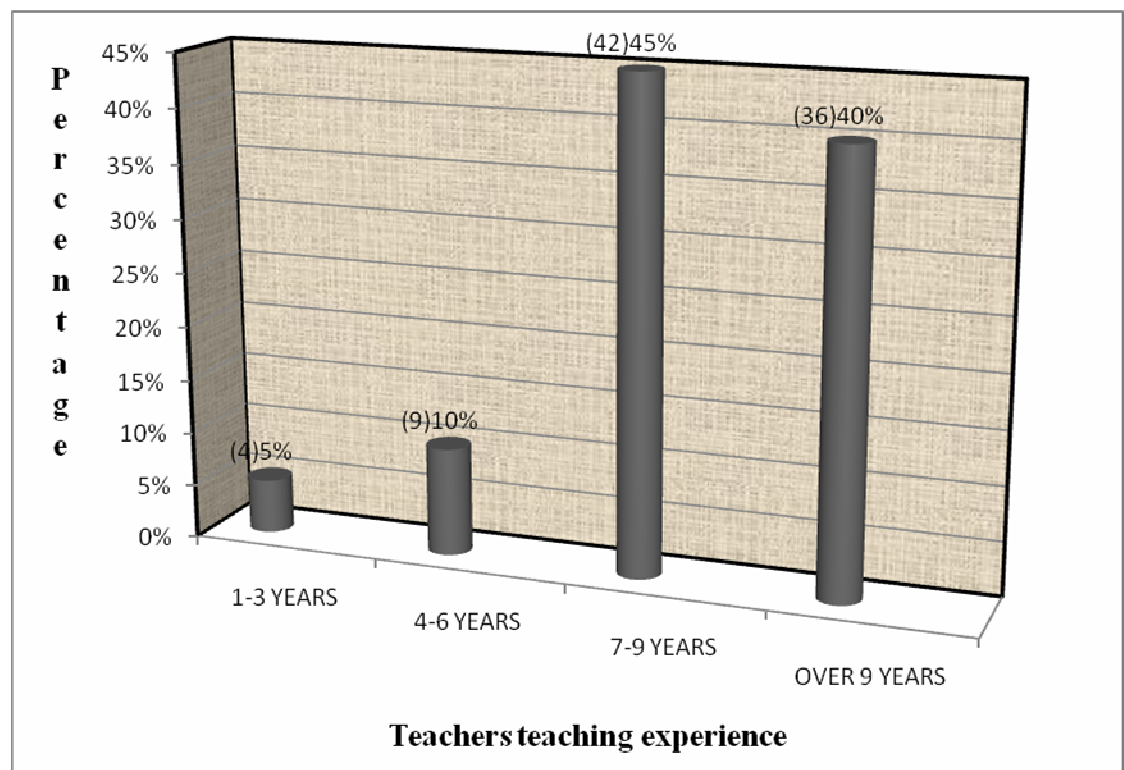


Figure 4.1 above shows that 45% of the head teachers had worked for 7-10 years, 35% between 4-6 years, 15% over 10 years and 5% between 1-3 years. Based on these results, it can be concluded that majority of the head teachers had worked for a long time therefore had enough experience to do their jobs accordingly.

Figure 4.2 depicts the class teachers teaching experience ranging from 1-9 years and above.

Fig. 4.2: Class teachers' teaching experience

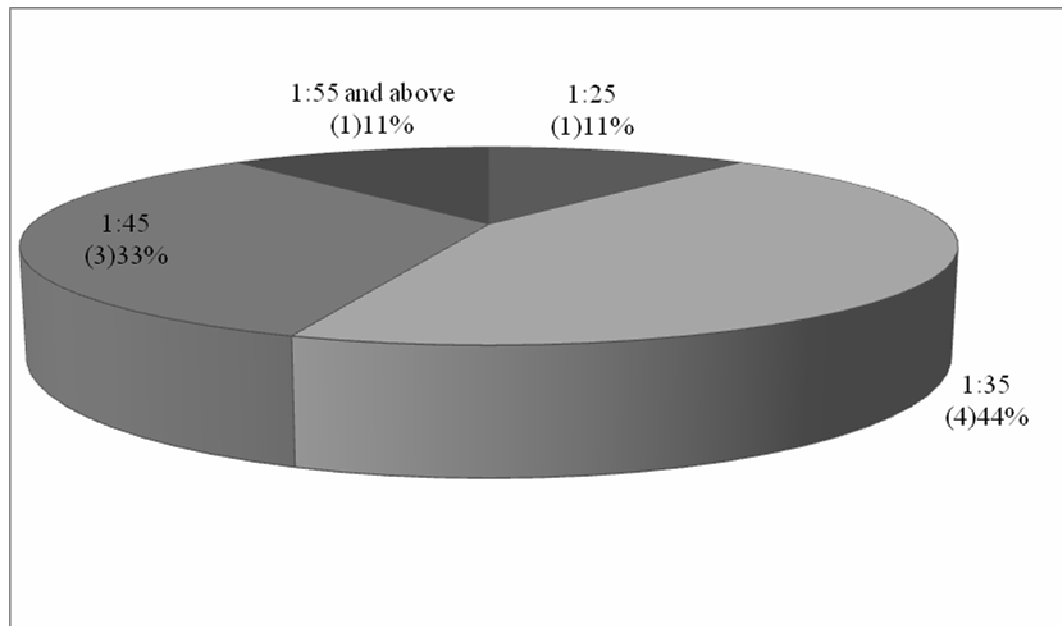


Information from figure 4.2 above shows that 5 % of the teachers had taught for less than 3 years, 10% had a teaching experience of 4 to 6 years, 45% had taught for 7 - 9 years while 40% had a teaching experience of 9 years and above.

4.4 Teacher-pupil ratio as a factor influencing teaching and learning

The first research question was to establish the influence of Teacher: Pupil ratio on teaching and learning in public primary schools in Ukwala Division, Siaya County. The study sought to find out the impact of teacher: pupil ratio on teaching and learning process. To determine this head teachers' were asked to rate the average ratio of teacher to pupil in a class to which they responded as shown in Figure 4.3.

Fig. 4.3: Head teachers' rating of the average teacher-pupil ratio



From the figure 4.3, 44% of schools had an average of Teacher: Pupil Ratio of 1:35 while 33% had an average of Teacher: Pupil Ratio of 1:45. 11% had Teacher: Pupil Ratio of 1:55 and above and 11% had Teacher: Pupil Ratio of 1:25. From the data above it is clear that nearly half (44%) of the schools in the

Ukwala Division has a higher Teacher: Pupil Ratio than the recommended ratio by the Ministry of Education. The recommended Teacher: Pupil Ratio for public primary schools in Kenya is 1:40 (Teachers Service Commission, 2005). The head teachers from schools with a higher Teacher: Pupils' Ratio commented that such higher ratio makes teaching tiresome on the part of the teacher and also hampers individual attention. One head teacher reported that higher Teacher: Pupil Ratio had compromised the academic standards of the school because teachers don't cover the syllabus competently.

The higher Teacher: Pupil Ratio in the division as shown by the findings above has negatively influence teachers' workload as most schools were under-staffed. The ZQASO, in an interview noted that the rise in pupils' enrolment was not commensurate with staffing. He also indicated that teachers were few, and also lacked enough time to give individual attention to pupils as required thus affecting curriculum delivery and implementation. Most teachers therefore had heavy teaching workload. Table 4.4 shows class teachers' response on their teaching load.

Table 4.4: Class teachers rating of their workload

Rating of workload	Frequency	Percentage
Too high	25	27.4
High	35	38.4
Average	30	32.9
Low	1	0.9
Total	91	100

Table 4.4 shows that 38.4% of the teachers rated their workload as high, 32.9% of the teacher's rated their workload as average, while 27.4% rated their workload as too high. 0.9% teachers rated the teaching workload as low. This was an indication that there was a marked increase in teachers' workloads as a result of increased pupils' enrollment. The teachers were not able to do their work adequately. To confirm the class teachers' heavy teaching load, the researcher sought their response on lessons they teach per week. Table 4.5 below depicts their response.

Table 4.5: Class teachers' weekly teaching workload

Number of lessons/week	Frequency	Percentage
10 – 25	13	14.2
25 – 35	68	74.7
35 plus	10	10.9
Total	91	100

Table 4.5 shows that majority of class teachers handles lesson ranging from 25-35 on a weekly basis marking 74.7%, 10.9 % teaches 35 lessons per week while 14.2% handles lessons ranging from 10-25 per week. From this data it is clear that most teachers in public primary schools in Ukwala Division are overloaded and therefore this compromises their competency in their teaching task.

Previous studies had also established that teachers in Kenya were overworked.

Gatheru (2008) for example found out that due to the rising number of pupils enrolling in schools after the introduction of FPE, teachers were sometimes overwhelmed and not able to give individualized attention to pupils. Teachers could not mark pupils' assignments and this contributed to a decline in academic performance.

An item was included into the head teachers' questionnaire that sought to find out how they coped with the inadequate number of teachers in their schools, to which they responded as shown in Figure 4.4.

Fig. 4.4: Coping with teachers' inadequacy

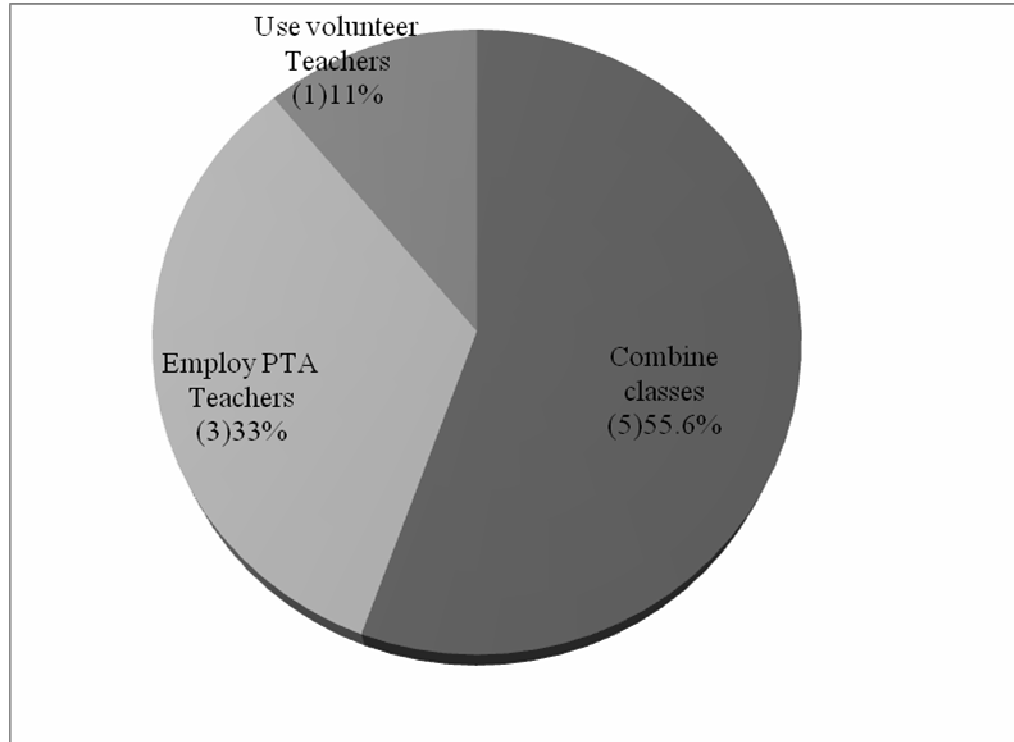


Figure 4.4 shows Head teachers' cope with shortage of teachers. 55.6% of the Head teachers' make their teachers teach combined classes, 33.3% had employed PTA teachers, while 11.1% used volunteer teachers. Majority of head teachers do combine classes which is a contributing factor to the ineffectiveness of teaching and learning process because it results in overcrowded classrooms which inhibit teacher-pupil relations to promote good learning in schools.

4.5 Teaching/Learning materials as a factor influencing teaching and learning.

The second research question was to establish the influence of teaching and learning materials on teaching and learning in public primary schools in Ukwala

Division, Siaya County. To determine this an item was included in the head teachers' and class teachers' questionnaires which sought to find out the pupil: textbook ratio in public primary schools in Ukwala Division. Figure 4.5 presents this information.

Fig. 4.5: Pupil: Textbook Ratio

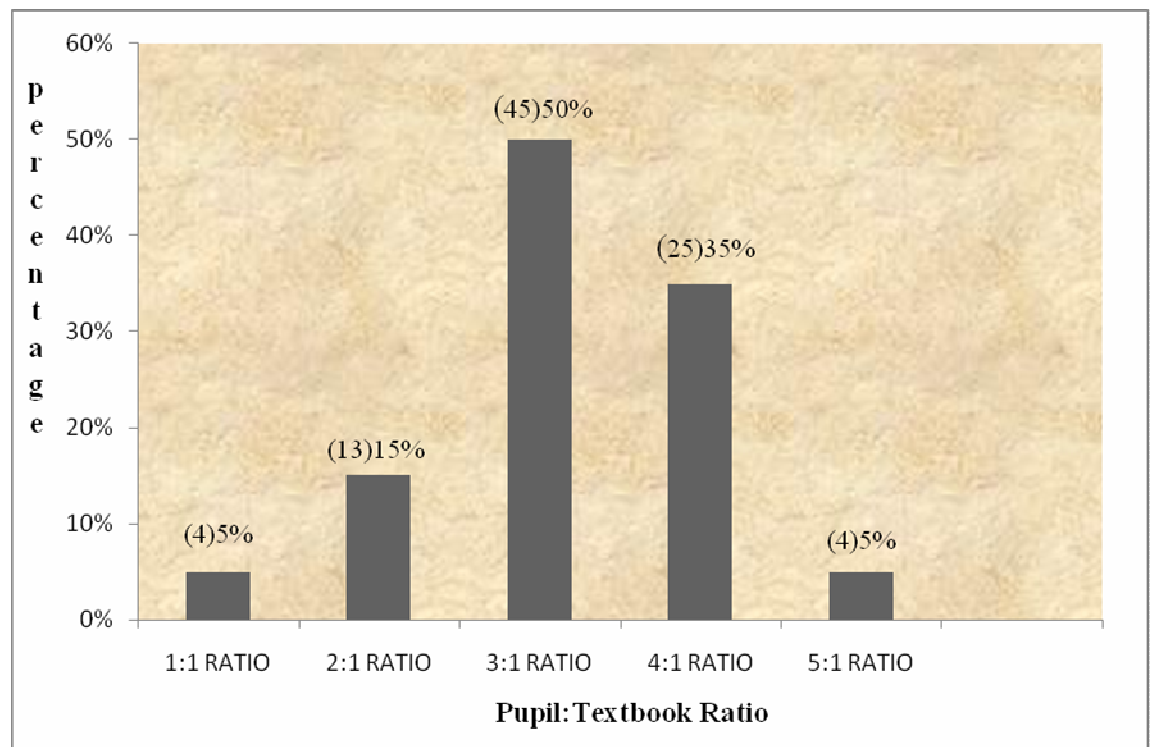


Figure 4.5 shows that of the schools sampled 5% had a pupil: textbook ratio of with a 1:1 ratio, 15% with a 2:1 ratio, 50% with a 3:1 ratio, 25% with 4:1 ratio, 5% with a 5:1.

From the above findings, majority of public primary schools in Ukwala Division had pupil: textbook ratio of between 3:1 and 4:1. Government policy on pupil: textbook ratio stipulates that lower primary (grades 1-4) should have a ratio of at most 3:1 while upper primary should have a ratio of at most 2:1 in all main

subjects. From the data availed above there is a shortage of textbooks especially in upper primary in Ukwala Division.

Class teachers' view on the availability of instructional materials was sought. They were asked to respond to question items that were framed to find out availability of Mathematic, English and Kiswahili KIE course books, teachers guides books, other reference materials such as dictionaries, atlases, and related illustrative materials such as diagrams and charts. Figure 4.6 shows their response.

Fig.4.6: Availability of teaching/learning materials

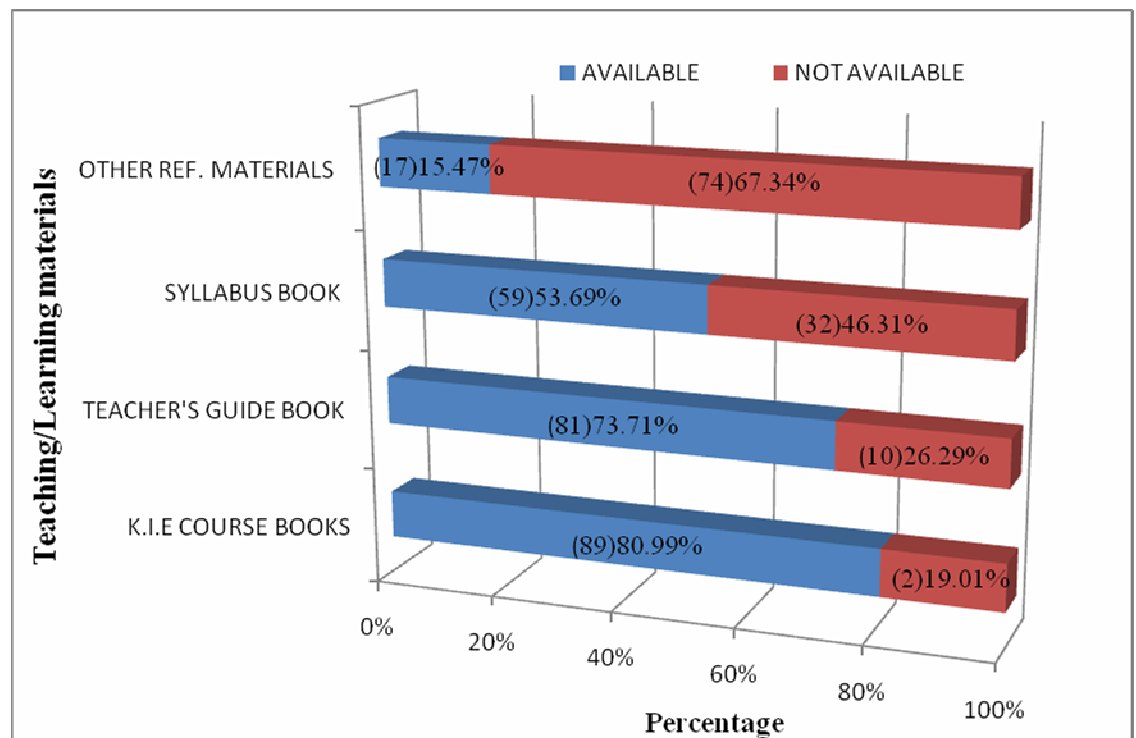


Fig. 4.6 shows 80.99% of the class teachers confirmed availability of KIE course books in their schools while 19.01 % did not. 73.71% reported availability of teacher's guide book to accompany the pupil's copy while 26.29 % did not. 53.69% affirmed availability of the syllabus books in their schools while 46.31% responded that the syllabus books were not available. 67.34% of teachers reported that the other reference materials were not available while 15.47% confirmed the availability.

Teachers commented that the use of the textbooks improves instruction in class. They supported their feeling of improvement of instruction on grounds that textbooks enable pupils to do their class assignments as well as make references. Some teachers felt that the textbooks made available by FPE programme have not improved teaching in any meaningful way. This they attributed to the fact that too many pupils share the same book making it difficult to use it when need arises. It was noted that in some schools the pupil: textbook ratio was between 5:1 to 6:1

On the utilization of reference materials, teachers agreed that they now have more reference materials than were the case before, however they complained that while a number of materials have been bought through the FPE funds, they rarely use the same material for teaching. Whenever they occasionally put them into use, the number of pupils assigned any given material is usually high making the use of such material limited.

.A further interview with the teachers revealed that some other textbooks and reference materials are usually kept in the library shelves as they feel that the responsibility of issuing them and having to collect them at the end of the school term is too involving. Secondly, teachers felt that pupils will soil the books or even lose them. From the foregoing, it appears that despite the efforts by the government to provide textbooks and other illustrative materials the translation of the same to the teaching and learning process is far from realization.

4.6 Classroom spacing as a factor influencing on teaching and learning.

The third research question was to establish the influence of classroom spacing on teaching and learning in public primary schools in Ukwala Division, Siaya County. In order to find out how classroom spacing impact on teaching and learning process, head teachers were asked to provide data on the total number of classrooms in their school compared with the total pupils' population. Table 4.6 shows comparison between the pupils' population in the school and the available classrooms in the 9 selected schools for the study.

Table 4.6: Comparison of the number of classrooms and total pupils' population.

School	Available classrooms	Pupils population	Shortfall
A	18	1200	12
B	10	545	3
C	8	429	2
D	8	211	0
E	10	654	6
F	9	460	2
G	8	347	0
H	9	576	5
I	8	509	4
Total	96	4928	32

Table 4.6 shows that the number of classrooms required in the schools ranged from 2 to 12 per school. On the other hand, available classrooms ranged from 8 to 18. All the 9 schools required a combined number of 32 classrooms averaging to 3 classrooms per school. However, there were a total of 96 classrooms in the 9 schools, which translates to 10 classrooms per school, giving an average deficit of 3 classrooms per school. While there were two schools that did not require any

additional classrooms, one with a total of 1200 pupils’ required up to twelve extra classrooms.

According to the Ugenya District Education Office statistics on the number of pupils’ per class in Ukwala Division 2013 (see appendix vi), each of the 48 public primary school has an average number of 50 pupils per class apart from class 8 which has an average total of 30 pupils’. This means that classroom spacing in most public primary schools is minimal for effective teaching and learning process.

Teachers were asked to indicate the number of pupils who sit per desk to which they responded as shown in Table 4.7

Table 4.7: Number of pupils sitting per desk

Pupils per desk	Frequency	Percentage
2	4	4.3
3	46	50.5
4	36	39.5
5	5	5.4
Total	91	100%

Table 4.7 shows that 4 teachers reported a ratio of 2 pupils per desk in their schools representing 4.3%, 46 teachers reported a ratio of 3 pupils per desk representing 50.5%, 36 teachers reported a ratio 4 pupils per desk making 39.5% while 5 teachers reported a ratio of 5 pupils per desk representing 5.4 %.From the

foregoing, it is clear that public primary schools in Ukwala Division have a pupil: desk ratio of 3:1. Teachers commented that pupils' desk spacing is vital during teaching and learning process especially when doing classroom written assignments. Some teachers reported that when pupils' are squeezed in one desk, they tend not to be attentive in class. Teachers also reported that due to the limited classroom space most of the teaching-learning process could not be initiated easily such as safety and accessibility to learning; arrangement of furniture and use of physical resources. Adequate space allows the teacher and pupils, for example, to plan a display of work, move furniture to facilitate a group project, or to shift supplies to improve traffic flow.

A study carried out by Mwenda, (2009) on Influence of free primary Education and quality of teaching and learning in public primary schools in Meru South District established that adequate classroom spacing influences learner's reaction, teaching morale and the quality of the instruction environment.

4.7 Classroom interaction as factor influencing teaching and learning.

The last objective of the study was to establish the influence of classroom interaction pattern on teaching and learning process. The researcher visited 9 sampled schools and observed the classroom interaction during the lesson progression. In each lesson, the researcher used Walbeger's elements of teaching effectiveness observation sheet to record element of teaching effectiveness as observed in the classroom interaction. After the observation was completed, the

resulting identification was converted into percentage. Table 4.8 displays the data result of the observation made.

Table 4.8: Classroom observation data

No	Teaching Elements	Yes		No	
		Frequency	%	Frequency	%
1	Academic learning time	7	77%	2	23%
2	Use of reinforcement	8	88%	1	12%
3	Cues and feedback	8	88%	1	12%
4	Co-operative learning	7	77%	2	23%
5	Classroom atmosphere	8	88%	1	12%
6	Higher order questions	3	33%	6	67%
7	Advance organizers	1	11%	8	88%
8	Direct instruction	8	88%	1	12%
9	Indirect teaching	2	22%	7	78%
10	Democratic classroom	1	11%	8	88%

The findings on table 4.8 based on classroom observation shows that 77% of the lessons observed used teaching element 1 of academic learning time of 35 minutes/lesson effectively while 23% did not. 88% of the lessons employed teaching elements 2, 3, 5 and 8 appropriately while 12% did not. 77% of the lessons observed adopted teaching element 4 while 23% did not. Teaching

elements 6, 7 and 10 with 33%, 11% and 11% respectively did not meet the threshold of teaching effectiveness recording a higher percentage on the 'No' column of 67% ,88% and 88% respectively.

Based on this finding, 3 out of 10 elements did not appear in the teaching-learning process i.e. teaching elements No 6, 7 and 10. The other 7 elements were converted into percentage i.e. $7/10 \times 100\% = 70\%$.From this result, it could be interpreted that the teaching effectiveness elements in public primary schools in Ukwala Division reached 70%.This means that classroom effectiveness was in category enough as indicated by the score Interpretation criteria shown below.

0% - 20% = Very Ineffective

21% - 40% = Ineffective

41% - 60% = Enough

61% - 80% = Effective

81% - 100% = Very Effective

The head teachers were presented with a number of items to express their opinion which they have towards classroom interaction patterns. They were given alternatives to respond depending on the extent of agreement with the feeling on each statement on a likert scale based on teachers' classroom interaction patterns. The alternatives were Strongly agree(SA),Agree(A),Undecided(U),Disagree(D) Strongly disagree(SA).Table 4.9 below shows the data result.

Table 4.9: Head teachers' response on teachers' classroom interaction

	Statement	Respondents response %				
		SA	A	U	D	SD
1	The teacher uses indirect influence in teaching.	(2) 22%	(7) 77%	0%	(1) 11%	0%
2	The teacher uses direct influence in teaching.	(8) 88%	(1) 11%	0%	0%	0%
3	The teacher checks the pupils' understanding by asking questions to some of them.	(3) 33%	(6) 66%	0%	0%	0%
4	The teacher is efficiently organizing the teaching-learning time	(1) 11%	(2) 22%	0%	(5) 55%	(1) 11%
5	There are periods of silence during teaching session	(2) 22%	(6) 66%	0%	(1) 11%	0%
7	Teacher starts and ends the class on-time.	(1) 11%	(7) 77%	0%	(1) 11%	0%
8	Classroom atmosphere supports the teaching learning process.	(4) 44%	(5) 55%	0%	0%	0%

Table 4.9 shows that 88% (SA) of the respondents felt that teachers used direct teaching in comparison with 77 % (A) who preferred indirect teaching. This means that most teachers dominated the teaching and learning process. 66% (A) and 33% (SA) of the respondents felt that teachers do check pupils' understanding by asking oral questions in class. Teachers' organization of teaching-learning time is not taken seriously by a good number of teachers as indicated by respondents 55% who disagree and 1% who strongly disagree. Although, some teachers do

plan for their lesson as indicated by respondents 11% (SA) and 22 % (A). 66% (A) and 22% (SA) of the respondents felt that there were periods of silence during the lessons, while 11% disagreed. It meant that pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the pupils was quite high. 77% (A) and 11% (SA) of the respondents confirmed that teachers begins and ends the lesson on time while 11% did not. This meant that teachers managed their teaching time well. 44% (SA) and 55 % (A) of the respondent felt that teachers created a conducive learning atmosphere for effective teaching and learning process. The main element of effective teaching is the need to create a relatively relaxed learning atmosphere within teaching-learning process. A positive atmosphere makes a classroom a more pleasant place to be and, in turn, a more effective, motivating place to learn.

Teachers were asked to rate the extent to which they viewed the degree of pupils' participation in class during the teaching- learning process. Figure 4.7 shows their response.

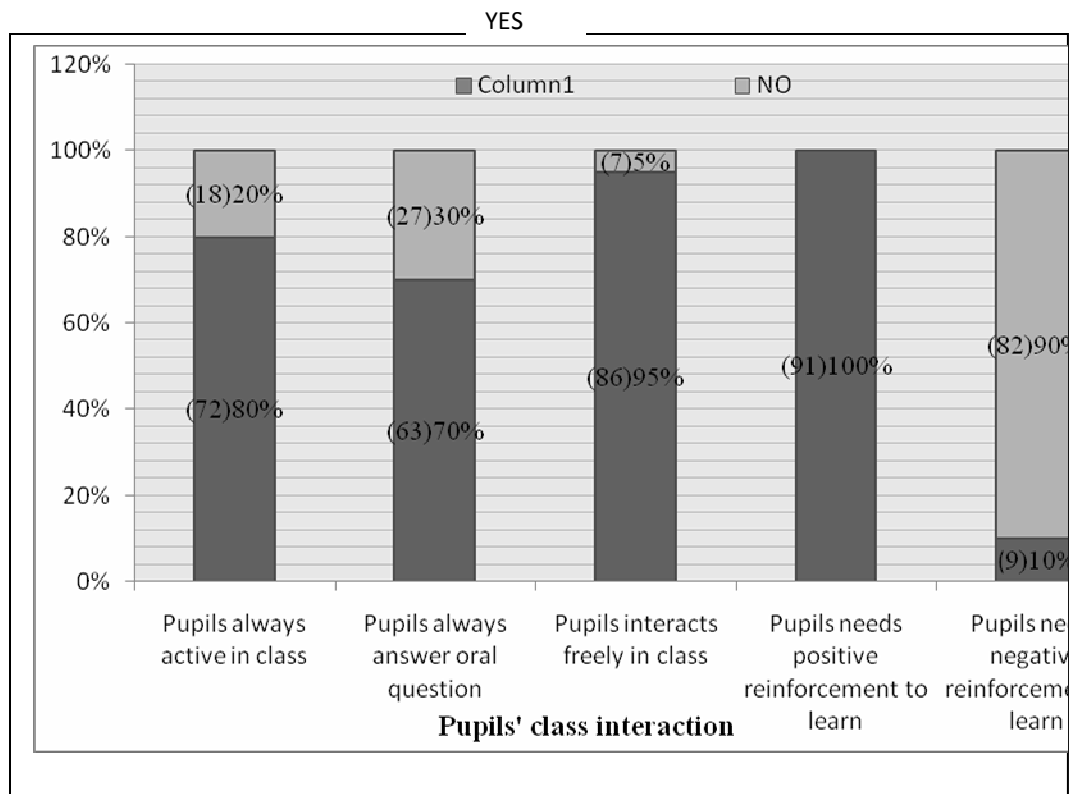


Fig. 4.7: Class teachers' response on pupils' class interaction

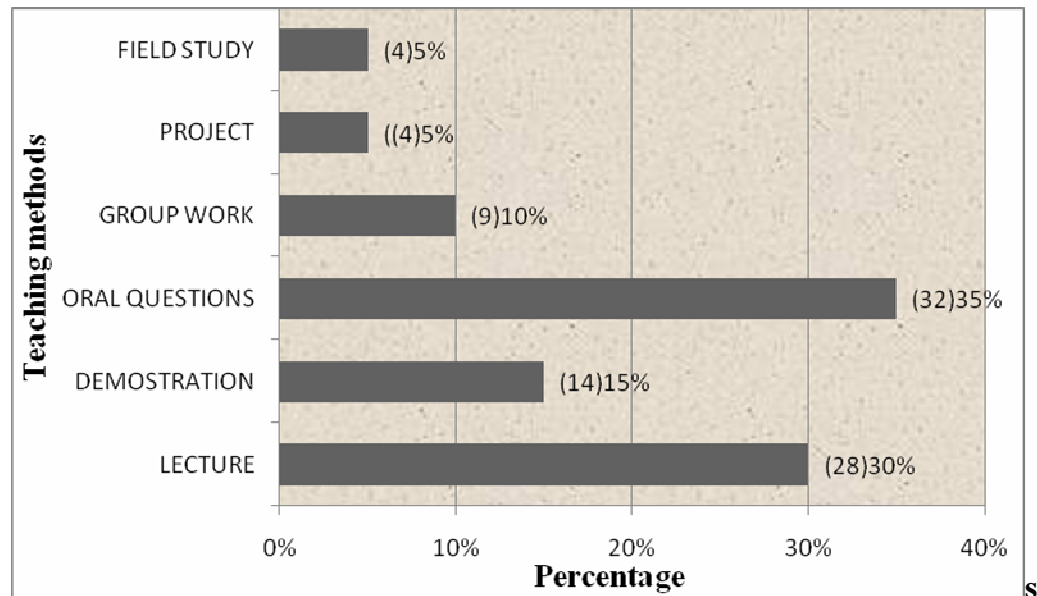
Figure 4.7 shows 80% of respondents felt that pupils were actively involved in the class while 20% did not agree. 70% of the respondents felt that pupils answered oral questions asked while 30% did not. 95% confirmed pupils interacted freely in class while 5% disagreed. 100% of the respondents agreed pupils need positive reinforcement to learn. 10% of the respondents felt pupils need negative reinforcement while 90% disagreed on the use of negative reinforcement. One of the outstanding aspects about this finding is that pupils do require reinforcement during the teaching learning process, more so positive reinforcement as opposed to negative reinforcement. Positive reinforcement is

presenting a reward after a desired behavior, whereas negative reinforcement is taking away an aversive stimulus after a desired behavior. Basically, in classroom situation, positive reinforcement is when teachers praise and reward students for correct behavior. Negative reinforcement is when punishment is coupled with positive experiences for correct behavior.

During the classroom observation by the researcher, teachers were observed reinforcing the pupils' after they answered questions in class. For example, if they answered the question correctly, the teacher would praise them with expressions "good; good answer; that's right," But if the pupils' answer wasn't correct, the teacher would criticize them with expressions "no; it's not correct answer; I don't think so then justified the answer. In few disciplinary cases teachers could punish the pupils using action punishment or verbal punishment, e.g critics and reprimand.

Teachers' response was sought regarding teaching methods they frequently use in class as shown in figure 4.8

Fig. 4.8: Frequently used teaching methods



From the figure 4.8 above the most frequently used teaching methods by teachers were Lecture (30%) and oral question (35%). Some teachers in a further interview with the researcher commented that these two teaching method are preferred because they are easier to execute. 15% used demonstration, 10% group work, 5% project and 5% fieldwork. The findings confirmed that majority of teachers' preferred teacher-centred method of teaching as opposed to learner-centred method.

Teachers' response was sought regarding pupils motivation method they frequently use in class as shown in the figure 4.9

Fig. 4.9: Pupils' motivation methods

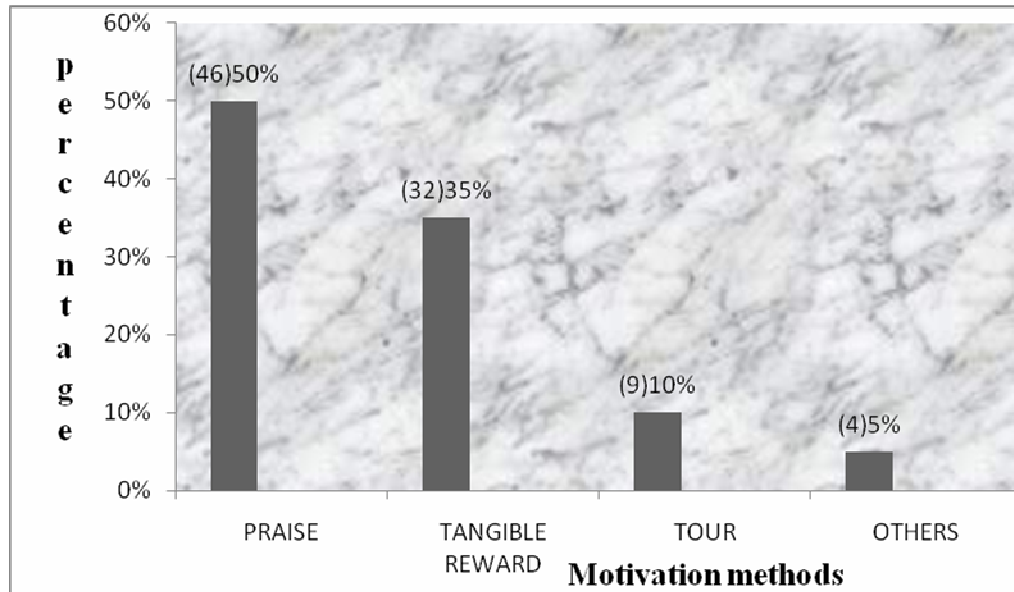


Figure 4.9 shows that 50% of class teachers used praise as pupils' motivation method, 35% used tangible reward, 10% tour and 5% other motivation methods. From the above findings the dominant teaching motivation method often employed by teachers are praise and use of tangible rewards. Motivation is an essential ingredient in the teaching and learning process because it enables the learner to be focus and perform better in class assignment. It also enhances classroom interaction between the teacher and the learner.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

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

5.2 Summary

The purpose of this study was to investigate classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division, Siaya County. The research objectives and questions were to find out classroom-based factors that influence teaching and learning in relation to teacher-pupil ratio, availability of teaching and learning materials, classroom spacing and classroom interaction pattern. The study adopted a descriptive survey design and targeted 9 public primary schools out of 48 in Ukwala Division, Siaya County. It sampled 108 Teachers, 9 Head teachers and 1 ZQASO.

Findings on Teacher: Pupil Ratio (TPR) revealed that nearly half (44%) of the schools in the Ukwala Division had a higher TPR than the recommended ratio by the Ministry of Education of 1:40 (Teachers Service Commission, 2005). 33% of the schools had TPR of 1:45 while 11% had TPR of 1:55 and above. 55% of the schools in the Division had TPR within the requirement of the Ministry. The head

teachers from schools with a higher TPR commented that such higher ratio makes teaching tiresome on the part of the teacher and also hampers individual attention. As concerns availability of teaching and learning resources, 80.99% of the class teachers confirmed availability of KIE course books in their schools while 19.01 % did not. 81% reported availability of teacher's guide book to accompany the pupil's copy while 26.29 % did not. 53.69% affirmed availability of the syllabi books in their schools while 46.31% responded that the syllabi books were not available. 67.34% of teachers reported that the other reference materials were not available while 15.47% confirmed the availability. Majority of schools in Ukwala Division have pupil: textbook ratio of between 3:1 and 4:1

Findings on classroom space reveal that most public primary schools in Ukwala Division are in need of at least 2-3 classrooms given the huge enrolment of pupils. The average number of pupils' per class in Ukwala Division in each of the 48 public primary school is 50 pupils per class apart from class 8 which has an average total of 30 pupils'. This means that classroom spacing in most public primary schools is minimal for effective teaching and learning process.

Majority of schools in Ukwala Division have a pupil: desk ratio of 3:1.

Concerning classroom interaction, most teachers preferred using more direct teaching (88%) than indirect teaching (77%) in their talking time. 66% (A) and 33% (SA) of the respondents felt that teachers do check pupils' understanding by

asking oral questions in class. Teachers' organization of teaching-learning time is not taken seriously by a good number of teachers as indicated by respondents 55% who disagree. 77% (A) and 11% (SA) of the respondents confirmed that teachers begins and ends the lesson on time. 44 % (SA) and 55 % (A) of the respondent felt that teachers created a conducive learning atmosphere for effective teaching and learning process. 80% of respondents felt that pupils were actively involved in the class ,70% of the respondents felt that pupils answered oral questions and 95% confirmed pupils interacted freely .100 % of the respondents agreed pupils needs positive reinforcement to learn while 90% disagreed on the use of negative reinforcement.The most frequently used teaching methods by teachers were Lecture (55%) and oral questions (50%). Teaching effectiveness elements in public primary schools in Ukwala Division is in enough category (above 60%).

5.3 Conclusion

Based on the findings, it can be concluded that teaching and learning depends on a number of factors for its effectiveness. The study established that Teacher: Pupil Ratio impacts positively or negatively on the teaching and learning process. From the findings it was noted that though most public primary schools had over Ministry of Education threshold TPR of 1:40. 44% of the public primary schools in Ukwala Division had a higher TPR leading to overcrowding of pupils. This increases teachers' workload and therefore shortage of teachers to attend to the

rising number of pupils, resulting to inadequate curriculum supervision and implementation in schools.

The study established that the average number of pupils in most classes exceeds 40 pupils per class therefore limiting classroom space. Classes 1-7 in Ukwala Division accommodated above 50 pupil per class. This has adversely affected classroom organization, traffic flow, as well as the attentiveness and comfort of the pupils. Majority of the schools needed 2-3 extra classrooms.

The study also established that majority of the schools had procured KIE course books, teachers' guide books and syllabus books. The other reference materials such as dictionaries, atlases, and related illustrative materials like diagrams and charts were in scarce quantity in most schools and underutilized. The textbook: pupil ratio to a large extent lies between 1:3 and 1:4. Textbooks and other reference materials enhance curriculum delivery.

The study also concluded that teachers preferred using more direct teaching than indirect teaching in their talking time. Pupils were actively involved in the lesson and answered oral questions posed by the teacher. Pupils also did interact freely amongst themselves as well as with their teachers. The study established that pupils require positive reinforcement during the teaching and learning session. Teachers' preference teaching methods were lecturing and oral

questioning. Teaching effectiveness index established by the study was enough(70%).

5.4 Recommendations

Based on the analysis of the study, the researcher wishes to make the following recommendations;

- i. Head teachers should enroll pupils according to the resources and teachers they have to avoid overcrowding schools and overworking teachers. The study revealed that most schools had shortage of classrooms and as a result of overcrowded classes teachers were experiencing big workload which may make them to be effective in their work.
- ii. The government should carry out a thorough staff balancing exercise to ensure that all schools have enough teachers.
- iii. The government should recruit more teachers, promote those who have stagnated in positions and improve terms and conditions of service, as a way of motivating them, so that they can take their teaching work more seriously.
- iv. The government should continue providing enough funds for the procurement of teaching and learning resources especially the course textbook to make the ratio one textbook per pupil.

- v. The directorate of quality Assurance and Standards within the ministry of education should be more empowered with resources to enable them carry out their advisory work more effectively in schools.
- vi. The study established that interaction in the classroom fully depends on the teacher's initiative. There is need therefore for teachers to make the learning environment child-friendly as this will facilitate effective curriculum delivery.

5.5 Suggestions for further research

The findings of this study are indicative rather than conclusive, hence the following research action has been suggested:

- (i) The study should be conducted on the classroom-based factors influencing teaching and learning in public secondary schools.
- (ii) The study should be carried out on the relationship between classroom interaction and students academic performance in public secondary schools.
- (iii) A study should be carried out to find out the influence of positive reinforcement on pupils academic performance in public primary schools.
- (iv) Further research should be conducted on the role of Quality Assurance Standard Officer (QASO) in supervising the quality instruction at classroom level.

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APPENDIX I

LETTER: REQUESTING PARTICIPATION OF RESPONDENTS

University Nairobi,
Faculty of Education & External Studies,
School of Education,
Department of Educational Adm. and Planning,
P.O. BOX 30197,
Nairobi.
11th June 2013.

Dear Sir/Madam

**REF: CLASSROOM-BASED FACTORS INFLUENCING TEACHING
AND LEARNING IN PUBLIC PRIMARY SCHOOLS IN UKWALA
DIVISION, SIAYA COUNTY**

The study aims at determining the *classroom-based factors influencing teaching and learning in public primary schools in Ukwala Division, Siaya County*. Your school has been selected to participate in the study. Your views will be useful in this study. You are therefore requested to fill in the questionnaire according to the instructions given in each part.

The findings of the study will be used purely for academic purposes. Your cooperation and honesty will be highly appreciated.

Yours Sincerely

Ochieng' Chrispine

8) What is the average number of pupils per class? 20 – 29

30-39 40-49 50-59 Above 60

9) What is the average ratio of Teacher to Pupils in a class? 1:20

1:30 1:40 1:50 1:60

10) How do you cope with large classes?

11) Give your comment on how the Teacher-Pupil ratio influence classroom teaching and learning in your school.

SECTION C: Pupils Classroom Space/Availability of Teaching & Learning materials

12) How many classrooms are available in your school? _____

13) What is the total pupil population in your school? _____

14) How many pupils sit per desks? 2 3 4 5

a) Is there any shortage of desks in the classrooms? Yes No

b) If yes how do you cope with it?

15 a) Are the Teaching/Learning materials enough for teaching and learning?

Yes No

b) If no, how do you cope with it?

- 16) What is the average Pupil: Textbook Ratio? 1:1 1:2
 1:3 1:5 1:5 and above

- 17) Give your comment on how classroom space influence teaching and learning process.

SECTION D: Classroom interaction patterns

Each of the following items expresses an opinion which you have towards classroom interaction pattern. You are given alternatives to respond depending on extent of agreement with the feeling in each statement. The alternatives are Strongly agree (SA), Agree (A), Undecided (U), Disagree (D), Strongly disagree (SD). Put a tick against the alternative that best describes your opinion.

	STATEMENT	SA	A	U	D	SD
A	The teacher uses indirect influence in teaching.					
B	The teacher uses direct influence in teaching.					
C	The teacher checks the pupils' understanding by asking questions to some of them.					
D	The teacher asks the pupils' to work in group.					
E	The teacher is efficiently organizing the teaching-learning time					
F	The teacher helps the pupils' to answer the questions by giving clues.					
G	There are periods of silence during teaching session					
H	Teacher starts and ends the class on-time.					
I	Classroom atmosphere supports the teaching – learning process.					

Thank you for participating in the study

APPENDIX III

QUESTIONNAIRE FOR CLASS TEACHERS

This research is meant for academic purpose. It will try to find out the **Classroom-based factors influencing teaching and learning in public primary schools**. Kindly you are requested to provide answers to these questions as honestly and precisely as possible. The information obtained will be treated as confidential and will be used for the study and nothing else. Please do not write your name or that of your school anywhere on this questionnaire. Please tick [] where appropriate or fill in the required information on the spaces provided.

SECTION A: Background information

1. What is your gender? [] Male [] Female
2. What is your age our age (in years)? [] 20-29 [] 30-39 [] 40-49
[] 50-59 [] 60 plus
3. What is your highest level of education? [] P1 Cert. [] Dip/ Ed [] BED
[] MED
4. a) Are you a trained teacher in the subjects you teach? [] Yes [] No
b) If yes, how many years of teaching experience do you have?
 - (i) 1 – 3 Years
 - (ii) 4 – 6 Years
 - (iii) 7 – 9 Year
 - (iv) Over 9 years

SECTION B: Teacher-pupil ratio.

5. What is total number of pupils in your class? _____

6. a) Is your class over crowded? Yes No

b) If yes, how do you cope with overcrowding? _____

7. What is your weekly teaching load (Number of lessons) _____

8. (a) How do you rate this workload? Too high High Average
 Low

(b) If too high or high, how do you cope with this? _____

9. a) Is there relationship between Teacher: Pupil Ratio and Teaching - Learning process? Yes No

b) If yes, what is the relationship? _____

11. How does the Teacher: Pupil Ratio influence teaching and learning process?

SECTION C: Teaching and learning resources

12. a) Do you have adequate teaching and learning resources in your class?

Yes No

b.) If no, how do you cope with it? _____

13. What is the pupil-textbook ratio in your class? 1:1 2:1 3:1 4:1
 5:1

14. Below is a list of some basic materials and resources used or needed in teaching of various subjects. Put a (√) or (X) to show whether they are available for use in your school.

Resources	Available	Not available
KIE course books (Eng,Mat,Kisw)		
Teachers guides		
Syllabi		
Maps		
Geometrical sets		
Atlases		
Charts		
Graph Books		

15. How does the adequacy of teaching and learning resources influence teaching and learning process? _____

SECTION D: Classroom interaction

16. Rate the following method of teaching according to how frequently you make use of them.

Teaching Method	Often	Rarely	Never
Lecturing			
Demonstration			
Oral questions			
Project work			
Role play			
Field study			

17. Which pupils' motivation method do you use frequently?

Praise Tangible Reward Tour other,

specify_____

18. Put a (√) in the box against each statement in the column to indicate the degree of pupils' participation in the teaching-learning process.

	Statement	Yes	No
a.	Pupils are mostly active in class.		
b.	Pupils contribute in group activities.		
c.	Pupils often answer oral questions.		
d.	Pupils' interacts freely in class.		
e.	Pupils' need positive reinforcement in order to learn.		
f.	Pupils needs negative reinforcement in order to learn.		

19. Give your comment on how classroom interactions influence teaching and learning process.

SECTION D: Pupils classroom space

20. What is the state of pupils' classroom space? Adequate Inadequate
 Deplorable

21. Indicate whether pupils' classroom space in your class can accommodate the following aspects.

- | | | |
|---------------------------------------|------------------------------|-----------------------------|
| a) Safety of the pupil | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b) Accessibility to learning | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c) Arrangement of the furniture | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d) Teachers use of physical resources | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| e) Display work | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| f) Facilitate group discussion | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| g) Allows traffic flow | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

22 .Give your views on how pupils classroom space affect the teaching and learning process?_____

Thank you for participating in this study

APPENDIX IV

OBSERVATION SHEET

CLASSROOM INTERACTION PATTERN

The researcher will observe the interaction between teacher and pupils in teaching and learning process. To find out whether the interaction in class meets the requirements of Teaching Effectiveness, the researcher will use the Elements of Teaching Effectiveness by Walberg's. Each element of teaching effectiveness will be observed in the classroom interaction. If the element appeared in the interaction, the researcher would make [✓] mark in column

No	Teaching Elements	Yes	No
1	Academic learning time		
2	Use of reinforcement		
3	Cues and feedback		
4	Co-operative learning		
5	Classroom atmosphere		
6	Higher order questions		
7	Advance organizers		
8	Direct instruction		
9	Indirect teaching		
10	Democratic classroom		

APPENDIX V

INTERVIEW SCHEDULE FOR ZONAL QUALITY ASSURANCE AND STANDARDS OFFICERS (ZQASO)

The purpose of this study is to investigate the *classroom-based factors that influence teaching and learning in public primary schools in Ukwala Division.*

As a zonal quality and standard officer in Ukwala Division, I hope that you will provide information which will be valuable in improving the quality of teaching and learning in the classroom. Your responses will be treated confidentially and will be used for academic purposes only.

1. What is your Gender Male Female
2. What is your highest academic qualification? Phd Master's Degree Bachelor's Degree Diploma Certificate
3. For how long have you been an education quality officer? _____
Years.
4. Have you served elsewhere as an education quality officer?
Yes No
5. How often do you carry out school inspection/supervision of the quality of instruction at classroom level?
Once per term Twice per term Many times per term
6. (a) During your visits, what problems do you diagnose that teachers face concerning teaching and learning process _____

(b) How do you assist them? _____

7. Are there enough qualified teachers in primary schools in Ukwala Division?

Very adequate [] Fairly adequate [] Inadequate []

8. What is the average teacher: pupils' ratio in schools you have supervised?

9. a) Do you think the Teacher-Pupils' Ratio in these schools meet the requirement of the Ministry of Education? [] Yes [] No

b) If no, what recommendations do you make to solve these problems?

10. What problems have you experienced in supervision of the quality of teaching and learning in Ukwala Division? _____

11. During supervision are the resource materials and facilities available and enough in primary schools in Ukwala Division for the quality of instruction?

Very adequate [] Fairly Adequate []

Inadequate [] completely lacking []

12. How do you rate academic performance of Primary Schools in Ukwala Division? _____

13. What is the general condition of pupils' classroom space in the schools you have visited? _____

14. How does pupils' classroom space influence the teaching and learning process? _____

15. What is your general comment on the teaching and learning process in the public primary schools in Ukwala Division? _____

Thank you for participating in this study

APPENDIX VI

NUMBER OF PUPILS PER CLASS– UKWALA DIVISION – 2013

CLASS	BOYS	GIRLS	TOT	AVER.
1	1397	1350	2747	57
2	1314	1288	2602	54
3	1326	1305	2631	55
4	1357	1320	2677	56
5	1340	1292	2632	55
6	1226	1299	2525	53
7	1209	1416	2625	55
8	774	807	1581	32
TOTAL	9943	10,077	20,020	417

Source: Ugenya District Education Office(2013)

APPENDIX VII

RESEARCH PERMIT FROM NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY

PAGE 2 **PAGE 3**

Research Permit No. NCST/RCD/14/013/008

THIS IS TO CERTIFY THAT

Date of issue 7th May, 2013

Fee received KSH. 1,000

Prof./Dr./Mr./Mrs./Miss/Institution
Chrispine Ochieng'

of (Address) University of Nairobi
P.O Box 30197-00100, Nairobi


has been permitted to conduct research in

Location
District
Siaya County

on the topic: Classroom-based Factors
influencing teaching and learning in
Public Primary Schools in Ukwala
Division of Siaya County, Kenya.

for a period ending: 30th June, 2013.

Applicant's Signature **Secretary**
National Council for Science & Technology



APPENDIX VIII
**RESEARCH AUTHORIZATION FROM NATIONAL COUNCIL OF
SCIENCE AND TECHNOLOGY**

