

**INSTITUTIONAL FACTORS AFFECTING MATHEMATICS
PERFORMANCE IN MOROGORO (URBAN) DISTRICT PRIMARY
SCHOOLS, TANZANIA**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF EDUCATION IN
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CERTIFICATION

The undersigned certifies that she has read and hereby recommends for acceptance by the to The Open University of Tanzania, a dissertation titled “**Institutional Factors Affecting Mathematics Performance In Morogoro (Urban) District Primary Schools, Tanzania**”. in partial fulfillment of the requirements for the degree of Masters of Education in Administration, Planning and Policy Studies (MED-APPS) of the Open University of Tanzania.

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.....

Date

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DECLARATION

I, **Hamisi Mussa**, do hereby declare that this dissertation is my original work, and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

.....

Signature

.....

Date

DEDICATION

This dissertation is dedicated to my parents, Mr. and Mrs. Hamisi S. Muya for their prayers, encouragement and advice.

ACKNOWLEDGEMENT

The responsibility for this work lies with me alone. However, in the first place I convey my sincere gratitude to Almighty God who gave me health during the period of pursuing this Masters study. Second, I would like to give special and sincere thanks to my supervisor, Dr. B.S. Komunte who gave me support and constructive guidance throughout the proposal preparation right through to final preparation of this dissertation. Her advice, commitment, prompt review of my work, tolerance and encouragement finally made this dissertation a reality. Her contribution will never be forgotten.

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ABSTRACT

The study focused on “Institutional Factors Affecting Mathematics Performance in Morogoro (Urban) District Primary Schools”. The study was guided by four objectives to:examine the causes of unsatisfactory performance in Mathematics in primary schools; identify teaching methods used by primary school Mathematics teachers to improve the performance; analyze the pupils’ and teachers’ attitude towards Mathematics performance and find out classroom factors which influence performance in Mathematics.Amixed research design was used. Data were collected through interview, questionnaires and observation methods. The study findings showedthat 211(60.1%) pupils agreed that lack of pupils’ Mathematics background,lack of teaching and learning materials, large classes, poor school infrastructures and lack of pupils and teacher motivation contributed to poor mathematics performance among the pupils in Morogoro. Also 326 (93.3%) of pupils revealed that small group discussion method, questioning method, problem solving method and demonstration methods was rarely used in Mathematics teaching because most of time lecture method dominated. Further more the findings showed that the students hated the mathematics subject and this could be the reason for the poor academic performance in mathematics among these students in Morogoro.The study recommends that the Ministry of Education, Science and Technology should provide efforts to improve teaching and learning environment in primary schools, along with reviving the mathematics subject clubs in primary schools.

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LIST OF ABBREVIATIONS

ESDP	Education Sector Development Programme
DPSEO	District Primary School Education Officer
HTs	Head Teachers
I.Q	Intelligence Quotient
MOEST	Ministry of Education, Science and Technology
MLD	Manual of Mental Disorder
MOEVT	Ministry Of Education and Vocational Training
MED APPS	Master of education administration planning and policy studies
PMC	Psychiatric Medical Center
PSLE	Primary School Leaving Examination
SPSS	Statistical Package for Social Science
STD	Standard
TSM	Takwimu za Shule za Msingi
UDSM	University of Dar es Salaam
UNESCO	United Nations Educational, Scientific and Cultural Organization
URT	United Republic of Tanzania
USA	United States of America
WW1	First World War

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter covers the following; background information about the study, statement of the research problem, purpose of the study and the specific research objectives as well as research questions. Significance of the proposed study, scope of the study and the ethical consideration are also covered in the chapter.

1.2 Background to the Problem

Primary school education is compulsory and is a seven-year cycle; officially enrolling children aged seven (7) to thirteen (13) years. Primary education has been fee-free since 2002. The cycle is sanctioned by a final examination at the end of standard seven which is used both to assess learning achievement and to filter entry into form one in government secondary schools (UNESCO, 2011). So far, it is noted that, Mathematics and science subjects are essential for social and economic development particularly in developing countries. Numerous schools lack laboratories, relevant books and teaching equipments. Moreover, there are considerably a few qualified and capable teachers of Mathematics and science subjects in Tanzania (URT, 2011).

As a result, there has been a perennial poor performance in these subjects in most instances with some failure rates of around 70% (Audit, 2009). There appeared to be a glaring need for greater attention and clarity of priorities on poor performing students in Mathematics and science subjects as this threatens Tanzania's effort on economic growth and competitiveness at regional and examination levels. There

should be a concerted effort in training more science and Mathematics teachers, up skilling the existing ones and promoting learner-centered pedagogies which have proven success elsewhere (Willstatter *et al.*, 2012). Also parental behavior plays a significant role in a child's cognitive growth and performance (Clarke, 1983). It is further observed that the mother's level of education often correlates with the child's performance, (Makewa *et al.*, 2012).

General involvement of parents in the education of their children is seen as very low with most pupils recording that they are not assisted or encouraged with their school work which often comes secondary to household chores. Parents are also cited as not actively involved in support of school projects and programs with exception to a few of them serving in the school administration. It is claimed that on their defense, some parents complained that collection of funds for various educational projects were often not used for the development of the school (Clarke, 1998).

Some teachers have a feeling that they are not fully involved in designing curricular and educational policies despite the fact that its successful implementation rests on them. Teachers furthermore, observed insincerity on the part of some government officials who often make promises to aid quality education provision in schools but hardly fulfill their promises.

It is, moreover, observed that in Tanzania there appears a propensity to handle educational issues more politically rather than technically and professionally which may discourage open and positive participation within the education system

(Makewa *et al.*, 2012). Most students recorded higher satisfaction levels on teachers–student’s relationship including being consulted on various issues that affect them. However, it was clear that trust among adult stakeholders was lacking and thus created a stumbling block in the advancement of various educational goals (UNESCO, 2011).

However, when ESDP was appraised in 1999 it was found that much emphasis was put on the development of organizational management procedures rather than on quality improvement (URT, 1999). Therefore, this necessitated the need to give the program the perspectives of teaching and learning process.

1.3 Statement of the Problem

Poor performance in Mathematics has been a problem for many years in Tanzania (URT, 1996). Tanzania Development Vision 2025 emphasizes on the important role of education in social and economic transformation of the society (URT, 2014).

Many Mathematics teachers use theory as an alternative to practical application. This has brought about bad attitude, poor teaching skills and lack of involvement of students, which has resulted to poor performance in Mathematics (Ali, 2012). Moreover, studies by Mosha (1998, 2011), UNESCO (2011) and URT (1996) reveal existence of poor performance in Mathematics in Tanzania which is attributed to contextual and input factors including decreased fund for education, shortage of teaching and learning materials, pathetic school infrastructure, deprived quality of teachers and curriculum troubles.

The quality aspect of education provision involves the inadequacy of teaching and learning resources, the absence of enough motivated teachers, the irrelevance of the curriculum and its inefficiency to deliver the expected outcomes (Ali, 2012). Past studies concentrated on other factors contributing Mathematics performance excluding institutional factors. Therefore, this study is set to assess institutional factors affecting performance in Mathematics in primary schools in Morogoro Municipality.

1.4 Research Objectives

1.4.1 General Objective

The general objective of the study was to assess the institutional factors affecting performance in Mathematics subject in primary schools in Morogoro region.

1.4.2 Specific Objectives

Specifically the study was sought to:

- (i) examine the causes of unsatisfactory performance in Mathematics in primary schools.
- (ii) identify teaching methods used by primary school Mathematics teachers to improve the performance.
- (iii) analyze pupils' and teachers' attitude towards Mathematics performance.
- (iv) find out classroom factors which influence performance in Mathematics.

1.4.3 Research Questions

- (i) What are the causes for unsatisfactory performance in Mathematics in primary schools?

- (ii) What are the methods used in teaching to improve Mathematics performance in primary schools?
- (iii) What is the attitude of the pupils and teachers towards performance in Mathematics in primary schools?
- (iv) What are the classroom factors which influence poor performance in Mathematics in primary schools?

1.5 Significance of the Study

The government of Tanzania has been putting much effort to ensure good performance in Mathematics in primary schools and secondary schools as well. In the light of this, the study is fairly significant as;

- (i) It provides new understanding of factors that help to pass and those affecting performance in Mathematics particularly in Morogoro (Urban) District. These in turn, help policy makers, educational planners and stakeholders to understand the situation about performance in Mathematics in a particular locale of which future plans can be based upon.
- (ii) Issues that are raised may be a source of knowledge and at the same time act as a catalyst towards further studies.
- (iii) From recommendations, educational practitioners may devise new methods of teaching Mathematics in primary schools to improve pupils' performance in the subject in future.

1.6 The Scope of the Study

The study was conducted to five (5) public primary schools in Morogoro Urban. It dealt with the District Primary School Education Officer, headteachers, classroom

Mathematics teachers and pupils. The study was also restricted to institutional factors affecting Mathematics performance in Morogoro (Urban) District primary schools. These included teaching resources, the pupils' and teacher's attitude towards Mathematics.

1.7 Limitation of the Study

The study encountered some limitations while conducting the study; first the researcher was perceived as an official from the Ministry of Educational, Science and Technology who came to inspect them, thus efforts were made to hide some information. To offset the situation the study used triangulation method of data collection. Second, it takes long time to get previous tests and examination past papers for analysis because not all tasks were available in primary school examinations banks. As a result, it demanded seeking previous assessment tasks from pupils and subject teachers which was time consuming.

1.8 Conceptual Framework

This study adapted a model from Bakahwemama (2009) which specifically focuses on the enabling conditions, teaching and learning process and outcomes. This model is selected because it predicts how various variables influence primary school pupils' achievement. The same model is used to show the Institutional Factors Affecting Primary School Mathematics Performance in Morogoro Urban District. Bakahwemama (2009) analyzes the teaching methodology as enabling conditions, teaching and learning process and outcomes as explained in the following sections. These variables include enabling conditions, teaching and learning process, and

outcome as depicted in the conceptual framework used in this study in Figure 1.1 below:

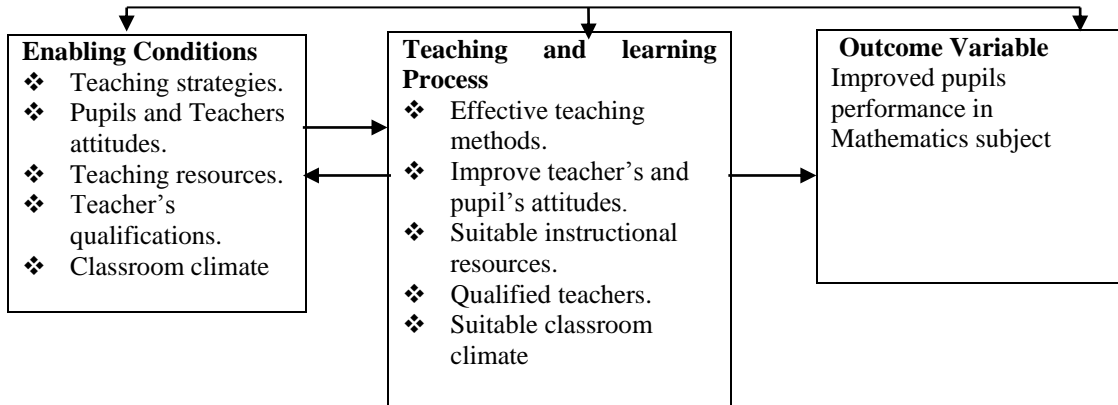


Figure 1.1: A Conceptual Framework for Factors Affecting Performance in Mathematics.

Source: Adapted from, Bakahwemama (2009: 26)

(i) Enabling conditions

These are some conditions and teaching methodology that can be provided to primary school Mathematics teachers. Hossain *et al.* (2012) describes the teaching methodology to the teachers divided into two important dimensions which are methodology used in and outside the classroom. Teaching methodology used in the classroom are stipulated in syllabus; it can be in form of individual and group works, while other teaching methodology are stipulated in school calendar like study tours and pupils project. According to Draft (2007) and Judge *et al.* (2009), there is strong relationship between pupils' performance and teaching methodology used by their teachers.

(ii) Teaching and learning process

These are some teaching and learning process which influences teachers classroom performance, like a effective teaching methods, improved teachers' and pupils

attitudes, suitable instructional resources, qualified teachers, suitable classroom climate and school and management condition like provision of incentives to Mathematics teachers. The working condition like availability of teaching and learning materials, accommodation and availability of transport affect teachers' classroom performance. When working conditions is not conducive, teachers will be challenging to use different teaching methods and hence and hence poor pupils' performance in Mathematics (Mane *et al.*, 2003). This variable can change due to the time, for example the advancement of science and technology can help to obtain teaching and learning materials online which can improve and change the teachers' Mathematics performance. The model assists to identify variables which influence teacher's teaching methods and pupil's Mathematics performance.

(iii) Outcome variables

It is assumed that if variable one and two are well implemented, there would be some positive results. In Bakalemama (2009)'s model such consequences are known as outcome variables, which include teachers with high teaching performance can be treated as the dependent variable which can be determined and may change according to the contexts. Teachers' Mathematics performance hindered by a number of challenges which this study intends to find out.

1.9 Definition of Terms

Various terms which have been used frequently in the study are defined below to convey a specific meaning in the context of this study. These terms include; classroom climate, institutional factors, and performance.

Classroom Climate: Classroom Climate is the classroom environment, the social climate, the emotional and the physical aspects of the classroom. It's the idea that teachers influence student growth and behavior (Bierman, 2011). In this study, classroom climate means availability of classrooms with desks in primary schools.

Institutional Factors: Institutional factors are rules, routines, that guide behavior of the school (Killam, 2016). In this study used as school conditions available in primary schools.

Performance: Performance is an action or achievement, considered in relation to how successful it is (Hornsby, 2000). In this study means the level of pupils' achievement and the pass rates obtained in a tests, terminal and, national examinations.

1.10 Organazation of the dissertation

Structurally, the study consists of five chapters. The first chapter; chapter one up to chapter five. The first chapter is about the background of the problem which comprises introduction, definition of the terms, statement of the problem, Purpose of the study, Objectives of the study, research questions, significance of the study, conceptual framework, chapter two focuses on the literature, introduction of review of related literature and its related research.

The chapter three concern with research methods for data collection and analysis. This chapter includes research research design, area of study, target population, sample of the study and sampling techniques, methods of data collection, primary

data collection instruments, secondary data collection instrument, data analysis techniques and ethical considerations. Chapter four presents the research findings presented and analyzed according to the research objectives and questions while chapter five provides the summary, conclusions and recommendation for action and for further research. References and appendices inform at the end part of the organizational format of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents views from other related literatures to the research problem. It provides both theoretical and Empirical literature reviews, from which the research gap to fill was established. In the chapter, the concept of Mathematics performance and the factors affecting it was discussed. Methods of teaching, classroom environment, Mathematics assessment teachers' qualifications, teaching resources and teacher –pupil classroom interactions were presented as reviewed from a variety of literature.

2.2 The Concept of Mathematics Performance

The concept of Mathematics performance is in debate. It may mean that is an action or achievement considered in relation to how successful it is. Nevertheless, for the purpose of this study, Mathematics performance is referred as the level of pupils' achievement in tests, internal examinations and the national examination (Benson, 1999).

Benson (1999) reveals poor performance in Mathematics after observing consistent low scores among candidates in several school-based and external examinations. This raises a need for assessing Mathematics performance in its totality of causes, interventions to outcomes. Bourke (1986) observes positive effects of class size on academic achievement in which the smaller the class size the greater chances for

good academic performance. On the other hand better attitudes towards Mathematics, appropriate instructional practices, teachers' satisfaction and morale account significantly for Mathematics performance among students in schools (Mungai, 2012). Moreover, performance of students in science subjects like Mathematics is closely related to the theoretical knowledge despite the fact that some are tough in isolation from the process of discovery. This depends solely on the subjects at various classes and also on particular factors within and out of the teaching and learning environment (Hume *et al.*, 2011; Felder *et al.*, 2013).

Pupil's attitude towards science subjects and Mathematics could be aroused through interest and motivation which gears towards selection of the school courses and leads to the students careers (Aschacher *et al.*, 2010; Harry, 2011). Mathematics performance can be assessed as output and outcome of learning. It is the amount of and degree of perfection of learning as per various levels of intellectual achievement from recall to application and creative innovation (Bergmann, 1996). The minimum level of education quality is fully functional literacy and fair mastery of Basic Mathematics operations including the capacity to apply them to at least in daily life (Harry, 2011).

On top of the input and output processes, education quality depends on the quality of policy in operation (Mosha, 2012). Policies clearly spell out expected outcomes of education system in the immediate and long term future (Mushi, 2000). Education policy finds out relevant knowledge and skills needed by learners as well as stipulating the criteria in which education is to be provided and planned for the

benefit of the society. Mathematics performance can be assured if good educational policies are set in place. Moreover, quality teaching and learning materials as well as conducive teaching and learning environment appreciably contribute to good performance in Mathematics (Mushi, 2000). Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (MLD) establishes that discrepancy between performance in Mathematics achievement tests and expected performance is determined by age, intelligence and years of education and for adults significantly interferes with their daily activities. However, it has not been noted that children (or adults) with low Mathematics achievement scores and with low intelligence have more difficult Mathematical cognition than children with low Mathematics achievement and average intelligence. Some findings described in causes suggest that Mathematics deficits may in fact be the same, but the mechanisms caring these deficits may differ (Geary *et al.*, 2002).

Implications are that level of intelligence may not matter when identifying Mathematical deficits, but different remedial approaches may be needed for children with higher or lower intelligence (PMC, 2012). Moreover, Mathematics performance can be assured if well trained and motivated teachers are available in schools, availability of quality teaching and learning material as well as conducive teaching and learning environment including physical facilities such as buildings, health services, nutritional status and high quality school administration. Theoretical and practical activities are not thought in isolation, they provide a room for which educational performance can be efficiently offered (Hurme, 2011; Felder *et al.*, 2013).

2.3 Teacher as a Factor for Good Performance in Mathematics

Good Mathematics performance can be achieved if there are good and motivated teachers who work diligently towards set goals. A good teacher as Mosha (2004) puts is a professional who possesses a wide range of knowledge and academic skills for enhancing it. A good teacher is not an individual who blindly follows the decagonal policies and practices dictated from above and dominate learning experience, but rather, he/she has the ability and skills to successfully guide and facilitates pupils (Mason, 2003). A good Mathematicsteacher is able to use the methods appropriate to their experience. Teachers' characteristics, their experience and behavior in the classroom contribute to the educational environment of the pupils which in turn have an impact on students' achievement (Wilkins, 2008).

There is a common assumption with regard to the association among teacher's experience and students' achievement. That is, pupils who are taught by the most experienced teachers achieved higher levels. This is partly true because these teachers master the content and obtained classroom management skills to deal with different type of classroom problems. Studies on the relationship between the teacher's experience and pupils' performance show contradicting results (Fetler, 2001). While Klecker (2002) reports that there is no significant relationship between pupils' achievement and their teacher's years of teaching, Fetler (2001) holds that student's Mathematics achievement depends on teachers' characteristics including their quality of education. Motivation plays a significant role for a teacher to efficiently enough to deliver lessons in a class (Klimmercer, 1990). Windham (1998) suggests that teacher salaries and benefits are supposed to meet their daily basic

needs which include food, shelter and clothes and medication if their performance is to be effective, otherwise teachers' moral will be lowered hence, inefficient. On the other hand, Klimmercer (1990) outlines two broad areas in which incentives might be provided to enhance the instructional effectiveness of a teacher that is enumeration and working conditions. The most notable non material benefits are housing, recognition, support and approval of significant others. Other important areas of motivation include career development, staff development opportunities as well as high level of esteem and widespread community support, These are the basic components which, when addressed, they can help to make teachers work to their optimum level of professional efficiency (Kennedy, 1998).

2.4 Methods and Approaches of Teaching and Learning Mathematics

2.4.1 Teacher – Pupil Interactive Technique

This technique applies methods and approaches used by a pupil-centered approach. The subject information produced by the learners is remembered better than the same information produced by the learners by the lecture (Linguist, 1995). The method encourages the pupils to search for appropriate knowledge rather than the lecture monopolizing the transmission of knowledge to the learners and research evidence has proved it to be an effective teaching method in improving pupil's academic performance (Doamodharan and Rengarajan, 1999).

In this approach/method one would concur with Rosenthal (1997) affect-effort theory that if a change in a teacher level of expectations of the intellectual performance of a pupil's occurs, a change in the affect shown by the teacher toward that pupils will

occur, and a change in the level of effort given by the teacher in teaching the student will occur. For example; if the change in the teachers level of expectation is positive the favorable affect shown towards the pupil will increase and the effort expended on the pupils' learning will increase as well. After many years of researching the subject of expectancy, Rosenthal (1997) theorizes that the increase in the teaching effort reflects the teachers belief and expectation that the increase in teaching effort reflects the teachers belief and expectation that the pupil is capable of achievement so that the effort expended is worth becoming and will likely lead to more learning.

2.4.2 Teacher – Centered Methods

In this method pupil simply obtain information from the teacher without building their engagement level with the subject being taught (Bond and Felet, 1999). The approach is the least practical, more theoretical and memorizing (Teo and Wong, 2000). It does not apply activity based learning to encourage pupils to learn real life problems based on applied knowledge. Since the teacher controls the transmission and sharing of knowledge, attempts are made to maximize the delivery of information while minimizing time and effort. The result of this teaching method is normally loss of both interest and understanding of the lesson (Bond and Felet, 1999). To address such shortfalls, Zakaria *et al.*, (2010) specifies that teaching should not merely focus on dispensing rules, definition and procedure for pupils to memorize but should also actively engage pupils as primary participants.

2.4.3 Pupil – centered method

With the advent of the concept of discovery learning, many scholars today widely adopt more supple pupil-centered method to enhance active learning (Greitzer,

2002). Most teachers today apply pupil-centered approach to arouse learner's interest, promote analytical skills and critical thinking and enjoyment among pupils (Greitzer, 2002).

2.5 Classroom Environment and Mathematics Performance

To many people classroom environment is just another expression for the classroom setting. It is an undeniable fact that classroom lighting, temperature and ventilation affect pupil's academic performance (Haki Elimu, 2013). Creating conducive learning environment goes beyond having attractive sights, relaxing sounds and good ventilation. It also involves making a classroom a place where everybody feels comfortable and at ease. It is a place where there is mutual respect in a friendly and a non – threatening atmosphere (Thapa *et al.*, 2013).

The teacher is the key factor influencing the mood of the classroom environment. It is the teacher who creates learners' attitudes towards the subject. With the help of their pupils, teachers foster a positive classroom climate which encourages pupils to be comfortable at ease in participating in all kinds of teaching learning activities. The teacher is always the decisive element in the classroom. It is the teacher's knowledge, personality, mood and skills that mold the entire classroom climate (Haki Elimu, 2011).

The teacher is therefore a decisive element in the classroom. It is teacher's personal approach and daily mood that creates good climate in the classroom. A teacher possesses tremendous power to make a pupil's life miserable or joyous in the class.

Teacher's responses in the class can inspire, humiliate, hurt or heal pupils. It is the teacher who decides whether a crisis will be escalated or de-escalated and a child humanized or dehumanized in the class (Haim Ginott, 1993).

On the other hand, clear and simple standards of conduct that all pupils understand are essential to a productive classroom environment. Classroom routines and procedures are the best way to selfish these standards. Effective classroom management is more than discipline. Effective classroom management establishes responses to common classroom issues of order that allow pupils to focus maximum time and energy on the instructional process (Dixie, 2003). A classroom environment is affected by both physical and psychological factors. Having emotionally 'safe' and encouraging classroom climate is equally important, in creating an effective teaching and learning environment (Temu, 1995).

2.5.1 Teachers' and Pupils' Attitudes towards Mathematics

It is generally believed that humans are social beings with beliefs, emotions and views that not only influence but also determine their choices. Teachers' beliefs about Mathematics play a major role in shaping their instructional practices and consequently influence their pupils' attitudes, interests and achievement (Nicolaidou and Philippou, 2003).

Teachers' styles of teaching Mathematics mainly depend on their conceptions of the nature of Mathematics and on their mental modes of teaching and learning Mathematics. Teachers' attitudes towards the nature of Mathematics are likely to

affect pupils' performance in Mathematics (Wilkins, 2002). Basically, there are two main views of Mathematics teachers towards the nature of the subject. These are traditional absolutist view and the non-traditional constructivist view (Datig *et al.*, 2013). Teachers with absolutist conception of Mathematics view Mathematics as a subject with vast collection of fixed and infallible concepts and skills while those with the constructivist view see it as a continually expanding field of human creation and intention. Nahid, (2013) contends that teachers who hold the absolutist view about Mathematics and its teaching and learning are more likely to create teacher – centered instructional environment, teach Mathematics as rules to be memorized, and portray Mathematics as an infallible discipline. Teachers holding constructivist view of Mathematics are expected to adopt teacher - pupil interaction mode of instruction by allowing students to explore and investigate while teachers reside in their classroom as facilitators (Nahid, 2013).

2.5.2 Pupils' Attitude towards Mathematics

Pupil's attitude towards Mathematics influences the efforts they put into understanding and practicing Mathematical concepts and skills (Lea, 2003). This in turn affects their achievements in the subject. If, for example, a pupil believes that Mathematics is so hard that only very few pupils can learn it and then doesn't waste time in solving Mathematical problems. The implication is also the same is if a pupil believes that Mathematics does not have any practical real life applications and hence less likely that will succeed in Mathematics (Hanula, 2002). According to Sindhu (1982) a vast majority of people hold Mathematics as a dry and difficult subject full of abstract things.

Pupils' feelings are important and strongly affect the amount of work, efforts put forward and the learning that is acquired (Benson, 1999). Thus, attitude determines the effort a pupil is likely to put in his learning of a subject. For example, a pupil who likes Mathematics is likely to put more effort in learning the subjects and at the same time increase the chance of performing well in the subject than a pupil who dislikes the very subject (Benson, 1999).

Pupils' attitudes towards Mathematics have been found to be positive in the early years of primary schooling, but decline as they progress to upper classes. It is therefore, necessary for Mathematics teachers to strive and sustain positive attitude towards Mathematics for good performance (Benson, 1999).

2.6 Assessment in Mathematics

Assessment was once synonymous with an examination or a test (Smith, 2003). It was traditionally believed that one final examination or utmost two were to assess students' achievements. Recently, both the objectives and the importance of assessment have changed it is now strongly believed that assessment and teaching and learning are inseparable activities (Airaisian, 1991).

Orton & Frobisher (1996) argue that in recent years the assessment of pupil's Mathematics achievements and attainment has become an increasingly prominent aspect of the Mathematics curriculum. They also see that although Mathematical assessment and testing of children has always taken in schools it has now assumed a greater importance. Although there are sound arguments for the assessment of

Mathematics being an integral part of what happen in schools and classroom, teachers and Mathematics educators express have a concern that assessment and testing in particular, may have an undue influence on the way Mathematics is taught and learned .Cockcroft (1982) advices the teacher that the form of assessment which is most immediately apparent to a pupil is the marking of written work; this may be routine class work or more formal test. Such marking needs to be both diagnostic and supportive.

Moreover, Cockcroft (1982) notes that examinations that consist only of timed written paper cannot, by their nature, assess ability to undertake practical and investigational work or ability to carry out work of an extended nature. They cannot assess skills of mental computation or ability to discuss Mathematics nor other than in very limited ways, qualities of perseverance and incentives. Work and qualities of this kind can only be assessed in the classroom and such assessment needs to be made over an extended period.

2.7 Causes of Unsatisfactory Performance in Mathematics

2.7.1 Demographic causes

The size of the class and the presence of the teaching and learning resources significantly affect pupils' performance in Mathematics (Kraft, 1994). The teacher - pupil ratio varies from one school to another as well as from one region to another. The efficiency and effectiveness of the teacher is assured where there is reasonable number of pupils. The smaller the class size the effective is the teaching and learning environment and vice versa. Studies have indicated that schools with small class sizes perform better academically than schools with larger class sizes (Kraft, 1994).

2.7.2 Economic Causes

According to Mosha (2012), Tanzania is no longer a socialist country. It is currently implementing liberalizing policies that allow the middle and high income earners to avail themselves of the opportunities for a better education in the better resourced school.

2.7.3 Legal Causes

There are laws which are inadequate and need some amendments Mosha (2012). For example the Educational Act of 1978 is yet to be revised despite several policy shift and other major reforms that have been implemented in education section from the 1989s to date. In this regard, the performance of Mathematics and quality of education cannot be negotiated in the legal aspects which do not go hand with the major education taking place (Mosha, 2012).

2.7.4 Cultural Causes

The community level on their affectionate response to education has great impact on the performance in Mathematics and quality of education provided (Mosha, 2002). For instance; in some areas cultural taboos causes early exit to pupil to get marriage. As well, failure of the community to understand the value of education, promote the engagement of pupils in economic activities like business and agriculture activities. Hence, quality education is in great jeopardy (Mosha, 2002).

2.7.5 International causes

For many years Tanzania has been receiving financial assistance from partners in education development. However, this assistance has been accompanied with

conditionality's to the people. Also these funds have not been affectively used to realize quality education as well as performance in Mathematics, (Mosha, 2012).

It is therefore suggested that, the government can raise internal funds from the citizen to foster quality and performance in education as it was in the self-reliance era. Parents and guardians can be prepare to raise money for buying books, desks and others teaching and learning materials as well as motivating teachers to take up their roles and responsibilities to endow with performance in Mathematics and quality education (Mosha, 2012).

2.8 Output in Mathematics Performance

School results are based on the interaction between school inputs, the pedagogical orientation and school functioning (Mosha, 2004). The results are indicator of performance of education provided by particular school. The context of this study is to focus on primary school leaving examination (PSLE) results to show the performance in Mathematics. Primary school Leaving Examination results are the yardstick for factors affecting performance in Mathematics, although a comprehensive model of quality education embraces the improvement in all-around performance at the end of each grade and the end of primary education. These include the ability to serve as role models in the society as the results to acquire useful values, attitudes and culture for hard work in an ever changing society as a well as ability to acquire skills for life-long learning, (Mosha, 2004).

Basing on PSLE results obtained from the Directorate of Primary Education and Vocational Training from 2012to 2015, there is a general agreement that there has

been consistent decline of performance in Mathematics despite much effort done so far (See Table 2.1).

Table 2.1: PSLE Mathematics Performance (2012-2015)

Year	Number of Pupils Sit	Number of Pupils Passed	Percentage (%)
2012	844,938	241,821	28.62
2013	844,706	241,741	28.62
2014	792,118	297,520	37.56
2015	518,034	218,455	42.17

Source: MOEVT, 2015

2.9 Empirical Studies on the Factors Affecting Performance in Mathematics

Performance in Mathematics has attracted researchers both inside and outside Tanzania Otieno (2000). Hereunder are some of empirical and theoretical studies about the subject from outside and within Tanzania.

2.9.1 Empirical Studies from Worldwide

Carron and Chau (1996) when reviewing studies about the performance on the quality of primary schools in India, China, Guinea and Mexico found out that proposal for quality and performance improvement were being worked out. Teachers constrains such as transfers, lack of parental support, poor living and working conditions tends to erode teachers' motivation and commitment to their daily duties hence affect the performance in Mathematics for education provided.

However, Lockheel *et al.*(1991) indicated that lack of motivation and professional attitude produce poor attendance and unprofessional attitudes toward students which

in turn affect the performance in Mathematics and students academically. Barnett (1995), on the other hand, suggests that quality education as well as performance of primary schools depends on the pupil's characteristics. In the review of 36 studies in USA on the long term efforts of early childhood programs on children from low income families on cognitive and schools outcome which included those in pre-school education, head start, child care and home visiting programs, it is was found that early childhood programs can produce short term, benefits, for children intelligence quotients (I.Q) and sizeable long term effects on child's future school performance in class as well as in Mathematics.

The study also found that children who were enrolled in early childhood programs developed positive self-concepts of basic understanding and skills which had impact to intellectual task when they entered school. Moreover, Sheikh (2006) found in Bangladesh that lack of desks in primary schools, made pupils in some classes to sit very close to each other. In such classes it was difficult for pupils to move their hand freely when they were required to write notes. Again, sitting arrangement for pupils in some schools found substandard. Thus, the situation contributed to poor performance in the majority of primary schools.

Enu *et al.* (2015) did a study to assess the factors that affect the mathematics performance in some selected colleges in Ghana. The results showed that the students Mathematical performance was not promising. The poor performance in Mathematics was resulted by poor use of teaching methods that are not encouraging the students to develop positive motivation towards the subject (lecture method).

Another reason for the poor Mathematics performance was caused by the tendency of the teachers to teach the subject as theory and the students were not exposed to the Mathematical models, the schools had no projectors and the shortage of Mathematics textbooks dominated.

Mbugua *et al.* (2012) did a study on Factors Contributing To Students' Poor Performance in Mathematics at Kenya Certificate of Secondary Education in Kenya: A Case of Baringo County. The findings showed that the poor Mathematics performances in the primary schools were attributed by two major factors: school based factors-the school seem to have few Mathematics teachers to attend the students and the school had no enough funds to purchase the needed teaching and learning materials for teaching the subjects these were like Mathematical sets, projectors, and textbooks. social cultural factors-students were not motivated by their parents and teachers to learn Mathematics and generally the students developed poor attitude in the subject.

2.9.2 Empirical Studies from Tanzania

Charles (2007) describes that the state of Mathematics performance in Tanzania is poor, especially at the primary level. The situation is partly attributed to insufficient number of competent Mathematics teachers and tumultuous history since the country was a German colony. After First World War (WWI), the educational system was disrupted when teachers had to switch to the British system and Mathematics was not even taught at the tertiary level until 1965 when the University of Dar-es-salaam (UDSM) established its department of Mathematics Otieno (2000) describes the poor

condition of primary education in Tanzania whose agents of quality and performance as rely on untrained, lowly paid and unmotivated teachers who are forced to engage in other cash generating activities to support their living. This results to teachers' absenteeism and reduced time management as well as poor performance in classrooms.

In the study made by Chonjo (1994) to asses physical facilities and the process of teaching - learning in Tanzania primary schools, it was observed that the quality of buildings, teaching and learning environment did not portray a picture that affect performance in Mathematics in the majority of Tanzania primary schools. Omari and Mosha (1987) reveal that poor performance in Mathematics was associated with truancy, lack of parental care for education of their children, shortage of qualified and motivated teachers, unconstructive teaching - learning materials and absence of meals at school.

Mosha (1988) conducted a study in five regions of Tanzania. In this study he sought to identify factors affecting quality of primary education in Tanzania. It was found that poor performance was caused by increased enrollment of pupils which gave rise to shortage of qualified teachers, frequent staff turnover, decline of financial support for primary education and ineffective curricula. The decline of financial support led to the shortage of teaching and learning materials, inadequate classrooms and lack of equipment. This situation affected pupils' performance in the sense that having inadequate teaching and learning materials was a threat to learners' achievements (Mosha, 1988).

2.10 Research Gap

The literature review done on the factors causing poor academic performances in primary schools has revealed that there various factors related to this problem. The first as stated by Enu *et al.* (2015) is the poor ability of the teachers to innovate the effective teaching methods that will shift from the passiveness to activeness in the classroom. The second major obstacle making the problem of poor Mathematical performance to persist is shortage of text books that motivate the students to be involved in learning the subject. Although this problem has been investigated in various settings it has not produced satisfactory answer on how to address the case. Therefore, it is the intention of the study to analyse the case of Morogoro district primary schools (urban) and come out with suggestion to improve the performance of Mathematics in primary schools.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the description of the entire research process undertakings towards obtaining the study findings. The chapter consists of the following sub-sections; research design, description of the study area, sample and sampling techniques, data collection and data analysis techniques. Lastly, the chapter outlines ethnical consideration in conducting the study.

3.2 Research Design

Cresswell (1998) holds that a research design is the arrangement on how the research will be conducted. It involves the stages of selecting the sample, how the data will be collected, how will it be analysed and reporting of the results. This study chose to use both qualitative research and survey at the same time, in a style called by Tashakkori and Teddlie (2009) a method design. The mixed method design is the design which uses both the qualitative and quantitative data to inform the study. The reason for using this design was based on the fact that, the use of both data system would enrich the study findings and increase the result credibility as the data are drawn from many sources (Tashakkori and Teddlie 2009).

3.3 Area of Study

The study was carried out in Morogoro (Urban) District in Morogoro region. The district lies between 07° 00" and 10° 00" South and between 37° 40" and 38° 22" East at the central part of the Uluguru, one of the Eastern Arc of Mountain blocks. It

covers an area of 531 square kilometers. It is bordered by Morogoro Rural district to the East, Mvomero district to the North West and South West. In the Southern part, it is bordered by the famous Uluguru Mountains. The National Census conducted in 2012 shows that Morogoro Urban had a total population of about 315866 people out of which 159,116 are women and 156750 are men. Morogoro Urban has a total of 85 primary schools, out of these 62 are public primary schools and 23 are private based primary schools (Morogoro municipal council education report, 2013).

The economic activities which are both formal and informal in nature include commerce and industries, agriculture, small scale production and service provision. Selection of the area was based on presence of good number of public primary schools which suffer from a number of problems including Mathematics poor performance, also people from different socio-economic status are found, and there is a good transport network that is relatively reachable from the resident to the selected primary schools.

3.4 Target Population

The target population comprised of standard six pupils, classroom Mathematics teachers and head teachers from five primary schools in the Morogoro (Urban) District; Kihonda Maghorofani, Bigwa, Misufini B, Mlimani and Area five who were sampled and reached for gathering data. Moreover, the District Primary School Education Officer (DPSEO) was also consulted for data collection. As the study was centered on the assessment of institutional factors affecting performance in Mathematics.

3.5 The Sample of the Study and Sampling Techniques

A sample is a portion or a subset of the population selected to participate in a study, representing the target research population (Wood and Heber, 2002). It is a part of the whole population whose characteristics represent the entire target research population (Ndunguru, 2007). The information obtained from the sample represent the population. The sample taken in this study depends on nature, objectives, design of research, methods of data collection, and nature of population.

With reference to the above explanation, a total of 70 pupils from each of the selected primary schools were sampled through simple random sampling technique to get assorted respondents (Std v,vi and vii) from six primary schools in Morogoro (Urban) District. Simple randomly sampling used for target population (pupils from selected schools) from five selected primary schools.

Selection of the pupils as a part of the sample for the study dwells on the fact that the pupils from selected primary schools share homogenous characteristics; they all study in public schools in Morogoro (Urban) District subjected to similar learning environment.

Moreover, five (05) head teachers (HTs), one from each of the selected primary schools were purposively sampled, three (3) classroom Mathematics teachers from each five primary schools were purposely sampled, and also one (1) District Primary School Education Officer. The head teachers and the educational officers have the role to supervise the teaching of various subjects at the schools, Mathematics inclusive, For example the head teachers check on the lesson plans, scheme of

works, examination records and students assessments, in doing so they are able to know some challenges facing the Mathematics teachers, they aswell able to discover who a mong the Mathematics teachers is using variety of teaching, methods to make their Mathematics lesson eefective, thus their inclusion in the study was vital as they could provide the needed information to adress the study objectives.

Primary school teachers were purposively sampled, was also reached to gather data on the subject of the study. Selection of teachers was on the basis that they are the ones who directly involve in both management of the schools and daily teaching and learning which significantly affect pupils' academic performance. They are the ones who implement the curriculum, they teach in the classrooms, they prepare the teaching and learning materials and thus they are able to provide experiences on the challenges of teaching mathematics in primary schools.Hence their inclusion in the study was rational.

Table 3.1: Distribution of respondents

Name of school	Head teachers	Mathematics teachers	Number of Pupils	District Primary School Education Officer
Kihonda Maghorofani primary school	1	3	70	
Bigwa primary school	1	3	70	
Mlimani primary school	1	3	70	1
Area Five primary school	1	3	70	
Misufini primary school	1	3	70	
TOTAL	1	15	350	1

The District Primary School Education Officer (DPSEO) is the overall in charge of all primary education matters in the Morogoro (Urban) District; therefore his insights into several primary education issues would enrich the study with enough data as per the set study objectives. A summary of the sample for the study is given in Table 3.1.

3.6 Methods of Data Collection

Data collection refers to the process of gathering specific information aimed at proving or refuting some facts (Kombo and Tromp, 2006). This study will utilize both primary and secondary data whose collection methods are outlined and explained in the subsequent sub-sections.

3.6.1 Primary Data Collection Instruments

Primary data are those collected afresh from the field. They happen to be raw in nature (Kothari, 2004). Therefore, in collecting primary data the following methods will be employed by the researcher

3.6.1.1 Interview

An interview is an interrogation or a conversation between a researcher and his/her respondents in order to get raw data (Kombo and Tromp, 2006:92-95). It normally involves asking oral questions about the subject under study to respondent or a group of respondents (Mugenda and Mugenda, 2003:72). This method was employed in the study because of its flexibility to provide a room to both the interviewer and interviewee to clarify issues under discussion which might be particularly important to the study (Ndunguru, 2007). In respect of this study, the interview method was

used to collect data from the District Primary School Education Officer (DPSEO), Head teachers and Mathematics teachers who are the key informants.

3.6.1.2 Questionnaire

A questionnaire is an instrument containing a number of questions which participants have to complete either by ticking in the boxes or written information (Opie, 2007). The method is economical because respondents from distant locations can be reached and questions are standardized. The method assures confidentiality and exerts less pressure to the respondents a thing which helps to collect enough data because respondents do not become tired or get bored easily (Masudi, 1986). This study, therefore, used questionnaires to obtain data from pupils and Mathematicsteachers. Questionnaires to be administered to pupils, other than those to be administered to teachers, were in Kiswahili (a language the pupils are more conversant with than English) to give them a room for a better understanding of the issues the study underscores hence responding correctly and confidently to the questions. Administration of the questionnaires to respondents was done around school compounds in work days to get the required respondents in the real school setting.

3.6.1.3 Classroom Observation Schedule

Moreover, observation was also used to gather data. As Donald et al., (2010) hold that observation gives a room for a researcher to observe respondents' behaviors in their natural setting, the researcher employed structured observation checklist to check teaching methods, classroom atmosphere and the interaction and provision of feedback from both teachers and pupils. Structured observation involves careful

definition of units to be observed, style of recording observed information and pertinent data of observation (Kothari, 2004). With regard to this, a checklist of all the above mentioned items for observation was prepared and rated in accordance with the researcher's classroom observation.

For each of the five selected primary schools, there were three classroom observation sessions (one for each class- standard v, vi and vii) making a total of fifteen (15) observation sessions for the entire study to acquaint the researcher with enough data on the selected items for observation. All these sessions were undertaken in classrooms when teaching and learning process was going on.

3.7 Secondary Data Collection Instrument

3.7.1 Documentary Review

The technique involves extracting information by studying the written documents (Krishnaswami, 2003). Documents such as registration files, National Examination Council of Tanzania results for standard seven, personal profiles, books, Primary School Statistical forms (TSM1 and TSM2), journals, inspectors' reports and the pupils' attendance registers were reviewed to obtain relevant information for the study.

3.8 Data Analysis Techniques

The data collected via instruments both quantitative and qualitative in nature. The quantitative data were categorized, coded and analyzed according to research specific objectives and research questions were analyzed using Statistical Package

for Social Science software (SPSS) *version 16* for easy interpretation. The results were tabulated and each table frequencies and percentage were shown. The qualitative data were analyzed through content analysis method.

The content analysis method used to analyze the qualitative data from interviews. This involved extracting information from narratives to obtain relevant data. Themes and meanings that were extracted from reported data were analyzed based on the context of social process that produced the evidences.

Data from the interview were transcribed, then analyzed using content analysis. Content analysis involves quoting important information, identifying common themes from interviews categorizing themes and discussing the theme.

3.9 Ethical considerations

The research clearance to carry out the study was obtained from The Open University of Tanzania. This helped to seek for permission from the Regional and District Administration authorities to conduct research in the area. The researcher presented a permit letter to the relevant authorities and explained about the study before collecting data. To observe the confidentiality of the respondents, the respondents' names were given codes or hidden to avoid harm for the volunteers in the investigation.

3.10 Reliability and Validity of Data

3.10.1 Reliability

Pilot study was carried out at Mafiga and Mwembesongo primary schools to test the questionnaires reliability; after that corrections were done in order to obtain reliable

research data. The collected data were verified by experts experienced in research for their reliability. This action helped the researcher to study the properties of items that made them. The reliability of data goes together with the accuracy of measuring instrument, in this study, reliability concerned with the questionnaires' consistency of responses to the questions asked in repeated measurements (Maurer, 2004).

3.10.2 Validity

Validity is defined as the instrument's ability to measure exactly what is supposed to measure. The researcher in order to validate the data and instruments used in the research, asked the experts advice on their representativeness and suitability. Allowed suggestions to be made to the structure of these questionnaires. These helped the researcher to establish content validity as argued by Bryman (2004).

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents and discusses the findings arising from institutional factors affecting primary school Mathematics Performance in Morogoro (Urban) District. It is presented and discussed under four themes; the first part focuses the examination of the causes of unsatisfactory performance in Mathematics in Primary Schools; the second part identifies teaching methods used by primary school Mathematics teachers; the third part finds out classroom factors which influence and; the fourth part analyses the pupils and teachers attitudes towards Mathematics to improve performance. These parts are arranged according to the research objectives as well as research questions.

4.2 The Causes of Unsatisfactory Performance in Mathematics

The first research objective sought to explore the causes of unsatisfactory performance of Mathematics. Therefore, this section provides answers to the first main research question which was “*What are the causes of unsatisfactory performance in Mathematics learning?*” This question was important because before identifying the teaching methods used by primary school Mathematics teachers there was a need to study the causes of unsatisfactory performance in Mathematics learning.

This question was asked to fifteen classroom Mathematics teachers and 350 pupils. It was disclosed that, there were five causes of unsatisfactory performance in

Mathematics learning. The following were the findings from the fifteen teachers in responding to the first research question as summarized in Table 4.1 hereunder.

Table 4.1: Teachers' Perspectives on Causes of Unsatisfactory Performance in Mathematics(N=15)

Cause	Agree	Disagree
Lack of Pupils' Mathematical background.	9(60.1%)	6(39.9%)
Poor infrastructure	10(66.7%)	5(33.3%)
Lack of pupils/teachers motivation	10(66.7%)	5(33.3%)
Lack of learning and teaching materials	9(60.1%)	6(39.9%)
Having large classes	9(60.1%)	6(39.9%)

Source: Research data, 2016

Table 4.1 indicates that a good number of the sampled teachers 9(60.1%) believe that the lack of Mathematical background; poor infrastructure; lack of pupils and teachers motivation; lack of learning and teaching materials and having large classes of the primary school pupils in Morogoro (Urban) District are the causes of unsatisfactory performance in Mathematics. From the teachers' responses, it can be seen that poor infrastructure, lack of pupils/teachers motivation, lack of learning and teaching materials and poor teaching methods from the side of the pupils also causes of unsatisfactory performance in Mathematics. Similar the causes of unsatisfactory performance in Mathematics were raised by pupils as shown in Table 4.2.

Table 4.2 Pupils' Perspectives on Causes of Unsatisfactory Performance in Mathematics (N=372)

Cause	Agree	Disagree
Lack of Pupils' Mathematical background.	211(60.1%)	139(39.9%)
Poor infrastructure	234(66.7%)	116(33.3%)
Lack of pupils/teachers motivation	234(66.7%)	116(33.3%)
Lack of learning and teaching materials	211(60.1%)	139(39.9%)
Having large classes	211(60.1%)	139(39.9%)

Source: Research data, 2016

The analysis revealed that 211(60.1%) of pupils agreed that lack of pupils' Mathematics background;lack of learning and teaching materials as well as having large classes were the causes of unsatisfactory performance in Mathematics subject while poor school infrastructure and lack of pupils and teachers motivation were revealed by the 234 (66.7%) pupils as causes of unsatisfactory performance in Mathematics subject. This finding is in line with those found by Harry (2011) who revealed the causes of unsatisfactory performance in Mathematics were inadequate of teaching and learning materials. This implies that though the causes of unsatisfactory performance in Mathematics in primary schools were the ones existing for a long time.

4.3 Mathematics Teaching Methods used by Primary School Mathematics Teachers

The second research objective sought to explore the Mathematics teaching methods used by primary school Mathematics teachers. Therefore, this section provides

answers to the first main research question which was “*What are the teaching methods used by primary school Mathematics teachers?*” This question was important because before identifying the teachers and pupils’ attitude toward Mathematics there was a need to study the teaching methods used in Mathematics learning in primary schools.

This question was asked to fifteen Mathematics teachers and 350 pupils. It was disclosed that, there were five teaching methods were being used in Mathematics learning. The following were the findings from the fifteen teachers in responding to the first research question as summarized in Table 4.3 hereunder:

Table 4.3: Teachers’ Perspectives on Mathematics Teaching Methods used in Primary Schools (N=15)

Teaching Methods	Frequently Used		Sometimes used		Rarely used	
	F	%	F	%	F	%
	Lecture Method	15	100	0	0	0
Small Group Discussion Method	0	0	1	6.7	14	93.3
Questioning method	0	0	1	6.7	14	93.3
Problem solving method	0	0	1	6.7	14	93.3
Demonstration method	0	0	1	6.7	14	93.3

F=frequency, %=Percentage

Source: Research data, 2016

From Table 4.3 shows that lecture methods used frequently in primary schools as revealed by 15(100%) of teachers. Fourteen (93.3%) teachers revealed that small group discussion method, questioning method, problem solving method and demonstration methods was rarely used in Mathematics teaching in primary schools. Only 1(6.7%) of teachers revealed Mathematics teachers sometimes use

small group discussion method, questioning method, problem solving method and demonstration methods in Mathematics teaching in primary schools. This finding correlated with the one found by Flanders (1970) who revealed 70% of the talking in class were done by the teacher. It was also concurred with Moris and Arore (1992) who also exposed that Mathematics teachers' emphasis on facts and skills. This findings of this section which hold that the lecture method makes the students passive in learning Mathematics; correlates with the Enu *et al.* (2015) findings which concluded that the Ghananian students failed to understand and perform well in Mathematics due to some teachers dominance teaching Mathematics with lecture methods. It can be seen from these findings that Mathematics teachers in Morogoro (Urban) district do not use interactive methods. It can be inferred that these teachers have not understood much learner-centered approaches of teaching. Similar the Mathematics teaching methods used by primary school Mathematics teachers were raised by pupils as shown in Table 4.4.

Table 4.4 Pupils' Perspectives on Mathematics Teaching Methods used in Primary Schools (N=15)

Teaching Methods	Frequently Used		Sometimes used		Rarely used	
	F	%	F	%	F	%
Lecture Method	350	100	0	0	0	0
Small Group Discussion Method	0	0	24	6.7	326	93.3
Questioning method	0	0	24	6.7	326	93.3
Problem solving method	0	0	24	6.7	326	93.3
Demonstration method	0	0	24	6.7	326	93.3

Source: Research data, 2016

The analysis revealed that 350 (100%) of pupils agreed that Mathematics teachers use the lecture method for Mathematics teaching in primary schools. Also 326 (93.3%) of pupils revealed that small group discussion method, questioning method, problem solving method and demonstration methods was rarely used in Mathematics teaching in primary schools. Only 24 (6.7%) of pupils revealed that Mathematics teachers sometimes use small group discussion method, questioning method, problem solving method and demonstration methods in Mathematics teaching in primary schools. This finding is in line with those found by Njogu (1993) and Samuel (1986) who revealed the Mathematics teaching methods used in primary schools is lecture methods. This implies that the challenges of using lecture methods by Mathematics teachers persistence for a long time.

4.4 Pupils and Teachers' Attitude towards Mathematics Subject

This third research objective presents and analyses the findings related to pupils and teachers' attitude towards Mathematics subject so as to improve pupil in Mathematics learning and performance in primary schools. More specifically, the section provides an answer to the third main research question. The main research question was "*What are the pupils and teachers' attitude towards Mathematics subject?*" To achieve this, the data were collected through interview, questionnaire and documents review, were analyzed and appropriate interpretation was made.

This question was responded by 371 participants where 15 respondents were classroom Mathematics teachers, 1 District Primary School Education Officer, 5 head teachers (Hts) and 350 were standard six pupils. Their views were organized

into two main categories namely: teachers' attitude toward Mathematics subject and pupils' attitude toward Mathematics subject.

4.4.1 Teachers' Attitudes towards the Mathematics Subject

The first category of the third objective intended to find out teachers' attitude towards Mathematics subject in Morogoro(Urban) District primary schools. It found that the Mathematics is difficult by nature and boredom; Teaching Mathematics does not need any resources; More practice enhances understanding Mathematics facts; Mathematics is important in daily life; Mathematics is a continually expanding field of human innovation and creation; and Everybody can learn and understand Mathematics were teachers' attitude toward Mathematics subject as shown in Table 4.5.

Table 4.5: Teachers' Perspectives on Teachers' Attitudes towards Mathematics

Subject(N=15)

Statements	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Mathematics is difficult by nature and boredom	2(14.6%)	3(22.6%)	0(0%)	8(52.3%)	2(17.8%)
Teaching Mathematics does not need any resources	0(0%)	0(0%)	0(0%)	7(48.0%)	8(52.0%)
More practice enhances understanding Mathematics facts	13(82.2%)	2(17.8%)	0(0%)	0(0%)	0(0%)
Mathematics is important for daily life	11(68.8%)	4(31.2%)	0(0%)	0(0%)	0(0%)
Mathematics is a continually expanding field of human innovation and creation	10(62.5%)	5(37.5%)	0(0%)	0(0%)	0(0%)
Everybody can learn and understand Mathematics	6(40.3%)	6(40.3%)	0(0%)	1(6.5%)	2(11.5%)

Source: Researcher data, 2016

Table 4.5 shows that the teachers agreed and strongly agreed Mathematics is difficult by nature and boredom; More practice enhances understanding Mathematics facts; Mathematics is important for daily life; Mathematics is a continually expanding field of human innovation and creation; and Everybody can learn and understand Mathematics in primary schools as teachers' attitude toward Mathematics subject teaching.

Also, it shows teachers disagreed and strongly disagree on Teaching Mathematics does not need any resources as teachers' attitude toward Mathematics subject teaching. This finding is contrary by the ones done with Nocolaidou and Philippou (2003) who revealed that teachers bring a negative attitude to the pupils learning Mathematics subject. These findings indicate that generally the Mathematics teachers in Morogoro Urban District Primary Schools have a positive attitude towards Mathematics subject teaching.

4.4.2 Pupils Attitudes towards Mathematics Subject

The second category of the third objective intended to find out pupils' attitude towards Mathematics subject in Morogoro (Urban) District primary schools. It found that the Mathematics is difficult by nature and boredom; Teaching Mathematics does not need any resources; More practice enhances understanding Mathematics facts; Mathematics is important in daily life; Mathematics is a continually expanding field of human innovation and creation; and Everybody can learn and understand Mathematics were pupils' attitude toward Mathematics subject as shown in Table 4.6.

Table 4.6: Pupils' Perspectives on Pupils' Attitudes towards Mathematics**Subject (N=350)**

Items	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
I like doing Mathematics more than any other subject.	65 (18.5%)	0 (0%)	89(25.3%)	77(21.9%)	115(32.8%)
I hated and I don't like Mathematics.	105(30%)	105(30%)	70(20%)	35(10%)	35(10%)
Mathematics is difficult by nature.	105(30%)	105(30%)	70(20%)	35(10%)	35(10%)
Mathematics is useful in life.	65 (18.5%)	0 (0%)	89(25.3%)	77(21.9%)	115(32.8%)
I would not like to do Mathematics after standard seven.	0 (0%)	65 (18.5%)	89(25.3%)	77(21.9%)	115(32.8%)
Mathematics subjects are boring.	105(30%)	105(30%)	70(20%)	35(10%)	35(10%)
Mathematics is a fascinating subject.	0 (0%)	65 (18.5%)	89(25.3%)	77(21.9%)	115(32.8%)

Table 4.6 shows that pupils agreed and strongly agreed that they hated and donot like Mathematics; Mathematics is difficult by nature subject and Mathematics subjects are boring. While pupils disagree and strongly disagreed that they like doing Mathematics more than any other subject; Mathematicsis useful in life; they do not like to do Mathematics after standard seven and Mathematics is a fascinating subject.

This finding is concurred by the ones done by Benson (1999) who revealed that pupils have negative attitude toward Mathematics learning. These findings could lead to the assertion those pupils' attitudes towards Mathematics and their views about the Mathematics teachers' teaching activities could be an institutional factor affecting primary school Mathematics performance in Morogoro (Urban) District Primary Schools.

4.5 Classroom Factors which Influence Mathematics Performance

This fourth research objective presents and analyses the findings related to classroom factors which influence Mathematics performance so as to improve pupil in Mathematics learning and performance in primary schools. More specifically, the section provides an answer to the third main research question. The main research question was “*What are the classroom factors that influence Mathematics performance?*” To achieve this, the data were collected through interview, questionnaire and document review, were analyzed and appropriate interpretation was made. This question was responded by 390 participants where 15 respondents were Mathematics teachers, One district education officer, 5 head teachers (Hts) and 350 were standard six pupils. Their views were organized into three main categories namely: classroom climate; classroom interaction and classroom exercises and feedback provision toward Mathematics subjects.

4.5.1 Classroom Climate

The first category of the fourth objective intended to find out the influence of classroom climate towards a Mathematics subject in Morogoro (Urban) District primary schools. This category sought to find out the classroom climate which influences Mathematics performance and learning. It was expected that through good classroom climate pupils’ achievement would be enhanced. Teachers revealed that in classrooms were large enough with a few desks to accommodate the number of pupils in the class. As one of the teachers had this to say:

There were few desks and these were shared by three to four pupils per desk according to the size of the desk in the classroom. Desks were

arranged in rows and it was difficult for pupils to sit and discuss in groups during the lessons. This difficult the progress of teaching and learning in the classroom affect performance of pupils.

In the case of class size, it was observed that the number of pupils was much higher compared with number of desks. The same finding was revealed through document reviews. For example, in one school reviewed that the total number of pupils in one class was more than 200 and the pupils were divided into two streams; stream A and B there was 114 and 115 pupils in each stream respectively. This finding was also affirmed through interviews with head teachers and subject teachers. For example, one of the head teachers had this to say:

Kwa ujumla nivigumu kufundisha kwa ufanisi katika darasa lenye wanafunzi wengi kama haya ya hapa shuleni. Hii ni kwa kuwa tumezidi kiwango cha serikali cha 1:45 (mwalimu mmoja kwa wanafunzi 45).

English translation

In total, it is difficult to teach effectively in a class with many pupils like in this school. This is because, the ratio of the pupils to the teacher exceeded that recommended by the government (one teacher per 45 pupils).

From this quotation it is clear that the teacher pupil ratio was larger and this affects teaching and learning processes and performance in Mathematics. Headteachers revealed that in the classroom where the teacher-pupils ratio is large, and it is

difficult for effective teaching and learning takes place. The situation in the classroom is central when it comes to effective teaching and learning. This is concurred by Sheikh (2006) and Knutson (2005) who found that education classroom condition usually plays an important role in the teaching and learning process. They revealed that the availability of sufficient space, such as desks where pupils can sit comfortably, also influences teaching and learning effectively. This implies that primary school with bad classroom climate had no influence to pupils' Mathematics performance.

4.5.2 Classroom Interaction

The second category of the fourth objective intended to find out the influence of classroom interaction towards a Mathematics subject in Morogoro (Urban) District Primary Schools. This category revealed that teachers introduced the lessons by giving an explanation of a concept based on the topic. For example, one of the teachers had this to say:

The Mathematics teachers gave pupils, some examples on the blackboard and explanation on how to calculate these questions. Then, teachers asked also pupils to solve questions by following step by step on the blackboard and as a sound pedagogical strategy. And it trains pupils to understand and make sense of the processes behind.

From the above findings, it is clear that there was classroom interaction, though there were interaction between teacher and pupils during Mathematics teaching. In two schools out of five under study observed that, teachers managed to promote pupil-

pupil interaction while in three schools, Mathematics teachers were not that successful. Teachers revealed that there were numbers of challenges hinder them to make classroom interaction. For example, one of the teachers had this to say:

The factors that hinder the promotion of teachers and pupil's interaction include, among others, poor mastery of subject matter, lack of preparation on the part of teachers and the language of instruction in Mathematics. The lack of Mathematics teaching and learning resources in primary schools hinders the pupils and resources interaction.

The finding indicates the classroom interaction that used in primary schools where teacher and pupil(s) interaction. These findings are in concurrence with the findings revealed by the URT(2004b) and of Athuman (2004). Their study found that teachers had poor knowledge of subject contents and this force teachers to employ the teacher-pupils interaction instead of other classroom interaction like pupils, pupil-resource interaction. This implies that Mathematics teachers used teacher-pupils interact to influence the Mathematics performance in primary schools.

4.5.3 Classroom Exercises and Feedback Provision

The third category of the third objective intended to find out the influence of classroom exercises and feedback provision towards a Mathematics subject in Morogoro (Urban) District primary schools. This category was examined the provision of exercise and feedback given to the pupils and its influence. Doing exercises and getting feedback in a proper way enhances learning and good achievement. The findings from this study show that teacher gave exercises soon after the lesson. For example, one of the teachers had this to say:

We gave our pupils Mathematics exercise. The exercises comprised not more than ten questions. All pupils do the exercises during the period. The pupils who scored below 50 percent remain in a school for remedial session.

The same findings were revealed by pupils. The pupils confirmed they were being given the exercise by their Mathematics teachers in every topic they taught. One of the pupils had this to say:

Tunafanya zoezi moja kwa kila mada inayofundishwa muda ukitosha tunafanya hapa shuleni. Kamamuda hautoshi tunanakilimaswali na kwenda kufanyia nyumbani. Mazoezi ya nyumbani hutolewa mara chache sana.

English translation

We do one exercise for each topic being taught. Whenever we have enough time we do the exercise at school. If the time is not enough, we copy the questions and attempt them at home. It is rarely for the mathematics teacher to give assignment to the students.

The above findings show that pupils do exercises for every topic taught. The findings further show that teachers did not give pupils' homework. The head teachers revealed that in primary schools, Mathematics give their pupil feedback through writing answers in black board, through comment in exercise books. For example, one of the head teachers had this to say:

The common way which was used by teachers to give feedback pupils was writing of the correct answers on the blackboard and each pupil marked own work. Sometimes pupils exchanged their exercise books so that one would not mark one's own work. Rarely teachers marked the exercises and gave comments on the students' work or activities.

The quotation above insists that teachers gave pupils feedback through writing answers in black board and through giving comments in pupils' exercise books. The same finding was revealed by pupils themselves. Through interviews, one of the pupils had this to say:

Wakati mwingine tunasahihisha madaftari yetu ya somo la Hisabati wenyewe. Mwalimu huandika majibu ubaoni nasi tunasahihisha. Tunabadilishana madaftari kwahiyo kila mwanafunzi husahihisha daftari la mwenzake. Wakati mwingine mwalimu anakusanya madaftari na kusahihisha. kujua tulipokosea na tulipopatia.

English translation *Hii inatusaidia*

Sometimes we mark our Mathematics exercise book. Our teacher writes the answers in blackboard and us, we mark our exercises. We exchange our exercise and mark accordingly. Rarely, our teacher collects exercises and mark them. This helped us to know our status.

The quotation above insists teachers gave pupils' Mathematics exercise feedback. Pupils interviewed revealed that feedback was provided by their teachers, though in an unsatisfactory way. These findings support those of Temu (1995) , Eson (1972) and Omari (1995) who found that the large number of exercises constituted much in

learners' achievement in successful schools. They revealed also that if the learner is provided with enough exercises, tests and exposed to various problem situations. These make practice pupils' Mathematics skills, recall, transfer, translate arrange, which formulate and evaluate good position to perform better whenever deals with problems solving, tests and examinations. This implies that giving pupils' exercises and feedback influence pupils' Mathematics performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study findings, conclusions and recommendations of the major research findings. The summary gives the general characteristics of the study, while conclusions drawn were based on the objectives of the study. The recommendations were obtained with reference to the findings.

5.2 Summary of the study

The purpose of the study was to investigate the Institutional Factors Affecting Mathematics Performance in Morogoro (Urban) District Primary Schools. The objectives of the study comprise the examine the causes of the unsatisfactory performance in Mathematics in Primary schools, to identify teaching methods used by Mathematics teachers to improve performance, analyses pupils' and teachers' attitude towards Mathematics and classroom factors which influence Mathematics performance in primary schools. The study found that in Morogoro Urban District all Mathematics teachers used expository approach to teach Mathematics which limits pupils classroom activities and just listen to the teacher words and doing exercises from the blackboard. This was very little teachers-pupils interaction which was limit pupils to ask and answer questions, heuristic methods of teaching such as small group discussion and problem solving were completely absent from Mathematics classes. On the other hand, most of the Mathematics teachers believe that teaching Mathematics needs resources, but they never used any, other than the chalk and

blackboard. Also most of the pupils selected for the study had positive attitude towards Mathematics that they see Mathematics is difficult by nature.

5.3 Summary of the Major Research Findings

5.3.1 The Causes of Unsatisfactory Performance in Mathematics

Result from the study revealed that the unsatisfactory performance in Mathematics subject in primary schools caused by the lack of pupils and teachers motivation; pupils mathematical background; poor school infrastructure; lack of learning and teaching materials and large classes in primary schools. Those were the causes of unsatisfactory performance in Mathematics subject in primary schools in Morogoro urban district.

5.3.2 Mathematics Teaching Methods used by Primary Mathematics Teachers

Findings revealed that lecture method; small group discussion method; questioning method; problem solving method; and demonstration method were Mathematics teaching methods used by primary school Mathematics teachers. The study revealed lecture method used frequently by Mathematics teachers while rarely small group discussion, questioning; problem solving and demonstration methods used by Mathematics teachers. No doubt the banking methods (lecture methods) is the hindering factor towards poor Mathematical ability among the primary students in Morogoro district (urban).

5.3.3 Pupils and Teachers' Attitude towards Mathematics

The findings in the study revealed that pupils and teachers' were having negative attitude toward Mathematics subject in primary schools. Some of the attitude of

Mathematics teachers toward Mathematics subject includes Mathematics is difficult by nature and boring; teaching Mathematics does not need any resources; more practice enhances understanding Mathematics facts; Mathematics is important for daily life; Mathematics is a continually expanding field of human innovation and creation and everybody can learn and understand Mathematics. Moreover, the study revealed that all these attitude of Mathematics teachers and pupils toward the Mathematics subject in turn stimulated poor academic performance in Mathematics subject to pupils in primary schools.

5.3.4 Classroom Factors which influence Mathematics Performance

The findings in the study revealed that the classroom factors which influence Mathematics subject performance in primary schools. Some of the classroom factors which influence Mathematics subject performance in primary schools includes classroom climate (class with optimal number of pupils, desks and teacher' chair and tables), classroom interaction (teacher-pupils interacted, pupil-pupils interaction as well as teacher and pupils- resources interaction) and classroom exercises and feedback provision. What is more, the study revealed that all these classroom factors which influence Mathematics subject performance in primary schools in turn facilitate to good academic performance in Mathematics subject to pupils.

5.4 Conclusions

The study found that the interactive methods of teaching Mathematics, which are core to improving pupils' holistic understanding to Mathematics concepts and eventually enhance performance in the subject, were completely absent in the Mathematics class in Morogoro (Urban) District Primary Schools. Also, most of the

Mathematics teachers were qualified and experienced, they did not use any teaching aids and other the illustrations on the blackboard at all.

In addition, they felt that the subject is easy for the pupils to learn. Similarly the pupils felt that the subject is useful in their lives for their career would be determined by the subject's results. On the other hand, they felt Mathematics is difficult to them, hence obscuring the significance the subject. Since the pupils like the subject and the teachers view that the subject is easy to learn, there was needed to address non-interactive teaching methods in the classes and pupils perceived difficulty of the subject. Unless this is done in Morogoro (Urban) District, pupils would be low and poorly performance, an observation similar to other countries experiences like Ghana and Kenya.

5.5 Recommendations

In the light of the findings, summary, and conclusions of the study, the following recommendations are proposed for administrative action and for further research.

5.5.1 Recommendations for Action

The Ministry of Education, Science and Technology (MOEST) and stakeholders should harmonize teaching and learning resources for Mathematics subject.

- (i) Improve professional development support services and opportunities for organizing in-service trainings for Mathematics teachers with regard to teaching methods, use of teaching resources and pupil's assessment.
- (ii) Integrate action research methodologies into the teacher preparation and development programs so as to reflect on and improve teachers' empowerment through enhancement of practice and improve pupil learning outcomes.

- (iii) Ministry of Education, Science and Technology (MOEST) should harmonize the policy of teaching Mathematics by revising the curriculum of the teachers training institutions to improve teachers' competence in Mathematics.
- (iv) Schools should revive mathematics clubs and it should be made compulsory to all students.

5.5.2 Recommendation for Further Research

The Study assessed the Institutional Factors Affecting Primary School Mathematics Performance in Morogoro (Urban) District. It is recommended that further research to be done on the following:

- (i) The study was basically confined to the primary school in Morogoro (Urban) District, Tanzania. Further and related studies are recommended to be carried out in other regions of Tanzania so that the results could be compared.
- (ii) The majority of the teachers were professionally qualified to teach Mathematics, yet they didn't show the expected professionalism when teaching the subject.
- (iii) Commitment of parents in facilitating the education of their children in Morogoro Urban.
- (iv) Revising changes of curriculum which have great effect on performance of pupils in Mathematics as well as quality of Education.
- (v) What is the role of Mathematics clubs in improving the Mathematics performance in primary schools?

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APPENDICES**Appendix A: Mathematics Teachers Questionnaire**

SCHOOL

a) Teachers characteristics

Gender: Male () Female ()

b) Teachers professional Qualification

Trained grade III C ()

Trained grade III A ()

Trained diploma ()

Untrained teacher ()

Other specify ()

c) Teachers Age (years)

Less than 30 ()

Between 30 and 40 ()

More than 40 ()

d) Teachers Teaching Experience (years)

Less than 5 ()

Between 5 and 10 ()

More than 10 ()

SECTION B: Method of Teaching Mathematics.

The following are different methods of teaching Mathematics. Show how frequent you use each method by ticking the appropriate box.

Rating of the method preferred is as follows: N- never, ST- sometimes, O- often, VO- very often and A – always

Teaching methods	N	ST	O	VO	A
Lecture Method small Group					
Questioning method					
Problem solving method					
Demonstration method					

Section C: Teachers Attitudes towards Mathematics

Below are different attitudes towards Mathematics show how strongly you agree or disagree by making a tick in the appropriate box. The rating is as follows:

SA-strongly agree, A-agree, U-undecided, D-disagree.

Attitudes	SA	A	U	D
Mathematics is difficult by nature				
Teaching Mathematics does not need resources				
Everybody can learn Mathematics				
More practice enhances understanding Mathematics concepts				
Mathematics is essential for daily life				
Mathematics is a continually expanding field of human creation and invention				

Section D: Possible factors affecting performance in Mathematics subject in primary schools

Please rate the following factors according to their importance factors affecting performance in Mathematics such that the most important is rated (1) and the least important is rated (5)

Factors	Rating
Teachers qualifications	
Methods used in teaching Mathematics	
Mathematics teachers attitudes towards Mathematics	
Resources used in teaching Mathematics	
Pupils attitudes towards Mathematics	

Any other, please specify

(1)

(2)

(3)

(4)

(5)

Appendix B: Classroom Observation Schedule

Section A: General information

School Name Class

No. of Pupils Sex of teacher

Section B: Teaching methods

Key: FU-Frequency used, NFU-Not frequency used and NU-Not used

Teaching methods	FU	NFU	NU
Lecture methods			
Small Group Discussion			
Questioning methods			
Problem solving methods			
Demonstration methods			

Section C: Classroom Interaction

Classroom Interaction	Present	Absent
Teacher- Pupil interaction		
Pupil-Pupil interaction		
Verities of Learning Activities		
Pupil Asking and Answering Questioning		
Teacher Reinforcement of pupils Attempt		

Section D: Classroom Atmosphere

Key: A-a lot, L- little, NA-not at all

Classroom Atmosphere	A	L	NA
Friendly/encouraging			
Unfriendly (criticism/negative)			
Pupil-pupil friendly relationship			
Noisy with chorus answers			
Pupil-pupil unfriendly relationship			
Passive atmosphere			

Section E: Feedback Provision

Key: RD-regularly done, NRD-not regularly done

NDA-not done at all

Feedback	RD	NRD	NDA
Teacher moves round the class, helping individual students			
Homework given at the end of the lesson			
Making corrections of specific assignment			
Marking pupils assignments			

Appendix C: Dodoso Kwa Wanafunzi**Jina la shule:**

1. Kazi za hisabati ni
 - (a) Rahisi sana
 - (b) Rahisi kiasi
 - (c) Kawaida
 - (d) Ngumu kiasi
 - (e) Ngumu sana

2. Ni kwa kiasi gani unaelewa kanuni na maneno ya hisabati?
 - (a) Vizuri sana
 - (b) Kiasi vizuri
 - (c) Kawaida
 - (d) Si vizuri
 - (e) Si zote

3. Unakuwa na raha kiasi gani na matokeo ya hisabati?
 - (a) Furaha sana
 - (b) Furaha kiasi
 - (c) Yanaridhisha
 - (d) Yanakatisha tama

4. Ninapenda somo la hisabati kuliko masomo mengine
 - (a) Nakubali
 - (b) Sielewi
 - (c) Sikubali
 - (d) Sikubali kabisa

5. Ninalipinga somo la hisabati
 - (a) Nakubali sana
 - (b) Nakubali
 - (c) Sijui
 - (d) Sikubaliani
 - (e) Sikubali kabisa

6. Hisabati ni somo gumu kwa asili
 - (a) Nakubali sana
 - (b) Nakubali
 - (c) Sijui
 - (d) Sikubaliani

7. Hisabati inatumika katika maisha
 - (a) Nakubaliana sana
 - (b) Nakubaliana
 - (c) Sijui
 - (d) Sikubaliani
 - (e) Sikubaliani kabisa

8. Sipendi kusoma hisabati na somo lolote linalohusiana na hisabati baada ya kumaliza darasa la saba
- (a) Nakubaliana sana
 - (b) Nakubaliana
 - (c) Sijui
 - (d) Sikubaliani
 - (e) Sikubaliani kabisa
9. Somo la hisabati linakatisha tamaa
- (a) Nakubaliana sana
 - (b) Nakubaliana
 - (c) Sijui
 - (d) Sikubaliani
 - (e) Sikubaliani kabisa

SEHEMUB: Tathimini yanjia na mbinu zinazofundishwa na walimu wa Hisabati; weka alama ya vema kuhusiana na mtazamo wa Mwalimu wa Hisabati.

Mtazamo	Mara kwa mara	Wakati fulani	Kamwe
Anafafanua kazi vizuri			
Anaurudia mahali ambapo hapakueleweka			
Hujibu maswali vizuri			
Yuharaka sana			
Anatoa mazingira ya kujifunza			
Anahamasisha na kushiriki kujifunza			
Anatumia njia mbalimbali za kufundishia			
Anawapa nafas iwanafunzi wanaojifunza			

polepole			
Anashirikisha wakati wakufundisha			
Anawasaidia wanafunzi walioshindwa			
Anawapakazi za nyumbani na kuzisahihisha na kufupisha			
Anajua hisabati vizuri			
Anajihusisha na wanafunzi wenye uelewa wa juu tu			

Nashukuru sana kwa ushirikiano wako

Appendix D: Interviews for Mathematics Teachers, Head Teachers And District Education Officer

1. What are the causes for unsatisfactory performance in Mathematics in primary schools?
2. What are the methods used in teaching to improve Mathematics performance in primary schools?
3. What is the attitude of the pupils and teachers towards performance in Mathematics in primary schools?
4. What are the classroom factors which influence poor performance in Mathematics in primary schools?

Thank you for your cooperation