TEACHER FACTORS INFLUENCING USE OF MOTHER TONGUE
IN TEACHING OF MATHEMATICS IN LOWER PRIMARY
SCHOOLS IN YOLA SOUTH LOCAL GOVERNMENT

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EDUCATION (EARLY CHILDHOOD EDUCATION) IN THE SCHOOL
OF EDUCATION, KENYATTA UNIVERSITY

MARCH, 2018
DECLARATION

I confirm that this thesis is my original work and has not been presented in any other university/institution for consideration. This research has been complemented by referenced sources duly acknowledged where text, data, (including spoken words) graphics, picture or tables have been borrowed from other sources, including the internet, these are specifically accredited and reference cited in accordance with anti-plagiarism regulation.

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DEDICATION

This work is dedicated to Allah, the Sustainer of the Globe. I also dedicate this work to my mother who always taught me to have tolerance and an open mind.
ACKNOWLEDGEMENT

Alhamdulillahi Rabbil Aalamiin. I thank Almighty Allah who gave me the opportunity to successfully finish my Masters studies. My profound gratitude goes to my supervisors Dr. Nyakwara Begi and Dr. Esther Waithaka for their continuing support and constructive criticism that saw me successfully through this work. The kindness accorded to me by my lecturers at the Department of Early Childhood Studies of Kenyatta University can never be forgotten.

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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>DOE</td>
<td>Department of Education</td>
</tr>
<tr>
<td>MAN</td>
<td>Mathematics Association of Nigeria</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Gold</td>
</tr>
<tr>
<td>MOE</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>MT</td>
<td>Mother Tongue</td>
</tr>
<tr>
<td>NCE</td>
<td>Nigeria Certificate of Education</td>
</tr>
<tr>
<td>NL</td>
<td>Native Language</td>
</tr>
<tr>
<td>NPC</td>
<td>National Population Commission</td>
</tr>
<tr>
<td>NPE</td>
<td>National Policy on Education</td>
</tr>
<tr>
<td>SACMEQ</td>
<td>Southern Africa Consortium for Monitoring Education Quality</td>
</tr>
<tr>
<td>STAN</td>
<td>Science Teachers Association of Nigeria</td>
</tr>
<tr>
<td>UBE</td>
<td>Universal Basic Education</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Education Scientific Cultural Organization.</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nation International Children Emergency Fund</td>
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</table>
ABSTRACT

Studies have established that when pupils are taught using mother tongue they comprehend and perform well in mathematics and sciences. However, frequent teaching mathematics in English language by teachers in lower primary schools in Yola south local government area contributes to low performance of pupils in mathematics. This study aimed to investigate to what extent teachers use mother tongue in teaching mathematics in lower primary school classes. The objectives of the study were to; establish the extend to which teachers use mother tongue in teaching mathematics, to find out the influence of teachers’ training on use of mother tongue in teaching mathematics, to determine the influence of teachers’ teaching experience on use of mother tongue in teaching mathematics, to find out the influence of teachers’ motivation on use of mother tongue in teaching mathematics and to determine the challenges faced by teachers while using mother tongue to teach mathematics. The study was guided by social constructionist by Robert Craig. This study used descriptive research design. The study targeted a population of 1,211 teachers in lower primary school classes in Yola South local Government. The researcher employed multistage random sampling techniques to select the sample. Sample size 126 teachers of lower primary school class. Data was collected using questionnaires. A pilot study was carried out in two primary schools. Validity of the instruments was tested using content validity. Test re-test method was used to determine the reliability of the instruments at a correlation coefficient (r) of 0.75. data was analysed qualitatively and quantitatively. Statistical Package for Social Sciences (SPSS) was used to analyze quantitative data and results were presented in tables. Results from the study showed that, majority of the respondents always used mother tongue in teaching counting and recognition of numbers. Quantitative results revealed that teachers rarely used mother tongue in teaching mathematics. Qualitative data from class observation also showed that teachers rarely used mother tongue in teaching mathematics in lower primary school classes. The study therefore, recommended that School Board of Management should sponsor teachers to attend training programmes to learn how to use mother tongue in teaching in lower primary schools.
CHAPTER ONE
INTRODUCTION AND CONTEXT OF THE STUDY

1.1 Introduction
This chapter focuses on the background of the study, statement of the problem, the purpose of the study, objective of the study, research question and significance of the study, delimitation and limitation of the study, theoretical and conceptual framework and operational definition of terms.

1.2 Background to the Study
The use of Mother Tongue (MT) as a medium of instruction is globally recommended for pupils in lower primary schools (UNESCO, 2003). Mother tongue is the language a child learns first from the mother or the principal caregiver (Dialyn, Andrea, Jochelle and Jomar, 2014). It is one’s native language. It is a language acquired in early childhood and spoken with native speaker competence and it is the language a person is exposed to and acquired during years of childhood (UNESCO, 1953). A child’s mother tongue should be used as a medium of instruction in learning in grades 1-3, because the fundamental Math and Science concepts are introduced at this level (Nalasco, 2010). Dialyn, et al. (2014) stated that mother tongue enables a child to express himself/herself easily, as there is no fear of making mistakes. Kimizim (2012) added that children taught in mother tongue have better learning comprehension than those taught in a foreign language. Global campaign for education (2013) also reveals that, learners taught in foreign language perform poorly than those taught in mother tongue.
Learners taught in mother tongue are more active and perform better than those taught in foreign language (Krashen, 1999).

Dialyn, Andrea, Jochelle, and Pailileng (2014) further asserted that using mother tongue as a medium of instruction improves pupils’ performance and strengthens learning. Omoniyi, Israel, Olabode and Thomas (2013) stated that Mathematics taught in a child’s mother tongue has benefits such as overcoming limited knowledge of foreign mathematical vocabulary and brings children closer to Mathematics. They further added that during early learning, children in rural areas learn faster in their local language, while Fafunwa (1977) report that children comprehend well when they receive instruction in their mother tongue than in foreign language.

According to the global monitoring report (2013), in many countries, most children were taught in languages that they do not understand or they do not speak at home. In most developed countries, education is given to children in lower primary schools using mother tongue as a medium of instruction (Gboyega, 2012). Lao and Krashen (1999) reported that in Hong Kong, mother tongue (Cantonese) was used as a medium of instruction in primary schools while in secondary school and universities English was used.

In Ethiopia, Heugh (2009) found that students taught in mother tongue had higher scores across the curriculum. In Cameroon, Walter and Trammel (2010) found in an experimental project carried out in 12 schools that mother tongue (KOM) was used as the medium of instruction. In the study there was a control group of 12
schools in which foreign language was used in teaching grade 1 and 2. They found out that, pupils taught in home language performed better in all subjects as compared to those taught in foreign language.

According to Lesh, (2003), there has been a lot of concern about the poor performance and low achievement in mathematics in National and States Common Entrance Examination in primary schools in Nigeria. In an attempt to establish the cause of the poor performance, research has mainly focused on the use of traditional and teacher centered teaching methods (Alidou and Brock-utne, 2010). Many studies targeted pupils in upper primary school classes but it was necessary to find out the issues in the formative years.

The Nigerian National Policy on Education (2003) recommended that the language of the environment should be used as medium of instruction in primary schools for the first four years. However, the document also states that English language shall be taught as subject during this period.

Many studies have been conducted in many parts of Nigeria on the importance of using mother tongue as a medium of instruction in Nigerian primary schools. For example Omoniyi, Israel, Olabode and Thomas (2013) reported that students in Owo Local Government of Ondo State in Nigeria performed better whenever they were taught some basic concepts in Yoruba vocabulary and success made children like mathematics. Similarly, a Study by Adesina and Oribabor (2013) established that teachers use other foreign languages as a medium of instruction. In their study on the effect of using mother tongue, their findings showed that although it had
been established that there was better performance when teachers used mother

tongue some teachers were still using foreign languages.

However, there seem to be a paucity of research that assessed the extent to which
teacher factors influence the use of mother tongue in lower primary schools in
Adamawa state particularly Yola South local government area. Few studies
reported low classroom participation and mathematic exam failure in the primary
schools in Adamawa state Nigeria (Garuba, 2010). However, it is not clear
whether these problems could be associated with use of foreign language by
teachers’ in teaching mathematics in primary schools, most especially at lower
primary school level. This is part of the reason why this study investigated teacher
factors influencing the use of mother tongue in teaching mathematics in lower
primary schools in Yola south local government area of Adamawa state Nigeria.

1.3 Statement of the Problem

It has been observed that primary school pupils in Adamawa state especially in
Yola south local government area perform poorly in mathematics. From the
examination results, both internal and external, it is obvious the pupils had
difficulties in mathematics.

Despite National policy on Education’s recommendation that pupils in the lower
primary schools in Nigeria be taught in their mother tongue, primary school
teachers in Adamawa state addition usually teach mathematics using English
language. Teachers were confined to English textbooks and other teaching aids
supplied by the ministry of Education and Adamawa state Universal Basic Education Board.

Similarly, teachers often neglected the use of improvised local materials that reflect the pupil’s cultural background. These practices might lead to children in the lower primary schools to find it difficult to comprehend mathematics lessons and thus, perform poorly in mathematics examinations.

Unless appropriate measures are taken, this problem will frustrate the effort of the government to provide quality education as contained in Sustainable Development goal seven (7). As against this background, this study sought to investigate the use of mother tongue in teaching mathematics at lower primary level in Yola South local government area, Nigeria.

1.4 Purpose of the Study

The aim of this study was to establish to what extent teacher factors influence the use of mother tongue in teaching mathematics in lower primary schools in Yola South local government of Adamawa state, Nigeria

1.5 Objective of the Study

This study had the following objectives:

(i) Establish the extent to which teachers use mother tongue in teaching mathematics in lower primary schools Yola South local government area.

(ii) Find out the influence of teachers’ training on use of mother tongue in teaching mathematics.
(iii) Determine the influence of teachers’ teaching experience on use of mother tongue in teaching mathematics.

(iv) Find out the influence of teachers’ motivation on use of mother tongue in teaching mathematics.

(v) Determine the challenges faced by teachers while using mother tongue in teaching mathematics.

1.6 Research Questions

(i) To what extent do teachers use mother tongue in teaching mathematics at the lower primary school level?

(ii) Does teacher training influence the use of mother tongue in teaching mathematics at the lower primary school level?

(iii) To what extent do teachers experience influence the use of mother tongue in teaching mathematics at the lower primary school level?

(iv) To what extent are teachers motivated to use mother tongue in teaching mathematics at the lower primary school level?

(v) What are the problems faced by teachers while using mother tongue in teaching mathematics at the lower primary school level?

1.7 Significance of the Study

The study will provide important information on benefits of teaching using mother tongue in lower primary schools in Yola Metropolis and the factors influencing it. The findings of this study will help the Ministry of Education (MOE) to come up with strategies to encourage use of mother tongue in teaching pupils at lower level of education. Universal Basic Education Board (UBE) may use the findings of the
study to improve on their policies towards teaching-learning mathematics in primary schools.

Mathematics Association of Nigeria (MAN) may also benefit from this study when planning in-service programs for teachers to learn how to use mother tongue in teaching mathematics.

Science Teachers Association of Nigeria (STAN) and the curriculum developers and planning may use the findings to improve the use of mother tongue in all subjects. The parents play a vital role on their children education. The findings of the study may help parents to understand the importance of using mother tongue in teaching mathematics.

1.9 Delimitations and Limitations of the Study

1.9.1 Delimitation to the Study

This study was delimited to class two teachers in Yola metropolis. There are many variables influencing the use of mother tongue in teaching mathematics in lower primary schools like school factors, availability of materials, and parents’ attitudes. The current study focused on Yola South local government of Adamawa state Nigeria. It specifically focused on 50 public and 32 private primary schools respectively. The study was also delimited to a sample of 76 and 50 teachers in the public and private schools respectively. Teachers were used because they greatly influence communication in the classroom.
1.9.2 Limitation of the Study

Since every study has its limitations, this study had encountered some limitations. Among these limitations include those associated with questionnaire instrument.

As the responses collected from the teachers through questionnaire were self-reported, the data collected may be likely to report errors. However, since the study had strictly considered and had followed the laid down ethics of research, this limitation might have been minimized.

Another limitation is associated with the generalization of study findings. This study sampled teachers from public and private schools in one local government out of the 21 local governments in the state. Therefore generalizing the findings of this research beyond public and private primary school teachers must be done with caution.

1.10 Assumptions of the Study

It was assumed that teachers understood the importance of mother tongue as a medium of instruction. It was also assumed that teachers complied with the National Policy on Education (NPE, 2013) which stipulates that the medium of instruction in lower primary schools should be mother tongue or language of the immediate Environment.
1.11 Theoretical and Conceptual Frameworks

1.11.1 Theoretical Frameworks

This study investigated teacher factors influencing the use of mother tongue in teaching of mathematics in lower primary schools in Yola South local government area of Adamawa state Nigeria. The study was guided by social constructionist (symbolic interactionist perspectives) view on communication (Craig, 1999). This perspective considers communication to be the product of the interactant sharing and creating meaning (Craig, 1999). The theory assumes that ideas are constructed and invented through the social process of communication. Thus, learners should be able to recognize their language and learn in a free environment. According to Craig (1999), constructionist perspective view is an ongoing process that symbolically forms and reforms personal identities.

The constructionist perspective is a more realistic view in communication because it involves interacting and free sharing of thoughts and ideas. This theory is therefore applicable to this study as the researcher intended to establish to what extent teachers in the lower primary schools use mother tongue as a language for teaching mathematics.

1.11.2 Conceptual Framework

The literature reviewed has shown variable that help us to understand the use of mother tongue in teaching of mathematics in lower primary schools. The identified factors that were likely to influence teacher’s use of mother tongue were teachers’ demographic characteristics; teachers training and use of mother tongue,
influence the use of mathematics in lower primary school classes, teachers’ teaching experience influences the use of mother tongue in teaching mathematics and teachers motivation influences the use of mother tongue in teaching mathematics and finally the challenges faced by teachers teaching mathematics using mother tongue at lower primary level. These variables are further illustrated in figure 1.1.

**Figure 1.1: Factors Influencing Use of Mother Tongue in Teaching Mathematics**

**Source:** Researcher (2018)
1.12 Operational Definition of Terms

Lower primary school: Class one to three in primary schools

Mother tongue: Child’s first language learned and spoken by a child. It is the child’s first language (L1). In the study context the Fulfulde or Hausa language is the pupil’s mother tongue.

Observation in classroom: System view of teachers to certain effectiveness of the use of mother tongue

Teachers’ motivation: Internal and external drives which influence teachers to use mother tongue in teaching mathematics for example availability of materials and good salary.

Teachers’ teaching experience: Number of years teachers have been teaching mathematics.

Teachers’ training: Knowledge on how to use mother tongue in teaching mathematics.

Use of mother tongue in teaching mathematics: Frequency of use of mother tongue in teaching mathematics.
CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The literature review focuses on the following themes: use of mother tongue in teaching mathematics; relationship between teachers’ training, teachers’ teaching experience teachers’ motivation and use of mother tongue in teaching mathematics; and challenges experienced by teachers while using mother tongue to teach mathematics in lower primary school. The chapter ends with summary of the literature reviewed.

2.2 Use of Mother Tongue in Teaching Mathematics in Lower Primary School Classes

Mother Tongue (MT) as a medium of instruction has been globally recommended for pupils in lower primary schools (UNESCO, 2003). Oluwole (2008) define mother tongue as the language used by a group of people considered being inhabitants of an area and is acquired in the early years. It is important to note that the language of instruction at start of a child’s education should be mother tongue (UNESCO, 2001). According to Manufanechiya (2011) pupils do not make a lot of progress in mathematics due to their inability to understand the language of instruction and further remarks that mathematics is a nightmare for many pupils and has created a mathematics fever. Dube & Cleghorns (1999) also add that pupils do not make a lot of progress in mathematics when teachers use English or foreign language.
Research carried out on mother tongue has revealed that learners find it easier to read and acquire other academic skills when instruction is in the home language than when they are taught in a foreign language (UNICEF, 1999). These findings have prompted a global concern on the use of mother tongue as a medium of instruction particularly in the lowest classes of primary education (Machazime, 1995).

Another study by Fakeye (2011) revealed that a medium of instruction is the language used in importing knowledge and inculcating cultural values, practices and norms of the society/community in the young ones in the formal schools system. UNESCO (1999) in its efforts to improve the importance of mother tongue in early stage of life has set aside 21-22 of February every year as the international mother tongue day globally UNESCO (1999).

Skutnabb-Kangas (2000) stated that, mother tongue in classrooms enable children to express themselves, contribute to discussions and develop their intelligence as conversations are carried out in a familiar language. Instruction given in a language that learners do not speak is called submersion. Mother tongue is essential foundation for children who enter school at first time.

The using mother tongue in teaching and learning mathematics at primary level in the first four years is more effective than using English language especially in the rural areas (Ali, 2000). Emphasising the importance of mother tongue in the teaching of primary mathematics, Ali (1984) opined that learner's language of common familiarity such as mother tongue offers a sustainable, realistic and better
opportunity to understand and appreciate the structure and function of mathematics at learner’s particular level of operation.

Pinnock (2009) found that, children who enter school and begin learning in a new language before they completely understand their first language, face much trouble or difficulty in confrontation of new ideas in the second language. Ultimately, it is very difficult for a child to do well as a language minority student without having a solid foundation in his/her first language.

Chilora & Harris (2001) carried out a study in Malawi on the role played by teachers’ home language in the mother tongue policy implementation. The performance of Chiyao-speaking children that taught mathematics in Chichewa by Chiyao-speaking teachers was compared to that of children taught by teachers speaking English language. Learners were assessed at the beginning and at the end of the school year. They found out that, Chiyao speaking learners who were taught by Chiyao-speaking teachers performed better in mathematics in grade 2 than Chiyao-speaking learners who were taught by speakers of English language because of the language used in teaching mathematics.

According to Muhammad & Mohammed (2016), revealed that pupils in Nadi in Fiji lower primary school classes are not performing better in mathematics examination. From their statement of result showed that, pupils performed poorly in both internal and external examination, due to inability to cope with language used to teach mathematics in the classes. Effiong (2013), points out that, pupils who were taught in their mother tongue comprehend better in mathematics
classroom, such as understanding the mathematics vocabularies, concept, ideas and formulas.

Israel & Thomas (2014) reported that, pupils comprehend better in mathematics subject when they are taught with language known by the pupils (MT) using pupils language would help the learners to develop mathematics vocabularies that could make them to remember that they have learnt in the past experiences. Patrick & Theresa (2015) revealed that, pupils understand mathematics concept when they are taught with their mother tongue (Igbo) and scores best result than those taught with English language.

Matan (2003) state that in order to gain interest in mathematics and make meaning out of what children are learning, their culture needs to be embedded in mathematics. Pupils taught how to read and write in their first language acquire the context faster (DepEd, 2011).

According to Walter & Dekker (2011) most African countries rely on use of inherited colonial languages such as English (Cameroon, Mauritius), French (Mali, Senegal) and Spanish (Guatemala) as the primary medium of teaching in the early years of formal schooling. Many young learners entering classrooms for the first time do not speak and understand those languages. David (2006) opined that language is one of the most important areas of the curriculum, they both means to an end and an end in themselves. That is, it provide a child with tools to communicate and at the same time an integral part of the inventive process.
When pupils are taught mathematics in their mother tongue have a lot of advantages, such as overcoming less knowledge of foreign mathematics vocabulary. Teaching in mother tongue also brings children closer to mathematics for example it assists the pupils to develop mathematics vocabulary in their mother tongue (Abiri, 1990).

According to Jannina & Mark (2004), mother tongue was christened as dialectal which means language spoken by the barbarians. Charanchi (2011) in a study conducted in Katsina State of Nigeria recommended that there should be dictionary of mathematics in Hausa language for the primary school level learners for them to understand the meaning, concepts and principles of Mathematics.

Nyagura’s & Jaji (2012) research on mathematics attainment in Zimbabwean primary schools concluded that most pupils in grade seven had were unable to apply mathematical ideas to real life problems, even those involving practical concepts such as gain, loss, interest, discount and sales tax, those problems that require reading and understanding of the language used and English as the language of textbooks and of instruction has failed the pupils. Fakeye (2011) found that primary education quality was determined by the use of medium of instruction that can effectively stimulate, enhance and convey the curriculum to pupils. He also adds that most of the problems manifesting at the higher level of education have their root in primary education practices.

Study carried out by Nalasco (2010) showed that pupils who acquire their native language had higher scores in social studies and science than those who were
taught in English. Similarly Azurin (2010) reported that in an international mathematics competition that was carried out, pupils who had best scores were from countries where mother tongue was used as a medium of instruction in the teaching/learning of mathematics.

Feza-piyose study (2012) confirmed that, use of mother tongue effectively has improved the understanding of mathematics concepts especially at lower primary level of education. Arzadon (2010) remarked that, teaching mathematics in mother tongue creates pupils awareness, gain knowledge, competence, self-esteem and confidence in solving mathematics.

According to Israel & Thomas (2013) when children are taught mathematics using their mother tongue comprehend mathematics better. Learning mother tongue also helps to improve mathematical vocabulary that could be easily used and remembered by students within the community at large. Research conducted by Department of Education (2011) in South Africa found out that most pupils were discouraged and dropped out from school due to their inability to understand the language used in schools. Department of Education (2011) in Philippines also reveals that language policy should be implemented in all public schools most especially in Grade 1, as part of K to 12’s curriculum. All the teaching subjects in the area should use mother tongue as the medium of instruction.

In Turkey, Ustunluoglu and Kocakula (2005) found those learners who were taught “energy” in a second language could not fully understand as well as those taught in Turkish language classes. This was because the learners did not
comprehend the foreign language. Ramiezs (1997) and Dekker (2011) found that pupils taught in mother tongue achieved higher scores compared to those taught in second or third language. UNESCO (2008) reports that in USA students who received instructions in their mother tongue performed better than those taught in English. The study found that pupils did not comprehend well, when mathematics in lower primary is taught using second language. In Cameroon, Jessica (2011) found that first grade children taught in their mother tongue, (Kom) performed significantly better across a range of subjects including English and using mother tongue in teaching mathematics as was required by the national policy.

Ibrahim (2014) reports that in Tanzania, Kiswahili was adopted as a medium of wider communication and also the language of curriculum; efforts were made to develop Kiswahili to accommodate mathematics, science and biology concepts and this has been successful. Traore (2001) found that in Mali, learners taught using mother tongue as a medium of instruction achieve higher grade than those taught in French. In Nigeria, a study conducted by Charanchi (2011) on the influence of home language in the teaching of mathematics in the Katsina State of Nigeria revealed major differences in achievement between pupils taught in Hausa (their mother tongue) and those taught in mixed languages (English and Hausa). This study sought to establish the influence of mother tongue in teaching mathematics in Yola local government of Adamawa State.

Jovem (2014) revealed that when first language was used in teaching and learning it improves the standards of education by increasing on the knowledge and experience of the pupils and teachers. He continues that language one education
programmes was established in most of the minority language groups around the world. Utmost teachers, head of schools and relatives of pupils in that programme have found that learners who begin with their mother tongue are self reliant, join a deeper comprehension of the contents, established more actively in classroom issues; pupils learn and acquire academic skills easily as there is no fear of making mistakes.

Study by Malone (2012) found that communication can become paradoxically barrier when pupils are not aware of language use in their schools. And this brings serious problems in their studies which lead to poor performance in schools. Educators such as Malone (2012), Baker (2006), Benson (2004), Cummins (2001), Thomas and Collier (2002) consider mother tongue as an important factor in building knowledge of an individual in early years of studies.

Pinnock (2009) points out that, pupils who went to schools in early years and begin to learn in foreign language, faced lots of problems in their studies. Preeya Daby (2015) revealed that in Maritius examination government set exams for the pupils in the country publish a report in 2005 for certificate of primary schools (CPE) that all the pupils that wrote the exams have failed including poor performance in mathematics and sciences, because of the language used to teach mathematics is not familiar with the pupils.

Senyatsi (2012) found that, pupils faced many challenges due to the inability of understanding the language used to teach mathematics, this led to poor performance of learners in mathematics.
According to Philippines Department of Education (2009, p.1) cited by Lisa (2013) who found that when pupils use MTB-MLE should be able to benefit a lot such as pupils should read and write very fast when taught in their mother tongue than the second language; learners taught in their mother tongue are able to acquire skills and transfer it to the second language easily. And in level of their intellect, pupils build confidence and self-reliance in their lessons when taught with a familiar language.

A study by Julius (2013), who found that in 1964, the Kenya Education Commission makes research on the interest of the people with regard to their language use. The finding revealed that most citizens wanted to use code switching methods (Ministry of Education, 2012). At this time, the first language, L1 was adopted especially in the rural areas.

A study by Helen and Gowri (2009) found that pupils taught in schools language that is not used at the pupils home language linked to poor performance in teaching and learning. Learning of first language makes the pupils to develop a good foundation and helps them to learn the second language without any difficulty. Some teachers identify that when pupils are taught with second language that is not known to them, they get confused and even become frustrated in their studies Helen and Gowri (2009).

According to Laitin, Ramachandram and Walter, (2015) found that pupils that drop out from schools are those taught in the second language because pupils
comprehend what is learnt and what is expected for the pupils by themselves; it increases their knowledge and motivates them to be going to schools every day.

2.3 Teachers Training and Use of Mother Tongue in Teaching Mathematics

Teacher training refers to professional preparation of teachers usually through formal course work and practicing teaching. According to Dennis & Susan Malone (2011) teachers education institution in many countries, often operate in difficult circumstances. The study further revealed an admirable job of training pre-service teachers to provide instruction for learners in the formal educational system. However in a study by Durosaro (2006) prescribe that teachers’ level and types of training in pre-primary education should be Grade II teachers while NCE holders should serve as a head teachers and teach in primary schools.

Research by Kinyua (1994) found that teachers make an innovation to fail, if they do not have necessary knowledge skills and attitudes to carry out their roles. Also if they do not have the required equipment and materials which mean that no matter how significant an innovation may be, its success is greatly affected by the quality of teachers. Effective preparation enables teachers to effectively implement the language policy in schools.

A study carried out by Dennis & Molane (2011) found that when teachers were trained on the use of mother tongue they are familiar with the process in which pupils acquire the skills. Beson & Effiong (2005) found that when home language is used when teaching children, they understand concepts better. Dennis & Molane (2011) found that teachers who use mother tongue education in their classrooms
assist their pupils to achieve a successful education. They also help their pupils to know the oral sounds, written and higher level thinking skills in the language they already know, and at the same time.

Effective preparation enables teachers to effectively implement the language policy. A research conducted by Begi (2014) points out in-service training for teachers would help them to understand the importance of mother tongue and accept the adoption of the policy. Mata (2014) found that training teachers on use of mother tongue in teaching enable them to learn how to support pupils’ development and learning processes. This creates suitable conditions to achieve their goal and lead pupils to achieve their personal best. Ball (2003) added that mathematics requires well trained mother tongue teachers who can impart knowledge for the young ones. A research conducted by Gawata (1990) in Zimbabwe primary schools, had established that trained teachers taught mathematics better than those who were not trained. Rebecca (2012) suggested that, teachers should be trained on use of MTBMLE in order to make pupils acquire education without any difficulties.

Dennis and Susan (2011), suggested that there is need for teacher training programs for MTBMLE and in which require qualified teachers who can both use first language and second language fluently; because there are very few teachers who can teach both L1 and L2. The inability of the teachers to teach perfectly leads to poor performance in primary schools. In order to overcome this situation, Dennis and Susan suggested that there should be four types of teacher training colleges (from which teachers should acquire training in mother tongue and
second language) such as teacher certification, 2-4 years, fast track programs which is trained based on non-teaching staff for 1 year program; intensive workshops for experienced certified teachers 2-4 weeks and non-certificate training programs for paraprofessional teachers teaching assistants Bartlett (2010).

Goodwyn et al. (2003) points out that all teachers have stakes in effective literacy. Learners may fail to understand academic concepts because of the language they are using due to unskillful content teacher who can assist them (Crandall, 1998). Walter & Dekker (2011) found that, teachers should be up to date on literacy demands of a curriculum especially on the language demands in order to obtain flexible techniques in teaching. Learners who have been immersed in the learning environment where mother tongue has been used showed significant improvements in their academic performance compared to children who were learning only in foreign language. Although educational researches are still needed to prove the implications of other based education in various atmospheres and settings, educating the bilingual pupils in their vernacular language improved cognitive acquisition and subject-centered knowledge.

World Bank (2005), teachers’ proficient in mother tongue languages must be identified and trained. Teachers require support, supervision and monitoring, creating further costs for the government. Wright (1987) stated that teachers play a very vital role in the implementation of not only mother tongue instruction policy but also of other educational reforms in classroom level. Nyarigoti (2014), states that no education policy or intervention can succeed without teachers’ support and effective implementation.
According to Patrick & Theresia (2015), to impart knowledge to pupils, teachers should have knowledge on the subject matter and the language to use in classroom.

Lerra, Teka & Naba (2013) revealed that, Ethiopian government has introduced the new Wolaita Language in their institutions that offer mother tongue in order to have qualified teachers in the field to teach lower primary school classes.

Simon, Lowe & Costly (2011) reported that, teachers sought to have knowledge and skills for personal improvement in participating in the environment effectively. A teacher who is all equipped through further training and retraining on use of mother tongue participate properly and positively in the employment generation for sustainability. Poulson (2010) opines that teachers should be able to go for in-service training to update their knowledge on how to write and read the local language and other related courses and impart the knowledge to the young ones.

Chapman (1996) observed that many teachers trained in foreign language had terrible mathematics experiences in schools which affected their attitudes towards mathematics. Brair (1999) mentioned that any reform in mathematics requires that teachers be reoriented towards mother tongue language in teaching and ensures that teaching-learning in every classroom engages pupils to ensure high level of achievement. Research conducted by Fleisch (2008) & Moalosi & Molwane (2010) found that teachers require training to implement teaching of mother tongue effectively. They also found that in rural primary schools, teachers
experienced numerous challenges while teaching using mother tongue due to lack of proper training which lead to poor performance in mathematics. This study investigated whether or not teachers in Yola South local government were found on use of mother tongue and its influence on pupils achievement in mathematics.

2.4 Teaching Experience and Use of Mother Tongue in Teaching Mathematics

Gatbonton (2008) define teaching experience as the number of years teachers have taught. Meera et al. (2010) conducted a study in Malaysia and found that, teachers experienced some problems related to language of instruction. Hoon, Rahman and Sigh (2010) also found out that teachers experience problems such as being unable to explain concepts when they use English as a medium of instruction. Summer and Wolfe (1997) in their study found out that learners benefited more from teachers with more experience than those with less experience. Lack of proper planning of the lesson and teachers’ knowledge of planning makes it difficult for teachers to plan their work (Nsamba, 2009).

Teachers should use learner’s experience that they spoke at home and use it in schools in order to build cognitive competences in classroom situation. Cummins (2000) explain that learners’ mother tongue should be used as a language of communication both at home and in schools.

Research conducted by Murioz & Chang (2008) reported that, teachers with more experience have more effective teaching. Chapman (2011) views many teachers who are trained in a foreign language have terrible mathematics experiences in
school and the need for a better mathematics experience for today’s children cannot be overemphasised.

Boyd et al. (2007) found that the largest gain in math’s achievement attributable to teachers experience was associated with teachers’ progression from their first year of teaching to having one full year of experience. According to Ladd (2008), an average teacher with more than 20 years experience is more effective than a teacher with no experience. Briars (2013) observes that any reform especially mathematical reform requires that teachers be reoriented towards mother tongue language in teaching and learning that ensures that a teacher in every classroom engages the pupils that ensures high level achievement.

Fakeye (2011) argues that teachers in lower primary schools would be ensured that pupils’ home language and school should be having close experiences so that teaching and learning should be meaningful, value approaches and appreciated in classroom teaching.

Babajide (2012) points out that, classroom teachers, who are not connected with pupils’ funds of knowledge, assume that pupils are from poor families which had less and low quality experiences in the classroom. Chapman (1996) in Albert & Tafara (2011) reveled that, teachers who taught in second language have had a lot of constraints in mathematics experiences in schools, which resulted to the failure of the pupils in mathematics classes.

Rivkin et al. (2005), found out that experienced teachers does well in both reading and mathematics compared to inexperienced teachers due to language problems.
Meera et al. (2010) explores teachers teaching marginalized and disadvantaged rural children in Malaysia reported lower level of pupil motivation. However, this brought the gap that is the strengths and weaknesses of the first language. This study investigated the influence of teachers’ teaching experiences on use of mother tongue in teaching mathematics in lower primary schools.

2.5 Teacher Motivation and Use of Mother Tongue in Teaching Mathematics

Vroom (1964) defined motivation as the act of making somebody to do something. He further argued that in many situations, people were encouraged to do something which they do not intend to do. The people may be motivated financially or morally. Offoegbu (2004) stated that motivation could underlie teacher activities which operate in schools. She adds that the teacher is the one that renders educational philosophy and objectives into knowledge and skills and transfers them to students in the classroom.

In addition, high level of exposure to the language and motivation are also required (Cummins, 2012). Second language competence, which a bilingual child attains, is partially a function of the type of competence the child developed in the first language.

Muhammed (2015) states that, among trainee teachers of Indonesian language at the University of New Syan Kuala in Indonesia still lacks personal motivation to develop their academic profession. Ferguson (2001), said that, work motivation refers to the psychological processes that influence individual behaviour with respect to the attainment of workplace goals and tasks.
UNESCO global monitoring report (2013) revealed that, many countries that have rapid expansion of primary education sector and needs to meet the demands of universal primary education, have experienced shortage of well trained and skilled teachers. Tatro et al. (2012) in their study conducted in 17 countries on relationship between teachers’ education policies and teachers’ readiness to teach mathematics, found that one of the challenges facing teachers included heavy work load, diversity in student abilities and home language.

Lassa (1985) found that, teachers should be motivated because, without them there will be no achievement of desired goals. He further added that, when teachers are motivated he/she perform his/her duties actively and conscientiously.

Ugwu & Etiubon (2011) pointed out that teachers remain a very important element as far as National development is concern. No nation can grow in terms of education, teachers remain determinant factors to educational development hence teachers motivation is also important and crucial. According to Chaudhury, (2004) a teacher may be highly committed to the attainment of the school’s learning goals, but she lacks necessary competencies to teach effectively. This will be ultimately lead to de-moralising and de-motivating.

UNESCO (2006) states that, in most of the developing countries, mother tongue-based education has a positive impact on education outcomes. A child’s home language can be effectively used as a language of instruction in early years of their schooling as a bridge to learning.
According to Adeyemi & Adaramola (2015), motivated teachers are good human resources that can also produce excellent learners or manpower for the nation’s development. There is external factors within the control of principals that could motivate teachers (Johnston (1985). These factors include; principal’s sportiness, recognition of teachers work and supervision and professional development.

According to Tizza et al. (2016), the language used in class as a medium of instruction should be familiar to learners and must reflect the line experience of learners. Learning is important and it is believed to take place in the learners when there is a permanent change in behaviour.

Hill (2012) revealed that a good classroom teacher takes a role as pupil in order to learn from the learners experiences, which pupils possess, which have been imparted from other learners, families and cultural-backgrounds. The new innovation gathered from the learners contributes to meaningful lessons in the class and connecting the pupils home language with the lessons taught in the class.

Adeyemi & Adaramola (2011) suggested that, the instructional techniques of having learners work in a small group cannot be done efficiently, because the learners would not understand the language of the classroom which they use it with the other learners and with the teacher in the classroom. In short, the strategies that are used by the teacher are difficult to the pupils to understand when the teacher cannot communicate with pupils’ language to comprehend effectively in the classroom.
The status of teachers in most countries has declined over the past decade and professionalization of teachers is more pronounced in low income countries (Benne, 2004). Akunlola (1989) recommended that, for teachers to be effective, staff training, provision of adequate physical facilities and equipment, funding, teacher evaluation, promotion, motivation and morale must be attended to and given priority in schools.

As observed by Yusuf (2003), poor motivation of teachers will lead to truancy in students. He pointed out that an important cause of truancy in schools is the problem of incompetent and lazy teachers. This is because when teachers are not motivated they are lazy and feel uncompleted to work. Ofoegbu (2000) also pointed out that in this era teachers need to be adequately motivated and properly rewarded for work done, and when teachers are frustrated, they on their part cannot motivate students to learn. This study endeavored to find out whether teachers of Yola South local government whether motivated or not indeed influences the use of mother tongue in teaching of mathematics.

2.6 Challenges Faced in Use of Mother Tongue to Teach Mathematics

A study conducted by Lartec, and Jane (2015) found that lack of vocabulary and books written in mother tongue are some of the challenges faced by teachers while teaching mathematics using mother tongue. A study conducted in Kenya by Begi (2014, pp. 45), found that the major challenges experienced by teachers who are using mother tongue as a medium of instruction included; parents negative attitudes towards use of mother tongue and difficulty to translate some concepts into mother tongue. Benson (2004) continues that some challenges faced by
teachers are human resource development and teachers training and adds that special attention should be paid to resources for teaching mother tongue education. UNESCO (2011) reveals that, parents are wondering why their children should be taught in their mother tongue instead of the national or international language that would improve their earning opportunities and enhance their socio-economic status.

Some parents in Haiti have resisted the use of mother tongue (World Bank, 2005) because they considered it as the language of the poor people. Many Mexican parents believe Spanish should be prioritized over indigenous languages because it is the language of progress. Seven challenges pointed out by Malone (2012) in planning, implementing and sustaining an excellent mother tongue education are; multiple languages with multiple dialects, absence of concrete orthographies, shortage of mother tongue speakers with teaching materials, scarcity of written literature, various mother tongues, large class sizes and deficiency of curriculum and instructional materials. According to Thomas (2009) in order to give efficient and effective transmitting cognitive skills to learners, there must be enough teachers to teach. Benson (2005) found that, children find no connection between learning mathematics and their everyday life. This makes them perform poorly in mathematics. It’s believed that poor performance in mathematics in schools is due to negligence of children home language materials from children cultural environment.

Barriers (1999) revealed that most African countries have very weak national language policies which have resulted in foreign language being used in most text
books. He added that there is a need to be proactive in terms of policy and practices so that change may be made in text books and review the available mathematics textbooks so that they are adopted and translated into the pupils’ mother tongue to meet and support their mathematics communication. Hoon, Rahman & Sigh (2010) in their dissatisfaction with the use of English as the medium of instruction, they interviewed teachers who were struggling with challenges such as linguistics at school, learner’s inability to use English language and teacher’s lack of English background to explain the concepts. Benson (2005) explains other challenges such as; the development of mother tongue orthography, inadequate reading and instructional materials as well as curricula. Effiong, (2013) says that, all of these challenges can be overcome with political will and commitment as they have been in many other countries around the world.

According to Hafriza, (2015) one of the main concerns arising out of the implementation of the policy of teaching mathematics in English is the ability of primary school children to use English as an effective tool to acquire knowledge.

According to Ambatchew (2010) argued that, lack of adequate materials, infrastructure, orthographies, text books, story books written in mother tongue makes teaching and learning ineffective. Pupils in Filipino schools are faced with serious problem like unable to understand language used as medium of instruction in schools (Dep Ed, 2011). Bamgbose (2011) points out that, to maintain two or more multiples of languages in the multi linguistically community is a difficult task and more expensive when compared with the use of official language.
Patrick & Therasa (2015), revealed that pupils who were taught a new language before comprehend their mother tongue have difficulties in expressing their ideas, concepts in unfamiliar language, and have less confidence. Albert and Tafara (2011) reported that, teachers and pupils in Zimbabwe are faced with lots of challenges in teaching of mathematics classes. Such challenges includes translation of English text book to mother-tongue, examination not set in mother-tongue and other related materials and teachers are not trained on use of mother tongue.

According to Central Statistics Office (2012) and (2015), a substantial proportion of learners who do not succeed to learn in Mauritius are disappointed with language-in-use policy. They blame the current educational system of not considering children's rights to education because it prevents access to education and discrimination on the basis of language.

Many schools use the second language as a medium of instruction in the classroom (Milroy, 2014). Milroy suggested that Bilingualism should support the maintenance, development and full flowering of the ethnic language. Teachers teaching mathematics complains that, students are unable to understand simple pure English in mathematics lessons. This may lead to poor performance of in mathematics.

UNESCO (2011) states that, parents wonder why their children should be taught in mother tongue instead of national or international language that would improve their earning opportunities and enhance their socioeconomic status. The poort and
marginalized parents are acutely aware of their access to both education and high-status language is limited, hence, they expect the school to teach their children the same language that has benefited the elite (Philippine journal of Education, 2012).

Ali (2000) found that the implementation of use of mother tongue in primary schools is expensive since the government have to provide both human and material resources if meaningful teaching and learning must take place. Indigenous language teachers must be trained and instructional materials relevant to the indigenous language also have to be made available. According to Urevbu (2001), the successful implementation of mother tongue instruction at school can only be achieved when the language orthography is available; textbooks in the mother tongue are produced and made available to teachers and learners, as well as other teaching materials.

Iyamu and Ogiegbaen, (2005) in addition, says that indigenous language teachers are not happy about teaching in a mother tongue for fear of losing their prestige among colleagues. Mathooko (2009) mentions that despite the use of the mother tongue in the kindergarten and lower primary school classes in Kenya, some problems still affected the successful implementation in some areas. There was the problem of poor sale of books written in mother tongue by the publishers, writers and booksellers which discouraged them from investing in publishing books in the mother tongue. It was believed that producing materials in the mother tongue for teaching in schools was expensive and a waste of time.
In a study conducted by Soudien (2008) in South Africa found that the challenges facing some schools using mother tongue in teaching-learning were lack of adequate relevant materials, and textbooks. In Nigeria, the trilingual policy adopted by the government has indeed raised the status of the three major languages, Hausa, Igbo and Yoruba to national languages (Uche, 1999). He further reports that the policy lacks effective implementation mechanism like availability of quality staff to do the teaching, lack of materials in the language for the subject targeted and even inadequate supervision for proper and guided implementation. Onyemelukwe (2000) stated that the challenges by the teachers who are to implement the policy include intra-lingua and psychosocial problems which are triggered by shyness and lack of commitment. In this study, the researcher wanted to find out some of the challenges that faced use of mother tongue in the study area.

2.7 Summary gap and implications of the reviewed literature

The summary, the gap of the literature review and the implications of the study are based on the objectives of the study.

The chapter focused on, the use of mother tongue in teaching mathematics globally and in Africa and the factors influencing it. Reviewed studies revealed that some countries in Africa that include Kenya and Nigeria have formulated policies on use of mother tongue in lower primary schools. Studies carried out in other African countries as well as in Nigeria had revealed that there were variations with regard to use of mother tongue and foreign language instruction.
However, these studies did not specifically focus on use of mother tongue. Many scholars have studied and revealed that, poor performance and low achievement of pupils in National and state mathematics common entrance examination in primary schools is due to lack of qualified or trained teachers in Nigeria language, use of mother tongue in teaching of mathematics in lower primary school classes. Many studies review highlighted the importance of use of mother tongue in the teaching of mathematics in the primary schools. However, the reported findings on use of mother tongue are used in upper primary schools. Most of the finding reported that, teachers cannot be able to explain mathematical terminologies and concepts in mother tongue. However the studies indicated that there is a poor performance in mathematics classroom lesson due to inability to understand the language used to teach mathematics. However, none of the studies reported about gender performance of between male and female. Generally most of the studies reported that most countries have a policy document on use of mother tongue in lower primary schools. However few countries have implemented the use of mother tongue in teaching of mathematics e.g India, China Philippines etc. and many of the studies were not conducted in Nigeria and Yola South local government in particular.

Teachers training and use of mother tongue. Generally the teachers have adequate training in teaching and learning and gain enough knowledge on foreign languages. However none of the finding reported that, teachers are trained on use of mother tongue in teaching of mathematics and many studies were not conducted in Nigeria and Yola south local government area.
Teachers teaching experience and use of mother tongue in teaching of mathematics in lower primary schools. The literature reviewed talk about small of teacher’s experience and use of mother tongue. However this brought the gap of this finding that is, the strength and the weakness of the mother tongue.

Teacher’s motivation and use of mother-tongue in teaching of mathematics in lower primary school classes. Most of the literature talk about teacher’s should be motivated when using mother tongue in teaching pupils in lower classes. However most of finding reported that, teachers were not motivated. There is no evidence of any empirical studies that, talk about teachers motivation when using mother tongue in teaching of mathematics.

Challenges experienced by teachers while using mother tongue in teaching mathematics lesson. Generally the teachers have experienced many challenges such as lack of trained teachers to use mother tongue, text books are not written in mother tongue, lack of support by the parents, government and administrators. However few of these studies reported findings of the issues of text books and teaching in mother tongue. Many studies are not conducted in Nigeria and Yola South local government area.

Effective use of mother tongue has been found to improve the understanding of mathematics concepts especially at the lower primary level of education, pupils taught in mother tongue have a lot of advantages, such as overcoming less knowledge of foreign language and can easily transfer the first language to second language without any difficulties. Teachers should be trained on use of mother
tongue, so that pupils achieve a successful education. Teachers that are trained on how to use mother tongue in teaching enable them to learn how to support pupil’s development to achieve their personal goal.

Teacher teaching experience on use of mother tongue. Teachers that had been in service for many years have more advantages of teaching mother tongue due to the experience they have in teaching. Teachers should be motivated in order to encourage them to teach effectively in the classroom. All the necessary materials should be provided, teachers should be trained on use of mother tongue and prevents government, and administrators should support the use of mother tongue and supply the equipment to the teachers to make teaching meaningful. The methodology used in this study has been presented in the next chapter.
CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The chapter presents the methodology used in the study. It focuses on research design, study variables, location of the study, study population, sample and sampling techniques. The chapter also discusses the research instruments, data collection procedures, data analysis and logistical and ethical considerations.

3.2 Research Design

The researcher used descriptive research design because it is suitable for gathering facts, opinion and obtaining pertinent information about the current status of a phenomenon and draws conclusions from facts discovered (Kombo and Tromp, 2006). Descriptive survey helps the researcher to describe the variables found in a given situation. The design was considered suitable for this study because the researcher sought to find out the status of use of mother tongue in teaching mathematics in lower primary school classes and the teacher factors that influenced practice in Yola South local government area.

3.3 Variables

Variables of this study are described in the following sub-sections:

3.3.1 Independent variables

Below are the independent variables;
(i) Teachers’ training. It was measured by finding out teachers’ level of training that is Certificate, Diploma and Degree.

(ii) Teachers teaching experience. It was measured by establishing the number of years teachers have been teaching.

(iii) Teachers’ motivation. It was measured by determining the internal and external drives which influence teachers to use mother tongue in teaching mathematics.

(iv) Challenges faced by teachers while using mother tongue in teaching of mathematics. It was measured by determining the problems experienced by teachers while using mother tongue in teaching mathematics.

3.3.2 Dependent Variable

Use of mother tongue in teaching mathematics is the dependent variable. It was measured by finding out the frequency of use of mother tongue in teaching mathematics by teachers in a lesson.

3.4 Location of the Study

The study was conducted in Yola South local government of Adamawa State, Nigeria. The name Yola was derived from the Fulfulde word “Yolde” meaning a knoll, which means settlement on a highland. The area is located in the North Guinea Savanna zone with wet and dry season (appendix IV and V). The area has a land mass of about 8.068 square kilometers and an altitude of about 185.9M above sea level (Adebayo and Tukuri, 1999).
Yola South local government area has a population of 402854 inhabitants who are mostly farmers (NPC, 2006). The major ethnic groups in the area are Hausa Fulani, Verre, Baya and Laka. However the Fulfulde language is the widely spoken language and a language of instruction in all nomadic primary schools in the local government area.

The study area was chosen because this area has a high number of public and private primary schools with a total population of 1211 teachers. Another reason that the primary schools in this area contains majority of teachers and students whose mother tongue is Fulfulde language. Also, schools in Yola north local government area have provided valuable opportunity for this study since the researcher’s has been in this area as a teacher for a long time and has more knowledge about the area.

3.5 Target Population
The target population of this study comprised of all the lower primary school class teachers in Yola South local government area consisting of 50 public and 32 private schools in Yola metropolis. The study population is comprised of 1,211 subject teachers according to the numbers in Yola south local education authority (2015).

3.6 Sampling Techniques and Sample Size
This section presents;
3.6.1 Sampling Techniques

Sampling technique or procedure is the process of selecting individual for study from the entire population (Orodho, 2009). The purposive sampling was used to select units that are represented in the population (Orodho, 2009). Purposive sampling is used to select Yola South which is divided into 11 wards. One public and one private school was sampled by using purposive sampling for the classroom observation and the classes were randomly chosen.

The researcher used classroom observation checklist and two schools were sampled one public and one private.

This study used Stratified random sampling technique since it involves a process of stratification of segregation of the population in standardized group i.e. groups with the same characteristics (Mbwesa, 2006). The first stage of sampling was the random sample of public and private schools in each of the 11 wards in Yola South local government area while the next stage was the random sampling of teachers in public and private schools in each ward then the last stage was the classroom observation checklist of one public and one private schools was randomly selected.

3.6.2 Sample size

The study population was grouped in two strata based on the type of school in terms of public and private schools. Table 3.1 summarizes the sampled schools.
The primary data were collected using open and closed-ended questionnaires. Creswell (2012) viewed that the best instrument for descriptive survey design is quantitative questionnaire. This study used questionnaire to collect the required data and is described in the following subsection.
3.7.1 Questionnaire for Teachers

In order to gather quantitative data from large sample of both public and private lower primary school teachers, a survey questionnaire was used. The questionnaire was considered most appropriate since it can collect large amount of information from many people in a short period of time (Orodho, 2009). Similarly, the primary benefit of questionnaire is the efficiency in which it is used to collect survey data (Dillman, Symth, and Christian, 2009).

The questionnaire had five sections: Section A was to collect demographic information of the respondents; section B was to collect information on use of mother tongue in teaching of mathematics in lower primary schools; Section C was to measure teachers’ motivation to use mother tongue in teaching mathematics in lower primary schools, Section D was used to collect teachers levels of training on the use of mother tongue and Section E was to collect data on the challenges confronting teachers while using mother tongue in teaching mathematics. The questionnaire contained both closed and open ended responses. The questionnaire was in appendix 1.

3.7.2 Classroom Observation

Non participant classroom observation were used to enhance the researchers comprehension of the teachers teaching practice and the important value they attached to teaching of mother tongue and its implications for learning in Yola south local government area in Nigeria.
The primary 2 teachers were observed while teaching which took place in the two schools that is, one public and one private school. An observation was employed to determine to what extends teachers use mother tongue in teaching of mathematics in lower primary schools classes and to observe the level of the response by the pupils and their performance in teaching and learning in their classes. This observation lasts for five lessons.

And classroom observation checklist of teachers’ use of mother tongue while teaching mathematics lesson which was in stages such as lesson introduction, presentation (step 1, step 2, step 3), conclusion and evaluation. The researcher sat down and observed the way the teachers used mother tongue in their lesson by indicating always, often or never. The observation checklist was in appendix II.

3.8 Pilot study

According to Amin (2005) pilot study is conducted to identify any ambiguities, misunderstanding or inadequacies in the instruments. A pilot study was done in one public and one private primary schools in Yola metropolis. These schools were not the actual study to avoid influencing the finding. Piloting of the instruments is done to ensure its reliability and validity. The instruments were administered twice with an interval of two weeks to the same group. After pilot study the instruments were improved.

3.8.1 Validity

According to Best and Kahn (2006) critical judgment of expert in the field of inquiry is helpful in examining content validity. Content validity of the instrument
was used to ensure the instruments were valid and was achieved by ensuring that items cover all variables and objectives of the study. Each item in the instrument was analyzed against the objective. The researcher further discussed the instruments together with the supervisor to ascertain their appropriateness and relevance.

3.8.2 Reliability

Test-re-test method was used to determine the reliability of the instrument. A group of teachers was given the questionnaire. After two weeks the researcher revisited the same group and issued questionnaire for test re-test. The calculation of the correlation coefficient provided the consistency of the items in the questionnaire in providing similar responses. The Correlation coefficient (r) was 0.7. According to George and Mallery (2003), a reliability of 0.7 is acceptable in social science research hence, the instruments were considered reliable.

3.9 Data Collection Techniques

After getting the necessary authorization, the researcher contacted the primary school teachers and distributed the questionnaires to them which included, cover letter stating the aim of the study, the background information and a copy of the questionnaire. The participants were requested to return the questionnaire within seven days. After seven days the researcher visited the schools and collected the questionnaires. The entire data collection process took about six weeks.
3.10 Data Analysis

Statistical Package for Social Sciences (SPSS) was used to analyze data. Descriptive statistical measures using frequency tables and simple percentages were used to summarize the findings.

3.11 Logistical and ethical considerations

Logistical and ethical aspects are discussed below:

3.11.1 Logistical Considerations

The researcher sought an authorization letter to collect data from Graduate school, Kenyatta University. She then sought permission to collect data from Adamawa UBE Nigeria. The researcher visited the study schools to get permission from head teachers and general introduction. After the preliminaries, the researcher made arrangements with teachers for data collection.

3.11.2 Ethical Considerations

Confidentiality of the information was provided and anonymity of the respondents was assured since participants’ names were not used. In addition, the researcher ensured minimal interference with the respondents’ lesson attendance.
CHAPTER FOUR
PRESENTATION OF FINDINGS, INTERPRETATION AND
DISCUSSIONS

4.1 Introduction
This chapter presents results from data analysis, interpretation and discussions of the results. The chapter first presents the general and demographic information of the respondents and descriptive and inferential results presented according to the objectives of the study as follows:

(i) Establish the extent to which teachers use mother tongue in teaching mathematics in lower primary school in Yola South Local Government.

(ii) To find out the influence of teachers’ training on use of mother tongue in teaching mathematics.

(iii) To determine the influence of teachers’ teaching experience on use of mother tongue in teaching mathematics.

(iv) To find out the influence of teachers’ motivation on use of mother tongue in teaching mathematics.

(v) To establish the challenges faced by teachers while using mother tongue in teaching mathematics.

4.2 General and Demographic Information of the Respondents
This sub-section focuses on the general information and selected demographics of the respondents.
4.2.1 General Information

The return rate of the questionnaires was 100%. According to Mugenda & Mugenda (1999), a return rate of 90% and above is high enough to provide the required information and thus considered acceptable.

4.2.2 Demographic Information of the Respondents

The demographic information of the respondents considered in this study included teachers’ age, level of education, level of training and teaching experience. This information was as follows:-

4.2.2.1 Teachers’ Age

Teachers were requested to indicate their age according to specified age brackets and the frequencies in each age bracket is presented in Table 4.1.

<table>
<thead>
<tr>
<th>Teachers’ Age</th>
<th>Frequency</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30</td>
<td>47</td>
<td>37.0</td>
</tr>
<tr>
<td>31-40</td>
<td>73</td>
<td>58.0</td>
</tr>
<tr>
<td>41-50</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>51 and above</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

As shown in Table 4.1 the highest proportion of the teachers fell in the category of 31-40 years (58%). This implies that the teachers were of fruitful age, mature and experienced.
4.2.2.2 Teachers’ Level of Training

Information on the teachers’ Professional qualifications was also obtained and the results are shown in Table 4.2.

Table 4.2: Teachers’ Training

<table>
<thead>
<tr>
<th>Professional Qualification</th>
<th>Frequency</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Ed</td>
<td>17</td>
<td>13.0</td>
</tr>
<tr>
<td>Diploma</td>
<td>16</td>
<td>13.0</td>
</tr>
<tr>
<td>NCE</td>
<td>93</td>
<td>74.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Table 4.2 illustrates that all the teachers meet the basic requirement of a professional certificate in education in NCE. The quality of teaching largely depends on teachers’ academic qualification among other variables (SACMEQ,2000)

4.2.2.3 Years of Experience of Teachers

Experience of teachers may have an influence on use of mother tongue in teaching mathematics. It was therefore important to determine the teachers’ teaching experiences and results presented in Table 4.3.

Table 4.3: Teachers’ Years of Teaching Experience

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>Frequency</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 5</td>
<td>74</td>
<td>54.0</td>
</tr>
<tr>
<td>6 – 10</td>
<td>44</td>
<td>40.0</td>
</tr>
<tr>
<td>11 – 15</td>
<td>8</td>
<td>6.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
As shown in Table 4.3, more than half of the teachers were in service for not more than 5 years. About two fifth had 6-10 years’ experience with 40% and 11-15 years of experience with 6% while 0-5 years’ experience with 54%. There were a relatively small number of teachers with more than ten years of experience.

4.3 Use of Mother Tongue in Teaching Mathematics

The first objective of this study was to establish the extent to which teachers used mother tongue in teaching mathematics in lower primary school classes in Yola Metropolis. To achieve this objective, questionnaire was administered to teachers in which they were required to indicate the extent to which they used mother tongue to teach some mathematical concepts. Table 4.4 presents the results.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Always</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
</tr>
<tr>
<td>Counting</td>
<td>84</td>
<td>66.67</td>
<td>37</td>
</tr>
<tr>
<td>Recognition</td>
<td>76</td>
<td>60.32</td>
<td>42</td>
</tr>
<tr>
<td>Matching</td>
<td>59</td>
<td>46.83</td>
<td>59</td>
</tr>
<tr>
<td>Classification</td>
<td>47</td>
<td>37.30</td>
<td>62</td>
</tr>
<tr>
<td>Addition</td>
<td>43</td>
<td>34.40</td>
<td>77</td>
</tr>
<tr>
<td>Subtraction</td>
<td>27</td>
<td>21.43</td>
<td>92</td>
</tr>
<tr>
<td>Multiplication</td>
<td>21</td>
<td>16.67</td>
<td>100</td>
</tr>
<tr>
<td>Division</td>
<td>23</td>
<td>18.25</td>
<td>93</td>
</tr>
</tbody>
</table>

Results on Table 4.4 show that on the concept of counting, more than half (66.67%) of the teachers indicated that they always used mother tongue with and
slightly above a quarter (29.37%) of them rarely used mother tongue while a small percentage (3.97%) number did not use mother tongue at all. On Number recognition, more than two-fifth (60.32%) of the respondents indicated that they always used mother tongue in teaching mathematics, a little (33.33%) above one-third rarely used mother tongue in teaching mathematics while a small number (3.97%) did not use mother tongue at all in teaching mathematics. The results imply that teachers rarely used mother tongue in teaching mathematics.

Results from this study concur with Williams and Mchazime (1999) in Malawi, who had found that in Malawi children in early years education were taught in Chichewa, the native language while English was used as a second language. The study had further revealed that pupils taught in mother tongue performed better in understanding, reading, listening and speaking while using home language when compared with the pupils who were taught in second language (English).

The finding agrees with those from a study by Israel and Thomas (2013) who did a study on effect of Mother-tongue and mathematical language on performance of primary school pupils in mathematics. They found that, pupils comprehend better in mathematics when they were taught in a language known by them. They further state that using pupils’ language would help them to develop mathematics vocabularies that could make them to remember what they have learnt.

The findings of this study disagrees with that of Hafiz and Farik (2016) who did a study on effectiveness of teaching and learning mathematics using children’s home and cultural tools. They found that, pupils who were taught in their mother-
tongue and using resources from their communities did not perform well. Likewise, the results revealed that pupils performed poorly in both internal and external examination, due to inability to cope with the language used to teach mathematics in the classes.

The findings of this study agree with that of Chilora (2001) in Charanci (2014), who found out that Yao pupils whose teachers used their first language to assist the pupils to understand a point did better in English reading and comprehend mathematics than those pupils whose teachers were poor in using or did not use their first language.

4.4 Teachers’ Training and Use of Mother Tongue in Teaching Mathematics

Another objective was to find out the influence of teachers’ training on use of mother tongue in teaching mathematics. To achieve this objective, teachers’ use of mother tongue by level of training was determined and the results have been presented in Table 4.5.

**Table 4.5: Teachers Use of Mother Tongue in Teaching Mathematics by Level of Training**

<table>
<thead>
<tr>
<th>Level Of Training</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Ed</td>
<td>17</td>
</tr>
<tr>
<td>Diploma</td>
<td>16</td>
</tr>
<tr>
<td>NCE</td>
<td>93</td>
</tr>
<tr>
<td>Total</td>
<td>126</td>
</tr>
</tbody>
</table>

As it can be seen from Table 4.5, the higher the level of teachers’ training, the higher the mean score in use of mother tongue in teaching mathematics. This
means that teachers’ level of training influenced use of mother tongue in teaching mathematics.

The findings of this study are similar to those from a study carried out by Dennis & Molane (2011) who had established that teachers who were trained on how use of mother tongue were familiar with the process in which pupils acquire the skills and used mother tongue in teaching. Similar results were reported by Mata (2014) found that training of teachers on teaching in mother tongue enabled them to learn how to support pupils’ development and learning processes, to create suitable conditions for achieving their goal hence pupils achieve their personal best. Ball (2003) added that mathematics requires well trained mother tongue teachers who can impart knowledge for the young ones. A research conducted by Gawata (1990) in Zimbabwe primary schools, had established that trained teachers taught mathematics better than those who were not trained results which confirms the findings of this study. Moalosi & Molwane (2010) found that teachers who were trained used mother tongue more effectively than those who did not.

The findings of this study agrees with that of Charanci (2011) who did a study on the influence of mother tongue, teachers qualification, gender and experiences on performance in primary school mathematics in Katsina state. Results had shown had shown that teachers training influenced the use of mother tongue in teaching.

The finding of this study disagrees with that of Dennis and Malone (2011) who did a study on teacher education for mother tongue-based education programme and found that found that nonprofessional teachers from other language in their
areas proved to be more effective. The funding of this study agrees with that of Stone (2012) who did a study on a professional development programme for Mother tongue based teachers, addressing teachers’ knowledge and attitudes about the MTBMLE. The researcher had found that teachers training programs have been recognized as one of the most successful tools to bring about new innovation in teachers knowledge skills and attitudes in which in turn translated to better pupils’ performance.

The findings of this study agrees with that of Dea et al (2014), who did a study on challenges in use of mother tongue based education as a medium of instruction in primary schools for quality enhancements. The study revealed that highly trained and educationally equipped teachers taught better in mother tongue than those who were less qualified.

Finding of the study agrees with those from a study done by Igbojiwaeku and Dorgu (2015) on use of Igbo language as a medium of Instruction to enhance of retention level of pupils in primary schools. The study found that using first language as a language of instruction required diverse and complex training and teachers’ level of training influenced the use of mother tongue in instruction. According to Ogbojiwaeku sand Dorgu diverse and complex training can only develop gradually through continued practices. This situation is not so in primary schools in Adamawa state.
4.5 Teachers’ Teaching Experience and Use of Mother Tongue in Teaching Mathematics

The third objective was to find out the influence of teachers’ teaching experience on use of mother tongue in teaching mathematics. To achieve the objective, teachers’ use of mother tongue by teaching experience was determined and the results were presented in Table 4.6.

<table>
<thead>
<tr>
<th>Teaching Experience</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>74</td>
<td>58.73</td>
</tr>
<tr>
<td>6-15</td>
<td>46</td>
<td>36.51</td>
</tr>
<tr>
<td>11 and above</td>
<td>6</td>
<td>4.76</td>
</tr>
<tr>
<td>Total</td>
<td>126</td>
<td>100</td>
</tr>
</tbody>
</table>

From the above table it’s clear that the more the teachers’ teaching experience, the more they use mother tongue in teaching mathematics.

The findings of this study are similar to those from a study conducted by Abdullah (2010) which found a positive relationship between teachers’ teaching experience and the use of mother tongue in teaching mathematics. The results also agree with findings from a study conducted by Harris and Sass (2007) in a study on the impact of teachers’ teaching experiences which revealed that pupils taught by teachers with more experiences performed well compared to those taught by teachers with little experiences. Ladd (2008) also found that an average teacher with more than 20 years of experiences was not more effective than a teacher with no experience results which contract with the findings of this study.
The findings of this study agrees with that of Mufanechiya and Mudanechiya (2011), who did a study on use of mother tongue as medium of instruction in teaching mathematics in Zimbabwean junior primary schools. The study found that teachers who were taught in second language had difficulties in teaching mathematics in mother tongue due to lack of experience on how to use mother tongue as a medium of instruction. They also found that, teachers who had more experience and taught in mother-tongue their pupils perform better than those taught in second language.

4.6 Teachers’ Motivation and Use of Mother Tongue in Teaching Mathematics

The fourth objective of this study was to find out the influence of teachers’ motivation on the use of mother tongue in teaching mathematics. To achieve this objective a likert scale was used to measure teachers’ level of motivation and the results were presented in Table 4.7.
Table 4.7: Teachers Level of Motivation and use mother tongue in Teaching Mathematics table level motivation

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agreed</th>
<th>Agreed</th>
<th>Strongly Disagree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits of use of MT</td>
<td>29</td>
<td>82</td>
<td>15</td>
<td>266</td>
</tr>
<tr>
<td></td>
<td>23.02%</td>
<td>65.08%</td>
<td>11.90%</td>
<td></td>
</tr>
<tr>
<td>Encouraged use of MT</td>
<td>22</td>
<td>70</td>
<td>34</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td>17.46%</td>
<td>55.56%</td>
<td>26.98%</td>
<td></td>
</tr>
<tr>
<td>Parent support use of MT</td>
<td>18</td>
<td>67</td>
<td>41</td>
<td>229</td>
</tr>
<tr>
<td></td>
<td>14.29%</td>
<td>53.17%</td>
<td>32.54%</td>
<td></td>
</tr>
<tr>
<td>School provides relevant material</td>
<td>13</td>
<td>66</td>
<td>47</td>
<td>218</td>
</tr>
<tr>
<td></td>
<td>10.32%</td>
<td>52.38%</td>
<td>37.30%</td>
<td></td>
</tr>
<tr>
<td>School support inservice training of MT</td>
<td>17</td>
<td>49</td>
<td>60</td>
<td>209</td>
</tr>
<tr>
<td></td>
<td>13.49%</td>
<td>38.89%</td>
<td>47.62%</td>
<td></td>
</tr>
<tr>
<td>I like to use MT</td>
<td>15</td>
<td>90</td>
<td>21</td>
<td>246</td>
</tr>
<tr>
<td></td>
<td>11.90%</td>
<td>71.43%</td>
<td>16.67%</td>
<td></td>
</tr>
</tbody>
</table>

Results in Table 4.7 shows that, 88.1% of teachers agreed with the benefit of using mother tongue in teaching mathematics in lower primary school classes, while 11.90% disagreed, 73.02% agreed that they encouraged the use of mother tongue in teaching mathematics in lower primary schools while 26.98% strongly disagreed. Also, 67.46% of the teachers agreed that parents supported the use of mother tongue in teaching mathematics while 32.54% strongly disagree with this. Additionally, 62.7% of them agreed that the school provides relevant materials for teaching mathematics using mother tongue while 37.30% disagreed. Moreover, 52.38% agreed that the school support in-service training of mother tongue while
47.62% disagreed. Also 83.33% of the teachers agreed that they liked to use mother tongue while 16.67% of them disagreed.

Results from this study are similar to those reported by Mohammed Meerah et al. (2010) who suggested that, to ensure effective use of mother tongue, teachers must be motivated, dedicated and professionally trained in the use of mother tongue for them to succeed in teaching of mathematics. UNESCO (2005) states that parents’ participation is a widely cited factor in fruitful bilingual programs. Ofoegbu (2000) also points out that in this era teachers need to be adequately motivated and properly rewarded for work done, and when teachers are frustrated, they on their part cannot motivate students to learn. Lortie (1975) found that when pupils progress in learning, the teachers were motivated.

The findings of this study also agrees with that of Guajardo (2011) on teachers motivation and found that teachers who taught in mother tongue were more motivated compared to those who did not. The finding of this study agrees with that of Launio (2015) who did a study on instructional medium and its effects on student’s mathematics achievement. The study found that teachers who were motivated used mother tongue in teaching.

4.7 Problems Faced by Teachers while Using Mother Tongue to Teach Mathematics

The fifth objective of the study was to establish the challenges faced by teachers while using mother tongue in teaching mathematics. To release the objective
teachers were required to state some of the problems they faced while using mother tongue in teaching mathematics. The results were presented in Table 4.8.

**Table 4.8: Problems Faced By Teachers While Using Mother Tongue in Teaching Mathematics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having pupils from different ethnic groups</td>
<td>79</td>
<td>62.69</td>
</tr>
<tr>
<td>Lack parental support</td>
<td>69</td>
<td>54.79</td>
</tr>
<tr>
<td>Inadequate teacher training</td>
<td>68</td>
<td>53.96</td>
</tr>
<tr>
<td>Poor understanding of mother tongue by Pupils</td>
<td>56</td>
<td>44.44</td>
</tr>
<tr>
<td>Difficulties in translation of some concepts</td>
<td>52</td>
<td>41.26</td>
</tr>
<tr>
<td>Poor evaluation</td>
<td>50</td>
<td>39.68</td>
</tr>
<tr>
<td>Shortage of staff in the use of mother tongue</td>
<td>45</td>
<td>35.71</td>
</tr>
<tr>
<td>Inadequate support from government and School administration</td>
<td>27</td>
<td>21.43</td>
</tr>
<tr>
<td>Inadequate enlighten of the public on the relevance of use of mother tongue</td>
<td>20</td>
<td>15.87</td>
</tr>
</tbody>
</table>

As it can be seen in Table 4.8 the main challenges faced by teachers while using mother tongue in teaching mathematics included: Having pupils from different ethnic groups speaking different languages. This was followed by inadequate parental support which may lead to conflict between the school management and parents, and in turn hinder the whole learning process. Lack of in-service training for teachers was another challenge. This also affected the learning process since the teachers were not trained on how to use mother tongue in teaching mathematics. The other challenges include: Poor understanding of mother tongue by pupils; difficulties in translation of some concepts; inadequate enlightenment of
the public on the importance of use of mother tongue in teaching; inadequate support from government and school administration.

The findings of this study are similar to those from a study conducted by Lartec, and Jane (2015), who found that the challenges faced by teachers while using mother tongue in teaching of mathematics included lack of books written in mother tongue to teach mathematics, and lack of adequate vocabulary when delivering messages to pupils. Begi (2014) in his study in Kenya reported that one of the major challenge experienced by teachers who were using mother tongue as a medium of instruction was parents’ negative attitude towards use of mother tongue as a medium of instruction. Begi further cited difficulty to translate some concepts into mother tongue as the other major challenge. Similarly, Benson (2004) reported that another challenge faced by teachers using mother tongue as a medium of instruction was teachers’ training and added that special attention should be paid to resources for teaching mother tongue education. Parents also wondered why their children should be taught in mother tongue instead of national or international language that would improve their earning opportunities and enhance their socio-economic status (UNESCO, 2011).

The findings of this study agrees with Abidugun (2012) who had found that primary school teachers experienced many challenges while using Yoruba as a medium of instruction in schools including lack of training on how to use mother-tongue in teaching, lack of culturally relevant materials, lack of proper monitoring of the implementation of policies, lack of in-service training and lack of adequate text books written in Yoruba.
4.8 Classroom observation

Analysis

The second research is a checklist designed to record the frequency of teacher’s use of mother tongue while teaching the lower primary in 1 public and 1 private school. The researcher observed five different stages of lesson, each observation took 30 minutes.

The first observation showed that, with expectation of presentation steps 1 to 3, the teacher used English language always in teaching of mathematics.

In second observation, the researcher observed that the teacher used English language all the time by always switching to mother tongue to draw pupil’s attention and to discuss non-lesson related matters with pupils in teaching mathematics.

The overall findings of the classroom observed, showed that teachers use of mother tongue in teaching lower primary school classes is very low and discouraging and use of mother tongue is not adequate in the lesson taught by the teachers.
CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the final phase of the research work and it consists of the summary of findings, conclusion and recommendations for key stakeholders.

5.2 Summary of findings

The study established that more than half of the teachers used mother tongue in teaching mathematics in lower primary schools. The results revealed that teachers rarely used mother tongue in teaching mathematics. Teachers were using mother tongue to teach: Counting, recognition, matching, classification, addition, subtraction, division, and multiplication.

In regard to the influence of teachers’ training on the use of mother tongue, almost all teachers had been certified with four-fifth of them having fundamental training in teaching. The higher the level of teachers’ training, the higher the mean score in use of mother tongue in teaching mathematics.

On the relationship between teachers’ teaching experience and use of mother tongue in teaching mathematics, results revealed that, the more the teachers’ teaching experience, the more they used mother tongue in teaching mathematics.

Teachers’ level of motivation to use mother tongue in teaching mathematics was average. The results also indicated that the more motivated teachers were the more they tended to use mother tongue in teaching mathematics. The relationship between teachers’ motivation and use of mother tongue was highly significant.
Finally, in relation to the challenges faced by teachers while using mother tongue in teaching mathematics, results indicated that they faced many challenges. The challenges included: Having pupils from different ethnic groups speaking different languages; inadequate parental support; teachers are not trained on how to use mother tongue in teaching mathematics; poor understanding of mother tongue by pupils; and difficulties in translating some concepts.

5.3 Conclusion

In the first objective the study was to establish the extent to which teachers used mother tongue in teaching mathematics in lower primary schools. Results had shown that majority of the teachers rarely used mother tongue in teaching mathematics. It was also clear that teachers’ use of mother tongue in teaching mathematics was low.

In the second objective the researcher was to find out the influence of teachers training on use of mother tongue in teaching mathematics in lower primary schools. Result shows that, the higher the teachers training, the more they used mother tongue in teaching mathematics. Results also shows that there was relationship between teachers training and use of mother tongue in teaching mathematics. It was therefore clear that teachers’ training influenced the use of mother tongue in teaching mathematics in lower primary school class.

Regarding the third objective, the researcher was to determine the influence of teachers teaching experience on use of mother tongue in teaching mathematics. Findings revealed that, the more experienced teachers were, the more they used
mother tongue in teaching mathematics. It was therefore clear that teachers’ teaching experience influenced the use of mother tongue in teaching mathematics.

In the fourth objective, the researcher was to find out the influence of teachers’ motivation on use of mother tongue in teaching mathematics. Descriptive results showed that teachers’ motivation was above average. Inferential results showed that the correlation between the two variables was highly significant meaning that teachers’ motivation influenced use of mother in teaching mathematics.

Lastly, concerning the challenges faced by teachers while using mother tongue in teaching mathematics. From the results it was clear that teachers faced many challenges while using mother tongue in teaching mathematics.

5.4 Recommendations

Based on the findings the study recommended the following:

5.4.1 School Board of Management

(i) Sponsor teachers to attend training programmes to learn how to use mother tongue in teaching in lower primary schools. This is because some teachers were not trained on how to use mother tongue in teaching mathematics.

(ii) Encourage teachers to use mother tongue in teaching. This was because some teachers never used mother tongue in teaching mathematics. One of the reasons for not using was the school policy which discourages them from using mother tongue in lower primary schools.
5.4.2 Teachers

(i) Use mother tongue in teaching mathematics. This is because some teachers were not using mother tongue in teaching mathematics.

(ii) Develop culturally relevant materials for teaching-learning. This is because one of the factors hindering the use of mother tongue in teaching was lack of culturally relevant materials.

5.4.4 Teachers Training Institutions

The institutions should train teachers on how to use mother tongue in teaching. This is because some teachers had reported that they were not trained on how to use mother tongue in teaching lower primary schools.

5.4.5 Suggestion for further studies

i. Influence of foreign languages on adoption of mother tongue in education

ii. How language teachers can be trained and promote the use of mother tongue in education

iii. School factors influences the use of mother tongue in teaching of mathematics
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APPENDICES

APPENDIX I:

Questionnaire for Lower Primary School Teachers

This study seeks to collect information on teachers’ use of mother tongue in teaching of mathematics in lower primary schools and the teacher factors influencing it. Please answer the following questions by ticking the appropriate response or filling in the spaces provided.

SECTION A: Demographic Information

1. Age of teachers___________________________________

2. What is your highest Educational qualification? _______________________

3. Put a tick (✓) against your highest level of training.
   i. Certificate
   ii. Diploma
   iii. Nigerian Certificate of Education
   iv. Degree

4. For how many years have you taught? ________________________________

Section B: Use of mother tongue in teaching Mathematics

Indicate how frequent you use mother tongue in teaching the following mathematics concepts:

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Always</td>
</tr>
<tr>
<td>1 Counting</td>
<td></td>
</tr>
<tr>
<td>2 Number recognition</td>
<td></td>
</tr>
<tr>
<td>3 Matching numbers</td>
<td></td>
</tr>
<tr>
<td>4 Classification</td>
<td></td>
</tr>
<tr>
<td>5 Addition</td>
<td></td>
</tr>
<tr>
<td>6 Subtraction</td>
<td></td>
</tr>
<tr>
<td>7 Multiplication</td>
<td></td>
</tr>
<tr>
<td>8 Division</td>
<td></td>
</tr>
</tbody>
</table>
Section D: Teachers’ motivation

1. I know the benefits of using mother tongue in teaching mathematics.
   Strongly agree ( ) Agree ( ) Strongly Disagree ( )
2. The school management encourages me to use mother tongue in teaching mathematics.
   Strongly agree ( ) Agree ( ) Strongly Disagree ( )
3. Parents support the use of mother tongue in teaching mathematics.
   Strongly agree ( ) Agree ( ) Strongly Disagree ( )
4. The school provides culturally relevant materials to promote the use of mother tongue in teaching mathematics.
   Strongly agree ( ) Agree ( ) Strongly Disagree ( )
5. The school supports me to attend in-service training to learn how to use mother tongue in teaching mathematics.
   Strongly agree ( ) Agree ( ) Strongly Disagree ( )
6. I love to use mother tongue in teaching mathematics.
   Strongly agree ( ) Agree ( ) Strongly Disagree ( )

Section E: Challenges faced by teachers while use mother tongue in teaching of mathematics.

7. State the problems you experience while using mother tongue in teaching mathematics.
   (i)
   (ii)
   (iii)
   (iv)

8. Suggest solutions to the problems you have stated above
   (i)
   (ii)
   (iii)
   (iv)
Appendix II: Class Room observation of teachers’ use of mother tongue while teaching

<table>
<thead>
<tr>
<th>S/N</th>
<th>Lesson stages</th>
<th>Teachers use of mother tongue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lesson introduction</td>
<td>Always</td>
</tr>
<tr>
<td>2</td>
<td>Presentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Step 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Step 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Step 3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Conclusion</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Class control</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX III

Map of Nigeria Showing Adamawa State

Legend
- **Adamawa State**
- **State Boundary**

1 cm = 50 km
APPENDIX IV

Map of Adamawa State Showing the Study Area

Legend
- Yola North LGA
- Yola South LGA
- LGA Boundary

1 cm = 15 km
APPENDIX V

Letter of Research Authorization

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@kau.ac.ke
Website: www.kau.ac.ke

FROM: Dean, Graduate School
TO: Fatima Abdulshahab Umara
C/o Early Childhood Dept.

DATE: 8th October, 2016

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 2nd November, 2016 approved your Research Project Proposal for the MEd Degree entitled, "Teacher Factors Influencing use of Mother Tongue in Teaching of Mathematics in Lower Primary Schools in Yola Metropolis, Nigeria."

You may now proceed with your Data Collection. Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

JACKSON LIPISO
FOR: DEAN, GRADUATE SCHOOL

e.o. Chairmen, Department of Early Childhood Studies

Supervisors:

1. Dr. Nyabwara Begi
   C/o Department of Early Childhood Studies
   Kenyatta University

2. Dr. Esther Wathika
   C/o Department of Early Childhood Studies
   Kenyatta University
APPENDIX VI

Introduction Letter

To All Head Teachers
Yola South Local Government
Education Authority
Yola

INTRODUCTION IN RESPECT OF FATIMA ABDULWAHAB UMAR

I wish to write and introduce to you the above named person, who want to carry out
a research work in some public and private primary schools within Yola South Local
Government Education Authority.

Please your grant her all necessary assistant in filling the questionnaire

Thank you:

Education Secretary
Yola South Local Council

Haj. Hadiza Suleman
Ag. Education Secretary

All Correspondence are addressed to the office of the Education Secretary