

**UNIVERSITY OF EDUCATION WINNEBA**

**EFFECTIVENESS OF MATHEMATICS TEACHING AT EARLY  
CHILDHOOD CENTRES USING THE NATIVE LANGUAGE:  
THE CASE OF EJISU-JUABENG MUNICIPALITY IN THE ASHANTI  
REGION**



**A dissertation in the Department of Early Childhood Education,  
Faculty of Educational Studies, submitted to the School of  
Graduate Studies in partial fulfilment  
of the requirements for the award of the degree of  
Master of Education  
(Early Childhood Education)  
in the University of Education, Winneba.**

**NOVEMBER, 2022**

## DECLARATION

### STUDENT'S DECLARATION

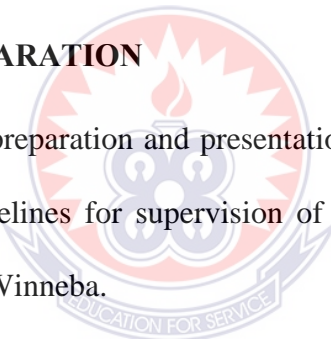
I, Grace Adubea Amaning, declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Signature :.....

Date:.....

### SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of dissertation as laid down by the University of Education, Winneba.



Supervisor: Dr. Mike Subbey, (PhD.)

Signature :.....

Date:.....

## **DEDICATION**

To my lovely daughter Nana Aba-tua Aido

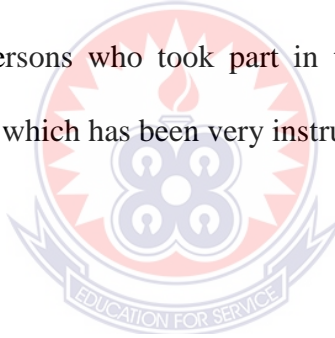


## ACKNOWLEDGEMENT

First of all, praises and thanks to the Almighty God for the strength and ability to complete the work.

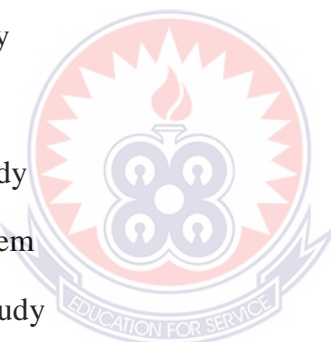
I would like to also express my deep and sincere gratitude to my research supervisor, Dr. Mike Subbey of the University of Education, Winneba for providing enormous guidance throughout this research. It was a great privilege and honour to work and study under his guidance.

I am extremely grateful to my brother Mr. Theophlous Ofosu Amaning, Sister Vida Owusua, my Pastor Rev. Jerome Owusu Akoto and all family for their love, prayers and continues support. Additionally, I am extending my heartfelt thanks to my course mates, friends and all persons who took part in this research for their invaluable contributions and support which has been very instrumental in the completion



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## ABSTRACT

The researcher investigated the Effectiveness of teaching Mathematics in the Early Grade school at Ejisu Municipality using the native language. The objectives of the study sort understand teachers' knowledge about the use of native language in early grade instructions, how Learners' participation in mathematics using native language and Challenge's teachers face in the usage of native language in mathematics instruction in Ejisu Municipality. The researcher espoused qualitative study tools to achieve the defined objectives through interview. A random sampling technique was used to sample 25 teachers from ten different schools for structured interview. It was concluded that using native language is very important in the mathematics instruction at the early grade level since its gives them better understanding and relation of the instruction to the environment. It also helped to improve their reasoning ability. However due to lack of policy and the improper monitoring many teachers use the English language in the instruction. As such the researcher recommended the translation of mathematics syllabus into the native language, and improvement in curriculum of teachers in the colleges of education and the supply of adequate teaching and learning materials. The findings of the researcher recommended further study in understanding the impacts of non-usage of native language on academic performance of early learners in the senior high school level in mathematics education for better expatiation on the topic.



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

Ghana has generally been referred to as the beacon of economic growth in sub-Saharan Africa as such human development forms an important part of this agenda. During the inception of formal education in Ghana and the subsequent use of English as the medium of instruction, the indigenous languages were seen as “inadequate” as teaching media for learners (Bamgbose, 2000). There are over hundred linguistic and ethnic groups identified in Ghana with these groups maintaining a sense of ethnic identity (Akramov, et al., 2009). According to Machaba, 2013; Myers-Scotton, 1978; Mchazime, 1995; on teacher challenges in the teaching of mathematics at foundation phase, it stated that Language also plays a vital role in the education of a child. As such, Children should develop the ability to use the language to listen, speak, question, explain and discuss. Due to the similarities in the various dialects and the increasing mobility of the population, a typical Ghanaian understands at least one of five major languages— Akan, Nzema, Dagbane, Ga, or Ewe as well as English, which is the official language of the country. In the precolonial period (1529-1925), the use of bilingual in education in Ghana started with the initiation of formal education in Ghana which began with the castle schools and was later pursued by the missionaries. The first legislation on the use of a Ghanaian language in education was propagated by McWilliam, 1975;Graham, 1971; (Gbedemah, 1975). Ghanaian language was used as the medium of instruction only at the lower primary level, with English used thereafter. The policy was reversed and became unstable when the administration of the country came under the jurisdiction of indigenous Ghanaians in 1957. Since then, the use of a Ghanaian language as the medium of instruction at the early grade level has had an

inconsistent history. Ghana having been a strong advocate of Pan-Africanism since Nkrumah's era has overlooked the importance of using indigenous language at the early grade schools to promote the agenda but other Francophone countries have pursued it. The promulgation of the use of English as the medium of instruction in education and the abandoning of her indigenous languages in education is therefore in opposition to this ideology. Unlike most Francophone countries which had French forced on them as medium of instruction through the Brazzaville Conference of 1944 and made the use of local languages in schools forbidden (Djite, 2000), Ghana had the British lay a solid foundation for the use of the indigenous languages as media of instruction at the lower primary level.

The usage of native language as a medium of instruction is globally recommended for pupils in lower primary schools (UNESCO, Education in a Multilingual World, 2003). Emphatically according to the Global campaign for education (2013) revelation, learners taught in foreign language perform poorly than those taught in mother tongue. Math is abstract while young children are deemed to be concrete thinkers; cognitive developmental work done in the mid-twentieth century has been used to suggest that young children's mathematical ideas develop on their own timetable, independent of environmental factors like teaching (Piaget, 1959). But this construed has been rejected by many recent researchers stating learners develop their mathematical cognitive skills better during the use of native language.

Mother tongue is the language a child learns first from the mother or the principal caregiver (Dialyn A.G, Andrea M.G. Jochelle B.M & Jomar B.Pailileng, 2014). It is one's native language. As stipulated in the millennium development goals (MDG2), that child education must be compulsory and free for all children and for holistic national development, it is imperative that public and private pre-schools provide the

same or similar experiences and opportunities for all children to fully explore their potentials.

To add to the native language usage, most African countries are multilingual with different language policies as such it is very difficult adopting one common language and Ghana is no exception because of the different ethnic and language groups scattered all over. This makes teaching and learning at the early childhood level using one native language very difficult especially when the instructor is not conversant with the native language of the locality.

An attempt to retain most of the indigenous Languages as languages of instruction is seen by linguists as a good initiative that should be appreciated internationally. This is because native language acquisition is an important ingredient in the development of the child's intellect and other aspects of his or her personality. Comparatively, in some Anglophone countries in Africa, education is given entirely in the medium of English language whereas in Tanzania education is given entirely in the native language (Osafehinti, I. O. and Nabie M. J. , 2001).

Assertively, Dialyn et al (2014) in *research on MTB-MLE implementation language and education*, argued that the use of native language enables a child to express himself/herself easily, as there is no fear of making mistakes. This affirms the fact that using native language in teaching improves the child's confidence and encourages getting involved in teaching discussion. Additionally, (Kimizi, 2012) added that children taught in native language have better learning comprehension than those taught in a foreign language. Brief, 2013 also reveals that learners taught in foreign languages perform poorly than those taught in native language. These propound literatures back the essence of using native language at the early childhood level to teach and learn mathematics better. Ashanti region is one of the landmark regions in Ghana with a

population of over 4.7million people according to the 2010 census. It is the region with the Golden stool, rich culture and traditions. The traditional native language in the region is Twi.

According to the reports on basic Education (Israel, & Thomas, 2013) statistics and planning parameters a total of 3,356,743 primary schools exists from p1 to 6 as at 2010. A total of 39,111 was the population of citizens from kindergarten to primary school level located in the Ejisu municipality as at 2010. The area has a total population of 143,762 which constitute 3 percent of the regional population. Teaching and learning mathematics in local language is regarded as the best to improve child confidence at the early childhood level. According to Israel and Thomas (2013), children understand mathematics better when they are taught using their mother tongue as such it's imperative to adopt Twi in helping to teach and learn Mathematic in the Ejisu Municipality.

Many researchers have postulated that learning using native language also helps to develop mathematical vocabularies that could be easily used and remembered by learners. Further to this, Niss (2003), defined mathematical competence “as the means and the ability to understand, judge, do, and use mathematics in a variety of intra- and extra-mathematical contexts and situations in which mathematics plays or could play a role”. In other words, students do not just need knowledge in mathematics, but must also be able to apply knowledge and conceptual understanding indifferent contexts, and to analyze, and reason to solve problems. The importance is given to children’s mother tongue which helps children to develop mentally and use the ideas learnt from culture to enhance their performance.

## **1.2 Purpose of the Study**

This study sought to find out the effectiveness of using the native language as the medium of instruction mathematics teaching at early childhood center in Ejisu Municipality.

## **1.3 Objectives of the Study**

This study sought to find out:

1. Teachers' knowledge about the use of Native Language in mathematics lessons in Ejisu municipality.
2. Learners' participation in mathematics using native language.
3. Challenge's teachers face in the usage of native language in mathematics instruction in Ejisu Municipality.

## **1.4 Research Questions**

1. What is the knowledge of teachers about the use of Native Language in mathematics lessons in Ejisu municipality?
2. What is the level of learner participation in mathematics lessons using the native language?
3. What challenges do teachers face in the usage of native language in mathematics instruction in Ejisu Municipality?

## **1.5 Significance of the study**

- This study will help to improve comprehension of the study and learning of mathematics at the early childhood level by students and improve student performance.
- The outcome of this study will also help the Ghana Education service to revise teaching syllabus in mathematics at the early childhood level by linking mathematical thinking to culture in the locality. Also, it will help in formulating

policy to adapt critical measures in reforming early childhood education in Ghana.

- Finally, the outcome of this study will help to reform private school curriculum at the early child level and improve upon future research.

### **1.6 Statement of the Problem**

Worldwide, there are 50-75 million ‘marginalized’ children who are not enrolled in school. Children whose primary language is not the language of instruction in school are more likely to drop out of school or fail in early grades. This is why this research is being conducted to measure the effectiveness of using the native language in mathematics instruction at the early childhood level. Research has shown that children’s first language is the optimal language for literacy and learning throughout primary school (UNESCO, 2008a). In spite of growing evidence and parent demand, many educational systems around the world insist on exclusive use of one or sometimes several privileged languages. This means excluding other languages and with them the children who speak them (Arnold, Bartlett, Gowani, & Merali, 2006).

#### **The risks of using foreign language**

It is not hard to grasp all that is at stake: parents not enrolling their children in school at all, children not able to engage successfully in learning tasks, teachers feeling overwhelmed by children’s inability to participate, early experiences of school failure, and so on. Some children do succeed, perhaps through a language transition program that helps them to acquire the language of instruction. But there is the risk of negative effects whereby children fail to become linguistically competent members of their families and communities and lose the ability to connect with their cultural heritage.

While some children continue to develop proficiency in their first language while succeeding in school in a second language, this does not happen automatically. Increasingly, it leads to an inability to communicate about more than mundane matters with parents and grandparents, and a rapid depletion of the world's repository of languages and dialects and the cultural knowledges that are carried through them.

Teacher education programs must include attention to the mathematics component of early childhood programs, and continuing professional development opportunities should support high-quality mathematics education. Effective professional programs weave together mathematics content, pedagogy, and knowledge of child development and family relationships (Ball & Cohen, 1999). The development of institutional policies that promote teachers' mathematical learning, teamwork, and planning can provide necessary resources to overcome classroom, community, institutional, and system-wide barriers to young children's mathematical proficiency.

Weaknesses in math skills, however, begin early and are evident by the time children enter kindergarten (Bernstein et al 2014). Unfortunately, children who enter kindergarten with weak math skills are likely to remain behind their peers in the later grades this was affirmed by Watts et al (2014) since education policy does not permit the exclusive use of native language at the early grade level. Emphatically, Duncan et al (2011) and Siegler et al (2012) affirmed this assertion. In addition, the children who are the least prepared in math when they enter kindergarten tend to be from minority and low-income families, or they are just learning to speak English. Watts et al (2014) and Mulligan et al (2012) further established that these factors suggest that improving the long-term outcomes for all children may depend on exposing them to more early math concepts before they enter school.



Other research work also affirmed that Children who learn mathematics fundamentals in preschool and kindergarten have the best chance of later achievement in school—but too often, children don't get the effective early math instruction that makes all the difference.

### **Teachers challenges**

Before exploration of what can happen in the classroom, examination of the teacher in general terms is needed. One of the challenges in working with Early grade learners is that teachers lack the confidence they need to serve the children with linguistically diverse needs (Renner, 2011). The basic solution for dealing with this particular challenge is to offer staff development to the teachers of young children. Training for teachers of young Early learners is limited in accessibility (Bell, 2010). When teachers of young early learners receive training in working with linguistically diverse students, they can increase their confidence as well as learn theory and practice that will support them in their work (Renner, 2011). Most Early learners (ELLs) are in the mainstream classrooms and unfortunately, the majority of the teachers are not trained to successfully work with this population (Cho, 2011). With this information in mind, the basic solution that is common in the literature is for teachers to receive professional development and training in working with young ELLs. The teacher has to understand the developmental process of acquiring a new language, the stages involved, the socio-cultural aspects of learning a second language, and the technical aspects of language and language development (Cummins, 1979,1980, 1981; Hakuta, 1986). The majority of the ELL research available suggests the need for teacher training. However, there is little research about the types of training the teacher needs. Cho (2011) suggests that teachers need to be trained in content specific to working with young ELLs.

This is actually not the case in Ghana's early childhood education, where English language which is not our mother tongue is mostly used, and most of the children find it difficult in expressing themselves better in class. But where the child could express themselves, they could not understand most of the mathematical jargons used in teaching. This re-emphasized the need to measure the effectiveness native languages play in the teaching of learning of mathematics in Ghana.

For better understanding of mathematics activity at the early grade level, it is important that the language used in the teaching of mathematics should be understandable and be pitched at the level of the child. Some African countries have their native language as their national language as such childhood education in mathematics is easy. These countries include Kenya, Tanzania, and Uganda (Myers-Scotton, 1993). Invariably an alternative to using a native language as a national language has been to use a foreign language such as English, French or Portuguese (Mchazime, 1995). This has resulted in either the local language not being used in teaching or it being limited in usage.

In Ghana during the missionary education era, the use of native language was projected alongside English in early education. The Wesleyan Missionaries, who settled along the western coast of the Gold Coast, used English Language as a medium of instruction in schools while Ga, Ewe and Twi were used along the eastern coast and inland parts of the country by the Bremen and Basel Missionaries. These local languages were developed and effectively used by the missionaries. Ofosu-Appiah (1976) identifies that, "as far back as 1872 Arithmetic was taught wholly in Twi and Ewe and the Twi and Ewe Grammars and Dictionaries were among the best in the world of scholarship..." This improves children's interest in the study of Mathematics and English than it currently is.

According to (Hazik, M. and Farik, M., 2016) active participation and understanding at the early childhood in mathematics is due to neglecting the use of children's native language and materials from children's cultural background (cultural tools). As a result of this aforementioned reason, learners do not find any linkage between learning mathematics and their everyday life and thus perform poorly in mathematics. As such instruction of early child class in mathematics is very low and where it is, Mother Tongue Matters: Local Language as a Key to Effective Learning. The learners, cannot relates his studies with the everyday life. This might have a multiplier effect on the learner's performance even at the Senior High school level.

Israel and Thomas (2013) opined that learner's understand mathematics better when they are taught using their mother tongue. Learning using mother tongue also helps to develop mathematical vocabularies that could be easily used and remembered by students Mathematics is an indispensable tool in the formation of an individual. It broadens and sharpens one's intellectual capabilities, and helps the child to understand, interpret and to give accurate account of the physical phenomena observed in the environment.

Additionally, due to the advent of distance learning in the training of teachers and the lack of emphasis by churned education curriculum many schools have neglected the usage of local language. To emphasize on native language usage and its impact the research sought to reecho the importance of using native language in the teaching of mathematics at early grade level to curriculum reviewers and researchers through the appropriate medium for better comprehension and adaption in future curriculum review.

It is generally observed that when mathematics syllabus is structured in English and not in native language, it makes translation to local language for use difficult and

inconsistent. In response to this, this study is being conducted to measure the effectiveness of using the native language in mathematics instruction at the early grade level. Also, because there are inadequate teaching materials, it becomes almost impossible to use the native language to teach unless the Education service directorate resourced the syllabus with the culture materials.

### **1.7 Delimitations to the Study**

This study was delimited to early grade classes in Ejisu Municipality. There are many variables influencing the use of native language in teaching mathematics in lower primary schools like school factors, availability of materials, and parents' attitudes. The current study focused on Ejisu Municipality. The study used structured interview questions, which the themes from the responses were analyzed to reduce the limitation of the study. Also, sample sizes of 25 teachers were used to represent the population from which the study was conducted which gives a fair view of the population of the area. Early grade schools from the public and private schools giving varied background were also sampled for the research. Because responses were sampled from heterogeneous population with different fluency levels, the objectives of the study were able to deal with all other limitation that arose in the course of the study, and the sample size application in research, some schools were selected through purposive sampling procedure decreases generalization of the research.

### **1.8 Limitations of the study**

This study was limited to teacher training institution processes where some colleges of Education pursue native language limited to the area of the college rather than all other acceptable native languages in Ghana. Making the Teacher non versatile in mathematics instruction using mostly English no matter where the teacher is posted to.

There might be difficulties with generalizability of the findings. results may not apply to another municipality with more varied native language.

Also, the sampling of the study could decrease the generalizability of the findings because the learners from which the treatment group was selected may differ in their linguistic ability from learners from other Early grade schools in the Ejisu municipality. Since a sample of 25 teachers and learners were taken from the municipality, this could be viewed as limitation due to the sampling technique used.

In drawing conclusions about the outcomes, the probability exists that some of the other components mentioned can influence learners' accomplishments including but not limited to learners' community and friends, on fluency in native language. Simons, (2014) noted that the aim of every study is to generalize beyond the tested sample; however, the conclusions from this study cannot be generalized outside the current setting, because the assessment is applicable only to Ejisu Municipality. The difficulties in teaching mathematics to the early grade learners are highlighted in the review of literature.

Finally, the study is limited by the facts that most parent disregard for learners to be more fluent in English language than the native language in Ghana, thus adulterating learners fluency in their homes with speaking English only at the neglects of the native language meanwhile the learner interacts more with friends in the native language of the area.

### **1.9 Organization of the study**

This research is arranged in chapters and the chapter one covers: the background of the study, the statement of problem, the purpose of the study, objective of the study, research question, significance of the study, delimitation and limitation of the study,

organization of the study and the scope and operational definition of terms if any, Chapter two will focus on the literature on the topic, Conceptual framework of the studies, Review literature, Gaps in literature, research questions, Chapter Three focused on the description of the research design, the target population; the sampling procedure, the sources of data, sampling size determination and instruments used in the collection of data for the study. The chapter four will deal with the data collection, data analysis and presentation. Then chapter five will cover discussions and conclusion.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

This section focused on research on the study, other related studies, theoretical review of the study, literature on the objectives of the study and the research question for the study. Literature will be reviewed based on the following headings:

1. Theoretical framework.
2. Conceptual Framework.
3. Early childhood teachers' knowledge about native language usage in mathematic instruction.
4. Learners understanding of mathematics using native language.
5. Challenge teachers face in the use of Native language in mathematics activity instruction

#### 2.1 Theoretical framework

This study was informed and guided by models of bilingual education and second language teaching namely; additive bilingualism, subtractive bilingualism, transitional bilingualism and immersion bilingualism.

Additive bilingualism is explained in terms of how learners maintain their mother tongue and acquire a second language. Subtractive bilingualism on the other hand describes the situation where learners lose their mother tongue in the process of acquiring a second language (Lambert, 1975). Such situations are common in societies where one language is considered to be socio-economically more prestigious than others. Usually when this happens, the child's mother tongue is replaced by the second

language, which may lead to linguistic and cultural conflicts rather than complimenting each other (Robinson, 1996).

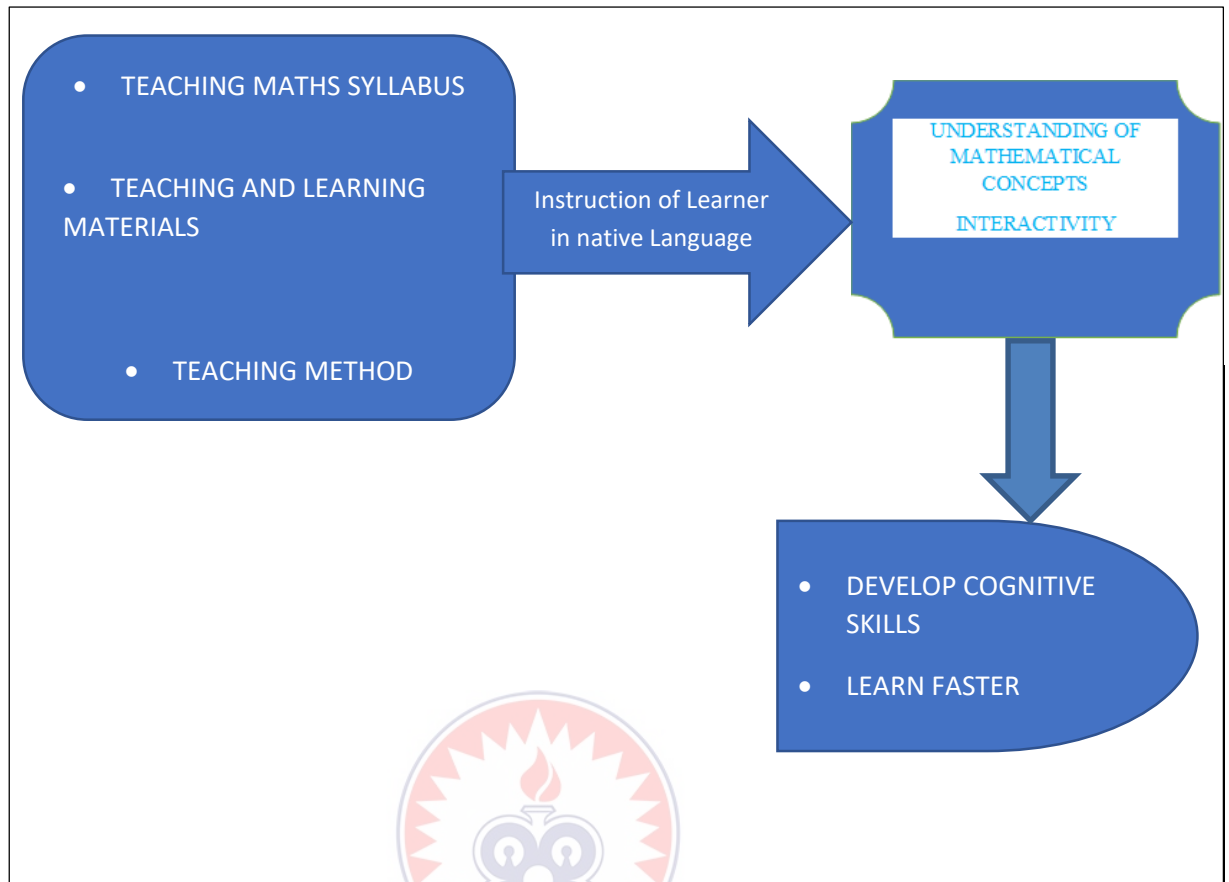
Lambert argues that, in societies where both mother tongue and second language are considered important, children gain better levels of cognitive development (Lambert, 1975). This means that children will be acquiring a second language that is not at the expense of their first language; in other words, additive bilingualism have not been known to negatively affect children's intellectual and linguistic development. (Genesee, 1977) Suggested that additive bilingualism becomes more productive when a child's mother tongue is nurtured and encouraged then later the second language is introduced gradually in the cultural context as is being presented by the NALAP program.

Research has shown that there are cognitive benefits associated with additive bilingualism such as promoting greater mental flexibility (Cummins J., 1980). In terms of second language teaching, the submersion model promotes the practice whereby the second language is used as the medium of instruction and the children's mother tongue is only used when students fail to understand a concept. For example, a non-native English-speaking student being placed into a regular English-speaking classroom with a teacher who understands their native language (Ndamba, 2008). In this scenario, when the mother tongue is not supported the learners may lose it, which may result in negative cognitive consequences for the future learning of the child. Submersion is considered as subtractive bilingualism.

Transitional bilingual model provides opportunity for children to learn subject contents in their mother tongue. English is taught as a second language mostly in subjects that require less language such as arts and music. The transitional bilingual has an advantage of helping children understand content area of subjects, which enables them to enjoy



activities and to remain in school. The transitional model therefore serves as a bridge for children in terms of helping them move from their mother to a second language such as English (Krashen, S. and Terrell, G. C, 1983). They are useful in terms of assisting the child gain better understanding of concept and as a way of compensating for inadequate proficiency in the second language. This process prepares the child for immersion into the second language (Lemlech, 1994). Generally transitional bilingual education is popular in communities where native language is dominant. Immersion is usually referred to as a Canadian model and was used primarily to support English speaking children who were learning French (Taylor, 1992). Immersion bilingual education model is considered pluralistic and tends to have additive characteristics. It helps learners to acquire two languages simultaneously. Some consider immersion programs as consisting of full or part time models. In this regard, full immersion happens when programs begin in the pre-school or kindergarten classroom and continues to the upper grades. Partial immersion on the other hand, refers to situations whereby the second language is delayed till upper elementary grades or high school. Many countries in Africa including Ghana, Kenya and Zimbabwe use immersion bilingualism (Cleghorn, 1992). Research shows that children who are supported to master the mother tongue tend to encounter less problems with regard to speech, listening, reading and writing when it comes to learning a second language (Cummins, 1981)

**DEVELOPED CONCEPTUAL FRAMEWORK BY AUTHOR****Figure 2.1: Developed conceptual framework by Author****2.2 Conceptual Frame Work**

The multiethnicity in Ghana has led to the country having over hundred linguistic and ethnic groups identified in Ghana with these groups maintaining a sense of ethnic identity and dominance (Akramov & Asante, 2009). The official language policy of Ghana stipulates that a local language be used during the first three years of early primary school education as the medium of instruction for all subjects whiles English remains a subject to be studied. After the first three years of implementation, English becomes the medium of instruction and the Ghanaian languages then become subjects of study (Ghana Education Service - GES, 1988; ERRC. 1995). For teachers to be able to cope with the language policy of instruction at the lower primary level, initial teacher

trainees are expected to study one other Ghanaian language other than their own (ERRC, 1995). The Teacher Education Unit (TEU) of the GES is therefore required to take teachers linguistic backgrounds into consideration during teacher postings to basic schools. However, there are many teachers in communities where the native languages spoken are 'foreign' to them and they can neither understand nor use the language for classroom instructions. Although many spoken languages are in Ghana not all have been accepted and used in teaching. Whilst some are only spoken others have been officially accepted by the country and teaching syllabus have developed for use in schools. A language policy can either provide or deny access to linguistic capital formation for different groups and individuals or national unity. It is in this respect that formulating and implementing language policies become a major concern among African countries. Most African countries are multilingual with different language policies. As difficult as it is, the country has officially accepted the underlisted local languages in teaching and learning and these are: Ashanti twi, Akuapem Twi, Fante, Dagaare / Waale, Dangbe, Dagbane, Ewe, Ga, Gonja, Kasem, Nzema.

The language of education in multilingual societies has always been complex and of concern to educators and educational planners due to the multi-ethnic and multilingual situation (Ouedraogo, 2000). The situation is more compounded when the official language of the nation is different from any of the indigenous languages as in many African countries. In such situations, there is always controversy over which language to use in school especially at the lower primary level in multilingual societies. In 2002, a law was propagated in Ghana that directed the use of local languages as the media of instruction from primary one to three to replace English language as the medium of instruction. Due to the criticisms from sections of academics, politicians, educators, traditional rulers, and the general populace, the Ghana Education Service (GES)

decided to implement the program “National Literacy Accelerated Programme (NALAP)” on a pilot basis in twenty districts in Ghana for the 2009/2010 academic year aimed at building on the language and experiences already familiar to children. Under the NALAP, teachers in the lower primary levels, that is, from kindergarten one to primary three, are to use the mother tongue of the children to teach them. Eleven local languages have been approved so far by the GES for the NALAP. These local languages include Asante Twi, Fante, Akuapem Twi, Nzema, Ga, Dangme, Ewe, Dagaare, Gonja and Kasem. To this point, the program was evinced to have recorded tremendous improvement in learning abilities of the children under the programme. However, due to the differing views on the NALAP program, there is the need to investigate the perceptions and views of parents and teachers of preschool children on the mother-tongue medium of instruction.

According to the ministry of education curriculum review for the lower grade class the policy Reading is the foundation of learning. Ensuring that children can read in early grades determines their future educational success. Children in developing countries including Ghana are struggling to read basic words. Alongside this, children must also develop their writing, speaking, listening and comprehension skills. One person who holds the key to improving children’s literacy is the teacher but improving literacy among early graders does not come readily to teachers, especially the new teacher. This implies that student teachers need to be equipped with skills that will help them to improve literacy among early graders. The inclusion of early grade literacy in the teacher training curriculum is to: equip student teachers, especially those specializing in early grade teaching with the skill to assist early graders understand printed information; read and write, decode and encode text in the L1 and L2; The Post and

pre-colonial times in the history of Ghana has welcomed the use of English for education for at least the upper primary schools to the university.

### **2.3 Early childhood teachers' knowledge about native language usage in mathematic instruction.**

The use of native language in teaching by teachers is influenced more by their background in the language, their level of fluency and understanding of the language. Although some teacher training institutions have all native languages studies as compulsory, not all trainees will be fluent in the use of the language after their studies. As such there is the need to emphasize on postings teachers with more fluency in a native language to teach at the lower primary level. Colleges in education should have language expert in the accepted local language areas so that teachers could choose according to local language of the area to the posted or work. This will help develop the capacity of the instructors better, for effective teaching in the local dialects.

According to (Fakeye, 2011) argued, that teachers in lower primary schools will certify that pupils' home language and school should be having close experiences so that teaching and learning would be meaningful, value approaches and appreciated in classroom teaching. Nyoni, 2013, also affirmed that learners do not make a lot of progress in learning mathematics due to their inability to understand the language of instruction and further remarked that mathematics is a nightmare for many pupils and has created a mathematics fever. Dube, R. and Cleghorn, E, 1999, added that students do not make a lot of progress in mathematics when teachers use English or foreign language. According to research carried out by UNICEF, in 1999 on the use of native language, 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.

As it happens in most African countries where early childhood educationist laid more emphasis on child learning foreign languages particularly English and French than the usage of home language. This is because most families believe that children learn languages faster at the early age so they encourage the use of foreign language in every instruction. One of the constraints to the effective teaching of mathematics at the lower grade level by the ministry of education in Ghana is Finding facilitators who have competence in demonstrating how mathematics should be taught by instructors to enable lower grade learners understanding may be problematic as there are not many mathematics educators in Ghana who are competent at explaining how to teach math to the students so that they can develop conceptual understanding and problem-solving skills.

Finally, (Pinnock, 2009a) (Bernstein, S., West, J., Newsham, R., & Reid, M., 2014) 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. In all these constraint to the use of foreign language in mathematics instructions at the lower grade level so it is expedient to measure its impact on student performance.

#### **2.4 Learners understanding of mathematics using native language.**

Chapman (1996) in Albert & Tafara (2011) revealed 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. This because student find it difficult in relating mathematics as pictorial diagrams and practices taught to the

environment which could have influence better understanding and appreciation of the subject is adopted.

Although most learners are able to speak or communicate in English in Ghana, especially learners in private schools, they lack the understanding of the language and are not able to relate it to their environment properly. Most early grade learners are able to make deductive reasoning and contribute to discussion when teaching instruction is done in their local language. This is affirmed by (Effiong, 2013), which revealed that, pupils who were taught in their mother tongue comprehend better in mathematics classroom, such as understanding the mathematics vocabularies, concept, ideas and formulas. A former minister for education, Professor Naana Opoku Agyeman, has attributed Ghana's underdevelopment issues – notably extreme poverty and income growth – to the use of English as the only medium of instruction in the lower primary schools. The argument is that this impedes learners' active participation in the teaching and learning process which, in turn, has negative repercussions on their future learning. ([www.myjoyonlinenews.com/2015](http://www.myjoyonlinenews.com/2015))

Some children do succeed, perhaps through a language transition program that helps them to acquire the language of instruction. But there is the risk of negative effects whereby children fail to become linguistically competent members of their families and communities and lose the ability to connect with their cultural heritage.

While some children continue to develop proficiency in their first language while succeeding in school in a second language, this does not happen automatically.

Increasingly, it leads to an inability to communicate about more than mundane matters with parents and grandparents, and a rapid depletion of the world's repository of languages and dialects and the cultural knowledge that are carried through them.

Teacher education programs must include attention to the mathematics component of early childhood programs, and continuing professional development opportunities should support high-quality mathematics education. Effective professional programs weave together mathematics content, pedagogy, and knowledge of child development and family relationships (Ball & Cohen, 1999). The development of institutional policies that promote teachers' mathematical learning, teamwork, and planning can provide necessary resources to overcome classroom, community, institutional, and system-wide barriers to young children's mathematical proficiency.

Weaknesses in math skills, however, begin early and are evident by the time children enter kindergarten (Bernstein et al, 2014). Unfortunately, children who enter kindergarten with weak math skills are likely to remain behind their peers in the later grades this was affirmed by Watts et al (2014). Emphatically according to Duncan et al (2011) and Siegler, et al (2012) they affirmed this assertion. In addition, the children who are the least prepared in mathematics when they enter kindergarten tend to be from minority and low-income families, or they are just learning to speak English. Watts et al (2014) and Mulligan et al (2012) further established that these factors suggest that improving the long-term outcomes for all children may depend on exposing them to earlier math concepts before they enter school.

Other research work also affirmed that Children who learn math fundamentals in preschool and kindergarten have the best chance of later achievement in school— but too often, children don't get the effective early math instruction that makes all the difference.



## **2.5 Challenges teacher face in the use of Native language in mathematics instruction in Ejisu Municipality**

According to the bedrock theory of this research, Vygotsky's (1978) Cultural Historic theory highlights that knowledge from children's culture and cultural background should form basis of teaching and learning process at the lower grade level. The importance is given to children's mother tongue which helps children to develop mentally and use the ideas learnt from culture to enhance their performance. Niesche (2009), sees the need to embed children's culture in teaching mathematics. From his research in Western Australia, he found out that children performed better when the native language (Kriol) was used instead of English to teach mathematics to the children.

The implementation of the language policy at the early grade level has had some challenges and unavailable teaching and learning materials which should have been designed and published in each of these accepted 11 Ghanaian languages. Parents were however not convinced that this had happened, or that the right teaching resources were in place.

To buttress this points, poor training of teachers on the use of native language for mathematics instruction at various teacher training colleges also mitigated against the use of the native language in the teaching of Mathematics. The unprofessional status of some of the teachers in the advent of private schools which has been helping to reduce over population of learners cannot be overemphasized however most of the teachers are not professional as such they lack the skills of effectively instructing in the local language.

Also, the lack of teaching and learning materials in the native language demands that there is ample teaching and learning materials for the exercise. Although some 11 native languages have been accepted for use under the Ghana education service, the practice of unavailable curriculum and textbooks transcribed in the native language affect the implementation of the language policy. Some teachers did not study the language of the locality. This usually occur when the teacher training institution could not offer good language tuition to the teacher trainee to ensure effective instruction in the native language. There are times that due to posting system teachers are posted to areas they are not fluent with the language. Disregard of teachers' linguistic competencies in native languages during teacher postings.

Teachers seem to be aware of the significance of the language policy on the mathematical development of children and try to practice it. They make effort to use the native language of the locality or a related language that children can understand for all aspects of mathematics instruction process.

Before exploration of what can happen in the classroom, examination of the teacher in general terms is needed. One of the challenges in working with Early grade learners is that teachers lack the confidence they need to serve the children with linguistically diverse needs (Renner, 2011). The basic solution for dealing with this particular challenge is to offer staff development to the teachers of young children. Training for teachers of young Early learners is limited in accessibility (Bell, 2010). When teachers of young early learners receive training in working with linguistically diverse students, they can increase their confidence as well as learn theory and practice that will support them in their work (Renner, 2011). Most Early learners (ELLs) are in the mainstream classrooms and unfortunately, the majority of the teachers are not trained to successfully work with this population (Cho, 2012). With this information in mind, the

basic solution that is common in the literature is for teachers to receive professional development and training in working with young ELLs. The teacher has to understand the developmental process of acquiring a new language, the stages involved, the socio-cultural aspects of learning a second language, and the technical aspects of language and language development (Cummins, 1979,1980, 1988; Hakuta K. , 1986)The majority of the ELL research available suggests the need for teacher training. However, there is little research about the types of training the teacher needs. Cho (2012) suggests that teachers need to be trained in content specific to working with young ELLs.



## CHAPTER THREE

### METHODOLOGY

#### 3.1 Introduction

This chapter presents description of the research design, the target population; the sampling procedure, the sources of data, sampling size determination and instruments used in the collection of data for the study.

#### 3.2 Research Design

The study used a qualitative case study research designed to measure the effectiveness of the usage of native language in early childhood education in Ejisu Municipality. The researcher adopted a case study design for the study in order to measure how effective teaching mathematics using native language impacts on early childhood learners. As such a structured interview questions were used to solicit information from the participants that is teacher in the early grade level. This approach again is considered by the researcher to be fundamental to instructional efforts in sustainability, but it is a methodology about which too little has been written or practiced. Design is generally based on social constructivism perspective.

The qualitative strategy, which entailed the use of in-depth interviews is often said to be very effective for detailed explanations on behaviour and experiences (Bryman, 2001; Winchester, 2005).

Two categories of participants that is, the key players of teaching at the early childhood and learners would be involved in the study. The drivers of effective teaching at the early childhood level are public concern, government regulation & policies and operational practices and their effects. This would be assessed in relation to its effects on learners understanding of mathematics education and their application to everyday

life, and teachers' ability to instruct fluently in the native language and the teaching and learning materials.

The researcher therefore perceives this approach as fundamental as it possess the needed strength to help in the data collection exercise and also help the researcher in getting closer to the key respondents who have varied from of opinions and views concerning the study under discussion.

### **3.3 Target Population**

Population is the full set of cases from which a sample is taken ( (Saunders, 2005). It is a group of people who are the subject to a piece of research (Cohen, Manion, & Morrison, ,2000). The study population was sought from ten schools in which seven were public schools and three private schools in the Ejisu municipality. Each school in the municipality at their early grade class has a class size of 20 learners from kindergarten one to primary two of public and private schools in Ejisu Municipality, given a total population of 200 for the ten schools in the municipality.

Based on this explanation, the researcher considers the population for this study to be the staff of Ghana education Service teaching at the early childhood level in the Ejisu-Juabeng municipality, and some learners taught under these schools. The total population of early grade schools in the municipality is 15 schools as at the time of the research, with an average population of 20 from the Kindergarten to the Primary 3 three level. Data was collected from KG 1 to P3 class instructors. The total population of student is around 1,500 pupils and over 150 instructors in the municipality. Using the Krejcie and Morgan (1976) table for qualitative research the sample size was determined.

### 3.4 Sample and Sampling Techniques

According to Polit and Beck, (2006), a sample size is explained as the process of selecting a unit to represent the general population in a study. According to a research by [Interq-research.com](http://Interq-research.com) a sample size of 25 would be appropriate in seeking information from the target group being instructors at early grade learners class with a population of 150 purposely sampled and used for the research. This sample size was selected from the early childhood teachers in both public and private schools under the Ghana Education Services.

This purposive sampling technique was adopted, as the researcher considered these approaches as appropriate for the data collection needed for this study. Focused group discussion was used to discuss with the learners about their interest in the mathematics. The focus of the research was on five public schools and five private schools early grade classes. The interviewees were chosen because they had a particular contribution to make. It was a homogeneous sample with the choices of interviewee being such that all were considered to be knowledgeable in the subject area. Green and Thorogood (2003) maintained that the experience of most qualitative researchers conducting an interview-based study with a fairly specific research question is that little new information is generated after interviewing 25 people or so belonging to one analytically relevant participant 'category' (pp. 102–104). Ritchie et al. (2004) suggested that studies employing individual interviews conduct no more than 50 interviews so that researchers are able to manage the complexity of the analytic task. Similarly, Britten (1995) notes that large interview studies will often comprise of 50 to 60 people. Experts have also offered numerical guidelines tailored to different theoretical and methodological traditions and specific research approaches. Creswell (2007) and Morse J.M (2000) affirmed sample size determination in an interview and noted that sample was relatively

homogeneous, their research aims focused. Extending the enquiry to multi-site, cross-cultural research, Hagaman and Wutich (2006) showed that sample sizes of 20 to 40 interviews were required to achieve data saturation of meta-themes that cut across research sites.

### **3.5 Instrumentation**

Primary and secondary data were used in this study. Primary data were gathered by interviews from the respondents. These participants were teachers. Results from the interview after teaching a particular topic under mathematics and learners' participation in the class after the instruction was measured as the main source of data.

According to Gills and Jackson (2002), collection of data for a study is the process of gathering the required data from the selected respondents of the study. The study employed both primary and secondary data. Primary data was obtained from the responses given by the participants in relation to the objective of the study. The research instrument adopted for collection of the primary data was interview guide. Secondary data employed for the study were sourced from reports and, articles, Textbooks, and journals. Secondary data also assist the researcher to further interpret the primary data obtained. Interview guide will be used to proffer thematic reports on the interview conducted.

### **3.7 Validation of instrument**

The interview instrument was validated, using the principle advocated by Sousa, 2014, on 10<sup>th</sup> February 2022, the research conducted focus group discussion involving five teachers on the first instance and then ten learners from the both Public and private school of 21<sup>st</sup> February 2022 and the result coded. As such the researcher conducted three general cycles, such as; 1) the process of gradually coding responses by research

participants; 2) another condensation process which further helps the researcher reduce statements (or sentences) from what the research participants actually expressed; and 3) the category phase (or stage), which allows the researcher to narrow down to words the responses of the research participants. These critical areas were used to validate the research, making the outcome more reliable.

### **3.5 Data Analysis**

The data that were gathered through the administration of the structured interview questions, and then analyzed with themes and concept developed to meet the research objectives. Data collected was also discussed and interpreted based on the objective of the study. So qualitative data will be analyzed with an excel sheet after coding to ensure a better understanding of the research.

### **3.6 Ethical Consideration**

Ethical consideration refers to the principles of behavior that guide the researcher's conduct regarding the rights of the individuals chosen as respondents. Ethical consideration also involves the how the researcher carried out the study free from any form of bias. With regards to this study, all ethical principles at the various stages of the research specified by the University were followed. To mention a few, confidentiality, objectivity and privacy were all considered during the study.



## **CHAPTER FOUR**

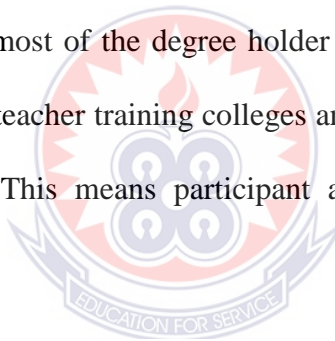
### **PRESENTATION OF RESULTS AND DISCUSSIONS**

#### **4.1 Introduction**

This chapter seeks to reveal and the interpretation of the outcome of the study in details in relation to the study objectives and the research interview and analytical tool.

#### **4.1 Presentation and Analysis of Demographic Variables**

From the results of the interview, majority of the respondents were females as compared to the males. There was no bi -sexual individual since the culture of the Ghana and the community frowns on it. Also, most of the respondent had degree qualification from the tertiary institutions in Ghana, and others hold diploma certificate from the Colleges of Education. However, most of the degree holder were teacher who had completed diploma education at the teacher training colleges and had furthered their education at the public Universities. This means participant are educated and understand the research area.



**Table 4.1: Teachers' knowledge in using Native Language**

Themes	Unit of response	Frequency	Percentages %
7. Availability of teaching materials	1. Yes	-	0
	2. No	25	100
8. Syllabus transcribed in native language or others but I translate myself.	1. Native language	0	0
	2. English	18	72
	3. None	7	28
9. Do Learners like the study of mathematics?	1. Yes	2	8
	2. No	19	76
	3. Somehow	4	16
10. Relating of mathematics teachings to outside classroom setting?	1. Yes	17	68
	2. No	8	32

#### 4.2 Teachers' knowledge about the use of native language in mathematics lessons

On teacher's knowledge about the native language of the area, most of the teacher responded that they are fluent in the Twi language of the area as such could instruct mathematics very well in the native language. However, since all the teaching curriculum is written in English, they translate it to the native language for effective teaching. This prevents uniformity and ensures subjectivity in instruction in mathematic

course contents. Although few had different native language background, it affects the translation and instruction in the native language thus making it impossible to present mathematics in Twi but in English to student. This affirms Chapman (1996) as cited in (Albert Mufanechiya, Tafara Mufanechiya, 2011) research that posit 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. This because student find it difficult in relating mathematics as pictorial diagrams and practices taught to the environment which could have influence better understanding and appreciation of the subject is adopted.

Additionally, learners' interest in mathematics will also be affected and this assert (Pinnock, 2009a) revelation 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.

Some teachers could not answer whether their native language was part of their education, since some colleges of education do not train teachers in a particular native language but in English only.

This affect teaching mathematic at the early grade level and it affirms the assertion by (Dube, R. and Cleghorn, E, 1999) that students do not make a lot of progress in mathematics when teachers use English or foreign language. According to research carried out by UNICEF, in 1999 on the use of native language, which 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 language.

Also, one the availability of teaching and learning materials, the study established that there is limited teaching and learning materials for early grade instructions in

mathematics activity. This further compound the effective teaching and learning in Mathematics at the early grade level.

Most of the respondents concluded that teaching at the early grade level in mathematics using native language is very effective and this affirms some established research findings as such must be encouraged. Finally, majority of teachers affirmed that learner's interest in mathematics activity is very high, as such if teaching is effectively instructed, learners' interest and thus cognitive ability improves.

#### **4.3 Learners understanding of mathematics activity using native language**

The results of the interview revealed that most of the learners falls within the age bracket from five years and above.

Also, most of the respondents posit that learner expressed themselves better in their native language than any other language. Although learners learn language faster at the early grade level, for effective development of cognitive ability, it better to allow early grade learners to use native language to expressed them. This in effect boasts their confidence level in speaking and expressing themselves.

In fact, majority of the learners' class are populated with class size of 40 learners' and above, average number of these learners are still able to participate in class discussions. This means if class size is around 25 to 30, teaching and learning will be effective, and more learners could participate in activity discussions. This is confirmed by research by M. Hafiz, (2016) about active participation and understanding at the early childhood in mathematics which he stated, is due to neglecting the use of children's native language and materials from children's cultural background (cultural tools). As a result of this aforementioned reason, learners do not find any linkage between learning mathematics and their everyday life and thus perform poorly in mathematics. As such

majority of learners stated in the study that, they do not like the study of mathematics due to the non-use of native language in instruction and their inability to relate it to their environment.

**Table 4.2 Learners understanding of mathematics activity using native language**

<b>THEMES</b>	<b>UNIT OF RESPONSE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE%</b>
17. Average age of learners in an early grade class	2-3 yrs	4	16
	4-5 yrs	5	20
	Above 5 yrs	9	36
		7	28
18. effectiveness of teaching at the early grade level using native language	Not Sure	7	28
	Effective	14	56
	Very effective	0	0
	Not effective	4	16
	Not sure		
19. Language learners use often to express themselves better	English	3	12
	Twi	14	56
	Others	8	32
20. Learners who participate actively in Class	1-10	4	16
	11-20	12	48
	21-30	0	0
	30 and above	9	36
21. Number of learners in a class	1-15	12	48
	16- 30	8	32
	31 -40	5	20
	Above 40		

Source: Field data

#### **4.4 Challenges Teachers face in the use of Native language in Mathematic activity**

On this particular thematic area, most teachers affirmed that there is lack of teaching and learning materials for mathematics instruction at the lower grade level, none of the curriculum truly lay emphasis on the use of native language for instruction again, there

is none of the syllabus translated in the native language to better help teaching and instruction in the area.

Most of the respondent also posits that they support the use of native language for mathematics instruction at the early grade; however because of the lack of policy guidelines for the teaching of the subjects, most of the respondent were undecided on the availability of policy streamlining the teaching in native language, and whether that policy is being followed.

**Table 4.3: Challenges Teachers faces in using Native Language in Mathematics activity**

Themes	Unit of response	outcomes	Percentage %
14 Position in the use of native language	1. Support for effective teaching	13	52
	2. Do not support	8	32
	3. undecided	4	16
15. policy guiding teaching and its availability of teaching curriculum	1. yes, it's available	8	32
	2. No	5	20
	3. undecided	12	48
16. is teaching policy at the early grade level being followed.	1. yes	1	4
	2. No its not being followed or used.	24	96
	3. undecided	0	0

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATION

#### 5.1 Introduction

In this chapter, the researcher summarizes the key findings based on the objectives of the study. Conclusion is then made from the discussion to give some recommendations for the appropriate authorities and further researches.

#### 5.2 Summary of Findings

The outcome of this research has revealed that, for effective instruction at the early grade level, the best medium for teaching mathematics is the use of native language of the area. This ensures better comprehension of the mathematical idea and its relation with the environment.

On learners understanding of Mathematics activity using native language, the study affirmed existing literature that learners at the early grade level understand mathematics better by the use of the native language of the vicinity. As such where teaching of mathematics at the early grade is done in native language, learners participate better in class activity, they are able to relate discussion with their environment, their interest in the study of mathematics improves, and it helps to develop their cognitive skills better for future studies,

Also, the study further revealed that the average age for the early grade learners in Ejisu municipality is from five years and above.

Additionally, on teachers' knowledge about the use of native language; the study also found out that currently in the municipality, have little knowledge about the use of

native language for mathematics instruction. Whilst some are fluent in the native language, their consistency in the usage at risk because most parent prefer their wad speaking English at the early grade level than the native language, also others native language background cannot translate lessons to Twi for easy understanding by learners.

Also, most of the colleges of education do not have mandatory native course as part of the teacher training syllabus so where the teacher is being posted from other region or municipality with different native language, the teacher will be limited in effective instruction in a particular native language.

Although majority of the teachers' responded that they use native language in instruction, others also contradicted it, stating they use English in mathematics instruction. However, because of ineffective monitoring on language used in instruction at the early grade level during mathematics lessons, the use of native language has been at the discretion of the teacher rather than the policy.

There is lack of teaching and learning materials at the early grade level and the teaching syllabus for mathematics is also written in English so there is no uniformity in the translation of the syllabus by different teachers for effective instructions since teachers have different fluency level. Some teachers had Kassim as their native language background, translating mathematics syllabus in English to Twi for the early grade learners at Ejisu municipality is highly impossible so they use mostly English in instruction.

One of the respondents affirmed that “native language usage help learners get more understanding of the learning in mathematics”.



### **5.3 Conclusion**

The study was to establish how effective native language usage can be in mathematics instruction at the early grade by measuring teacher's knowledge about the use of native language at early childhood grade, learners understanding of mathematics activity using native language and challenges teachers face in the use of native language. The study confirmed that teachers knowledge in native language, challenges teachers face in the usage being its policy, teaching and learning materials, language barrier form the teachers background, affects the use of native language in mathematics instructions at the early grade level thus impacting on learners understanding on mathematic activity at the early grade class leading to loss of interest in mathematics tuition at the early grade level, poor cognitive growth of the learner and finally their inability to relates studies to environments impacting on mathematics education I the future of the learners which is yet to be affirmed in any future research.

### **5.4 Recommendation for Policy**

The outcome of this study recommends that policy guidelines on the usage of native language at the early grade level must be emphasized in any new curriculum development for teaching and learning, also syllabus for teaching at the early grade level must be reviewed to reflect native language usage in Ghana. Additionally, supervision by headteachers, circuit supervisors and school authority at the early grade instruction must be improved to report on teaching impacts on learners. This should be in tandem with a review of the colleges of education curricular to include native language fluency.

### **5.5 Recommendation for Future Research**

In view of the outcome of these studies, I recommend further studies in understanding the impacts of non-usage of native language in mathematics instruction at the early childhood on academic performance of the learners from preschool to the Junior high school level. This will give clear understanding about the impacts of non-usage of native language on the interest of these learners in mathematics and their cognitive skills in mathematics education.



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## APPENDIX

### INTERVIEW QUESTIONS

UNIVERSITY OF EDUCATION WINNEBA, WINNEBA

MASTER OF EDUCATION (EARLY CHILDHOOD)  
EFFECTIVENESS OF TEACHING MATHEMATICS USING NATIVE  
LANGUAGE AT THE EARLY CHILDHOOD CENTRES IN EJISU  
MUNICIPALITY IN THE ASHANTI REGION.

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#### Structured Interview schedule

I. Male  II. Female

2. What your education level? .....

3. What is your native language? .....

4. Did you study the native language of the locality as part of your teacher training courses? .....

5. If no, what native language did you study?.....

7. What language do you instruct learners at the early grade in mathematics with?  
.....

#### TEACHERS KNOWLEDGE IN USEAGE OF NATIVE LANGUAGE IN ISNTRUCTION

8. Are there available text books and other materials for instructing early grade learners in mathematics education?

9. If yes, how available are they to teachers or learners?

10. Do you have mathematics syllabus transcribed in native language or other language but you translated it yourself?

11. Do leaners like the study of mathematics so much than any other subjects?

12. Do you relate teaching of mathematics to outside classroom settings?



**Challenges Teachers face in using Native Language in Mathematics Activity**

13. What is your position on the use of native language in instruction at the early grade level?.....

14. What policy guide the usage in the new curriculum and is it available?  
.....

15. if yes why is it not being adhered to in learners' instructions at the early grade?  
.....

**LEARNERS PARTICIPATION IN MATHEMATIC LESSONS USING NATIVE LANGUAGE**

16. What is the average age of the early grade class in your school?  
.....

17. How effective is teaching in native language at early grade level like as compared to other language?  
.....

18. What language do learners express themselves better in?  
.....

19. How many learners participate actively in instructions and able to relate instruction with objects around them?.....

20. How many learners are in your class? .....

