INFLUENCE OF PARENTAL PARTICIPATION ON THE DEVELOPMENT OF NUMERACY SKILLS AMONG PRE-PRIMARY SCHOOL CHILDREN IN LUGARI SUB-COUNTY, KAKAMEGA COUNTY. KENYA.

Anyango Beatrice Lugongo

E57/89992/2016

A Research Project Submitted in Partial Fulfilment of the Award of Master of Education Degree in Early Childhood, Department of Educational Communication and Technology, University of Nairobi

2020

DECLARATION

This research project is my original work and has not been submitted for any award in any other institution.

Anyango Beatrice Lugongo

Sign.Anyango..... Date.27NTH NOV, 2020

This research proposal has been submitted for examination with our approval as University Supervisor

Dr. Juliet Muasya
Senior Lecturer
Department of Educational Communication and Technology
University of Nairobi

Sign..... Date.1/12/2020

Dr. Evanson Muriithi
Senior Lecturer
Department of Educational Communication and Technology
University of Nairobi

Sign..... Date.02/12/2020

DEDICATION

To my husband Duncan Ochieng and my lovely daughters Quincy, Gennette and Royalty.

ACKNOWLEDGEMENTS

My special and heartfelt regards go to my supervisors, Dr. Juliet Muasya and Dr. Evanson Muriithi, senior lecturers at the Department of Educational Communication and Technology for their understanding and diligent guidance in the development of this research project.

Special gratitude to my husband Duncan for his financial and moral support throughout my study period. To my daughters Quincy, Gennette and Royalty for their unconditional love, understanding and encouragement that kept me focused on the goal.

I thank the headteacher of St. Kizito Primary School, Mrs. Mulonga and the entire staff for their moral support and words of encouragement that always gave me extra boost of energy making my study manageable and lighter.

ABSTRACT

The goal of this project was to find out the impact of parental involvement on the development of numeracy skills among preschool children in Kakamega County, Kenya's Lugari North District, Lugari Sub County. In particular, the research sought to establish how the provision of educational materials by parents, homework supervision and communication in parental school influences the development of numeracy skills among pre-primary school children. The study used descriptive research design and targeted teachers of ECDE centers, preschoolers and parents of preprimary school children in Lugari North Zone. The sample size included 13 teachers, 93 parents and 126 preschool children. The study methods used were interview schedules, questionnaires and a guide for documentary review. For study, percentages, frequencies and mean scores were used. The correlation coefficient of the variables with the supply of instructional materials with the greatest positive correlation of 0.75 on the production of numeracy skills was determined using SPSS V25. This is because instructional materials simplify abstract ideas and make learning real. Supervision of homework had a significantly positive correlation at 0.57 as it allowed learners more time to practice the skill that was taught earlier on in class while parental school communication had a less significant correlation at 0.42. This was attributed to some parents opting to discuss with their children issues affecting them in number work at home due to limited time and other family commitment. Data was presented using pie charts and tables. Findings of the study revealed that of the three variables studied, provision of various types of materials with a mean of 49.3 has the greatest influence on the development of numeracy skills among pre-primary children. Supervision of homework by parents including creating a conducive home environment has a significant influence on development of numeracy skills among preprimary children with a mean of 41.35. Communication between parents and teachers (schools) was found to have the least influence the development of numeracy skills among preprimary children with a mean of 38.35. The study recommended that parents in conjunction with the school should provide/improvise adequate tactile, visuals, audios and audios visuals materials necessary to foster the development of numeracy skills among preprimary children, ensure they actively supervise their children's homework and set simple and effective home rules to govern home study, and also create space/study rooms to offer conducive environment for the children to do homework. Television viewing should also be limited and monitored to allow more time for children to participate in more active numerical work activities. To strengthen contact, stakeholders should embrace modern technology, such as cell phones. In the academic calendar, schools should schedule unique days exclusively for the number of work-related events. The government should come up with specific policies and guidelines on parental responsibility and how to practically involve them in the development of numeracy skills for their children.

LIST OF ABBREVIATIONS AND ACRONYMS

BOM: Board of Management

CBC: Competency Based Curriculum

ECE: Early Childhood Education Development

ECDE: Early Childhood Development and Education

EYE: Early Years Education

GOK: Government of Kenya

PTA: Parents Teachers Association

PTO: Parents Teachers Organization

NACOSTI: National Commission for Science Technology and Innovation

OECD: Organization for Economic Co-operation and Development

SCDE: Sub County Director of Education

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Parental participation in children's education has been found to be the best method in ensuring that every developmental aspect of the child is catered for (Jeynes, 2012). This strengthens every child's unique potential. Participation has wide benefits over the entire life of a child; from infancy through puberty and to adulthood (Henderson & Mapp, 2002; Patrikakou, Weisberg, Redding & Walberg, 2005). The more parents participate in a child's school work, the higher the achievement. Parental participation determines learning and general life outcomes among children (Baker, Guesling & Letender, 2002). According to Keith (1999), children with involved parents, positively exhibit high achievement levels, more acceptable behavior and greater motivation in and out of school. There are many benefits of parental participation as revealed by studies on children that parents are actively involved in their learning. They include among other attributes; greater emotional and social development, self-direction and control, life satisfaction, resilience to stress, more tolerance and general social competence (Allen & Daly, 2003, Desforges & Abouchaar, 2003). Parental participation means that teachers and parents are working together and supporting each other for the benefit of their children. This includes from supporting and upholding the fundamental values of the institution to supervision of the children's homework. Hemmer (2002) and Henson (1994) encourage parental co-operation and participation as they argue that it enhances the learner self-esteem thereby leading to better school performance, regular school attendance and regular completion of homework. Epstein, (2002), came up with a model for parental participation that comprises of six types of involvement. Type one is parenting which aims at helping all families to set up home environments that supports learners. This includes equipping families with skills in parenting, family support and setting home conditions that supports learning at every stage and grade level. Type two is communicating that involves creating a two-way communication channel of communication about programs in school and learners' progress. Type three is on learning at home whereby parents involve their children in academic learning in a home setup that involves homework, goals setting and any other activities that are curriculum related. It also encourages teachers to structure homework that enhances sharing and discussion of interesting tasks by learners.

The Australian curriculum has been designed to develop knowledge, behavior dispositions and skills to enable a child live and learn successfully from a young stage into adulthood. Here, numeracy skills are fundamental life skills which are developed from early years as children learn measuring, estimation and counting during play (Campbell, 2006). Parental provision of teaching and learning materials help Australian children get involved in daily experiences, which introduce such concepts as more or less, which is vital for mathematics development (Connor, 2006). Early experiences establish children's motivation of children for learning at school and long-term scholarly achievement (Schonkoff, 2000). What this means is that the greatest returns to investment in human capital is achieved during the early years of a child.

Studies in the US show that when parents are interested in pre-school learning for their children, children achieve greater success in life; higher earnings after completion of college, less need for special education and no need for welfare assistance by the age of 40, relative to their counterparts whose parents are not involved (Schweinhart, 2005). Immigrants in the US are less proficient in numeracy skills as compared to the natives and this has made them encounter problems, (OECD, 2016). Research has shown that what parents do with their children in mathematics, either homework or class work, and the frequency of doing it is predictive of children's numerical skills development (Hart, Ganley & Purpura, 2006). This means that parental participation may not necessarily take place in Early Childhood Development (ECD) centers only but also during their day to day activities at home. Home numerical activities predict how children will perform in tasks like measurement in the Exact Number System (ENS), (Benavides-Vavela, Butterworth, Burgio, Arcara, Lucara, Lucangeli & Semenza, 2016).

The education system in United Kingdom came up with what is known as ET 2020 Working Group for Successful Schools whose aim is to examine successful policy development in member states, asserting that the early years guiding principle should provide high quality learning experiences and apply to all children from their younger age as foundation for lifelong learning (European Union Councils, 2009). The working group established that when parents and their children are guided and participate in decision-making on matters concerning appropriate mathematical curriculum and teacher pedagogical approaches are encouraged and implemented, it fosters learners growing sense of responsibility for numeracy competence development (Evangelou, 2008).

In 2012, Canadian government posted a concern to its economy due to lack of competence in numeracy skills by its citizens. It was discovered that 55% of Canadians had inadequate numeracy skills, an aspect that rendered them unable to function well in innovation, (OECD, 2013). Poor health, low wages and unemployment are linked to low numeracy skills, (Jeff, 2011). Tracing the problem from the formative years, the Canadian society introduced numeracy skills in early childhood from 2016. Borrowing from UK, Canada created a parental tool kit and website to encourage parental participation in school activities (Nancy, 2010). The tool provides positive messages, opportunities, numeracy related activities and school tools to help schools develop parental participation. This has led to improved numeracy skills which promote individual and social confidence among children, (OECD, 2015).

A South African research revealed that learner achievement in a given skill is positively correlated to the amount of homework done. Homework is not only about enjoyment but help improve the numeracy competency and creativity of children. Parental tasks include asking whether children have been given homework in numeracy activities and whether they are coping with it. Children with vulnerability to numeracy difficulties have been helped to overcome these setbacks through home-based parental assistance in homework. Consistent mathematics homework routine and structured rules impact significantly on children's numeracy achievement, (Fan & Chen, 2001). A numeracy culture and reading habit is always created as a result of homework (Jeynes, 2007).

Studies done in Malawi shows that assisting children in their mathematical homework strengthens children's numeracy skills, as they learn to enjoy mathematics while simplifying learning (Zimba, 2016). Numeracy has been found to be a fundamental life skill. Numeracy enhances development of children through their formative years as they continue to learn aspects of estimation, counting and measurement. Parental supervision of children's work can be through limiting television watching, setting simple rules and creating study rooms or areas. These relationships have been linked significantly to positive numeracy skills results in children, (Walker, Wilkins, Dallaire, Sandler & Hoover-Dempsey, 2005). If teachers tell parents what happens in schools and how to help children succeed, children's problems are identified earlier and tackled, (Walker et al, 2005). Homework review and talking to children's teachers help identify learners' problems in number work and tackle them early enough (The Nemours Foundation, 1995). In partnership with the respective parents, local communities, any voluntary organization, churches/mosques and civil society, the Government of Kenya provides pre-primary school education. The Government of Kenya has a collaboration policy

at all educational stages that encourages cooperation between all parents and teachers (GOK, 2006). The Kamunge Report (1979) stated that the Parents Teachers Association (PTA) should be established by every school in Kenya to create close relationships between teachers and parents, provide forums for discussion about the school and all its activities, provide teachers, parents and the Board of Management (BOM) with various opportunities to exchange ideas, enhance parents' interests in the education of the school. In Kenya, there has been an outcry from studies by Uwezo Kenya revealing that learners in early year grades find it difficult to perform simple mathematical activities' operations for their level, (Uwezo, 2011). Studies done in Western Kenya on parental communication indicate that parents do not comply positively to resolutions towards parent-teacher meetings, (Uwezo, 2012). Parent- teacher communication plays a very vital part in enhancing parental participation in children's development of their numeracy skills which include number concept, counting, adding and subtracting through helping children in their homework and communication with teachers on learners' numeracy activities progress, (Epstein, 1995). Lugari North Zone is not an exception in this condition, which then necessitated the researcher to carry out an investigation to find out how parents participation influences the development of numeracy skills among pre-primary school children.

1.2 Statement of problem

The process of education requires technically trained experts, teachers and non-experts-the parents. This clearly shows the major role that parents have to play in their children's acquisition and development of various skills, thus improving children's academic achievement. In any given setting, parents are the first teachers in their young children's lives. They continue to reinforce and reaffirm what is taught in and out of school. Preschool numeracy skills are a necessity and the all-important foundation for mathematics that will be taught in Primary school and beyond, (Hunting, Mousley & Perry, 2012). For any success in academics, there is need for a good and solid foundation at home. There must be routines, boundaries, support, family contributions and rules governing home setting, (Mutch & Brand, 2012). Numeracy is part of our culture and is the most essential subject in the curriculum, (Orton & Gibbs, 1994). For us to ensure that we have an increasingly competitive workforce ready to encounter the challenges of the 21stcentury, then more emphasis must be put on numeracy education, (Neunzet, 2005).

Improving numeracy skills at pre-primary school level will translate to improved mathematics skills at higher levels. Much has been done to raise standards of mathematics at primary and

secondary levels. Results have been witnessed but not satisfactory. The school environment has been modified especially with the advent of the Competency Based Curriculum (CBC), where we have Pre-primary 1 and Pre-primary 2. The CBC puts emphasis on what learners are expected to do rather than concentrating on what they are expected to know, (IBE-UNESCO, 2015). This curriculum promotes the application more than acquisition of knowledge and equips learners with the 21st Century skills which aid help them to be successful and survive in this era, (KICD, 2017). Among the guiding principles is parental empowerment and participation which acknowledges that parents do not only have a fundamental role to play in determining the success of their children's education but also have a shared obligation responsibility with schools to provide an environment that is conducive for learning and one that will motivate learners to live up to their full potential (KICD, 2017). The CBC opens up opportunities for schools to give parents the power to contribute and have a say in their children's learning outcomes and be involved at all stages of their basic education. Parents are encouraged to be of help to their children at home with school assignments and homework assignments. Parents are not only supposed to take part in school activities and meetings like games and sports and academic meetings but also read and respond to school reports or teachers' comments on children's work (KICD, 2019). In the Organization of Basic Education, the focus of Early Years Education is on foundation skills which are listed as literacy, numeracy and life skills, (IBE-UNESCO, 2015).However, parental participation in the success of their children's academic performance has not been emphasized particularly when it comes to the acquisition of numeracy skills hence this motivated the researcher to explore the influence of parental participation on the development of numeracy skills among pre-primary school children.

Studies done locally have concentrated on factors that affect academic performance including teacher availability, teacher qualification, learner to instructor ratio, learners' school attendance and provision of teaching and learning resources, (KNEC 2010, Uwezo 2011, RTI 2013 & Kimathi 2014). Other studies done by Wambiri (2007), Maina (2010), Atieno (2013) and Ayondo (2014) have focused on reading and literacy skill development among pre-primary school children. Few studies have been done on parental participation in numeracy skills development thereby necessitating the researcher to undertake the current study. If Backer and Schers (2002) findings are to go by, that the earlier parents become involved in children's academic affairs, the more profound the results and the longer lasting the effects, then parental nonparticipation is working detrimentally towards learner achievement. Pre-school teachers

and caregivers in Lugari North Zone complain of parental non participation in provision of instructional materials for numeracy activities. Either, children's numeracy activities homework is rarely supervised or checked with minimal communication from and to parents concerning their children's progress. The current study aimed at addressing the gap by exploring how parental participation in early years education especially in numeracy competences can yield much in the current and future life of a child.

1.3 Purpose of the study

The aim of this study was to find out to what extent parental involvement affects the development of numeracy skills in the Lugari North Zone among pre-primary school children.

1.4 Objectives of the study

The study was guided by the following specific objectives:

1) To find out the influence of parental provision of instructional materials on development of numeracy skills among pre-primary school children.

2) To establish how parental supervision of homework influences the development of numeracy skills among pre-primary school children.

3) To explore ways in which parental school communication influences the development of numeracy skills among pre-primary school children.

1.5 Research Questions

1) To what extent does provision of instructional materials by parents influence development of numeracy skills among pre-primary school children.
2) How does parental supervision of homework influence development of numeracy skills among pre-primary school children?
3) To what extent does parental school communication influence the development of numeracy skills among pre-primary school children?

1.6 Significance of the study

Results from this study may be beneficial to various Early Childhood Education stakeholders; namely, parents, teachers, the government and NGOs. Parents will benefit in terms of being acquainted with the necessary knowledge on how to handle children with their numeracy activities at home. Instructors will gain from the findings of this work by the fact that these

results will inform them about the best strategies of handling parents as a way of promoting numeracy skills among pre-primary school children. The communication on better and workable approaches will contribute towards making learning better for children, the Ministry of Education will be informed about potholes in ECE stakeholders service delivery, thereby inform policy makers to incorporate functional policies in EYE policy framework and guidelines to assist parents and learners' smooth participation in not only numeracy skills but in the acquisition of other skills.

1.7 Limitations to the study

Financial and time constraints emerged as major limitations to this study. Impassable roads during rainy season when data was required posed a setback. Electricity power black outs and the researcher's personal and family responsibilities were other limitations.

1.8 Delimitations of the study

The study took place in Lugari North Zone instead of all the three zones in Lugari Sub County of Kakamega County. The study only focused on the influence of parental participation on the development of numeracy skills among children in public pre-primary schools in the zone. Only 30% of teachers in 21 ECE centers and 10% of parents and children were sampled to participate in the study. Notwithstanding, only public Early Childhood Education (ECE) centers were involved.

1.9 Assumptions of the study

ECE parents in the zone have an understanding that they have to take part in their children's development of numeracy skills.

ECE teachers in the zone have done necessary community sensitization and mobilization on matters concerning early years numeracy skills development.

All participants sampled to inform this study will give correct information at every step of data collection.

1.10 Definition of key Terms used in the study

Homework assistance: Number work assignment given by teachers to be done at home by learners while being assisted by parents.

Instructional materials: Any resource/ device used in the teaching and learning process

Learner achievements: Learner development of expected numeracy skills.

Parental School Communication: Interaction between parent and the school on their children's numeracy skill development

Parental participation: Parents' involvement in various aspects of learners' education and well-being in and out of school.

Pre-primary school child: A learner within the age bracket of 4-6 years attending pre-primary school education.

Numeracy skills: Abilities to apply mathematics concepts to all areas of life.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter highlights the relationship between parental participation and development of numeracy skills among pre-primary school children. In particular, the literature review will look at studies done on parents' participation in the provision of materials, supervision of homework and parental school communication and how these influences development of numeracy skills among children. In addition, theoretical and conceptual frameworks are discussed.

2.2. Development of Numeracy Skills among children

Numeracy skills are the abilities to apply mathematics concepts to all areas of life. Children start learning numeracy skills right from the time they are born, (Wynn,1995). They build numeracy skills in their everyday interactions be it with peers, parents, guardians and other family members. Children have also been known to think mathematically long before they start school. This is by watching and experiencing numeracy in action as they count fingers and toes, recognize numbers and shapes on objects like phones and in books. Babies of six months have been found to be able to detect differences in small quantities of up to eight objects, (Xu and Spelke, 2000). At three years, they have memorized numbers one to ten and begin to count small sets of objects successfully. Even though they differ greatly in how they learn and how quickly they acquire the different concepts, by the time children enter school, they have acquired a wide range of early numeracy skills (Kroesbergen, Van Luit, Van Lieshout, Van Loosbroek & Van de Rijt, 2009). Parents have a positive effect on their pre-school children's mathematics achievement by involving them in direct numeracy activities at home, such as teaching their children numerical words and counting and indirect numeracy practices, such as integrating numeracy into daily tasks such as cooking (LeFevre, Skwarchuk, Smith-Chant, Fast, Kamawar & Bisanz, 2009). Counting skills and understanding of quantities and the relationship between them before starting school predicts the achievement of mathematics for children and teacher competency scores in pre-school mathematics (Aunio and Niemivirta, 2010).

2.3 Studies on provision of instructional materials and acquisition of numeracy skills among pre-primary school children

For children to be successful particularly in numeracy, there is need to support them in their learning, (Kabiru & Njenga, 2009). This support can be in the provision of instructional materials. Children's initial experience with numeracy is mainly through physical interaction with their immediate environment, (Montague-Smith & Price, 2012). This concrete level of representation encompasses manipulation of an object or objects. As children interact with the objects, they develop dispositions for learning including curiosity, cooperation, confidence, creativity, commitment, enthusiasm, persistence, imagination and flexibility, (Deewr, 2009). Instructional materials are very important in the acquisition of numeracy concepts and skills among pre-primary school children because generally, they learn by doing. Children are able to make sense of their environment as they manipulate concrete materials. Parents should also help school programs and include the necessary materials, because learning will be adversely affected if they do not do so (Baraza & Nyongesa, 2007). Children can only do well in school, according to UNICEF (2007), if they are well supplied with food and other required teaching and playing materials at home.

Demonstration, play and instructional materials such as balls, blocks, beads, picture and number books, plasticine, seesaws and slides, must be provided by parents as they assist in building concepts, promoting discovery and enhancing interaction with others as children play and learn. (Frost, Wortham & Reifel, 2008).

In Kenya, the provision of teaching materials, including play materials, in public pre-primary schools is primarily in the hands of the community especially parents. For the Next Decade and Beyond the 1988 Session Paper No. 6 on Education and Training culminated in cost sharing in education between government, parents and local communities. Because 70 percent of ECE centers are owned and run by stakeholders and local citizens through preschool boards, the greatest support for ECE programs is given by parents and local communities. NGOs that are primarily religious or private individuals and associations are the remaining 30 percent (MOEST, 2005). Parents and local communities provide land and funds for the construction and maintenance of physical facilities. They also provide furniture, materials and labor and support the feeding program. Khatete (2010) states that school administration relies heavily on public funds from parents to source for materials. The Kenyan Schools Act 84 (2003), give parents the mandate to be involved in their children's education. The Basic Education Act (2013) has noted the need for policy makers to advocate highly for the role of parents in their

children's activities. Mukuna and Indoshi (2012) noted that parents' provisions should be academic or utility related. Academic related means providing instructional materials and helping children with reading and homework activities. Utility related include paying school levies, providing physical facilities, providing feeding program and participating in its preparation. Offenheiser & Holcombe (2003) found out that many ECE centers lack adequate teaching and learning resources and facilities depriving children an opportunity to acquire numeracy skills needed to excel in numberwork. Garaka (2003) noted that in Meru, Kenya, parental involvement in their children's homework is high but majority of the parents at 93% did not provide most instructional resources particularly those needed in numberwork. In Busia, Kenya, most public preprimary education centers had inadequate teaching and learning resources. Most had torn or poorly maintained textbooks, charts and flashcards while a majority lacked bookstores, (Echaune, Maiyo, Poipoi & Etyang, 2017). In all these instances, acquisition and development of important skills in numberwork has been hampered with leading to poor performance in this activity area. As a result, researcher sought to find out if these findings can be generalized to Lugari North Zone.

2.2.1 Types of instructional material and acquisition of numeracy skills among pre-primary school children

Instructional materials are resources and devices used in the teaching and learning process (Nkuube, 1995). They are devices, equipment, facilities which presents units of knowledge through auditory, visual stimuli or both in order to enhance learning, (Kochar, 1991). They are key components for learning, since they make ideas and concepts more clearer leading to interesting and vivid learning (Fordam, 2002). These materials can be categorized into four main types, namely: audio, visual, audio visual and tactile, (KIE, 2008). The audios are those that utilize the sense of hearing, like radio and tape recorders. The visuals appeal to only the sense of sight like textbooks, charts and pictures. The audio visuals make use of the sight and hearing senses and they include television, videos, computers and cell phones. Lastly, the tactile are materials which are manipulated like counters, writing and play materials like toys. Different types of numeracy instructional materials ought to be provided by parents to help the teacher organize the presentation of numerical ideas and concepts in order to provide children with an opportunity to use what they have learnt in their day to day activities. They help the teacher in assessing pupil's development of numeracy skills. Parents are the first and most enduring educators for their children bearing the responsibility of providing for their children's needs in line with the Children's Act of 2001(OECD 2012). A child should be provided with

all their needs at home in order for them to do well at school, (Carl & Christine, 2009). Studies have shown that the type of instructional material provided has a correlation with pupils' educational attainment, numeracy skills development inclusive, (Onzima, 2010). Provision of adequate and relevant instructional materials for numberwork ensures that children do well in mathematics activities at school, (UNICEF, 2007). These materials stimulate and mentally prepares the child for the steady routine of formal schooling. A combination of two or more types of instructional materials lead to a deeper and clearer understanding and greater permanency of what has been learnt. A study done by Mischo and Maab, (2013), in Germany revealed that teaching and learning aids affected the teaching and learning of mathematics and helped in improving the subject's overall performance by 85.3%. Literate parents understand the importance and impact of instructional materials on the holistic development of their children hence will always strive to provide for their children, (Wachieye, 2009). The materials do not need to be expensive but even those improvised locally will serve similar purpose. As an activity area, number work has many abstract ideas which are hard for children to conceptualize. Instructional materials for numeracy bring to life these concepts making them meaningful and closer to them, (Piaget, 1973). They help children to understand abstract concepts, solve problems and develop critical thought process. Instructional materials in numberwork make learning more effective, make lesson plans richer and help in meeting varying needs of leaners thus positively impacting on learner's overall performance in this activity area. Unavailability of these materials cripple acquisition and development of key skills in this area, (Kariuki, 2013). Children are inclined to learn better with real and direct firsthand information. Specific numeracy skill development requires different instructional materials. Availability and adequacy will motivate children to learn, (Sasson, 2009). For instance, counting, adding and subtracting requires the child to manipulate counters in order to master these skills. Number recognition on the other hand may employ the use of charts, models, tracing or even beading the numbers. Utilization instructional materials during instruction of numberwork enables learners to understand, enjoy and manipulate abstract concepts, (Adipo, 2015). He further noted that the ultimate goal of using teaching and learning aids was to bring abstract ideas into life thereby making them a reality. Another study done by Otieno, (2010), in Bondo, Kenya, found that instructional resources strengthens learning, helps teachers to enjoy the process of teaching while learners find it exciting. This encourages exploration and manipulation which in turn brings forth improved performance in mathematics. The Otieno's study however focused on the effects of instructional resources in performance of form four students while my study focused on the influence of parental participation on the development

of numeracy skills among preprimary children. However, in some instances, parents fail to provide the different types of instructional materials necessary to foster development of numeracy skills, (UWEZO, 2015). Guloba, Wokadala & Bategeka, (2010), in their study in Uganda noted that inadequate instructional materials resulted in teacher centered approaches of teaching leading in poor acquisition and development of numeracy and literacy skills. The findings showed availability of these materials provided motivating conditions for teaching and learning hence promoted better outcomes in the above activity areas. However, their focus was on grades three and six learners, but the current study used pre-primary school children. Lack of adequate and appropriate instructionalmaterials symbolize abstract teaching of numberwork hence portraying passive learning. This in turn results in poor acquisition and development of numeracy skills, (Okongo, Ngao, Rop & Nyongesa, 2015). Most teachers in Nakuru, Kenya, at 78.6%, confirmed that instructional materialsfor mathematics were inadequate which affected the learner's development of mathematics competencies, (Njenga, 2014). Njenga's study was based on public primary schools. Most studies focus on general academic performance and achievement in primary and secondary schools especially in final level exams. However, there is lack of information in Kakamega County on parental participation and the development of numeracy skills in public preschools hence necessitated the researcher to undertake this study.

2.3 Studies on parental supervision of homework and acquisition of numeracy skills among pre-primary school children

Parental participation in homework is directly related to a child's achievement and personal attributes conducive for learning (Xu and Corno, 1998). Homework helps children practice numeracy skills vital for lifelong learning. Parents may be involved in their young one's academics through homework. Whether it is done at home, completed after school program or during the day, homework on numeracy tasks is a powerful tool used to help parents and other adults know what and how their children are learning numeracy. This opens an avenue for parents and children to talk about what challenges they are facing in numberwork. Homework give teachers a chance or opportunity to hear from parents about how their children are learning (Hoover-Dempsey & Sandler, 2007). Notwithstanding, it helps in the development of a sense of responsibility and pride in a well-done job besides enabling them acquire good study habits (Diffily, 1996). Parents should ensure that homework space is comfortable, free from distractions, phone calls, other family members, videos and television (Hayward, 2010). This enhances concentration and efficiency as children carry out tasks in number work. Parents are

required to offer guidance and support, help in assignment instructions, inspect completed assignments and answer questions. Parents should help children acquire problem solving skills required to complete mathematics assignment (Dowshen, 2012). This can be done by putting ground rules that number work activities are a top priority and that what is being learnt now will be required outside classroom. Epstein, (2002), in the Model for Parental Involvement Handbook outlines six types of parental involvement. Type four talks about learning at home which encourages families particularly parents to help their children in doing homework and other curriculum related activities. This help leads to a well done and completed homework and also enhances the acquisition of skills including numeracy skills. Muola (2010) posited that parents should spare time in their daily routine to work with their children on homework, talk about school related topics and take them to field trips for the development of numeracy skills. In Gasabo, Rwanda, it was established that parents of children in high performing schools were significantly more involved than their peers with children in low performing schools in support for learning and assisting children in doing homework, (Kaberere, Makewa, Muchee & Role, 2013). However, this study is limited in sample as teachers, learners and headteachers were not included. In another study on factors leading to low performance in Kenya Primary Education Certificate in Meru, Kenya, Mbugua, (2012), approximately 69.2 percent of children did not receive homework assistance with only 30.8 percent being assisted. At national tests, those who were assisted performed better. Mbugua, however, centered on pupils in class 8, so his results cannot be applied to preprimary learners. Uwezo (2013) study in Kenya found that poor performance in lower primary literacy and numeracy was due to children not being equipped with literacy and numeracy skills at the right time and grade. Parental feedback is ignored in homework supervision. It was of great importance to have a study aimed at establishing the contribution of parents to the homework of pre-primary school children that forms the educational foundation for the acquisition of numeracy skills in the Lugari North Region.

2.3.1 Home environment and acquisition of numeracy skills among pre-primary school children

The key reliable prognosis of the achievement of pupils in schools is neither income nor social status, but the degree to which families can build a conducive home atmosphere that encourages learning, voicing strong but realistic standards for the achievement of their children (Henderson & Mapp, 2004). A very good correlation with later academic achievement is the home atmosphere (Niklas, Nguyen, Cloney & Adams, 2016). Home is a primary source of numeracy

interactions for young kids before formal schooling begins. This means that parents play a very important role of putting into context their children's learning of numeracy by organizing and structuring activities and interactions in the home environment, (Anders, Rossbach & Weiner, 2012, Niklas et al 2016). These activities and interactions include creating a study room or homework area with enough lighting, limiting leisure time, setting achievable expectations and setting home rules. Home environment is mainly about supervision and rules which include moderate levels of support from parents, (Jeynes, 2007). Clark, (1993) noted that children who spend more time on school related activities and less time on television show a positive deviation in their academics. Children are born with some innate number skills and knowledge, (Gelman & Brenneman, 2004). Still, their surrounding environment greatly contribute to the development of mathematical skills leading to a deeper understanding of numbers, (Geary, Gur, Hyde & Gernsbacher, 2007). Parents support children's learning during shared activities like play and as they monitor how homework is being done and other home activities associated with pre-primary school mathematical skills (Skwarchuk, Sowinski & LeFevre, 2014). In average, parents participate in their children's mathematics activities about 3-5 times per week, (Missall, Hojnoski, Caskie & Repasky, 2015). Participation can be formal like intentionally writing numbers to directly teach numeracy skills or informally by playing card games leading to incidental mathematics learning. Huntsinger, Jose, Larson, King & Shaligram, (2000) advocates giving formal mathematics activities more time as it is the strongest predictor of early acquisition of mathematical and reading skills. A parent can sit with the child as they do their homework, monitoring how it is being done, explaining where the child did not understand and checking to see if it is properly done, (Anders et al, 2012). These activities have the potential to positively impact on young children's learning and engagement in mathematics (Cooper, Robinson & Patall, 2006). This is due to the fact that explanations simplified by the parent may help connect new ideas and events to previous experiences thereby expanding and adding on children's knowledge of the world including knowledge in mathematics. Epstein, (2002) Model for Parental involvement Level 1 on parenting encompasses helping families set up conducive home environments to support children in their academics. Level 4 encourages provision of information and ideas on how they can help learners at home to gain skills which include numeracy skills. This means that parents play an important role of guiding and supporting children's numeracy development as they become jointly engaged in their homework. Further, parents respond and correct mistakes in number work as they engage children in conversation about number concepts. Children may be exposed to home counting

activities and simple mathematical concepts as parents and children read and discuss instructions.

To most parents, mathematics is an intimidating subject making them unprepared to help their children, (Muir 2012). When parents feel that they lack the necessary numeracy skills to help their children, they become frustrated, (Hyde & Ben, 2006). This in turn adversely affects the quality and quantity of numeracy support given at home, (Cooper & Speece, 2002). Use of various methods to teach mathematics has evolved over the years making parents to question how best they can support their children's numeracy learning. They need and desire additional support to enhance and sustain effectiveness of their home involvement with their children to ensure constant development of numeracy skills (Van Voorhis, 2001). The findings of a case study done in Uganda by Mahuro & Hungi, (2016), revealed that parental participation like providing a conducive environment at home, checking learners' progress records and random school visits significantly increases learners' numeracy and literacy skills by six and fifteen units of measure. Mahuro and Hungi's study used primary school learners in Uganda, however, the current study used pre-primary school children and was done in Kenya. In another study by Gitahi, (2019), the findings revealed that with the advent of CBC, parents are expected to play a very important role in the overall success of their children's education. This means provision of an enabling environment at home that is conducive to learning, motivating learners to reach their full potential through completion of assigned tasks, monitoring and guiding children in doing homework and providing required instructional materials for practical activities. Finally, they have to collect and send evidence of children completed tasks back to the teachers. Although the study was done in Kakamega County, it was based on primary school children while the current study was done in pre-primary school.

2.4 Studies on Parental School Communication and acquisition of numeracy skills among pre-primary school children

As children explore the world of education outside the home environment, parents enter into a partnership with teachers. For success to be witnessed in this partnership, communication is paramount (Bronfenbrenner, 1986). Effective communication has been found to be the foundation for all forms of parental participation in schools. For there to be effective parental school communication between parents and teachers, a variety of strategies are used. Clear and honest communication by parents and teachers help parties to understand learner's daily routine and the challenges they may be facing in numeracy. Teachers and administrators have a wide range of means through which they can communicate with parents including use of

newsletters, notebooks, phone calls, school visits and face to face among other modes, (Carliste, Stanley & Kemple, 2005). Sections 110 and 111 of Schools Standards and Framework Act (1998) in UK mandates supplementary provisions about home and school agreements as a means of enhancing parental participation. Epstein (2002) model for Parental Involvement Type two talks about communicating. This advocates for creating a two-way communication channel between the school and the home. This in turn helps both parents and teachers to monitor and be aware of a child's progress and to respond effectively to the learner's problems and challenges. It also eases communication between parents, school and teachers. Westmoreland, Rosenberg, Lopez & Weiss, (2009), posited that consistent dialogue throughout the school calendar is critical to developing and sustaining relationships that are conducive to development of numeracy skills. However, a survey done in the USA by Letsholo, (2006), revealed that most parents did not communicate with the school during the year and neither did they have a meeting or conference with teachers over the year. This proved to be detrimental to the development of numeracy skills of the learners. The findings of a case study in Adukrom Methodist Primary School by Mantel, Awereh & Opare (2015), to investigate the effects of parental involvement on academic performance of pupils showed that the class average performance improved from 68% to 79%. This was attributed to the fact that parents kept in constant communication with the teachers. The concern in their children's academics was a boost to most pupils putting in more effort to achieve better results. The Kenyan government does support partnership and parental participation. Koech, (2010) reckons that there exists parental participation like communication about learning at home, community collaboration, decision making and volunteering. Wawire (2006) and Ndani, (2008) in their research on parental influence in reference to Early Childhood Education noted that there exists limited, weak partnerships and parental participation. The role of parents especially in preschool seem to be restricted to provision of finances and facilities. In Thika, Kenya, there is low participation by the community including parents in activities like communication, volunteering, decision making and collaboration in preschools (Ndani, 2008). Insufficient knowledge, insufficient time and poverty were cited as the key impediments to the involvement of parents in pre-school activities. These results indicate that parents' current position is rooted in a very thin type of partnership and this could affect the development of numeracy skills by children. The results of Wawire's (2006) research on the factors affecting quality and relevance of early childhood education in Nairobi and Machakos Disricts revealed that insufficient teaching and learning resources, lack of supervision and lack of communication, collaboration and relations between

ECE partners have affected the quality. These results, however, can only be generalized to areas with similar features.

2.4.1 Parent-teacher communication and acquisition of numeracy skills among pre-primary schools

Parental communication shape parent's engagement in learner's numeracy activities at home, school and family-school collaboration (Berger, 1999). Parent-teacher communication, parent-child communication, parental aspirations and engagement in mathematics activities increase achievement in elementary numeracy skill acquisition (Ginsburg, Lee & Boyd, 2008). A good rapport with a child's teachers and school community goes a long way in enabling parents appreciate the school's way of operation and how a parent can be involved.

Teachers mostly communicate to parents about the needs of their learners learning through diaries, phone calls, texts and note writing (Gesare, 2011). Teachers write notes in diaries accompanying children's homework in number work in relation to what is found in the environment, in order to provide an opportunity for parents to help their children use mathematical resources and aids (Vandermos, 2012). Teachers should create a welcoming and responsive school atmosphere to ensure that parents are well informed about their children's progress and development in vital numeracy skills. Parents should be positive enough to provide feedback promptly or visit the school to check on their children's progress in numberwork. Teachers can organize and allow parents to participate in numberwork activities they feel competent in. Research shows that there is an increased and effective parental participation through teacher's invitations to parents for participation in specific numeracy activities, (Simon, 2004).

Writing notes in diaries or calling with specific and direct instructions to parents help children carry out specific numeracy activities which are powerful ways of prompting participation.(Grusec, 2002). Explicit requests from children to parents has been found to result in enhanced parental participation, (Deslandes & Bertrand, 2005). Teachers should always endeavor to provide a positive, welcoming and trustworthy school environment. This will help to foster and support parental participation, (Green, Hoover-Dempsey, Walker & Sandler, 2007). According to Sheldon and Epstein (2001), teachers help parents build co-operation with their children thereby build a strong school family. Epstein, (1992) identified six levels of school-family involvement. Level two and four encompasses communication to parents on a regular basis about school programs and students' progress, teaching/ parental involvement at

home. This includes parents helping children with school work, discussions about school, encouragement and compliment. Kraft Matthew & Shawn, (2011), in a study in USA sought to evaluate the efficacy of teacher communication with parents and students as a means of increasing student engagement. It estimated causal effect of teacher communication by conducting a randomized field experiment in which children were assigned to receive a daily phone call home and a text or written message during a mandatory summer school program. It was found that frequent teacher-parent communication increased student engagement as measured on homework completion rates, on task behavior and class participation. If teachers accustom parents to receiving regular calls and messages just for keeping in touch, it becomes easier to discuss learners' problems and challenges in numeracy as they occur and enhance development of this skill, (Grolnick, 1994). Olatoye & Agbatogun, (2009) in their study in Nigeria found that a positive parent and teacher relationship help a child feel good about school and be successful in school. Mestry & Grobler, (2007), study done in South Africa noted that the parent-teacher relationship can be complex, simple, unpredictable, inspiring, stressful, rewarding, delightful and painful. Either way, parents and teachers should work together to overcome the bottlenecks they encounter so as to help children acquire needed competences. However, not every parent will understand how to communicate and be a partner in their children's education and in the same line, not every teacher will be confident in that process. The secret is to keep trying in order to learn how to build a solid parent-teacher relationship in which both parties will feel free to discuss the numeracy issues affecting the child. Mwirichia, (2013) in a study done in Meru, Kenya, found that effective parental school communication between teachers and parents influenced children's development of literacy and numeracy skills and the general academic performance. However, the study based on the overall performance of the learners. A study done by Siebert, Wei, Wong & Zhou, (2018), found that having bi-weekly pupil feedback using special schoolwork scorecard behavior of pupils led to an improvement in Mathematics performance by pupils. Further communication showed that the "left-behind" pupils performed better after some time as they worked harder to achieve better results, knowing the same would be communicated to their parents. Abuya, Ngware, Hungi, Mutisya, Nyariro,Oketch & Mahuro, (2014), revealed that parents showed their participation by engaging and creating an open communication with teachers and children thereby significantly improving their numeracy skill development and learning outcomes in general. The sample was girls in informal settlements in Nairobi from Std six onwards. There are hardly any empirical studies on influence of parental school communication on the

development of numeracy skills with a specific focus on Lugari North Zone. This study therefore sought to fill this existing knowledge gap.

2.4.2 School meetings and development of numeracy skills among pre-primary school children

Parental participation may take the form of school meetings like open days and academic clinics. These can be used as avenues to make parents access school, while asking for any other relevant information concerning their children (Cairney, 2000). The information could be on any manner of achievement or challenges encountered by children as they continue to learn numeracy skills. Parents, educators and administrators need to co-operate if they have to determine appropriate resources, information-sharing practices and support to encourage learner achievement (Knile Kamp, 2005). Positive connections between parents and teachers help children have consistent opportunities to learn and grow their numeracy skills at school and home. These meetings provide an opportunity for parents to know their children's progress in number work and for teachers to know their learners' lives outside school and in the classroom, (Kris, 2017). Some of the educational activities parents are involved in include provision of instructional materials, attendance of parents' meetings, sports days, annual academic days, seminars and PTA where both the teacher and the parent get information on the academic performance of preschool children, (Hoover, 1997).

Face to face interaction during such meetings give parents and teachers humble time to observe non-verbal cues that may help to pass important messages. Teachers have to be flexible to accommodate diversified parental time due to the different engagements by parents. Numeracy skill development of children can be discussed during such meetings. Side meetings with parents during such encounters are important tool of communicating learners' progress in addition, subtraction and other number work related activities. This is a good way of cementing parent-teacher ties which in the long run is beneficial to children. Schools become successful when a strong and positive relationship is established among learners, parents, teachers and the community. This relationship is based on development of trust between parents and teachers and it occurs when they respect one another and believe in the ability of the other party and their willingness to fulfil their responsibility, (Sanders & Sheldon, 2009). Such a relationship is beneficial to the learner as all the parties work together to ensure the learner develops the all-important skills in literacy and numeracy. Henderson & Mapp, (2002), noted that meetings between parents and teachers commonly occur when there is a formal parent-teacher discussion about the progress of learners and learning and behavioral challenges. However, meetings that

are always called when there are problems or challenges may not foster a desire in learning in children as they associate such meetings with negativity. Findings from a study done by Chemagosi, (2012), to investigate the influence of parental involvement on academic performance in Nandi, Kenya, revealed that children whose parents attended school meetings regularly performed better than those whose parents rarely attended school meetings. Most studies done have focused on academic performance which made it necessary to carry out this study with a specific focus on influence of school meetings on development of numeracy skills in preschool children in Lugari North Zone.

2.5 Theoretical Framework

This study was guided by the Theory of Planned Behavior (TPB), postulated by Ajzen which states that motivation lead to higher intentions in terms of performing a certain behavior on the premise that the stronger the intention to engage in behavior, the more likely that a child's performance will improve (Ajzen 1991). In this theory, intentional behavior is explained by, attitudes and feelings towards a particular behavior. Believing that such a behavior poses positive outcomes will result in improvement in performance. Generally, parents motivate their children by providing them with the necessary instructional materials to facilitate their numeracy skills. Active supervision of homework on number work activities by parents fosters interaction between parents and children thereby enabling children to perform better in number work. Constant parental school communication by parents concerning the child's daily activities in numberwork is like a vote of confidence and motivates the child, thus improves the child's performance in certain numerical skills.

The theory provides an explanation and prediction of parental participation in children's numeracy activities in and out of school. Borrowing from Epstein and Dauber (1991), schools can improve parental participation by offering flexible schedules to allow involvement of more parents. In this case, collaboration between teachers and parents can be realized in their voluntary attempts to keep track of children's learning achievement. Parental participation in provision of instructional materials is pegged on the type of instructional material that is provided, (Epstein and Dauber 1991). Parental supervision of children's homework in number work activities and the extent of parental school communication facilitates a chain of information that make parents wish to know more about their children. However, there are critical discrepancies in parent-teacher relationship and time to carry out information, (Hancock 2011). Increasing positive communication between parents and teachers, parents support and praise enhances children's accomplishment in number work activities, (Jeynes

2010). Thus, communicated desire for performance and appreciation of a good work is a reinforcement in helping children acquire numeracy skills.

2.6 Conceptual Framework

The conceptual framework for this study was based on the relationship between parental participation and learner development of numeracy skills. Parental participation in children's learning number work activities as input and learner development of numeracy skills as output. The three aspects of independent variables include: Parental provision of instructional materials was unpacked by how the type of instructional material; tactiles, audios, visuals and audio-visuals influence the development of numeracy skills.

The second aspect was parental supervision of homework as explained by parents setting conducive home environment which included setting rules, creating study rooms and limiting watching of television in order to enhance effective development of numeracy skills. The third and final aspect was parental school communication as explained by parent-teacher communication and school meetings. This is where different modes of communication are used to convey and provide information and feedback in numeracy activities. The output is depicted in children's development of numeracy skills, measured by their ability to develop skills of counting, number concept, adding and subtracting. However, there are confounding variables like the influence of the teacher instructions like lectures, demonstrations and cooperative learning, the family structure like nuclear, extended and single parent families and parenting styles like democratic, autocratic and laissez faire. (See figure 1)

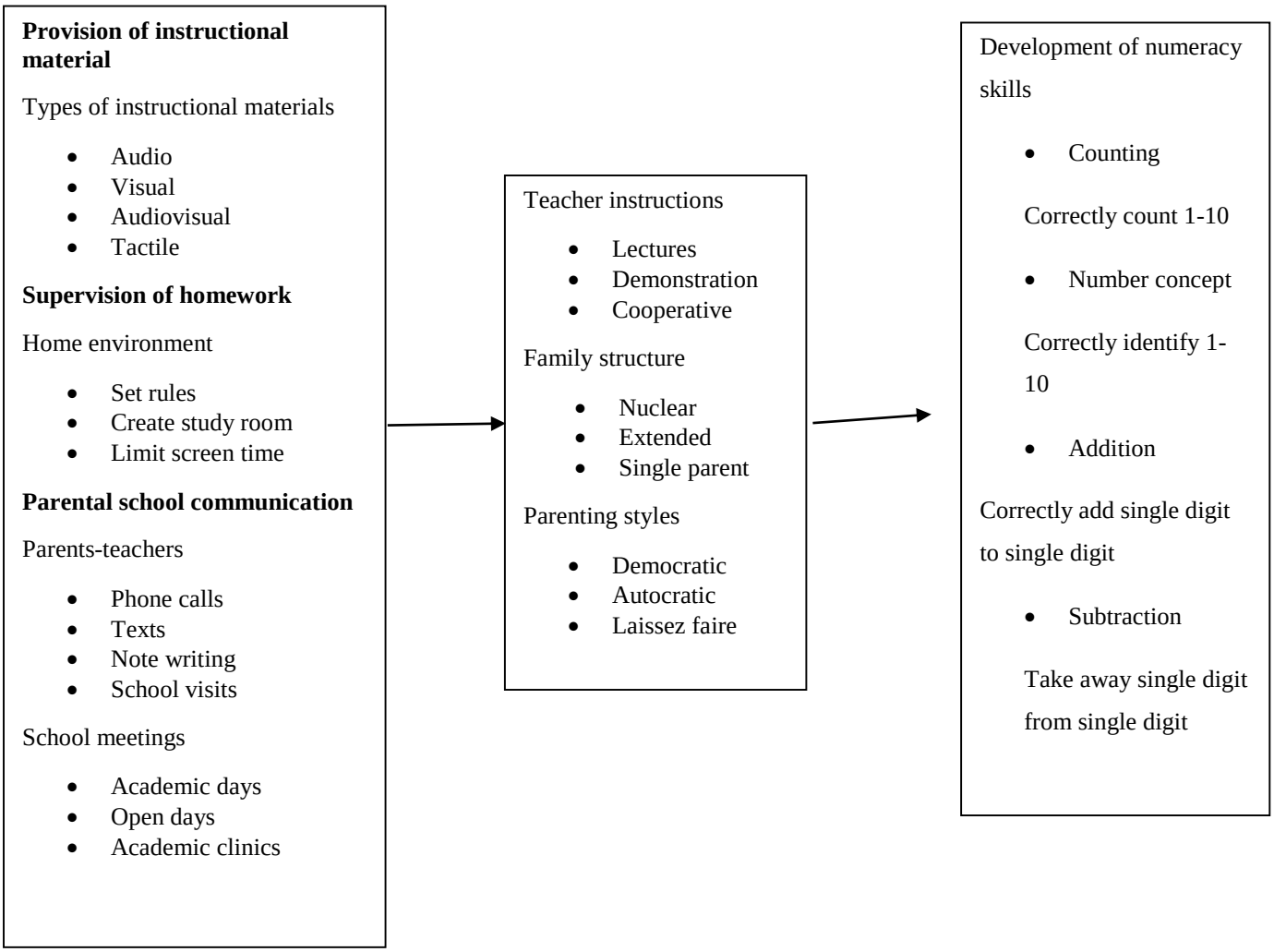

Figure 1. Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents information on the research design, target population, sampling techniques and sample size, research instruments for data collection, validity and reliability of the research instruments, data analysis and ethical consideration.

3.2 Research design

Descriptive survey analysis design was used in the study. This design describes the characteristics of a studied population or problem. For this specific research, the design is deemed acceptable because it requires collecting data from population participants in order to assess the current status of the phenomenon under study with regard to one or more variables (Mugenda & Mugenda, 2003). For this analysis, the design is important on the basis that it helps the researcher to generalize data output to similar situations and circumstances (Serem et al, 2013).

3.3 Target Population

Target population is a group of objects with a single or more features equally selected as a focus of study. It is upon such a population that researchers generalize results (Mugenda and Mugenda, 2009). The study's target population was 21 public pre-primary schools, 42 teachers, 930 parents and 1260 children aged between 4-6 years in Lugari North Zone, (SCDE, 2019).

Table3.1: Target Population

Category	Frequency
Teachers	42
Parents	930
Learners	1260
Total	2232

Source: SCDE (Lugari)

3.4 Sampling techniques and sample size

Sampling is the process of selecting a group of people, behaviors, events or other elements from target population where the study is being done (Begi, 2009). The researcher used purposive sampling technique for teachers. This is a method of sampling which involves

identification and selection of individuals or groups of individuals who are especially knowledgeable about a phenomenon or are experienced in a phenomenon of interest, (Cresswell & Plano Calrk, 2011). Simple random sampling technique is recommended because it reduces costs and improves efficiency. The simple random sampling was used on parents and the pupils' population as it gives each sample an equal chance at being chosen.

In order to draw decisions regarding a larger number of cases, a study applies to a particular part of the target population to be analyzed (Muthee, 2010). A successful representative sample is 10 percent of a population smaller than 1000 (n<1000) (Gay, 2003). On the one hand, when assessing a successful sample representation, 30 percent is often regarded as a rule of thumb (Patra, 2018). Thirty percent of the pre-primary school teachers in charge are therefore 13, while 10 percent of parents are 93, and 10 percent of 1260 pupils are 126 out of 21 pre-school public students who made the survey.

Table 3.2: Sample size

Category	Population		Sample	
	M	F	M	F
Teachers	2	40	2	11
Parents	320	610	32	61
Children	552	708	55	71
Total	**874**	**1358**	**89**	**143**

3.6: Data collection research instruments

In this analysis, questionnaires and interview schedules were used as data collection instruments. A questionnaire is a tool with open and closed ended items where respondents put their answers by ticking or writing the best alternatives in the spaces provided (Begi, 2009). In this case, open and closed ended questionnaires were administered to teachers since it gave them liberty to provide detailed information (Mugenda et al, 2013).

An interview is an oral exchange between interviewer and interviewee (Kathuri, 1993). Interviews were administered to parents in a structured way. Items were predetermined and written down to investigate the influence of parental participation in the provision of number

work instructional materials, supervision of homework and parental school communication on development of numeracy skills. This instrument was appropriate to parents due to its nature to elicit in depth information by using probing questions. It provided near accurate information, giving instant feedback besides taking a relatively shorter time, as compared to use of questionnaires.

The Document Review Guide is a tool of social science that systematically analyses educational records. This approach was used to verify the numeracy skills of the learner. The progress records of learners were analyzed in order to obtain data on their numeracy skills development. A table for different skills such as number concept, counting, adding and subtracting was drawn and numbered. Teachers were asked to assist in recognizing situations where parents were interested in the numerical activities of the learner.

3.7 Validity of research instruments

For a test to be valid, it should test what it ought to test, (Orodho, 2003). Validity is the accuracy and meaningfulness of inferences based on research. Content validity was used to gauge if the items constructed covered the study objectives. Pilot test was done by administering the instruments to a small sample. Feedback was used to revise and adjust the items in the research instruments to ensure they elicit meaningful data required by the researcher (Klassen, 2008). In addition, peers and supervisors' advices was incorporated

3.8 Reliability of research instruments

Reliability refers to measure of how consistent the results from the test are, (Kombo, 2006). Reliable tools provide consistent results when administered again on the same sample, (Orodho, 2003). The reliability test was conducted through the test-retest method. Research instruments were checked by experts for appropriateness and then given to a few respondents from a different population. The data was analyzed and results documented. After a week, the same instruments were re-administered to the same sample. The results were consistent and the instruments were deemed reliable.

3.9 Data Collection Procedures

A letter of introduction was obtained from University of Nairobi Department of Educational Communication and Technology. Permission to collect data was obtained from NACOSTI. The researcher visited thirteen schools and administered thirteen questionnaires to thirteen pre-primary school teachers. The researcher used drop and pick style of delivering and collecting questionnaires in about two days. Ninety-three parents were then contacted by pre-primary

school teachers in charge of various centers for face to face oral interviews. The researcher read and interpreted the questions from interview schedule to the parents. The interviews were carried out between fourteenth and twenty fifth October 2019 at St. Kizito ECDE center. Each interview session lasted between fifteen to twenty minutes. Of the ninety-three parents contacted forty-two females and eighteen males, making it a total of sixty parents, physically availed themselves for the interview and their responses were noted down in a note book. The document analysis guide was used to check on the learners' progress records to identify their abilities in numeracy skills. Teachers helped to identify the learners whose parents participated in their numberwork activities. The researcher then compared their progress with those whose parents did not

3.10 Data analysis

The collected questionnaires were checked and edited to ensure that they were accurate, well completed and consistent before they were analyzed. The qualitative data was sorted, coded and organized into various themes like availability of instructional materials, the type of instructional material provided, who and how homework was supervised, ways of parental school communication and the type and general attendance of school meeting in line with study objectives to quantify it. SPSS V25 was used to calculate the correlation among the variables. Descriptive statistics was analyzed using frequencies, percentages and mean scores and findings presented in tables and pie charts. Interviews used themes and verbatim information. Codes were used such that FP1 means Female Parent 1 and MP6 means Male Parent 6. Codes were used to protect the privacy and confidentiality of the parents participating in this study. The interpretations were then made in line with the research questions. Documents analyzed were progress records. The average/ mean scores were calculated after obtaining data on the learners' progress in development of number concept, counting, addition and subtraction skills and presented in tables. Comparison was then made on the development trend of the learners whose parents were involved in their numberwork activities and those not involved.

3.11Logistical and Ethical Consideration

The study observed ethical issues by seeking the respondents informed consent orally before data collection. The participants responses were treated with utmost confidentiality by not writing their names and personal details, withholding their names in discussion of findings and also assured them that the data collected was only for academic purposes.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND DISCUSSION OF RESEARCH FINDINGS

4.1 Introduction

In this chapter, the researcher presents data, interpretation and discussion of research findings, in line with the research objectives. That is, parental provision of instructional materials, supervision of homework, parental school communication and how these factors influence development of numeracy skills among pre-primary school children.

4.2 Response rate

Instructors were issued thirteen questionnaires. All 13 were filled up and returned. This reflects this instrument's 100 percent return rate. The high rate of return is due to the method of data collection, whereby the investigator self-administered the questionnaires and chose the completed questionnaires personally. A 50 percent return rate of any instrument is acceptable, 60 percent is considered good, and over 70 percent is very good, according to Mugenda and Mugenda (1999). The researcher also personally conducted sixty interviews with 64.5 percent of the ninety-three parents who were sampled.

4.3 Findings on the parental provision of instructional materials and its influence on development of numeracy skills

Parental provision of instructional materials was one of the variables that was studied, where the researcher sought to find out the adequacy and types of numberwork instructional materials provided by parents and their influence on the development of numeracy skills.

Figure 4.1 Adequacy of instructional materials

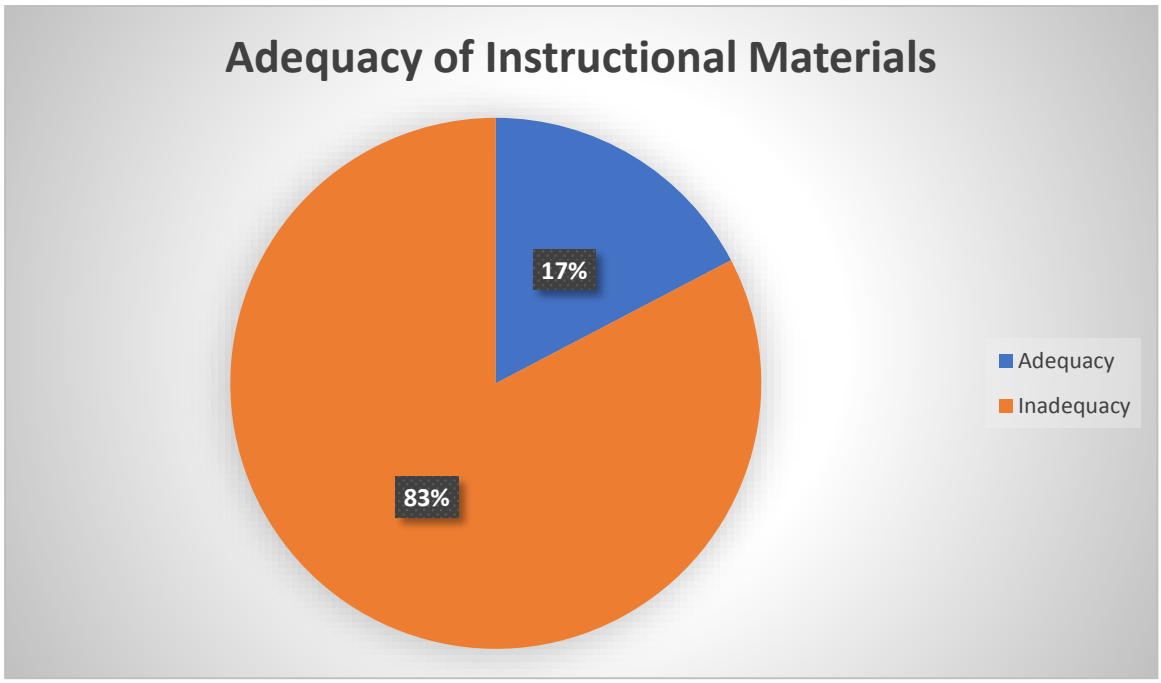

Figure 4.1 shows that 17% of teacher respondents agreed that there were adequate instructional materials for numberwork in pre-primary schools as opposed to 83% who said that the instructional materials for numberwork were inadequate. This was mainly due to ignorance and lack of understanding and cooperation from most parents. Some teachers said they were still waiting for the county government to supply.

From the interviews, MP6 said that the county government had told parents that ECE was free as it would supply all the required instructional materials hence there was no need for him to buy learning materials.

"My child is still very young and careless hence I can't give her materials like textbooks, picture books and cards which I know will be lost within a week," (FP1).

"I bought my boy a Hygiene and Nutrition textbook in January only for the teacher to take it. On inquiry, the teacher apologized and requested I allow her to use it as the school had not purchased any textbook in that activity area. After this incident I decided not to buy any other instructional material except exercise books and pencils. This I do without fail," (FP 2)

The findings of Bunyis, (2012), and Njenga, (2014) both agree with the findings of this study that in some preschools instructional materials like textbooks were inadequate. The findings of this study also agree with the findings done in Busia by Echaune et al, (2017), confirming that most public preschool education centers had inadequate instructional resources.

Table 4.1 Type of numberwork instructional materials

Type of instructional material available	Frequency	Percentage
Tactile	12	92
Visual	10	76.92
Audio	5	38.46
Audio visual	1	7.69

Table 4.1 shows that 12 (92%) out of the thirteen teachers which denotes majority of teachers confirmed that their centers had plenty of tactiles, which includes materials like bottle tops, sticks, seeds and blocks. Audio-visuals were the least available at only 7.69%. This was may be due to fragility of this type of material. Another possible reason is lack of electricity in most of the ECE centers and lack of proper storage facilities.

From the interviews, the findings from parents confirmed that they provided more tactile materials than any other type of materials.

"Tactiles are cheaper and can be easily found in my immediate environment. For counters, all I need is to either pick bottle tops from the nearby kiosk or break sticks from a twig and my child is good to go," (MP 9).

"My boys get blocks of different shapes and sizes from my carpenter friend. The other day I saw them with very beautiful pebbles they had picked from a nearby river," (MP14)

Asked why they rarely provide audios and audio visuals, *FP20* posed,
"in this rural setup where do you buy such materials and where would you borrow from?"

MP16 said that they were very fragile to handle and expensive to buy.

The learners progress record shows that most of the children who were exposed to more than one type of instructional materials scored higher in the development of numeracy skills faster than those who were exposed to only one type of material. The findings show a situation where focus is placed on tactiles while the audio and audiovisuals are non-existent.

This is contrary to what Kate (2006), stresses that learners must be provided with different types of instructional materials in equal measure. This is likely to improve their learning since the materials help them to recognize numbers symbols, shape and value. This lay good ground work for children to acquire numeracy skills like counting, adding and subtracting.

4.4 Parental supervision of homework and its influence on the development of numeracy skills among pre-primary school children

The study aimed at finding out how parental supervision of homework influences development of numeracy skills among pre-primary school children.The following responses were noted from the interviews conducted from parents:

"I own a shop at the market center thus always leave very early in the morning and come back late in the evening. Most of the time I find my children asleep hence I rarely get time to be involved in their homework," (MP6).

FP25 said, "I work as a house help in the neighborhood. By the time I get home am always tired that I cannot even keep my eyes open. I would only be lying if I say I can supervise or help my child in doing homework."

"*I am unable to guide my child in homework as I rarely understand what is required by the teacher. This new curriculum is something am yet to fully grasp. So, I either ask older sibling to help and when they are not available then she has to do the homework on her own," (FP38).*

"I do not have time. I am busy toiling to ensure I put food on the table for my family. My children can perform well on their own without my assistance," (MP 18).

"Am always busy but whenever I get time, I ensure that the homework is well done and completed. I answer my child's questions to the best of my ability and encourage her to always complete any assignment given," (FP 42).

The above responses support Russell & Granville (2005)'s findings that the most cited explanations for lack of time for parental involvement in children's homework and overall learning at home are work and other family considerations. The results also agree with Smith's (2008) findings that a number of parents believe that lack of time is a major factor in parental involvement in the homework of their children due to parents' working schedules.

In providing a conducive environment for children to do their homework, the findings are presented in Figure 4.2.

Figure 4.2 creating a conducive home environment

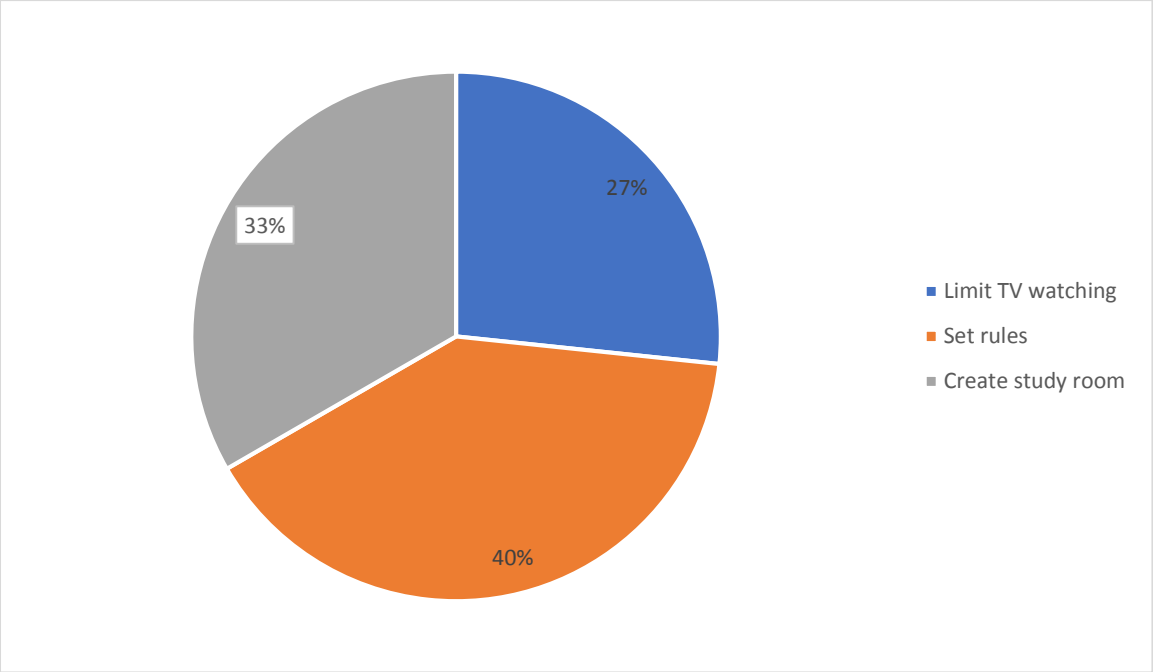

Figure 4.2 indicates that 40.00% of parents had set home rules, 26.00% limited screen time while 33.00% had set aside study rooms or alternative areas specific for doing homework. The findings show that most parents do not restrict screen time in their homes. Unlimited and uncontrolled screen time includes watching of television of about three hours and above per day is detrimental to a child's ability to master specific academic skills and numeracy skills included, (Mwirichia, 2013).

The impact is seen in the number of children who rarely or sometimes get the concept being taught leading to under development of some of the numeracy skills.

From the interviews conducted, it was noted that most parents did not limit the time spent by children in watching Television.

"I am mostly away from home from early in the day till late in the evening making it difficult to control the programs and amount of time my child spends watching Television," (MP10).

Yet FP 30 said, "I live in a one roomed rental house with my entire family of five. We are crowded making it hard to set aside space specifically for studying or doing homework. However, I allow them time to do homework in the house before they go out to play."

"I do not own a television but my children always go to the neighbors place to watch. It is therefore tricky to control or limit them as any time they are free they rush over there to watch," (FP 33).

There is need for parents to create a room or space devoid of any external interference and limit time spent on the screen, especially watching television, if there is to be any meaningful mastery and retention of the skills learnt. The findings confirm those of Clark (1993) who asserted that spending less time on screen, and more time in doing homework and other school

related activities results in a more positive deviation in the acquisition of numeracy skills and overall academic achievement.

4.5 Parental school communication and its influence on the development of numeracy skills among pre-primary school children

The researcher sought to explore how parental school communication influences the development of numeracy skills among pre-primary school children.

Table 4.2 Ways in which parents communicate to their children's Pre-primary school

Mode of communication	Frequency	Percentage
use of diaries	1	8
Mobile Phones	3	23
Written messages	2	15
School visits	7	54
Total	13	100

Table 4.2 shows teachers responses on the mode of communication that parents use to communicate with them. 54% of teachers said that parents prefer to personally visit the pre-primary schools as a way of monitoring their children's progress in number work. 3 teachers said that there were parents who had embraced modern technology and thus preferred to use mobile phones. However, it was noted that very few parents made use of diaries. This may be attributed to the fact that most school are yet to introduce the use of diaries. The diaries also come at a cost which most parents are not ready to foot.

The responses from the interviews revealed that most parents preferred personally visiting the schools to check on the progress and discuss issues facing their children in numberwork.

"I am a hands-on type of parent and I prefer to go to school in person to talk about challenges my child is facing in numberwork and to check on the progress made. I think my presence in school motivates and assures my child that I care about their education," (FP 40).

"Am a very busy man that is why it is most convenient for me to just call the teacher. This way, I keep tabs on my son's progress especially in numberwork which he has challenges in even when am physically away from home," (MP11).

"Our preschool has a diary which has made it easier for me as I communicate with the teacher on daily basis. I am able to monitor my child's progress through the teacher's comments and in case of a challenge or difficulty, it is detected early and we join hands to help my child," (FP 23).

These findings correspond with those of Gesare (2012) who said that most parents communicate to the school by mobile phone calls, short visits to the school or written notes to and from the teacher. This is in line with what Baker & Sudden, (1997), noted, that parents needed to spare some time to be involved in their children's school related activities at home. This enhance better acquisition of numeracy skills, which improves on the overall academic performance. Findings from the document analysis revealed that there was a positive consistency in development of skills taught among most learners whose parents were in regular communication with the school to monitor their progress and discuss issues facing them as compared to those learners whose parents did not communicate with the school.

Another variable that the researcher investigated was availability of school meetings and how parents attended them. The findings are recorded in the table below.

Table 4.3 Availability of school meetings

School Meetings	Frequency	Percentage
Academic clinics	4	7
Academic days	53	88
Open days	3	5
	60	100

The findings in Table 4.3 indicate that academic clinics and open days whose focus is numberwork and mathematics in general are almost nonexistent in nearly all pre-primary schools. Only 4 (7%) of respondents said there were academic clinics. On such days, every parent and the child have a one on one session with the teacher to discuss numeracy and related issues including strengths, weaknesses and challenges the child could be facing. Only 3 (5%) parents said that there were open days in the pre-primary schools, where they are supposed to bring either bought or improvised teaching and learning materials. The school also avails materials whereby parents under the direction of the teacher make the materials in school. 53 (88%) of the parents noted that they attend academic days in their pre-primary schools. On

these days, children showcase the skills they have acquired in mathematics and numberwork and how they are related to other activity areas. They show how they use numeracy skills in their daily lives. Activities include songs, poems, drama and presentations. Analysis from learners' progress records revealed that there was a significant difference between learners whose parents attended an academic day or clinic as compared to those whose parents did not attend. There was an upward trend in the development of the skills taught as some were able to progress from rarely getting the concept being taught to mostly getting the concept right. Some of the children whose parents never attended showed a downward spiral as they moved from sometimes getting the concept right to rarely getting the concept right.

The researcher sought to find out the extent to which parents attend the above meetings as presented in Table 4.4.

Table 4.4 Attendance of school meetings

Attendance	Frequency	Percentage
Always	3	23
Sometimes	6	46
Not at all	4	31
	13	100

Table 4.4 indicates teachers views on parental attendance of school meetings. It shows that most parents attend the school meetings though not regularly. 23% of the teachers said that parents always attend school meetings without fail or send known representatives. 31% of teachers said that the attendance is sometimes discouraging as some parents have never attended any school meeting and that they have never sent representatives. This means that these parents may never have had the opportunity to discuss real issues affecting their children in numberwork with the teachers. Majority of the male parents interviewed said they were not aware of preschool meetings, that the information about the meetings might have been relayed to the female parents.

"The mother is better placed to say what it is they discuss in such meetings because I have never been invited to attend such meetings," (MP 15).

"I dropped out of the same school in Std six hence I don't feel confident enough to face my teachers. How can I ever face them? I feel embarrassed as I was a letdown," explained FP 34

"My child is my responsibility thus I like to attend all the school meetings without fail. If am not available then the mother steps in but I always ensure I am available," (MP 17)

"I am the only cook in a nearby primary school making it difficult for me to find time to attend my son's school meetings regularly. Even though sometimes a friend of mine stands in for me at my work place and I get to attend the meetings but not as often as I would like," (FP40).

Goldring & Shapira (1993), stated that children attain higher academic achievements in any subject or activity area when their parents are actively involved in particular events like attending parents' meetings, constant communication with their children about school, while engaging in school related activities at home. However, the findings from our study revealed that parents may have failed to attend school meetings because of lack of information, interest and family/work related commitments. The findings of this study agree with the findings of Murithi (2003) that majority of female parents as compared to the male parents were involved in their children's education and attended school functions.

A review of individual learner's progress record revealed a significant difference between learners whose parents regularly attended school meetings and those whose parents never attended such school meetings. Most learners whose parents mostly attended school meetings either mostly or constantly got the concept taught thereby developing numeracy skills faster than their peers whose parents rarely or never attended such meetings. This may be attributed to the fact that the teacher paid a closer attention to them or the learner knows that the parent monitors their progress hence would not want to fail the parent. This confirms the findings of Hoover, (1997) which said that teachers tend to give more attention to the children whose parents they know from school visits.

	No. of Learners	Percent	Average scores per skill				M/score
			No. concept	Counting	Adding	Subtract	
Learners provided with instructional materials	70	55.56	3.5	4	3.5	3.3	89.36
Learners not provided	56	44.44	2.2	2	2	1.5	48.13
Total	126	100					
Learners with supervised h/work	60	47.62	3.4	3.8	3.2	3	83.75
Homework not supervised	66	52.38	2.4	2.6	2	1.6	53.75
Total	126	100					
Learners whose parents communicate	54	42.86	3	3.2	3.1	3	76.86
Parents do not communicate	72	57.14	2	2.4	2.2	1.7	51.88
Total	126	100					

Table 4.5 Document analysis

The findings from the table above shows that learners whose parents participated in their development of numeracy skills by providing the necessary learning materials had a higher mean score of 89.36 as most of the pupils scored a mean of three and above as they either mostly or constantly understood and mastered the skill that was being taught. This was attributed to the fact that learning materials provided a multi sensual experience to the learners as they were able to see, manipulate and feel the materials making learning real and simpler. Learners whose parents supervised their homework also performed better than their peers who

were not. This was linked to the fact that homework is mostly an extension of what was learnt in school. Homework enables learners to either practice or relearn whatever concept they learnt earlier in school with the parent as the teacher particularly when the environment is conducive. Learners whose parents constantly communicate with the school performed better than the pupils whose parents did not. This was mainly because most learners are proud when they are praised publicly before their parents hence, they strive not to let themselves and their parents down. It was also noted that learners who previously performed poorly in mathematics improved once their parents became involved in this activity area. This was attributed to the fact that the parents understood their weaknesses and challenges thus motivated, encouraged and helped them. Similarly, there was a drop in the mean of the pupils whose parents scaled down their participation or completely withdrew their support. This was because there was nobody to provide or make follow up on the learners' academic progress hence, they tended to withdraw or give up.

The findings agreed with Mahuro and Hungi, (2016) who revealed that parental participation like providing a conducive environment at home, ensuring homework is done, checking the progress records and school visits significantly increased the learners' numeracy by six to fifteen units of measure.

Table 4.6 Influence of parental factors on development of numeracy skills

Variables	Order of ranking					
	1	Mean %	2	Mean %	3	Mean %
Provision of instructional materials	36	49.3	20	27.39	17	23.29
Supervision of homework	30	41.35	22	30.14	21	28.77
Parental school communication	28	38.35	23	31.51	22	30.14

The findings from the table above indicate that different parental factors influence development of numeracy skills at different degrees. From the study, it was revealed that provision of instructional materials had a bigger positive influence at a mean of 49.3% on the development of numeracy skills as compared to supervision of homework and parental school

communication. This can be attributed to the fact that different learning materials appeal to different senses making the child to be attentive, interested and motivated to learn. Some types of instructional materials like counters can be easily sourced from the local environment while others can be improvised like charts can be handwritten on manilla papers. This means that every parent can at least provide an instructional material to their child. This simplifies abstract concepts making learning real and relevant to the learner making it easier to understand and master the skill being taught. Parental school communication had the least influence at 38.35% mean score. This may mainly be attributed to the fact that due to lack of time and other family constraints, parents had opted to talk to their children, encourage and motivate them one on one at home which mostly had yielded desired outcomes. Parental communication with the school was necessary only when a problem arose requiring a parent's personal involvement like indiscipline cases.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on the summary of findings from which conclusions and recommendations are drawn based on the purpose of the study; namely; the extent to which parental involvement influences development of numeracy skills among pre-primary school children. Lastly, suggestions for further research are presented.

5.2 Summary of study findings

The purpose of the study was to find out the influence of parental participation in the development of numeracy skills among pre-primary school children in Lugari Sub-County, Kakamega County, Kenya. The summary of findings is based on three study objectives.

5.2.1 Parental provision of instructional materials and their influence on children's development of numeracy skills

From the findings most preschools had inadequate numberwork instructional materials or any other material that enhanced acquisition of numeracy skills. 83% of teachers acknowledge having inadequate instructional materials with only 17% of them saying they have adequate instructional materials.

Most parents also said that the preschools lacked enough mathematics instructional materials. This was due to ignorance and some parents not cooperating. Some parents said that the county government had introduced free ECE hence it was the prerogative of it to supply all the instructional materials to all the ECE centers. Some parents did not see their young children as responsible enough to take care of instructional materials like textbooks and picture books hence deemed buying them as a waste of money.

The findings show that of the instructional materials available, the type of numberwork materials mostly provide are tactiles at 92%. This was attributed to the fact that they are cheaper as compared to the other types of instructional materials. They are also easier to improvise and are readily found in the local environment. It could also be because most children can easily manipulate them making skills learnt easily remembered. Audio visuals were least provided at

7.69%. This was may be because most of them are fragile and relatively expensive as compared to the other types of instructional materials. They also need special attention during storage. Most preschools also lacked electricity to power them as they mostly use electric power.

5.2.2 Parental supervision of homework and its influence on development of numeracy skills among preschoolers

From the findings, it is evident that some parents lacked time for participating in their children's homework as much as they wanted because of work and other family commitments. However, some parents tried to find time from their busy schedules to help their children in doing homework. However, some had rules that ensured that the children did homework either alone or with the help of elder siblings. Most parent who personally supervised their children's numberwork homework had them do their homework immediately after supper. This was the most convenient time for the parents. Some parents had their children do their numberwork homework after school before going out to play. The findings also revealed that most households did not have study rooms. Most children used either the sitting room, bedroom or kitchen to do their homework. The most used alternative room was the sitting room which is also the least conducive place for doing homework as the temptation to spend a lot of time watching television was huge. This is where number charts and other numberwork materials are also kept. Majority of parents said that they did not limit watching of television as most of the time they were away from home trying to eke a living. This means that some children spent a lot of time watching television at the expense of doing academic oriented activities like numberwork.

This translated into a big number of children failing to do numberwork homework or not completing the given homework. Some children at times did their homework haphazardly so that they complete faster to allow them watch television at times mixing concepts or entirely missing the concept. The findings also show that some leaners transit to primary school without mastering the basic numeracy skills. This means that these leaners will find it difficult to understand mathematics at a higher level which may in turn result in poor outcomes during summative evaluation.

5.2.3 Parental school communication and its influence on development of numeracy skills among preschoolers

The findings show that most parents at 54% prefer to personally visit the school whenever they want information on their children's progress in numberwork or whenever they notice a problem in numberwork that needs attention. This may be because face to face interaction gives rooms for more questions thus clarity of issues for better understanding. Those who called cited availability of mobile phones and their busy schedules during the day as reasons why they opted for this mode of communication. Those who mostly used written messages said it was a cheaper way of conveying the information in terms of time and money as compared to the other modes of communication. The use of diaries was the least used method. This was attributed to the fact that most schools were yet to introduce the use of diaries. Perhaps because of the extra expense that would be incurred in purchasing them.

From the findings, it was also revealed that most preschools did not have a day set aside to focus on numberwork and other mathematics related activities. 7% of the respondents said that they had academic clinics while 5% said they had open days where children showcased their work. 88% said they had academic days in their preschools. However, none of these days was exclusive to math but they encompassed all the activity areas.

The findings indicate that most parents attended the school meetings though irregularly. 46% of teachers said that parents sometimes attended the school meetings. 31% of parents had never attended any school meeting and neither had they ever sent a representative on their behalf. Most parents who did not attend regularly said that they did not always get the information on time. Others said that they had other family commitments which were more urgent and pressing than attending the meetings. Those who never attended viewed the meetings as not very important as whatever the case children transited to the next level any way. Failure to attend meetings to discuss the child's progress and challenges encountered in numberwork has a negative impact on the learner's development of numeracy skills as the child who is left behind may not be helped in time.

Most teachers at 83.33% strongly agreed as compared to 16.67% who agreed that numberwork learning materials motivate learners to develop numeracy skills. 50% strongly agreed, 33.33 % agreed while 16.67% disagreed that constant supervision of numberwork homework fosters development of numeracy skills among preschoolers. 66.67% strongly agreed, 16.67% agreed

and 16.67% disagreed that communication between parents and teachers enhance development of numeracy skills in learners. 83.33% of respondents strongly agreed that parents have a major role to play in the development of numeracy skills in preschoolers.

Of the three variables, provision of instructional materials was found to have the highest mean of 49.3% and greatest positive correlation at 0.75 to development of numeracy skills. This was attributed to the fact that different instructional materials appeal to different senses making learning captivating making the child to be attentive, interested and motivated to learn. Some types of instructional materials like counters can be easily sourced from the local environment while others can be improvised like charts can be handwritten on manilla papers. This means that every parent can at least provide an instructional material to their child. This simplifies abstract concepts making learning real and relevant to the learner making it easier to understand and master the skill being taught. Supervision of homework had the second greatest influence with a mean of 41.35% on the development of numeracy skills. Home work is viewed as an extension of classwork thus giving the learner more time to practice the skill that was taught in class. It also allows the learner who maybe did not get the concept taught to relearn it with the parent as a teacher. But the skill should have been taught before, using instructional materials. The variable with the least mean was parental school communication which had a mean of 38.35%. This was because some parents resorted to helping, encouraging and motivating their children at home due to time constraints and other family commitments. They noted that the children still performed well in number work. They communicated with the school mostly when there were serious issues that required their personal attention like indiscipline cases.

5.3 Conclusion

It can be concluded that most preschools do not have adequate instructional materials in numberwork. Tactiles and visual instructional materials are the type of numberwork instructional materials that are mostly and widely used in the preschools. All the four types of instructional materials namely tactiles, visuals, audios and audiovisuals should be used concurrently as they appeal to different senses of each individual child. This cultivates fertile ground for the child to develop and master numeracy skills.

Most parents do not realize that they play an important role in the academic life of their children at home. This can be seen from the large number of parents who are not involved in supervising their children's numberwork homework. Some parents have allowed a free reign on their children's T.V watching and have failed to even just create an area or room for the children to do their private studies and do numberwork homework. This has contributed to slow and restricted development of numeracy skills, leading to poor numeracy outcomes. As it provided a conducive home study setting, the studying area was found to be the best place for doing homework. Pre-school kids did their homework better than using other rooms, such as a bedroom, living room, or kitchen. As kids were tempted to spend more time watching television, the sitting room was found to be the least suitable. Parents should try to always personally assist their children in numberwork homework or assign another knowledgeable person to help. They should help their children to make and use the learning materials available at home, clarify concepts, reinforce what was learnt at school and answer children's questions in numberwork. Parents need to understand their role and importance in their children's academic journey towards development of numeracy skills.

Most parents still believe in personally visiting the preschools to follow up on their children's numberwork progress or sort out issues in numberwork affecting them. However, with the busy schedules of most parents, the visits are far and wide apart meaning that there is no consistency. This has proven to be detrimental to the children's performance in numberwork due to hampered mastery of skills in numberwork. A small number of parents have embraced modern means of communication to keep track of their children's progress in numberwork and academics in general. For parents who are in constant communication with the preschools to monitor and help their children in numberwork, positive outcomes have been witnessed in these children especially in terms of addition and subtraction skills.

Most preschools do not have special days for numberwork in their school calendars. Academic clinics and open days are almost nonexistent. The most common day is the academic day which is also not exclusive to numberwork but it encompasses the whole academic world activities. This means that numberwork is not given the time and attention it deserves leading to poor output. Parents attendance record to these meetings is also wanting. Very few make an effort to always attend or send a representative while a majority only attend if their schedule allows them. A few parents on the other hand have never bothered to attend these meetings and the effects can be seen in the resulting poor development of numeracy skills by their children.

Of the three variables discussed, provision of instructional materials had the greatest influence on the development of numeracy skills. This was due to the fact that learning materials made learning, simpler and real. Supervision of homework had the second greatest influence. This is because homework is an extension of classwork allowing the learner to practice the skill that was earlier taught in class. Parental school communication had the least influence on the development of numeracy skills. This was as a result of some parents resorting to help, encourage and motivate their children at home due to time constraints and other family commitment. Communication with the school was left for mostly discipline issues.

5.4 Recommendations

From the findings of the study, the researcher came up with the following recommendations.
Each preschool administration in conjunction with the relevant stakeholders should ensure they have adequate tactiles, visuals, audios and audiovisuals instructional materials for numberwork.

Parents should be sensitized on their role and importance of their involvement in their children's academic journey towards development and mastery of numeracy skills. Preschools should set aside days in their academic calendar exclusive to numberwork and math related activities.

Parents should be sensitized on the importance of school meetings and encouraged to attend all school meetings regularly in order to discuss issues concerning their children particularly in numberwork.

5.5 Suggested subject for further review

The following areas to be used for further research studies have been established by the investigator;

- The effect of digital learning among preschoolers on the development of numeracy skills.
- The effects on the development of numeracy skills among preschoolers of the competency-based curriculum

.

REFERENCE

Allen, S.M and Daly, K. (2007). The effects of fathers' involvement: A summary of the research evidence. *Journal of Clinical Child and Adolescent Psychology. 32, 599-605*

Bake, L and Scher, D. (2002). *Beginning readers motivation for reading in relation to parental beliefs and home reading experiences*. Reading psychology vol.23pp. 239-269

Banavides, S. Butterworth, B. Burgio, F. Lucangeli, D. Semenza, C. (2016). *Numerical activities and information learned at home link to the exact numeracy skills in 6 years old children. Front psychol. (94)*

Berger, E. (2000). *Family Involvement. Essential for child's development*. Upper saddle river. NJ: prentice- hall.

Boss, P. Doherty, W. Larossa, R. Schumm, W. Steinmentz, S. (1993). *Source book of family theories and methods*. A contextual approach. New York, Plenum press.

Bregman, J. & Armstrong, A. (2003) *Educational leadership and management*. First edition, Kampala, Uganda.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development. Research perspective: *Developmental Psychology*.22 (6) 723-742

Desforges, C. &Abouchaar, A. (2003). *The impact of parental involvement; parental support and family education on pupil achievement and adjustment*. A literature review. London; Department of Education and Skills.

Daubar, S. L. (1993). Parents attitudes and practices of involvement in inner city elementary and middle school. Albany, NY. Sunny Press

Echaune, M. (2014). Parental Involvement in Education and Primary School Academic Performance in Kenya (Masters Thesis). Masinde Muliro University of Science and Technology, Kakamega. Kenya.

Epstein, J.L (1995). *School/ family/ community partnerships caring for the children we share*. Parental involvement sociology of Education, Vol 76, No. 9, pp 179-182.

Epstein, J. L. (2001). School, family and community partnerships: preparing educators and improving schools. Boulder. Westview

Evangelou, M. Taggart, B. Sylva, K. Melhhuishi, E. Sammons, P.& Siraj- Blatchford I. (2008). *What makes a successful transition from primary to secondary schools? Nottingham: DFES publications*

Fan, Xitao, Chen & Michael (1999) *Parental involvement and students' academic achievement*. A met-analysis. Educational psychology review, Vol 13, pp 1-22

Fehmann, P.G, Keith, T.Z & Teimers T.M (1987) Home influence on school learning; *Direct and grades journal of educational research*,80,330-357.

Greenwood, G. & Hickman, C. (1991). Research and Practice in Parental Involvement; Implications for Teacher Education. *The Elementary School Journal*, 91, 279-288.

Gutman, L.M, & Midgley, C. (2000). The role of protective factors in supporting the academic achievement of poor African-American students during the middle school transition on *journal of youth and adolescence*, 29, 223-248.

Hart S.A, Ganley, C.M, &Purpura D.J (2016). *Understanding the home math environment and its role in predicting parent report of children's math skills*. PLoS One 11 (12): e0168227. Doi: 10.1371.

Henderson & Mapp, M. (2002*). Parental involvement and students' academic achievement*: A meta-analysis. Educational Psychology Review, Vol 13 (1), 1-22

Hong, S., & Ho, H. Z. (2005). *Direct and indirect longitudinal effects of parental involvement on student achievement: second- order latent growth modeling across ethic groups. Journal of Education Psychology* 97, 32-40 Hoover, D, Kathleen, V. & Howard M. (1995). Parental involvement in children's education: Why does it make a difference? Teachers college record 97,31-331

Jeynes, W.H. (2007). *The relationship between parental and urban secondary schools student academic achievement*: A met-analysis. Urban education, 42 (1), 82-110.

Jeynes, W.H. (2012). *A meta-analysis of the efficacy of different types of parental involvement programs for urban students*. Urban education, 47, 706-742.

Kabiru, M. & Njenga, A. (2009). Foundations of early childhood development and education curriculum development. Nairobi. Focus Publishers Ltd

Khatete, D. W. (2010). Provision of play materials in ECDE centers. Doctoral Thesis. London. University of Leeds

Koech, P. (2010). *Parent-teacher partnership for enhancing preschool children education in Uasin Gishu District*. Unpublished PHD Thesis. Kenyatta University, Nairobi

Kothari, C. (2004). Research methodology, methods and techniques. New Delhi, New Age Publishers

Mestry, R. & Grobler, B. (2007). *Collaboration and Communication as effective strategies for parental involvement in public schools*. Education research and review. Vol.2 pp 177-185

Mwoma, B.T. (2009). Paternal and children's performance. A case study of the Abagusii of Gucha District, Kenya. Unpublished PHD research thesis. Kenyatta University, Nairobi

Nancy, C. J. (2010) *Early predictors of mathematical achievement and mathematics learning difficulties*: Encyclopedia on Early Childhood Education

OECD, (2012) *Untapped Skills: Realizing the potential of immigrant students*. Paris: OECD Publishing

Orodho, J. A. (2009). Techniques of writing research proposal and reports in education and social sciences. Nairobi. Masola Publishers

Owen, W. & Barfoot (2000). Caregiver mother partnership behavior and the quality of caregiver-child and mother-child interactions. *Early Childhood Research Quarterly*. 15(3), 413-428

Schweinhart, L. J. Montie, J. Xiang, Z. Barnett, W. S. Belfield, C. R. Moves, M. (2005). Lifetime effects: The High scope Perry Preschool Study through age 40. Psilate. Mil: High Scope Press.

Shonkoff, J.P. Philips, D.A (2000) From neurons to neighborhoods: The Science of Early Childhood Development. Washington DC. Office of Education Research and Development.

UWEZO (2011). Are children learning? Annual Learning Assessment Report. Uwezo.net

UWEZO (2015). Are our children learning? The State of Education in Kenya in 2015 and Beyond. Nairobi: Twaweza East Africa

Walker, J.M.T., Walkins, A.S., Dallaire, J.R. Sandler, H.M and Hoover- Dempsey, K.V.(2005). Parental involvement: model revision through scale development. *The Elementary School Journal,* 10,85-104.

Zimba, J. (2018), *Can parents help with math homework*? The Thomas B. Fordham Institute. Washington.

APPENDICES

APPENDIX A: LETTER OF INTRODUCTION

ANYANGO BEATRICE LUGONGO

BOX 987-30106

TURBO

Dear Participant,

I am a post-graduate student of the University of Nairobi undertaking Master in Education, specializing in Early Childhood Education. I am conducting a research on influence of parental participation on the development of numeracy skills among preschool children in Lugari North Zone, Lugari Sub County in Kakamega County.

I kindly request you to answer each question as honestly as possible. The information you provide is purely for the purpose of this research and utmost confidentiality will be applied.

Yours faithfully

Anyango Beatrice Lugongo

E57/89992/2016

APPENDIX B: RESEARCH INSTRUMENTS

QUESTIONNAIRE FOR ECD TEACHERS

TOPIC: INFLUENCE OF PARENTAL PARTICIPATION ON THE DEVELOPMENT OF NUMERACY SKILLS AMONG PRESCHOOL CHILDREN IN LUGARI NORTH ZONE

Please indicate by use of a tick or write your best opinion in the spaces provided.

SECTION A

1.What is your gender?

Male ( ) Female ( )

2.How old are you?

Between 20-30 years ( )

Between 31-40 years ( )

Between 41-50 years ( )

Above 50 years ( )

3.For how long have you taught?

Below 5 years ( )

Between 5-15 years ( )

Between 16-26 years ( )

Above 27 years ( )

SECTION B

1. PROVISION OF INSTRUCTIONAL MATERIALS

a) To what extent do you have instructional materials to facilitate development of numeracy skills in your institution?

More than enough ( ) Adequate ( ) Inadequate ( ) None ( )

b) To what extent do the following participate in the provision of the instructional materials?

	Very much	Much	Rarely	Not at all
Teachers				
Parents				
School				
Others				

c) What are the reasons for adequate provisions or inadequate provisions of these materials?

……

……

……

d) How often are the following types of instructional materials provided?

	Most frequently	Frequently	Rarely	Never
Audios				
Visuals				
Audio-visuals				
Tactiles				

2. SUPERVISION OF HOMEWORK

e) How often do you assign numberwork homework to learners?

Always ( ) Occasionally ( ) Rarely ( )

f) How do you ensure that the homework is done?

……
……..

3. PARENTAL SCHOOL COMMUNICATION

g) How frequently do you use the following modes of communication to inform parents about learners' progress and challenges in number work activities?

	Very often	Often	Rarely	Very rarely
Phone calls				
Texts				
Note writing				
School visits				

h) How do parents communicate their concerns on their children's performance of numberwork activities or give feedback?.....

How often do you have school meetings in which your main focus is numeracy skills development in your school?

	Most frequently	Frequently	Rarely	Very rarely
Academic days				
Open days				
Academic clinics				

i) What is the overall attendance of parents to such meetings?

Very regular Regular Irregular Very irregular

Academic days

Open days

Academic days

j) Please confirm your extent of agreement with the following characteristics concerning parental involvement in the development of numeracy abilities.

SA-Strongly Agree A-Agree DA-Disagree SD-Strongly Disagree

	SA	A	DA	SD
Numberwork instructional materials motivate learners to develop numeracy skills				
Constant supervision of numberwork homework fosters development of numeracy skills				
Parental school communication enhances development of numeracy skills in learners				
Parents have a major role to play in the development of numeracy skills in learners				

k) Rank the three variables from greatest to least influence on development of numeracy skills with 1 as having greatest influence and 3 as having least influence

Variable	Rank
Provision of instructional materials	
Supervision of homework	
Parental school communication	

THANK YOU FOR YOUR CO-OPERATION

APPENDIX C: INTERVIEW GUIDE FOR PARENTS

PROVISION OF INSTRUCTIONAL MATERIALS

1. Are there enough instructional materials to facilitate the development of numeracy skills in your child's learning institution?

2. Who has the responsibility of providing the materials?

3. What types of numeracy instructional materials do you provide?

SUPERVISION OF HOMEWORK

4. How often does your child come home with numberwork homework?

5. Who supervises it?

6. In what ways have you created a conducive home environment for your child to carry out numberwork homework?

PARENTAL SCHOOL COMMUNICATION

7. In what ways do you communicate with the school concerning your child's progress in numberwork?

8. How do you provide feedback to the school?

9. Are there school meetings specific for discussing numberwork activities in your child's learning institution?

10. How often do you attend such meetings?

11. On a scale of 1,2 3, rank the three variables with 1 as having the greatest influence on development of numeracy skills and 3 as having the least influence

APPENDIX D: DOCUMENT ANALYSIS GUIDE

Learner	SKILLS				Av	Parental Participation
	N/concept	Counting	Adding	Subtracting		

KEY

CG	4	Constantly gets the concept being taught
MG	3	Mostly gets the concept being taught
SG	2	Sometimes gets the concept being taught
RG	1	Rarely gets the concept being taught

APPENDIX E: UON INTRODUCTION LETTER

UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION & EXTERNAL STUDIES
SCHOOL OF EDUCATION

Telephone: 0724692079

P.O. BOX 30197, 00100 NAIROBI

P.O. BOX 92, 00902 KIKUYU

3rd Oct. 2019

National Commission for Science, Technology and Innovation (NACOSTI)
P. O. Box 30623, 00100
Nairobi, KENYA

Dear Sir/Madam

RE: APPLICATION FOR AUTHORITY TO CONDUCT RESEACH IN KENYA: ANYANGO BEATRICE LUGONGO

This is to certify that **Anyango Beatrice Lugongo Reg. Number E57/89992/2016** is a student at the University of Nairobi, Department of Educational Communication and Technology pursuing Masters in Early Childhood Education. She is seeking authorization to conduct research titled **"Parental Participation and the Development Of Numeracy Skills Among Preschoolers in Lugari Sub-County, Kakamega County, Kenya."**
Kindly assist her to acquire research permit to enable her continue towards completion of her work.

Yours faithfully,

Chairman
03 SEP 2019

PROF. JANE C. GATUMU
CHAIRMAN,
DEPARTMENT OF EDUCATIONAL COMMUNICATION AND TECHNOLOGY

APPENDIX F: NACOSTI LICENSE

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **714041**

Date of Issue: **10/October/2019**

RESEARCH LICENSE

This is to Certify that Ms.. Beatrice Anyango of University of Nairobi, has been licensed to conduct research in Kakamega on the topic: PARENTAL PARTICIPATION AND THE DEVELOPMENT OF NUMERACY SKILLS AMONG PRESCHOOLERS IN LUGARI SUB COUNTY-KAKAMEGA COUNTY,KENYA for the period ending : 10/October/2020.

License No: **NACOSTI/P/19/2066**

714041

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

INFLUENCE OF PARENTAL PARTICIPATION ON THE DEVELOPMENT OF NUMERACY SKILLS AMONG PRE-PRIMARY SCHOOL CHILDREN IN LUGARI SUB-COUNTY, KAKAMEGA COUNTY. KENYA.

by Beatrice Anyango

Prof. Samson Gunga
Dean, School of Education

UNIVERSITY OF NAIROBI
DEAN
SCHOOL OF EDUCATION
02/12/2020
P. O. Box 92 KIKUYU
COLLEGE OF EDUCATION & EXTERNAL STUDIES

DR. Janet Mwasya
1/12/20

INFLUENCE OF PARENTAL PARTICIPATION ON THE DEVELOPMENT OF NUMERACY SKILLS AMONG PRE-PRIMARY SCHOOL CHILDREN IN LUGARI SUB-COUNTY, KAKAMEGA COUNTY. KENYA.

ORIGINALITY REPORT

15%	12%	3%	10%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	erepository.uonbi.ac.ke Internet Source	3%
2	Submitted to Kenyatta University Student Paper	2%
3	Submitted to Mount Kenya University Student Paper	2%
4	Submitted to Hellenic Open University Student Paper	1%
5	pdfs.semanticscholar.org Internet Source	1%
6	Submitted to Eiffel Corporation Student Paper	<1%
7	Submitted to University of Nairobi Student Paper	<1%
8	www.tandfonline.com Internet Source	<1%

Prof. Samson Gunga
Dean, School of Education
UNIVERSITY OF NAIROBI
DEAN
SCHOOL OF EDUCATION
12/11/2020
P. O. Box 92 KIKUYU
COLLEGE OF EDUCATION & EXTERNAL STUDIES