

**INFLUENCE OF PARENTAL INVOLVEMENT ON LEARNER  
ACHIEVEMENT IN MATHEMATICS ACTIVITIES IN EARLY CHILDHOOD  
EDUCATION CENTERS IN CHWELE ZONE KABUCHAI SUB-COUNTY  
BUNGOMA COUNTY, KENYA**

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the Award of Master of Education Degree in Early Childhood in the  
Department of Educational Communication and Technology, University of  
Nairobi**

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## DECLARATION

This research report is my original work and has never been submitted for any award of diploma or degree in any other institution.

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This research report has been submitted for examination with my approval as the University supervisor.

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## **DEDICATION**

I dedicate this work to my dear husband Mr. Wafula Benson for the moral and financial support he gave me. His encouragement has made me come this far. May the Lord of grace bless him abundantly.

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## **ABBREVIATION AND ACRONYMS**

<b>ECE:</b>	Early childhood Education.
<b>ECD:</b>	Early Childhood Development.
<b>PIDI:</b>	Project of Integrated child Development Initiative.
<b>RI:</b>	Response to Interventions.
<b>ECEP:</b>	Early Childhood Development Programs.
<b>PTAs:</b>	Parents Teachers Associations.
<b>NPC:</b>	National Parent Centre.
<b>PI:</b>	Parental Involvement
<b>ETF:</b>	Education Task Force
<b>MoE:</b>	Ministry of Education.
<b>PEM:</b>	Protein-Energy Malnutrition
<b>BI:</b>	Behavior Impulses
<b>AP:</b>	Authoritarian Parenting
<b>IEA:</b>	International association for Evaluation of educational Achievement
<b>ARCY:</b>	Alliance Research for Children and Youths
<b>FPE:</b>	Free Primary Education
<b>ZPD:</b>	Zone of Proximal Development
<b>EMA:</b>	Early Mathematics Activities
<b>PTO:</b>	Parent Teacher Organization
<b>HIV/AIDS:</b>	Human Immune Virus/Acquired Immunal Deficiency Syndrom

## ABSTRACT

Parental Involvement (PI) in children's education is instrumental in determining learner achievement in learning outcomes. While positive involvement enhances learner achievement, inappropriate involvement inhibits learner achievement in education. Few studies in Chwele zone in the sector, focused majorly on effects/impact of play, Free Primary Education (FPE), learning teaching aids, school feeding programs and HIV/AIDS on children's various aspects of holistic development and other curriculum areas, none has examined the link between PI and learner achievement in Mathematics activities. This study sought to establish the influence of parental involvement on learner achievement in mathematics activities in Early Childhood Centers in Chwele zone Kabuchai Sub County. Objectives outlined the extent to which parental; volunteering, communication, parenting practices, and participation in decision making influence learner achievement in mathematics activities. It employed descriptive survey design to study population of 27 Early Childhood Development (ECD) teachers in charge, and 2097 parents. Convenience sampling technique was used to select a sample of 10 teachers and 150 parents from 10 ECDE centers. Questionnaire and interview tools were administered to teachers, and parents respectively to collect data, and 100% return rate was realized. Descriptive analysis in frequency counts and percentages analyzed quantitative data. Content analysis analyzed qualitative data, which were presented in frequency tables, and graphs. It established that 80% parents only volunteered in provision of locally available resources at stake of participation in class activities' trips, actual class instructions and modeling. A constitution of 60% teacher communicated to parents through note writing, besides local meetings, school visits, and sending learners to call parents. Either, parents hardly communicated and acted upon their promises, and a high number of learners appeared not well taken care of. Parents involved children in home chores to help enhance numeracy skills. Conferences concerning learner's mathematics activities instruction per term were very low, registering a considerable rate of Ignorance, poverty and divorce as hindrances to parents' engagement in children's mathematics activities' instruction. It was therefore concluded that parents don't; fully volunteer, communicate, provide quality parenting or, participate in decision making in pre – school mathematics activities. The study recommended that teachers should intensify parental sensitization on volunteering, communication, quality parenting practices, and participation in decision making in learners mathematics activities. The government of Kenya through the ministry of education should enforce policies to ensure mandatory parental involvement in E.C.D.E. Teachers ought to sensitize parents on rightful and fruitful modes of communication and encourage PTAs to own centers, so as to oversee smooth running and decision implementation. Parents should also be made aware that proper nutrition and general child care enhance proper brain development, a condition that spurs learning. Further, research on effects of community religious affiliation, and pre – school management leadership style on learner achievement in mathematics activities in Chwele zone was also recommended.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background to the Study**

Positive parental involvement in children's education affairs improves children's wellbeing, academic achievement, and future productivity. Ultimately, the lower the involvement the lower the learner's own learning expectations and vice versa. This is believed to have strong basis on such aspects as: volunteering, communication, parenting practices and participation in decision making by parents in children's learning, both at home and school. Emerson, Fear, Fox, and Sanders (2012) define parental involvement as building of families', schools', and communities' partnerships, to increase parents' understanding of the benefits of engaging in the education of their children. Redding (2013), revealed that advanced parental involvement contribute to child's improved level of competences. The competences that yield success in children's learning were especially found to be stable even after early elementary school in U.S.A (Hill and Kraft, Mathew and Shaun, 2011).

Parental participation in early teaching is always associated with children's learning, Craft (2003), established that parental involvement takes learning past the classroom. Provides positive experiences for children's wellbeing, and help children perform better in and out of school. Assertion by Castro Exposito-Casas, Lopez-Martin, Lizasoain, Nvarro=Asencio. And Gravina ( 2015)in International Association for the Evaluation of educational Achievement (IEA) identified a correlation between parental engagement levels and learning achievement in learners, as attributed to high academic aspirations,

communication about school, stimulation of reading habits and supervision of homework. Thus, the higher the involvement, the higher the achievement, and vice versa. Ryan and Deci (2000), as well, complemented that, parental involvement support children's sense of self-determination and link the outcome to such benefits as academic motivation and achievement. Thus, this ultimately becomes an accurate predictor of a student's learning outcome in school and beyond.

Positive parental engagement in children's learning needs attributes to higher enrolment rates, test scores, enrolment to advanced classes, higher level programs, completion of classes and increased graduation rates, Alliance Research for Children and Youth (ARCY) (Emerson, et al, 2012) . Additionally Nyarko (2011) affirmed that apart from educational achievement, parental involvement has been noted to improve personal competency and efficacy in learning and improved social capital due to enhanced consistent school attendance, acceptable social skills, tolerable behavior, and adaptation to school. The then inculcated engagement by extension, create a stronger belief in the use of education in life (Crosnoe, 2012).

According to Gottfried (2013) mathematics activities are part of fundamental domains that build individuals' logical ground upon which future benefits accrue. Epstein (2001) concurs with other researches that, parents' attitude, behaviors and actions in liaison with the school, contribute to children's leaning achievement and particularly in mathematics activities. Therefore it calls for every member of families and communities to ensure total involvement in mathematics related concerns if success has to be realized. Besides,

parental role construction is directly linked to children's learning attainment. Parent's ambitions and prospects for children's achievement in mathematics activities are portrayed in the total parenting aspects from home (Jeynes, 2010).

The lowest likelihood of commitment occurs when parental role construction is scrawny and has at the same time a low sense of efficacy, as purported by ( Jones and Prinz, 2005), hence parents have to portray rightful mathematics attitudes and perceptions at all times, if same attitudes have to be inculcated in children. In Dutch, parental volunteering takes on forms of participation in school with clear explanations, according to Smit, Driessen, Sluiter, and Brus (2007) , Parents assist teachers in activities like accompanying children on school trips, assisting in school library, providing and cleaning play things, as well as age appropriate exercises to stimulate activity levels necessary for improving active participation in classroom mathematics activities .Fundamentally, parents who take part in the program had preschoolers enroll primary school, up from 20 percent in the absence of the program. A study by Epstein (2010), established that parental involvement in pre-school programs create channels to improve recruitment, training, activities, and schedules to engage families as audiences and volunteers in school activities and other locations.

Resources developed by parents and teachers stimulate children to read and perform mathematics activities more often than when they are absent, as posited by (Clark and Hawkins, 2010). According to Drew (2014), in America, concentration paid by parents to mathematics instruction to four year old children, help them perform simple mathematics

operations. Parental concentration is rooted in the pre – K curriculum, whose state core principles require that kinder gardeners engage in numerical thinking, exhibit understanding of simple operations by adhering to practical situations, using objects and actions. For example, (if one had four fruits and add more two fruits, how many fruits will there be all together?).Bornstein and Bradley (2012) postulated that this is strengthened by mothers with a strong body of child development knowledge found interacting more positively with their children.

This is in agreement with Izzo, et al, (1999)'s longitudinal research program on children from kindergarten through Grade 3 , revealed that the frequency of parent – teacher contact , worth of parent – teacher communication, participation in mathematics activities in the home, and participation in relevant school mathematics curriculum activities, provided learners with setting in which to acquire ECE related skills, development of logical thinking, self-worth and qualities of motivation. Chowa, Masa, and Tucker (2013), likened it to Ghana's structural equation modeling model which established that parent-teacher communication predicted children's social-emotional adjustment and school engagement. According to McKenna and Willms (1998), in Canada, parental voluntary work is documented and emphasized to enhance learning mathematics in home environment. The documentation behooves parents to stay committed to promises, thereby affecting anticipated learner's mathematics activities competencies.



Home-school communication is identified to enhance trust between parents and school, for Hoover-Dempsey et al. (2005), relationship between the two is frequently found keyword in enhancing children's mathematics activities. As for Saltmarsh et al (2014), in Australia, teachers preparing to teach in primary schools receive preparation in areas of parent-school communication, and it has been found playing a positive role in children's mathematics education. Confirmation by Houtenville and Conway (2008), pointed out that parental discussions and effective communication with teachers determine child's success.

Early parental assisted mathematics activities are strongest indicators of children's mathematics achievement years later (Siegler et al, 2012). Research report by Lee (2013) established that parenting activities yield considerable chunk of pre – K curriculum to mathematics instruction and important numeracy skills in learners. According to Hornby and Witte (2010), the New Zealand Government holds a very good inclusive school system where parental involvement in Mathematics learning for all is mandatory. This ensures that every individual family is engaged in supportive parenting aspects, which improve both personal and social mathematical competencies.

Jamaica's poor quality of mathematics competencies as at 2004, according to Caribbean's Education Task Force (E.T.F), was due to inadequate parenting in children's education (Munroe 2009). Indicating that parental involvement in preschooler's mathematics activities is correlated with many positive outcomes. Elsewhere, Lee, (2013), recorded that the South African (S.A) government through the National Parent Centre (NPC) runs

a positive parenting skills program which help parents understand the stages of child development so as to be able to apply positive culture, beliefs, and ability to break stereotypes by some African communities that accord high level of achievement in mathematics to boys as opposed to girls. Additionally, Davids (2010) indicated that mothers who worked in rural areas in S.A. were judged with the responsibility of participating in passing basic knowledge skills to children. These have enhanced; effectiveness in schools' curriculum, children's self-esteem, children's mathematics activities capabilities, parent-child academic relationships, parents' positive attitude toward school, and better understanding of the schooling process.

Parental engagement in children's schooling, promote learners' behavior by motivating them to learn. AL-Harrasi and Al-Mahrooqi (2014). Mass literature by Mortorell (1996), hold that good parenting, in terms of right combination of health care, adequate food and pro-learning environment result in productive, socially adapted and better children as opposed to when commitment is missing. There is a link between good nutrition and brain development vital for development of mathematics competencies vested in learners' activities. In connection to the above, Grusec (2011) holds that mothers with high child development knowledge provide books, and other play materials, engage children in mathematics related stories to help children learn, unlike less knowledgeable mothers. Provision of balanced diet, Stimulating environment, De-worming, and loving care in the early years of life have significant rationale on school performance, physical, cognitive and social development of a child.

Further, parental involvement engage governments, administrators, educators and parents' organizations across North America, Australia, Continental Europe, Scandinavia and UK, anticipating that parents should largely play a role in school improvement and governance. Vincent and Martin (2000) found out that parents take part in constitutional, consultative and decision making, voluntary associations, involvement in after school mathematics activities, class room mathematics activities, communications with the school and evaluation of school mathematics activities curriculum. The goal was to give parents and teachers dependable techniques for child behavior management and commitment across settings. According to Sanders and Sheldon (2009), family dynamics and home environment are closely related to children's behavior. Schools, parents, and communities work together to reduce problematic behavior and improve children's learning in school, rendering better behavior one of major benefits of parental involvement. Nyarko (2011), in Ghana, found out that there is apposite relationship between mothers' school involvement and children's learning achievement and cognitive development.

Family-school and community partnerships Bureau (2011) maintains that, parental involvement must be seen as core educational goal by institutions. Efforts should be made to ensure its amalgamation into educational structure and processes, that include; responsibility, evaluation, teaching and learning, community involvement and professional development. Additionally, as for Scot and Sylva (2002), the England government through its white paper 'Excellence in schools' initiated a strategy in schools, having three elements; giving parents information, a voice, inspiring their

partnership with the schools, heartening parent governor roles, inspection process, endowment of annual reports and catalogues, provided high amounts of information to develop good governance in home pre-schools. According to Okantey (2010), when parents participate in school decisions, governance, and advocacy activities through councils, committees, improvement teams, and parents' organizations, resources and services for preschools and families are enhanced. Allowing parents to discuss with teachers, to keep abreast of progress or discuss availing problems, assisted in practical activities and governance of schools. Consequently, the efforts contribute to the development of resources and opportunities that enhance children's acquisition of mathematics skills, attitudes and values, worth for self-fulfillment and good citizenship.

In Uganda, according to Kisitu (2009), parents are irritated by thought of getting involved in ECE learners' school matters. Sending children of ages below four years to school for playing and interaction with peers is perceived as waste of money and time. It is also confirmed by Eju (2012) that ECDE is not included in the top priorities by parents of this society, due to lack of knowledge on the influence of ECD on school readiness. This trend has denied the country much more resourceful and intelligent human resources. Uganda could borrow from National Statistics Office of Great Britain, which uses parental participation in school associations as an indicator of social capital at nationwide level (Harper, Rosalyn, and Kelly, 2003).

Parental involvement in children's learning process in Kenya's Kiambu county, had impaired children, who were neither hid nor denied right to education, expression,

socialization, close attachment, and informal mathematics stimulation by parents, portray significant logical behaviors as opposed to those who were hid, in an experimental study done by Nelliahs (2004).It further revealed that with proper adequate parental treatment; children with hearing impairment display proper cognitive development with high reasoning power. On the contrary, a study by Walakisa (2007), established that there was fear for close partnership of teachers with parents of the ‘Mvula’ occult among Chonyi sub-tribe of Kilifi county, due to their habits of causing mysterious death to anybody who dared challenge their authority, this affects children’s spiritual, psychological and physical health as per Zlatko (2013), the effect by extension negatively affects mathematics activities. If parents are not strictly involved in the learning development of children, then the society’s future is crippled.

Kenya’s Vision 2030 emphasizes the quality of teaching mathematics so as to develop competencies in literacy and numeracy. The education system should therefore yield individuals capable of solving problems, self-driven, having better quantitative reasoning, reading and autonomous skills. Sustainable development emphasize that every human being requires the 21st century acquaintance, skills, attitudes and values necessary to shape sustainable future.

## **1.2 Statement of the Problem**

Early Childhood Education learners in Chwele zone in Bungoma County have been found with difficulties performing simple mathematics activities including routine instructions that involve counting, even as established by Uwezo Kenya National

Learning Assessment (U.K.N.L.A) (2013). This has been thought to be attributed to by inadequate parental involvement in children's number oriented activities. Early mathematics skills have been recognized as important because they predict later ones. According to Leferre et al (2009), young children's daily home activities such as; playing games using boards and cards, shopping, and cooking, foretell their mathematics skills, and fluency.

Parents in Chwele zone ECE centers hardly, either, provide mathematics oriented materials, and time for children's play at home, promote mathematics activities instructional resources development in school, or volunteer participation in class mathematics activities. An approximate number of about ten percent of parents in every centre in the zone turn out for parent-teacher conferences. Most of them do not provide feedback following communication from school, and children go to school hungry and unkempt. The above scenario impedes on preschoolers' concentration in mathematics activities, and also an indicator that the home environment is not compliant to good development of mathematics competencies in children. Few studies in the sector, focused majorly on the effects/impact of play ,Free Primary Education(FPE) ,learning teaching aids, school feeding programs and HIV/AIDS on children's various aspects of holistic development, and other curriculum areas . None has investigated into the influence of parental involvement on learner achievement in Mathematics activities. This scenario prompted the carrying out of this study.

### **1.3 The Purpose of the Study**

Therefore, this study aimed at establishing the influence of parental involvement on learner achievement in mathematics activities in Early Childhood Centres in Chwele zone, with an intention of facilitating attitude change in parents.

#### **1.4 Objectives of the Study**

This study sought to:-

- 1) Establish the influence of parental volunteering on learner achievement in mathematics activities in Chwele zone.
- 2) Examine the effect of parental communication on learner achievement in mathematics activities in Chwele zone.
- 3) Determine the influence of parenting practices on learner achievement in mathematics activities in Chwele zone.
- 4) Analyze the influence of parental decision making on learner achievement in mathematics activities in Chwele zone.

#### **1.5 Research Questions**

- 1) To what extent does parental volunteering influence learner achievement in mathematics activities in Chwele zone?
- 2) Which modes of parental communication affect learner achievement in mathematics activities in Chwele zone?
- 3) To what extent do parenting practices influence learner achievement in mathematics activities in Chwele zone?

- 4) To what extent does parental participation in decision making influence learner achievement in mathematics activities in Chwele zone?

### **1.6 Significance of the Study**

The study may benefit various E.C.D.E stake-holders, such as teachers being caregivers in the development centers, so as to improve service delivery in mathematics activities for excellence and satisfaction. Secondly; the parents of the children to get best outcome as a result of investment incurred in children`s early mathematics activities, bearing in mind that ignorant parents who have the tendency that children`s learning is entirely a teacher venture will be enlightened to play required roles. Thirdly; the community from where the children come, to contribute the best to wider society in terms of economic excellence due to prior mathematics skills preparedness. This may help in provision of security to the community as a result of having pure and secure minds prepared early enough. The findings may also guide the policymakers in enforcing requirements in favor of children`s mathematics activities` instruction. Notwithstanding, the findings may also inform the ministry of education on best approaches of parental involvement in children`s mathematics competencies acquisition, to be included in the preschool mathematics curriculum.

### **1.7 Limitations of the Study**

If all factors remained constant, time and financial constraints emerged major constraints to this study. The researcher intended to observe preschool learners with their parents in classroom and home settings to establish both general and specific mathematics learning



outcomes, but it was not possible due to limited time. Therefore questionnaire and interview instruments were instead used on teachers and parents respectively. The use of interview guide was necessitated by a reasonable number of less literate parents. Given that the country was in election atmosphere, most parents chose to attend political rallies at particular times of the day, therefore research assistants were used to speed up the study. Electricity power was unreliable, typesetting and printing research instruments could otherwise delay the activity of data collection. These posed financial constraints especially when power was to be sought from afar off city.

### **1.8 Delimitation of the Study**

The study focused only on one zone out of all the six zones in Kabuchai sub-county, to determine learner achievement in Mathematics activities. Only 10 out of 27 public ECE centers in the zone, 150 ECE parents from the 10 centers, and 10 teachers in charge of the 10 E.C.E centers, were included in the study sample. Participants in this study were majorly volunteers, limited to learners in public Early Childhood Centers in Chwele zone. It was controlled by such variables as; volunteering, communication, parenting practices, and parental decision making, and how they affect learning.

### **1.9 Basic Assumption**

It was assumed that the sample size used was a good representation of the population under study to give the right picture of the situation. While Questionnaire tool was used on teachers in charge, interview schedule was used on parents, on assumption that information given was true and exhaustive to the researcher. The researcher assumed that parents were aware of what is required for children's good nutrition, and time for play;

that ECE teachers understand and are able to sensitize parents on the need to engage in children's learning achievement needs, and that the instruments were valid and measured the desired constructs. To crown it all, it was assumed according to Vogt (2007) that, respondents gave the responses that they 'ought' to give without bias.

### **1.10 Definition of Key Terms as Used in the Study**

**Parental involvement:** participation by parents in all matters that concern a child's holistic wellbeing, be it in school or at home.

**Parental volunteering:** Willful participation in children's education affairs both at home and school by parents.

**Communication:** Exchange of various forms of information on mathematics activities, between parents and teachers, or between parent and child.

**School-Home communication:** Information flow from teachers to parents at home, in this case, concerning mathematics activities.

**Home-School communication:** Information flow from parents to teachers at school.

**Parenting practices:** Overall child upbringing in terms of care, nutrition, socio emotional training, all forms of culture, and parental control.

**Parental decision making:** Functional contributions made to enhance children's learning by parents in center management.

**Mathematics activities:** Undertakings by learners and educators meant to enhance learner proficiency in numeracy.

**Learning:** Acquiring new ,or modifying existing knowledge ,behaviors ,skills, values or preferences which may result into potential change in synthesizing information, depth of

the knowledge, attitude or behavior relative to the type and range of experience.(Mayer, 2001).

**Learner:** A child between ages 3 to 9 years and attending Early Years Education (EYE).

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Introduction**

This chapter explored in detail the relationship between parental involvement and learner achievement in Mathematics activities, by use of thematic areas: The influence of parent volunteering on children's achievement in mathematics activities; effect of parental communication on children's achievement in mathematics activities; influence of parenting practices on children's achievement in mathematics activities; influence of parental participation in decision making on children's achievement in mathematics activities; theoretical framework; conceptual framework, and summary.

#### **2.2 Parental Volunteering and Learner Achievement**

Parental volunteering enables parents to monitor classroom and school activities and mediate their efforts with teachers to encourage acceptable classroom behavior and ensure that the child completes school in the United States (Hill and Taylor, 2004). The

Scottish Government (2011) describes numeracy, among literacy, health, and wellbeing as essential building blocks to lifelong learning. Zill and Nord (1994) hold that highly volunteering parents have prompted teachers to provide greater attention to children, thereby identifying earlier stages problems that may potentially hinder learners' achievement.

Volunteering parents in school work tend to produce learners with fewer behavioral problems and better learning achievement at all levels of learning, than learners whose parents are not engaged by any means (Henderson and Berla, 1994). A research from Netherlands revealed that family volunteering in provision of quality and quantity cognitive stimulation is positively related to child success in mathematics performance (Mesman, 2010). Epstein and Dauba (2010) had it that families, who volunteer working with preschools, involve children working with parents at home; in goal setting, discussing about homework, importantly in mathematics activities, thereby enabling preschools design more home works to facilitate discussion of interesting tasks. Parental volunteering was measured by parental participation in classroom activities, at home activities, and helping in instructional resources development.

### **2.2.1 Parental Participation in Classroom Mathematics Activities**

Parental volunteering at school may be through attending classroom mathematics activities, attending play and sporting events and school workshops (Rain and William, 2011). Teachers can therefore teach parents, who may lack confidence in understanding mathematics in early years, to curb difficulties associated with changes in teaching

mathematics to help children learn. Muir (2011) has it that Parents can volunteer in discussing with children about school routine, helping in reading with children during mathematics activities sessions. Such commitment is bound to improve learner achievement in mathematics activities. According to Doverborg and Pramling-Samuelsson (2011), early life in preschool can be greatly monitored by teachers to identify potentials of these skills in learners and help nurture them, but it is solely dependent on how much input parents are supporting learning.

Higher parental volunteering contributes to an increased child perception level of competence, (Gonzales- De Hass, Willem, and Holbew, 2005). Thus preschoolers' activities need to be supported in order for the anticipated achievement to be realized. Clark and Moss (2011) commended the Reggio Emilia atmosphere of learning, where parents, teachers, and children collaborate in classroom instruction, because support by parents in instruction, facilitates easy transfer of learning, and has been demonstrated in many studies of children's mathematics learning. A study by Dorothy, Crowther and Lyn (2000) on parents as junior partners, revealed that parents can be given chances to help in class outings or helping in classrooms' such roles as making number sacks, making stories and assisting in reading groups, to enhance teaching and learning at early childhood centers. Parental voluntary provision of activities at school, provide them with immense opportunities to become skilled at preschool mathematics programs and see for selves how their own children are learning. These enable parents to ask where their children are understanding mathematics aspects and where they are struggling. They then

can ask how the teacher is going to address any difficulties - and how they might do the same at home.

### **2.2.2 Parental Assistance in Learner Mathematics Activities at Home**

Adults volunteer to use some key aspects of Early Childhood mathematics activities besides other forms of activities and games to help children learn mathematics at home, purported (Melehuish, Kathy, Sammons, Blatchford and Taggar, 2008). This is because most learners are naturally attracted to mathematics as it exists in the world around them even without adults' guidance. They innately learn mathematics through hands on games, projects and asking questions. Eddy, Mathew (2004)'s constructivist theory emphasizes hands-on activities, where adults can provide food items for counting, so that children can acquire numbers sense and practice simple operations (subtraction and addition) using the food staffs, toys and blocks. Geometry sense can be acquired by children through having them name the shapes of their toys, food items and utensils; arrange materials in patterns like star – circle – star – circle etcetera. Children can learn measurement by having them measure ingredients for a simple favorite recipe, showing them how to measure their height and the height for others by use tape or sticks. (Learning Teaching Scotland 2011: 1).

Mathematics language is enhanced by having learners talk through games and daily routine, name numbers , shapes, and express comparisons such as; more than / less than, bigger / small, and far / near (Singh et al ,1995). A study by Elias et al. (2010) revealed that, picture books specifically written for teaching mathematics can be used to give

explicit instructions at home. Spatial relations on the other hand can be gained by frequently having children jump forward and back, sideways, running up and down, round and round, in, out, and in the use of block-building interventions (Casey, Andrews, Schindler, Kersh et al, 2008). These are concepts important in day to day mathematics operations, which parents can use to help children learn.

Parents with children in preschool are advised to check in with teachers so as to coordinate there, at - school and at – home mathematics instruction, as asserted by (Melehuish, Kathy, Sammons, Blatchford and Taggar, 2008). Parents are guided on how to help children at home on various mathematics content areas such as; number, algebra, shapes and space, measures and data, through strand units of Early Mathematical Activities (EMA) i.e., classifying, comparing, ordering and matching through play (Tucker, 2010). Aubrey, Bottle and Godfrey (2003) strengthened that parents should review and discuss together with children, the work and projects that children take home from school. This kind of engagement is worthy building strong mathematics culture in children. Therefore, parents should seek guidance from teachers on how to go about providing appropriate resources, activities, time and encouragement, worthy enhancing learners' achievement in mathematics activities while at home.

Parental involvement in dialogue on matters of numeracy and home chores primarily influence children's attributes and behaviors which in turn affect mathematics achievement (Grolnick, Ryan, and Deci, 1991). Eastaway and Askew (2010), found that activities with children such as reading to children, involving children with the home

chores, helping children to do arts, playing games, building something taking turns and playing sport, are helpful in ensuring that children keep a breast with daily evocative numeracy. This, quality of parental involvement as purported by Mackay, (2010) is excellent strength for high achievement. For example, when children can be required to talk about the number of objects they have drawn, how many times they have fetched water, and how many times they have jumped up and down.

### **2.2.3 Helping in Resource Development**

Parental engagement in resources provision should be core mandate in every institution of children's learning for efficiency's sake. Indoshi and Othuon (2010), noted that teacher-centered teaching methods lead to non- enjoyment of learning sessions and missing out on logical discovery, whereas learner-centered methods have always involved learners in the process of learning ,yielding mastery of content and promotion of positive attitudes towards the subject matter. It is true to this fact as also backed by Muola (2010) arguing that it is important to equip learning institutions with equipments because they have been known to a greater part, contribute to children's positive learning achievement. Learning/ teaching resources facilitate stimulation of learner-centered learning, where, children manipulate various materials, work with them, discovering what they are made of, thereby presenting new situations to them. According to Tucker (2010), much as playful activities are teacher – initiated, planned, developed, and directed, parental involvement in supporting resources development reinforce stimulation in learners and commitment in the side of teachers. Thus, parental responsibilities in equipping E.C.D centers as well as homes with adequate and



appropriate materials are required in order to help enhance mathematics competencies in learners through hands-on activities.

Class interactive learning processes include media and involvement of learners in various activities (Dufresne et al, 2010). This was supported by Chika (2012), indicating that interactive approaches are very effective in enhancing learning achievement. Such heuristic methods help learners to grasp new concepts, unlike inappropriate ones which constrain comprehension and application. For example, as cited by Siegler and Raman (2009), materials provide a good understanding of especially where numbers fall on a number line; hence as they play, preschoolers learn mathematical concepts. Additionally use of media allows for interactive learning process within classroom thereby diversifying learning styles to encourage learner engagement, (Odundo and Gunga, 2013). Thus, parents need to embrace this engagement in view of helping children improve learning.

### **2.3 Parental Communication on Learner Achievement in Mathematics Activities**

Home-school communication and supplementary mandates about home-school agreements are provisions in section 110 and 111 respectively, of the school Standards and frame work Act 1998 in United Kingdom (UK) (Desforges and Abouchaar, 2003). The policy document include items such as;-the information to be shared by school and parents, expectation from schools, parents and pupils as related to homework, among others , upon which parents should append declaration to indicate understanding and acceptance. Such commitment has the value to ensure that parents get involved in

children's education with all that calls for adherence to law. Dorothy et al, (2000), projected that in England regular communications of school to parents covered school news, classroom content, written information, and individual information about children. As asserted by Piana (2010), parents like; to be aware of learner high standards achievements in curriculum strategy. Parental interest and involvement should therefore be supported by teachers through sharing detailed information about their children's progress: For example, "she/ he is doing well in mathematics activities".

### **2.3.1 School-Home Communication**

Communication takes the form of note writing, visits to schools, phone calls from and to the teacher. This is beneficial to parents, according to Gesare (2011), since it informs them about children's progress and makes teachers' work easier. Thus, to this connection, Vandermaas, et al. (2012), revealed that Mathematics activities employed to support preschool children's learning at home and even at school may include both digital and traditional games, numbers and shapes, books, songs and activities such as discussions about things found in environment. Children's learning is facilitated by homework which provides opportunities for parental involvement about the use of mathematics resources and aids that are provided by teachers. Sheldon and Epstein (2001) purported that schools should help parents build cooperation with their children in developing school family projects of resource development to help children learn mathematics.

Parental communication in play prompts children's mathematics knowledge as founded in Head start classrooms, (Ramani, Siegler, and Hitti, 2012). An identified example of

linear numerical board game with various objects which showed improvements in children's numerical knowledge of numbers 1- 10 is empirical. Tucker (2010) established that play is the best way through which children learn mathematical concepts, through practical meaningful experiences. Hence schools ought to help parents develop learners' playful but meaningful communication, by use of mathematics resources to build children's competences at home through proper sensitization, based on preschool curriculum. Thus acquisition of mathematics knowledge is solely dependent on communication. Muir (2012) asserted that teachers may design activities linked to class activities and number of 'numeracy bags' with instructions, necessary materials and procedure for parents as well as an exhaustive mathematics reason of the activity. The numeracy bag contain a sheet for parents to indicate their feedback about their children's work and any noted understanding in mathematics, which also facilitate parent – teacher communication. This sustains teacher-parent negotiation in necessities for children's mathematics learning activities, and enhances children's early logical capabilities.

### **2.3.2 Home-School Communication**

Parental communication is key element that shapes parents involvement in children's mathematics activities at home, at school and enhances family-school collaboration (Berger, 1999). Two -way communication between home and school builds continuous trusting and productive rapport between parents and educators, thereby increasing parents' participation in learning activities both at home and at school. Affirmation by Ginsburg-Block et al. (2010) holds that various aspects of home – based involvement like; parental expectations and aspirations, parent - child communication and

encouragement for learning in mathematics increase mathematics achievement in elementary school children. According to Merttens (2013) interactive mathematics activities between parents and their children at home aims at increasing two – way flow of knowledge opportunities to allow feedback. The feedback by parents then facilitate more in – depth discussion at later parent – teacher meetings which in turn change the monotonous nature of “ teachers’ monologue” to dialogue, which schools use to enhance the cognitive achievement of those learners performing lower in mathematics activities.

Parents’ involvement in school activities was higher when parents received frequent and effective communications from teachers about their specific children (Ames, 2013). However Hancock (2011) discovered critical discrepancies in the home-school relation and available time to carry out information, prompting assertion, that involvement of parents need to be realistically achievable through such strategies like reviewing of the schooldays in order to give work with parents more time and status. Recent interactions have also revealed that specific parental engagement actions like; increasing positive communication between home and school, home – based supportive learning and provision of home based celebration for accomplishments, support positive mathematics outcomes in preschoolers (Jeynes,2010) Thus, there is power in communication that is geared towards both types of reinforcement in the event of helping children learn mathematics.

#### **2.4 Parenting Practices and Learner Achievement in Mathematics Activities**

Parenting practices of the Asian (Chinese) parents as opposed to those of the western (Caucasian) in terms of culture, beliefs, and socialization, counts in part for differences in children's academic outcomes, (Geary, Fan, and Bow, 1992). Purport by Stevenson Lee, and Chen, (1990) in Asia, has it that schooling is a parent's responsibility and that one cannot succeed in life without solid education. That is why Chinese children exhibit higher mathematics skills after schooling than the Caucasian children, whose parents hold a deterministic view of academic success, which emphasizes the ability as important determinant. According to Inge, Wessels, Soraya, Lester and Catherine (2016) in South Africa, wide spread engagement in parenting programs are developed with an intention to improve both children and parents' outcome, thereby contributing to national development. The provision of mandate to government is vested in the children's amendment Act 2007(Act 41 of 2007) to provide intervention to support and develop positive parenting. The programs emphasize positive parenting which is thought to protect child development thereby increasing children's chances of becoming well-adjusted and productive members to South African economy. Such Acts have made South Africa grow very fast and steadily over years since their independence, unlike other countries which were liberated ahead of them.

#### **2.4.1 Parental Provision of Basic Needs and Care**

Parents should provide breakfast for children before going to school, then a snack at 10 o'clock, in order to be given strength required during mathematics activities (Mwirichia, 2013). This holds true to such fact that a well fed child sustains healthy brain and physical energy to keep comfortable and concentrate in class mathematics activities. Kate

(2010) emphasized that provision of food is essential in making body systems function properly. Parents should keep in mind basic components of a balanced diet; carbohydrates, (maize, potatoes, bananas, bread, and cassava) gives children the strength needed to carry out learning activities. Vitamins (oranges pineapples and mangoes among other fruits) protect children's bodies against diseases and replenish the skin. Proteins (eggs, milk, and sausages) help build body tissues. These help children develop strong brains capable of handling mathematics activities that require logical thinking. Eganon (2010) established that daily intake of a fruit and vegetables guarantee good health. "An apple daily, keeps the doctor away". Healthy bodies have healthy brains, children with healthy brains and bodies actively participate in playful activities meant for enhancing learning.

Malnutrition causes deficiencies and health conditions that impact negatively on school children. For example Protein-Energy Malnutrition (PEM) during preschool years is the major cause of difficulties in later life. PEM is related to constrained psychological development from reduced play activities, which affect learners' cognition and learning. (Vynckt et al, 2006). Healthy children are less likely to; miss school, and fall sick, a condition that influence regular school attendance and hence to mathematics activities instruction. Studies by Meyers (1989) also pack the above to show that, improved learners' diets make their bodies strong, enabling them to engage in various plays always, tasks that leads to learning. Such conditions enhance attendance, and increased mathematics scores among other competencies. These potentials are bound on every learner, parents should therefore endeavor to ensure that children get proper nutrition at

home and even in school .failure to provide good quality nutrition puts them at risk of missing out on realizing their potentials (Price, 2012).

#### **2.4.2 Supportive Home Conditions**

Asian parenting research has shown that the role of Asian mothers counts significant on their children's academic achievements as from Kindergarten years. Wei and Eisenhartkc (2011) recorded that, more emphasis is put on importance of efforts besides spending time, and resources to devise ways of improving children's mathematics skills such as after – class tutoring programs. Parents also engage in other activities with children which include; discussing children's daily life at school, checking their homework, reading books with children, talking about nature, playing games, engaging them in household chores, and building something to help them learn mathematics at home. Sarama and Clements (2009) established that home mathematics activities enhance parent's understanding of the importance of mathematics concepts in early years of a child. Lesaux (2013) holds that parents with high knowledge about elementary mathematics teach their children at home because they value mathematics, unlike their less knowledgeable counterparts.

Parents with children who read frequently are those who emphasized the importance of involving children in reading, which in turn, positively predict children's reading development (Sonnenschain, and Moons, Sterman 2002). Supporting the idea, Bradley, (2002), confirmed that the reading development possibly extents to children's mathematics activities development. Parents create mathematics activities 'home –

learning environments based on culturally defined and transmitted ideas at proximal levels in three ways: physical and social setting, culturally specific child care traditions and ethno theories of parenting. This indicates that differences in parenting qualities may account in part to differences in children's mathematics performance, since Seth and Ghormode (2013) asserted that, the main influential agent on children is their parents. There are some who believe that children can do well in mathematics and should be provided for with materials and time to experience with learning environment, while others are less concerned.

Parents have specific beliefs about child development, those that predict their experiences tend to make available for them, which extends prediction about children's mathematics development (Fan, 2001). Most research findings have demonstrated family – level explanatory factors that improve effectiveness of preschoolers' mathematics activities scores. The support given to learners by family members towards the development of mathematics activities, as postulated by Muola (2010) upgrade the level of proficiency on mathematics performance. This distances the traditional stereotype amongst families that accord high level learning of mathematics to male or boys as opposed to girls in some African communities. Studies by Hyde, et al. (2008) have been very important in helping break the stereotypes to explain how the aspects of parenting affect preschooler's development in mathematics activities scores.

Children's socio emotional readiness abilities as per parenting practices are key in building relationships with peers, others, self-expression, management of emotions and



ability to adapt to new environment. These behavioral skills are easily observed centrally to psychological ones at early age. Thus variables of socio- emotional readiness such as; sharing materials, taking turns, communicating and respect can positively influence children's positive performance in mathematics activities on the basis of Zone of Proximal Development (ZPD) postulated by Lev Vygotsky(1896-1934) (Stanlaw 2005).Past early literacy resource emphasized by Kipkoech (2011), acknowledge the importance of daily adult/ child reading time, as well as having many materials at home, as a reason to child being academically ready and victorious in Kindergarten.

Parents have a determining factor on character, personality, and competence of children. According to Rider and Sigelman (2011) parents' task is to socialize children, a task which require parental supervision and anticipation which changes with child development rendering child outcome. According to Williams et al (2009) parents should be made aware that they should talk, listen, respond, and gauge on how to enrich children's experiences in mathematics activities. Taking note that parenting models likened to authoritarianism, suggested by Rider, and Sigelman (2011) leads to greater social withdrawal in children with low Behavior Impulses (B.I) and greater acting behavior in children with high B.I, quick tempered and highly emotional. These are not conducive conditions to foster learning, since they lead to avoidance of participation in class by those with low B.M due to their social withdrawal in all social settings. Kremers (2011) argues that attachment parenting style encourages parents to act swiftly to children's needs and being available for them at all times, helping children to feel secure,

and empathetic peaceful beings. Such ones become flexible in working with others and taking orders positively, hence learn without a lot of difficulties.

Parental quality engagement expose children to early key mathematics concepts and the understanding that symbols can represent objects or words among others (Robert, Jurgeas and Burchinal, 2005). Thus, to develop children's understanding of the concepts, there should be parental understanding and provision of teaching and learning materials, time for children to experience and adult's encouragement through scaffolding. Borrowing from Hughes (2012), parental involvement in children's play is very important in helping children learn how to learn mathematics. According to Ramani and Siegler (2008), there are various types of play in which children engage that promote their logical efficiency. Such types of play as; role play, problem solving, physical play, creative play, sensorial play and fine motor play are crucial for cognitive development, because they build children's confidence in solving mathematics problems due to their power to promote healthy brain development. Therefore, parents should get involved to ensuring that their children are provided with play materials listening to, considering children's play spaces to protect them, and allow time for play at home and school to enhance acquisition and proficiency of mathematical concepts and skills.

Continuous quality parenting is one of many key factors which affect many children's achievement in number work, influenced by parent's level of education, family social class, and material deprivation, (Philips et al, 2008). Melhuish, Sylva, Taggart, Sammons and Sira (2001) has it that, early years quality parenting practices are the secret behind

effective mathematics achievement later in life. It is possible to teach mathematics earlier than most parents think. Parents may make mathematics a core part of their children's education by choosing educational media, focusing on numbers and counting, spending time on numeracy activities as well as simple counting, the same way they spend on reading to develop literacy skills; and providing toys which allow development of number concepts. Elsewhere, according to Entwisle and Haydak (1988), the aspects of child development wholly depend upon parenting practices which in turn determine children's learning achievements, the quality of life for a child and contributions the child makes to a society as an adult can be traced back to the first few years of life. Specifically, children whose parents are more involved in their education attain higher levels of academic performance among them, mathematics competencies than children whose parents are less involved.

## **2.5 Parental Decision Making and Learner Achievement in Mathematics Activities**

The government of the United States of America (USA) in their elementary education Act, according to Epstein (1995) ,defines parental involvement as the engagement of parents in consistent ,two-way, and workable communication concerning learner's performance and other activities in schools such as ;helping children's learning; actively getting involved in children's education and wellbeing as complete partners in decision –making and in advisory committees to support the education of children. Chao (2009) reported that section9101[32] has a documented policy on parental involvement apart from written school –parent 'compact' that prescribes every ethnicity's role, making children's education a national priority. This has made the learning of children very

simple, and affordable as per the Ministry of Education. In Europe, needs of children and families from disadvantaged areas are addressed by communities in collaboration with public support (OECD, 2012:9).

### **2.5.1 Participation in P.T.O/P.T.A Conferences**

Strong strategic partnership between parents, school, and teachers, improved school programs, climate, services, increased parental leadership, and skills that help teachers work towards learners' success in school and later in life (Epstein, 2010). According to Cairney and Munsie (1991), parents may get involved in formal channels of P.T.A and school boards, workshops, school assemblies, and fundraising as avenues to allow them enter schools and ask for any information. Information could be about any manner of achievement or challenges upon which various support is built, to help children learn. Knilepkamp (2005) posited that; Parents, educators, specialists and administrators need to collaborate in order to determine the appropriate resources, supports and specific information – sharing practices that encourage parental engagement. Well established and maintained partnerships and effective communication should be ensured if possible learning experiences and opportunities at home, in community settings and in school will enhance mathematics skills in learners.

Meaningful activities that engage and empower families, likened to those of Ireland where schools acknowledge the relevance of children`s homes and cultures, promote family involvement. O`Brein Press, (2013) emphasizes that, if mathematics initiatives take the literacy initiatives, and enhance supportive environment for learning then

learners could as well perform well in mathematics. According to Okantey (2010), Parental involvement can include participation in school decisions, advocacy activities, role governance through school committees and parent-teacher organizations to harness services, resources and advocacy. This context influence parties to improve learners' achievement. Contributions by Harry and Kalyanpurs (1999) confirmed that, understanding parents and being proactive in addressing them as a positive way of engaging parents and establishing productive home – school relationships is very profitable. Volunteer parents can be assigned to share information and impressions from time to time especially after conversations. Need to acknowledge parents' contribution is necessary if they will have to appreciate and maintain wealthy contributions and compliance in matters concerning children's mathematics learning.

When operating to support children's mathematical knowledge, according to, Civil (2006), teachers need to address parents' lack of self-belief and possible isolation in terms of changes in approaches, and what mathematics children need to learn through daily activities. Similarly, Rhodes, Enzi and Account (2006), hold that parent-teacher collaboration expands when schools and programs become more diverse, and relevance of home and culture takes on greater importance .The families' confidence is increased in themselves and in their child's education program because of the feeling of being valued by educators working with children, even more importantly, see themselves as more competent of assisting children at home .However caution should be taken according to Bleach, (2010), that overloading children does not happen, and this can be taken care of in Parent-Teachers Organizations .The confidence, and

support, influence the quality of mathematics competencies that are offered to children. On the contrary, Poor rapport undermines cooperation which could otherwise promote resources development, and other inputs by families and community into effort to improve learner achievement in learning activities.

Parental collaboration with preschool progress create two-way understanding that improves recruitment, activities, schedules, and parent volunteers who help in promoting learning environment. This, according to Epstein (2010) succeeds through decisions made in Teachers-Parents Associations. Purports by Sheldon and Epstein, (2005) hold that getting parents on school boards does not guarantee effective practices, but having them actually present, makes evident efforts to hearten parental engagement,. An awesome majority of teachers concur that parents' involvement contributes to more successful learners and more positive school climate; hence they should not be put outside locus of control of curriculum and pedagogy (Hanafin and Lynch, 2002). Thus, the school system should cultivate a culture of communicating with parents at managerial meetings and about mathematics school curriculum, instruction and activities. This position promotes parent's perception to making them part and parcel of pre-school management. The above atmosphere creates a good ground for support towards appropriate requirements for developing mathematics skills in learners.

### **2.5.2 Compliance to Decisions**

Early childhood approaches of Response to Intervention (RI), are designed to help educators together with parents to respond to the learning needs of children aged 3 – 6

years and those with disabilities, this according to Machen, Wilson and Notar (2005), improves school in general. Evangeluo and Sylva (2003) hold that parents have been found very sensitive in orderly monitoring processes, selection, surveillance and help in implementing effective teaching practices. Children whose parents participate in early education partnership do well in vocabulary, understanding of books, language comprehension and number concepts. In addition, as for Fan and Williams (2010), parental advising, school initiated contact and educational aspirations for children is positively related to learner's academic achievement, intrinsic motivation, and self – efficacy toward mathematics.

Reliable facts inform teachers to provide a dialogue notebook or daily diary for each child to send messages to and from school and home regarding a child's progress. Suggestions by Reith, Sindler and CraySorrells (2004) revealed that they work well with those who cannot find time to visit schools, thus offer them a way to stay involved, share timely and regular feedback, and avoid feelings of guilt. As asserted by Piana (2010) parents like; to be aware of learner high standards of achievements in curriculum strategies, to be involved in decision making and planning ways to help school community, and aid in attaining high expectations. Parental compliance to good decisions about children's mathematics learning ensures acquisition of the best mathematics outcomes. Besides, such children exhibit higher self – esteem and confidence as opposed to those whose parents are non-participants. Epstein (2001) recorded that; successful implementation of parental managerial roles in schools depends to a great extent on teachers' perceptions and practices on the issues of parents 'participation. Confidence

helps children to handle learning experiences without fear, a trend that forms basis for correction when they encounter difficulties in the process of learning mathematics. Mutual cooperation between the two entities and parental compliance to learning needs of children are quiet instrumental in ensuring that only the best decisions about learners' approaches of learning mathematics are settled upon.

Nevertheless, when a partnership includes parents and schools in a one-way relationship, may exclude the community and parents as initial resource and partners for their objectives. This according to Hughes (1986) views schools as having weaknesses of neglecting communities. Either, according to Morris and Taylor (1998) many teachers have had inadequate capacity in home-school relations thereby possessing limited skills and knowledge essential for work with parents, this undermines parental support which is negatively related to learner achievement. Therefore, parental involvement can work better if parents are personally approached to get involved in day today governance groups (De Laat et al, 2011).

## **2.6 Theoretical Framework**

This study was guided by Lev Vygotsky's theory of childhood psychological development. The theory states that parents have a vital role in supporting their children's learning. Formative years of children are mostly spent with their parents and since everything that a child has is facilitated by interactions with knowledgeable others hence the emphasis of modeling positive behavior for their children is crucial. The Zone of Proximal Development (Z.P.D) within Vygotsky's theory demonstrates the range of



activities a child can undertake alone and how a knowledgeable other, such as a parent peer or teacher can guide and bring about what the child already knows, aiding the child learn more about their surrounding world. This construct viewed human psychological development as emanating through interpersonal interactions with the social environment (Brooks, 2011).

### **2.6.1 Application of the Theory to the Current Study**

The theory provides a place of parents in helping children perform mathematics activities by use of expertise, and rich of instructional resources environments. It aids this study in lying emphasis on the need of parental participation in decision making about what is best for children's learning in school; quality parenting in terms of providing necessary basic needs such as nutritious food (which aid in brain stimulation) social emotion competencies training, and environment full of toys, clean and specious to facilitate active play. Play is the very natural way through which children learn mathematics, communication between school and home or home and school, through writing, reading and giving feedback to written school notes and newsletters, making and receiving calls and in helping and signing children's homework, helps in ensuring that children's mathematics problems are identified, and interventions employed by both parents and teachers, to curb the problems in good time.

Either parental volunteering to help in instructional resources development, assisting in classroom as well as home mathematics activities aid in making children realize their full potentials in performance of mathematics activities by the way of Zone of Proximal

Development (Z.P.D) emphasized by Vygotsky.

The theory is as well supported by Epstein and associates (2009), that, parental involvement frame work which emphasizes besides school, family and community partnership, positively support children's learning achievement in mathematics activities. Schools can offer assistance to parents by; providing educational support to meet basic learning aims, providing family literacy by reading with children to build the love of reading in them, and how to build home environments that strongly develop positive attitudes and respect for mathematics activities help.

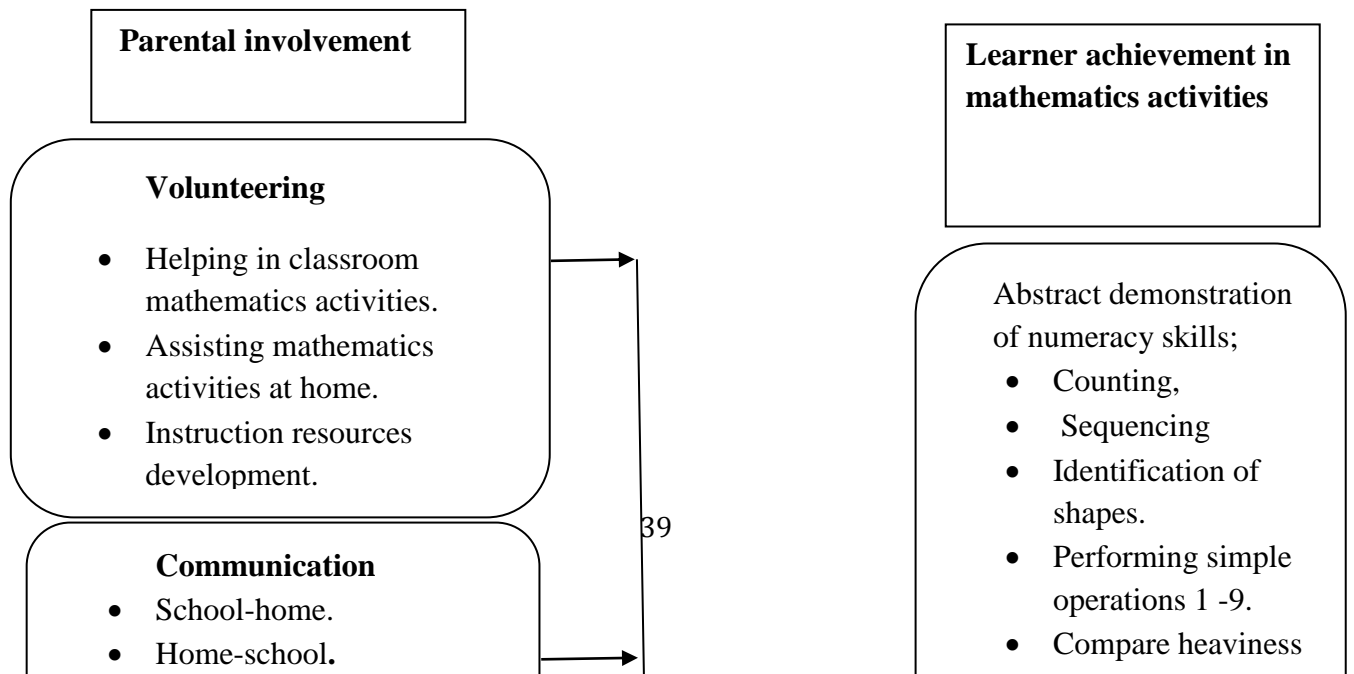
Communication between school and home facilitates effective understanding of school policies and decisions, thereby helping children perform well in mathematics activities. Good skilled and talented volunteering parents in classroom activities, projects and trips can help educators in the process of teaching preschoolers. Involving parents in decision making about mathematics activities matters, advocates for positive learning outcomes in mathematics.

## **2.7 Conceptual Framework**

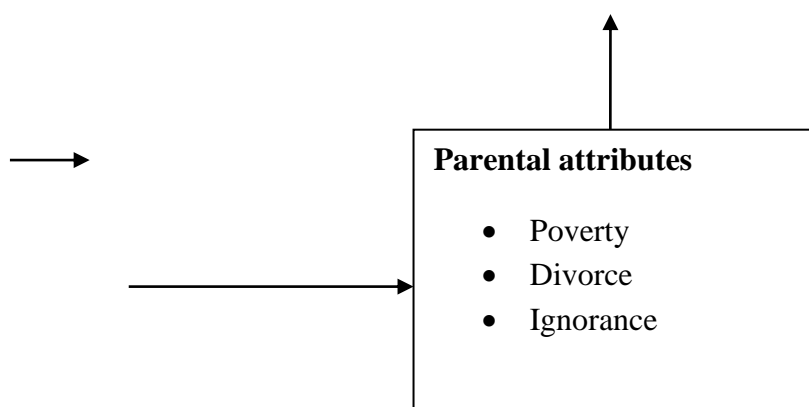
The conceptual framework for this study is based on the relationship between independent variable (Parental involvement) and dependent variable (learner achievement in mathematics activities). After the process of parent's engagement in children's affairs as input, children's learning achievement in mathematics activities is acquired as output. In this study, four aspects of the independent variable are brought on board, and they

include: First, parental volunteering .This could be the helping in classroom activities like being resource persons, providing/developing materials for instruction in mathematics activities, helping children at home with their homework, and giving feedback to schools. The second aspect is, parental communication; this is the way information is relayed from school to the children’s homes and vice versa, about children’s learning.

Thirdly, is parenting practices, which is unpacked by providing basic needs for children, supporting home conditions that favor children’s mathematics activities performance, and information about their child to school. Fourthly, decision making; where parents become members of Parents-Teachers’ Associations (P.T.A) Parents-Teachers Organization (P.T.O) or advisory groups, whose functions are managerial aspects at the ECE sections, and compliance to made decisions. The outcome is depicted in children’s achievement in mathematics activities, measured by children’s ability in counting numbers, sequencing and ordering, exhibiting logical thinking, and identification of geometrical shapes, among other vital mathematics competencies. However, parental engagement has been confounded by other parental attributes such as poverty, ignorance and divorce. (See figure 2.1.)



## Communication



**Figure 2.1: Conceptual framework on parental involvement on learner achievement**

## 2.8 Summary of the Literature Reviewed

**Table 2.1: Summary of the literature reviewed**

Author	Year	Study	Finding	Gap	Intervention
Melehuish, Kathy, Sammons, Blatchford, &	2008	Effects of home environment and preschool center experience upon literacy and	Adults can volunteer to use key aspects of childhood to help children	Did not specify responsibilities meant for teachers and those for	A study to be contacted to address the differences.

Taggar, 2008		numeracy in primary school.	learn mathematics.	parents.	
Aubrey, Bottle and Godfrey	2003	Early mathematics in the home and out of home contexts.	Parents can review and discuss with children carried homework and projects.	Did not consider differentiated uniqueness of children's homes.	Children's home backgrounds should be put into perspective in subsequent studies.
Muir	2012	Involving parents in mathematics education.	Designing classroom activities and home numeracy bags to provide feedback, so as to enable children learn mathematics.	Failed to suggest remedial strategies.	Complete investigations should include suggestions for correcting errors.
Fan.	2001.	Parental involvement and study academic achievement.	Parental beliefs predict children's mathematics development.	Failed to point out to appropriate strategies that could help overcome the beliefs.	Need for sensitization on Gardener's multiple intelligence knowledge.
Robinson.	2013.	Early disparities in mathematics gains among poor and non-poor children.	Children's socio emotional readiness abilities influence children's positive performance in mathematics activities.	Did not link the study on unique cultural diversities.	Studies should always consider peoples culture, if they have to succeed.

Fan and Williams.	2010. Effects of parental involvement on students' academic motivation.	Parent's advice on school initiated educational aspirations for children relates positively to learner achievement in mathematics activities.	Failed to address the strategy to involve the ever unavailable parents.	Holistic investigations are recommended to engulf all types of parents.
Reith, Sindler and Craysorells.	2004. Critical issues in special education.	Provision of dialogue notebook or daily diary for each child to send message from and to school regarding mathematics.	The strategy did not favor illiterate parents.	Forums for community mobilization should be employed alongside other strategies to ensure every parent is not left behind.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

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

### **3.2 Research Design**

The study employed descriptive survey research design, according Shields, Patricia and Rangarajan (2013), the design is used to describe characteristics of a population or phenomenon being studied and uses interviews and questionnaire to collect data.. Mugenda (2013) has it that an interview is an oral exchange between an interviewer and interviewee in face-to-face interactions, or by telephone. In this study, interview schedule was beneficial due to in-depth clarity sought from less literate parents. A questionnaire is a set of written questions to which respondents must provide answers to in written; it enabled faster collection of data because respondents here were professional teachers. The design is advantageous because of its originality, and as asserted by Serem. Boit , and Wanyama (2013),its ability to generalize data makes the approach more popular in data collection from large population, and the oldest method proven to do well in social research. Though the design collected data to determine the influence of parental involvement on children's achievement in mathematics activities in a qualitative way, some common themes in responses were coded during analysis and presented quantitatively.

### **3.3 Target Population**

Target population is a group of organisms or objects with one or many characteristics that are equally selected as a focus of study. According to Mugenda (2013), researchers generalize results of a study upon such population. This study targeted all the public ECE canters, parents of children of ages 3-9 years attending preschool, most of who are peasant farmers of ages 20 and above years old, and teachers in charge of the preschools in Chwele zone. There were 27 public ECE centers attached to public primary schools, 27 ECE teachers in charge , and 2097 parents spread all over the zone. The researcher chose the population because it bore the problem of inadequate parental involvement on learner’s achievement in mathematics activities. Due to the large size of the population, sampling appropriate population was done to enable interaction with every element in the population.

**Table 3.1: Target Population**

Category	Frequency
Parents	2097
Teachers-in charge	27
Total	2124

### **3.4 Sampling Techniques**

Sampling is the progression of selecting few cases in order to present information to be used to make judgments about a much larger number of cases Begi (2009). Anon-probability’s convenience sampling technique was used to secure the sample from ECE teachers in charge and parents. Convenience sampling refers to picking upon individuals



or elements that are available to the researcher on a first- come- first- served basis (Serem, Boit, and Wanyama, 2013). The researcher met all the ECE teachers in charge at a conference held once every month at zonal level, and invited all that volunteered to take part in the study. The researcher obtained the sample by taking those who happened to be available until the desired size was secured (Kathuriand Pals, 1993) .The sampled teachers in charge of the ECE centers were then asked to convene parents' meetings in respective centers in order for the researcher to acquire the required parents' responses using the same way. The technique was advantageous due to its nature of saving on time during the process of sampling, and hence less expensive.

### **3.5 Sample Size**

A sample refers to a small part from a population that can be studied according to Muthee, (2010), to help make judgments about a larger number of cases. Mugenda and Mugenda (2003) documented that 10% of a particular population could be worth descriptive studies. On the other hand, 20% of a population less than 1000( $n < 1000$ ) is regarded adequate representative sample (Gay 2005). According to Farmer and Lawrenson (1996), 30% is good representative for bigger population: Thus 10% of teachers in charge are ten teachers, 20% of 750 parents from the ten pre-schools were 150 identified by teachers in charge to take part in the study.

**Table 3.2: Sample Size**

Category	Population	Category sample
Teachers	27	10
Parents	750	150
Total	777	160

Since the total number of children was not captured, 3 children from every 3 levels in the 10 E.C.D centers were interviewed unexpectedly and conveniently.

### **3.6 Data Collection Instruments**

While an interview was employed on parents, questionnaire was used on teachers in charge of ECE centers. An interview is an oral exchange between an interviewer and an interviewee who may be an individual or group of individuals. (Kathuri and Pals, 1993). Structured interview was employed on parents. Here the procedure to be followed was planned in advance. Questions to be asked were decided before the interviews were conducted and written down, investigating into how parental involvement influence children's achievement in mathematics activities. It is appropriate because, relatively shorter time is used but approximately accurate data and instant feedback due to its nature to elicit detailed information through confrontation and probing is accomplished. It has advantage over questionnaires, which may pose problems emanating from literacy and language problems.

Begi, (2009), has it that, a questionnaire is an instrument with both open and closed ended items, to which a respondent is required to respond to, by either ticking the best alternative or writing the best opinion in provided spaces. The tool has been found to work well on teachers because teachers are capable of reading and interpreting questions correctly. All the instruments mostly possessed open ended questions. The study found them relevant since such items allow in-depth information and detailed understanding of the study's issue (Mugenda, 2013).

### **3.7 Validity of the Instruments**

According to Orodho (2006), for a test to be valid, it should gauge what it is supposed to gauge. The researcher used content validity to test the instruments, ensuring that the items in the instruments were related to the study, and covered all the areas and objectives of the study. After they had been administered to a small sample of the population and feedback provided, the researcher made some necessary inputs and adjustments to make the instrument ready for administration to the sampled sizes. Instruments were assessed to ensure they contained meaningful information intended by the researcher, content, face and construct validity of the instruments were evaluated further by experts and peers.

### **3.8 Reliability of Instruments**

Kathuri and Pals (1993) had it that, reliable instruments capitulate constant results when administered again on the sample. The instruments were formulated from the study's objectives and given to an expert to check their appropriateness before administering

them to few respondents from a different population; the collected data were then analyzed. After some time, the same instruments were re-administered to the same sample; the consistency in the results obtained from the two tests was evidence enough that the instruments were reliable.

### **3.9 Data Collection Procedure**

Data collection from teachers was done by use of self-administered questionnaire. The researcher and/ or assistants used the drop and pick style of delivering and collecting the questionnaire, from teachers after one day. Earlier arrangements were made by teachers in charge of the various ECE centers to call parents to schools to be interviewed. The researcher together with research assistants carried out the interviews in the ten centers, with each having at least 30 parents to interview, and responses were recorded.

Prior to this interview the researcher and her assistants ensured that the rapport between interviewee and interviewer was good enough to allow genuine response. This was via explaining to parents why the study was being carried out and that each parent's response was kept confidential.

### **3.10 Data Analysis**

Some qualitative data were first of all sorted, coded, (coding is a process of assigning numerals or symbols to responses so as to put into few numbers of categories and classes) Serem .,et al,2013), and organized into various categories and themes in relation to the

research objectives, to quantify it. The quantified data was analyzed using means, frequencies and percentages, presented by use of tables, graphs, charts and descriptions.

### **3.11 Logistical and Ethical Considerations**

The researcher got permission letter from the post graduate studies department of university of Nairobi to carry out research in Bungoma County. The letter was given to Bungoma central Sub-County ECE Coordinator who also provided another letter to accompany the former. The researcher ensured that all relevant authorities were made aware of what, when, and where, the study will take place. The obtained permission to carry out the study was presented to teachers, Chiefs, Education Commissioner, Sub-County administrator, and Ward Administrator. The researcher also ensured that the communities around the school were sensitized about the study.

## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND DISCUSSION

#### 4.1 Introduction

This chapter presents the analyzed data from interview schedule and questionnaire instruments as collected from the field under thematic areas: parental volunteering; parental communication, parenting practices, and parental decision making, on learner achievement in mathematics activities in Chwele zone. First, instruments response rate, and respondents' demographic profile.

#### 4.2 Instruments Return Rates

Research instruments used in this study were questionnaire for teachers in charge of E.C.D centers and interview schedule for parents of E.C.D children. Their response return rates were obtained as illustrated in table 4.1.

**Table 4.1: *Instruments' Return Rate***

<b>Respondents</b>	<b>Target</b>	<b>Obtained Return rate</b>	<b>%</b>
E.C.D Teachers in charge	10	10	100
E.C.D parents.	150	150	100
Total.	160	160	100

Table 4.1 indicated that all the 10(100%) teachers in charge, responded to the questionnaire and returned them. 150(100%) parents, also responded to interview schedule successfully and data were collected. This was believed to have been attributed to by the mode of sampling(convenience), which enabled the researcher to pick respondents on a first come first served basis until the desired sample was secured as established by (Serem, Boit, and Wanyama, 2013).

#### 4.2.1 Demographic Profile of Respondents

Demographic profile of E.C.D teachers in charge and parents were analyzed in this section. Presentation was by gender, age, and level of education/professional qualification. The knowledge from this section aided in drawing vital conclusions. The study sought to determine demographic profile of respondents by gender as shown in table 4.2.

**Table 4.2: Distribution by gender**

Gender	Teachers in charge		Parents	
	F	%	F	%
Female	10	100	137	91.33
Male.	0	0	13	8.67
Total	10	100	150	100

Table 4.2 showed that, out of ten teachers none was a male, all 10(100%) were female. While out of 150 parents 137(91.33%) were female and 13(8.67%) were male. This

distribution was skewed towards female; an implication that the outcry by Kenyan government to have males join the subsector in order to balance gender parity, is yet to be realized in Kabuchai (MoE, 2005).

The study also showed that more mothers attended to children’s school matters than do male counterparts.

**Table 4.3: Distribution by age**

Response	Teachers in charge		Parents	
	F	%	F	%
20-30	0	0	141	94
31-40	6	60	8	5.33
40-above	4	40	1	0.67
Total	10	100	150	100

Table 4.3 showed results on distribution of age of respondents in various age brackets, there were no teachers in age bracket 20-30 years. Age bracket 31-40 were 6(60%) teachers, Age 40 -above were 4(40%) teachers. On the other hand 141(94%) parents were within age bracket of 20-30 years, 8(5.33%) parents fell into the age bracket of 31-40 years, while 1(0.67%) were found in age bracket of 40 and above years. This finding revealed that Chwele zone ECDC were handled by pretty mature teachers, hence better placed in terms of child upbringing. However learners were born of young parents especially mothers, who may encounter challenges with child care and learning needs.



The study also sought to establish respondents' level of education or professional qualification, and presented in table 4.4.

**Table 4.4: Level of education / professional qualification**

Response	Parents		Teachers in charge	
	F	%	F	%
Primary	44	29.33	-	-
Secondary	100	66.67	-	-
Certificate	6	4	3	30
Diploma	-	-	7	70
Bachelor's degree	-	-	0	0
Masters degree	-	-	0	0
Total	150	100	10	100

Table 4.4 indicated that 44(29.33%) parents, attained primary education, 100(66.67%) , attained secondary education, while 6(4%) parents acquired college training at certificate levels. 3(30%) teachers in charge are holders of certificate in E.C.E, 7(70%), hold diploma qualifications in ECD, while none had attained bachelor or masters degrees. This

implies that data collected by this study, authentically came from ECE professionals, rightful and relevant curriculum implementers. However, conflicting responses may be attributed to varied understanding due to levels of professional training. The study also revealed that parents, especially mothers had low level of education, which provided insights as to why there were many young parents between age brackets 20-30 years.

### **4.3 Parental Volunteering and Learner Achievement**

Research showed that learners benefited from parents serving as volunteers both at home and in class, as technologists, tutors, and co-teachers in areas of expertise. Such involvement improve class activities due to their nature of promoting self-esteem, positive behavior, increased learner achievement, including higher scores and grades, thereby improving graduation success of learners (Gold et al, 2002). Therefore parents should be mobilized to develop a volunteering culture within selves; towards children's learning needs, in order to enrich learner perception in learning Mathematics. This objective sought to find out how parents helped in learner's class mathematics activities, mathematics activities learning at home, and, how they contributed towards resources development for mathematics activities.

#### **4.3.1 Parental Help in Class Mathematics and Learner Achievement**

Preschool activities need to be supported in order to achieve anticipated outcomes, hence support by parents to provide instruction in areas of expertise and instructional resources, facilitate easy transfer of mathematics activities knowledge to learners. These help children attain educational goals (Jeynes, 2010). Goals of education are broad and

demanding, to attain them needs thoughtful focus on specific aspects of involvement, calling for total partnership between parents and educators, to ensure proper learning achievement.

Table 4.5 showed ways through which parents provide help in classroom mathematics activities, and their verbal voices.

**Table 4.5: Parental involvement in class mathematics activities**

Response	Teachers in charge		Parents	
	F	%	F	%
Providing teaching/ learning resources	9	90	-	-
Not Available	1	10	70	47
As required	-	-	20	13
That is teacher's work	-	-	60	40
Total	10	100	150	100

Table 4.5 illustrated that 9 (90%) teachers convinced parents to volunteer; donating locally available resources, 1 (10%) teachers reported that parents hardly volunteered their participation. On the other hand, 70 (47%) parents did not volunteer at all, 60 (40%) parents instructed children to collect for locally available materials, While 20 (13%) parents volunteered only on the basis of being required by teachers. Could the reason be that, teachers had not sensitized parents enough on responsibility concerning class mathematics learning needs? Their behavior partly concurred with Melehuish et al

(2008)'s purports, in scenarios where parents provided learning resources to ECDE learners. However, parents did not volunteer in actual class activities, contrasting with his findings postulating that parental volunteering in class mathematics activities provide immense opportunities to become skilled, so as to help children at home. A parent echoed by a number of others said;

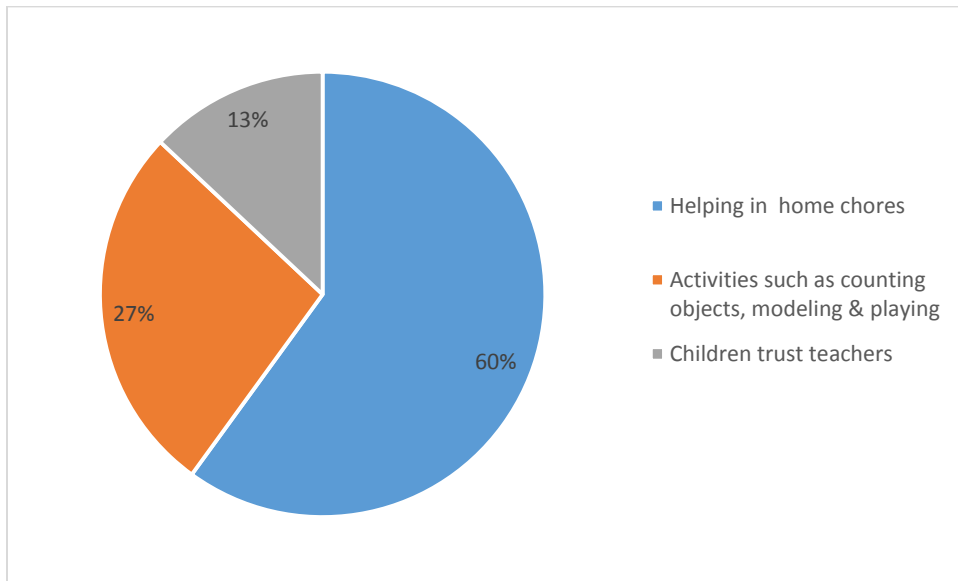
*“Teachers know better all that children need for learning, what have we got to do in what we have not trained for? All we have to do is to provide requirements for school feeding program; the rest are teachers’ work. It is very hard to develop these materials; we even do not have time to do this. We may pay some money to buy some materials of importance per teachers’ preference.”*

All the interviewed 90(100%) learners proved that, parents did not participate in voluntary instruction in class mathematics activities. Failure of parental volunteering in these very crucial areas of instruction may hinder learners’ achievement, because these undermines postulation by Mackay, (2010) that parental volunteering is excellent strength for higher achievement.

#### **4.3.2 Parental Assistance in Mathematics at Home and Learner Achievement**

Home environment could provide immense opportunities for children’s learning mathematics, if parents could knowledgably volunteer talk time, resources, and space for childhood activities.

Figure 4.1 illustrated how parents volunteer helping children at home.



**Figure 4.1: Parental assistance in mathematics activities at home**

Figure 4.1 showed that 90 (60%) parents involved children in such home chores as sending them to buy things at the shop, collecting particular number of utensils, clothes and chairs among other activities requiring counting. 40 (27%) parents involved children in counting stones, sticks, modeling and arranging numbers in sequence. This was good gesture as per Eastaway and Askew (2010) holding that, participation with children in such activities helps children keep a breast with daily evocative numeracy. While 20 (13%) parents regretted that children did not trust their assistance. A parent reported these;

*“My child cannot let me instruct him on anything concerning his school work at all. He has always told me that am not his teacher, but mother, his persistent denial of my help has kept me off his work. He does it all alone; I don’t interfere with his business, as much as he seems to at times struggle. The good thing is that his teacher corrects his work where he has done it wrongly”.*

To this effect, there was a realization that, teachers needed to create awareness amongst both parents and children on what is expected of them for mathematics activities learning both at home and school. Most 60(66%), children revealed that, parents did not help them do their homework, disagreeing with Vander maas, et al (2012) purports, that parents should be helped by schools to build cooperation with children in developing school family projects to help children learn mathematics.

#### **4.3.3 Parental Involvement in Resources Development and Learner Achievement**

Since resources stimulate learners’ mathematics activities, parties involved in instruction both at home (parents) and at school (teachers) should join efforts in ensuring that relevant and adequate, human and instructional resources are provided for children. The underlying table 4.6 contains responses from both parties on instructional resources development.

**Table 4.6: Parents’ contribution towards resources**

Response	Teachers in charge		Parents	
	F	%	F	%
Collecting from local	6	60	33	22
Purchasing	2	20	20	13

Developing	1	10	-	-
Hard to cooperate	1	10	37	25
Child does it	-	-	60	40
Total	10	100	150	100

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Table 4.6 indicated that 6 (60%) teachers reported that parents collected materials from the local environment (meaning that teachers needed to have the materials undergo other processes to improvise actual classroom mathematics oriented resources). Some 2 (20%) teachers revealed that parents donated money meant to purchase, or purchased resources for class mathematics activities, 1(10%) teachers, noted that, some parents developed particular mathematics resources for class activities. Whereas, another 1 (10%) teacher confirmed that parents did not respond positively towards resources development for mathematics activities, in school, 33 (22%) parents indicated that they collected such materials as stones, sticks, maize cobs/stalks for children to take to school. This contributes to children’s positive learning achievement as posited by Muola (2010). However, 37(25%) parents confessed that they did not really treat it seriously, because they felt that, resources development was teachers’ work, since teachers know what is required. A parent answered:

*“What can I do? How can I do it? Has it defeated the teacher? If so, then how can I manage? It is better if teachers either did this work or instructed us on exactly what they wanted done. This work is not that easy, it requires one to desiccate a lot of time in it, hence since teachers may have the time while in*

*school, unlike do the parents, it is better for teachers to develop materials themselves.”*

Besides, 60 (40%) parents reported that they instructed children to collect such materials as bottle tops, sticks and maize cobs to take to school as counters to help in the instruction, and learning about numeracy. This portrays a disinterested nature by parents in matters of education. On the other hand, 20(13%) parents did purchase some resources for classroom mathematics activities. Parents exhibited a lot of reluctance in being responsible, or otherwise, parents in this zone are not properly sensitized on matters of young children and policies of partnership. Inadequate participation may also be attributed to young parents' low level of education/income. This condition may cripple learners achievement, thus needs a strategy likened to that of England, where, parents were to be given information, a voice to encourage partnership with schools, to enhance children's learning. (Scot and Sylva, 2002).

#### **4.4 Parental Communication and Learner Achievement**

Parental involvement is determined to a large extent by schools, which should specify expectations of parents and communicate on what children are learning both at school and what ought to be done at home. When parents talk with children about school, ensure that homework is done, and help plan for the following day, as noted by Van and Frances, (2001), children tend to achieve better in learning activities, among them those of mathematics. This objective sought to establish, how schools communicated matters

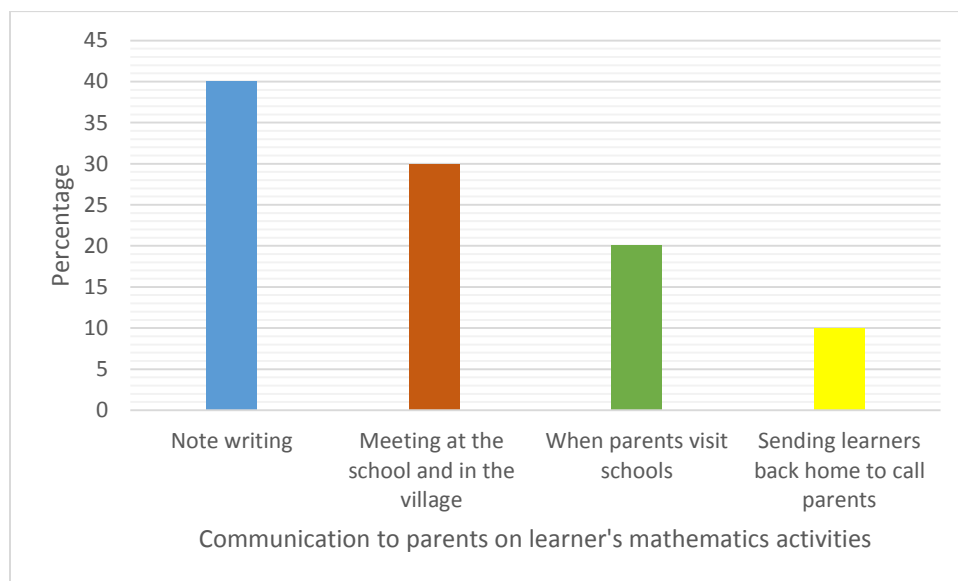


concerning learners' mathematics activities to parents, the frequency of communication, and how parents provide feedback to communications.

#### 4.4.1 School-home Communication and Learner Achievement

Parental involvement in class mathematics activities is higher when parents receive frequent and effective communications from teachers about their specific children. (Ames, 2013).

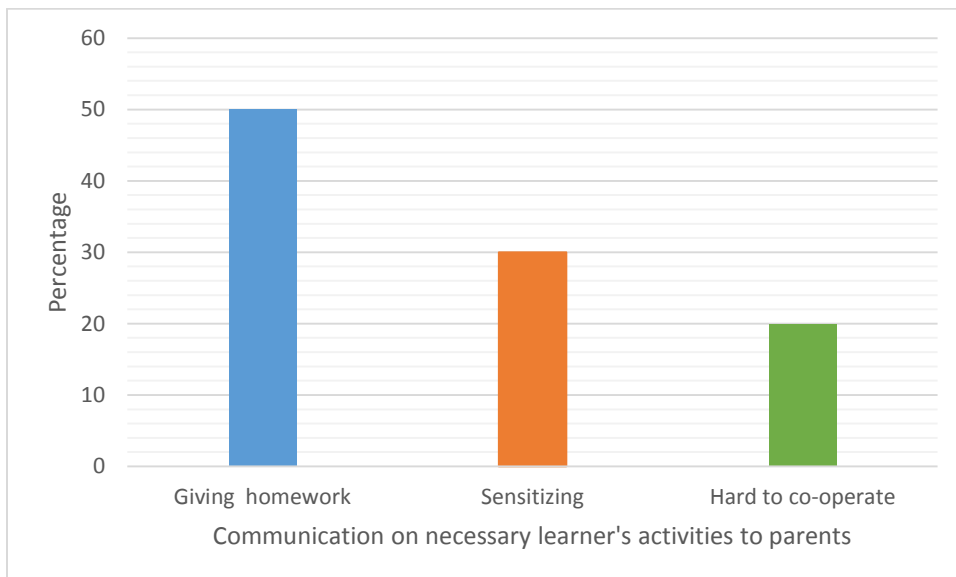
Figure 4.2 illustrated how teachers informed parents on children's mathematics activities.



**Figure 4.2: Communication to parents on learner's mathematics activities**

Figure 4.2 indicated that 4(40%) teachers used written notes to inform parents on matters concerning children’s mathematics activities, 3 (30%) teachers informed parents verbally on meeting either at school or when about their business within the village. Those were parents who were within reach of teachers. Another section of 2 (20%) teachers affirmed that they passed such information to parents on visiting schools. This was however in agreement with Gesare (2011) that parents who visit schools benefit from direct information about children’s progress, hence making teachers’ work easier. A report by 1 (10%) teachers recorded that learners were sent home to call/inform parents about mathematics learning needs. This was because parents were hard to cooperate through other means. Lack of parental closeness also results to insufficient commitment on the side of teachers, and non-satisfactory learning achievement on the side of learners.

Figure 4.3 showed how teachers ensured that parents received right information on how to help learners with mathematics related activities while at home.



**Figure 4.3: Communication on necessary learners’ activities to parents**

The illustration in figure 4.3 portrayed that 5 (50%) teachers, communicated necessary mathematics activities meant for learners to parents via instructions in homework; this was positively proved by 57(53.3%) learners given homework to carry home. According to Merttens (2013) homework allows interactive mathematics activities between parents and children at home, thereby increasing two-way flow of knowledge and feedback. It was reported that Parents were sensitized on nature of required early childhood mathematics activities during school meetings by 3 (30%) teachers. Whereas, 2 (20%) teachers reported that parents did not sign homework books to register witness upon work done, and/or, learners returned to school without attempting work given by teachers, rendering teachers reluctant to help children, 20(22.22%) learners reported that they were never given homework, and 13 (14.44%) reported that they were sometimes given homework. This is contrary to what Berger (1999) postulated that two-way communication between school and home builds continuous trusting and productive rapport between parents and educators to increase parental involvement in mathematics activities at home. Most parents' behaviors did not encourage teachers' effort in trying to enhance cognitive achievement of learners performing lower in mathematics activities. However, table 4.6 provided information on the frequency of received communication by parents from teachers concerning mathematics activities.

**Table 4.7: Parents' witness to communication from teachers**

Response	Frequency	Percentage
Occasionally	75	50
Never	45	30

Always	30	20
Total	150	100

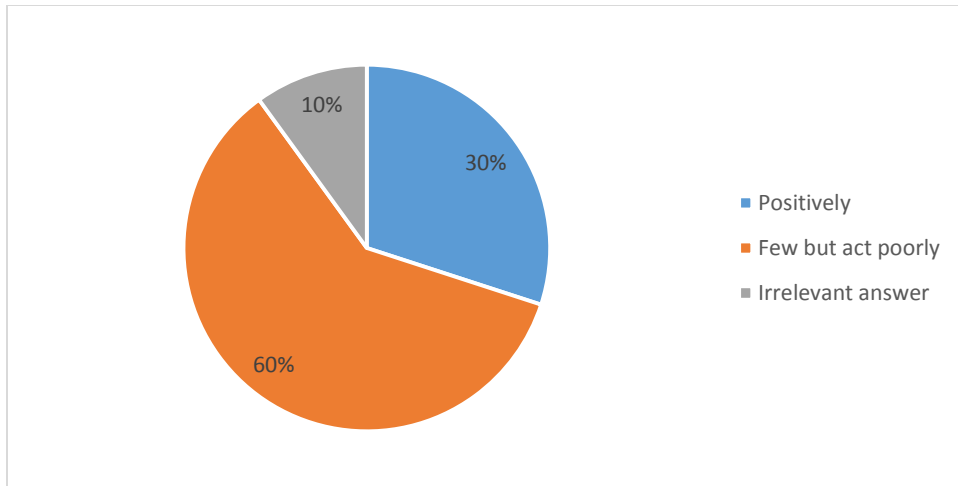
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Table 4.7 showed that 75(50%) parents occasionally received communication pertaining children’s class mathematics activities from teachers. These could be parents mostly unavailable for children, but 45(30%) parents did not receive any communication, such parents could be ones who never responded to teacher’s communications, lied to the study, and/or defended selves against lack of knowledge about teachers ‘communications. This could be attributed to by low level of parents’ education, a factor found retrogressing learning achievements because one could not be sincere saying:

*‘I have never received any communication from school concerning my child. This boy has never come home with homework, though I once bought him one book. I also work far from here I need to be well informed about these, they are young, which homework do they do?’*

However 30(20%) parents revealed that they always received communication .These could be few, concerned parents who insisted on checking children’s work. Piana (2010) revealed that, if parents receive detailed information about children’s needs and progress, they may be as well able to contribute to learners’ higher standards of achievement. Hence, teachers should always provide parents with appropriate information worthy enhancing learner achievement.

Teachers were then required to rate parents’ actions on received communications, and responses were illustrated in figure 4.4.



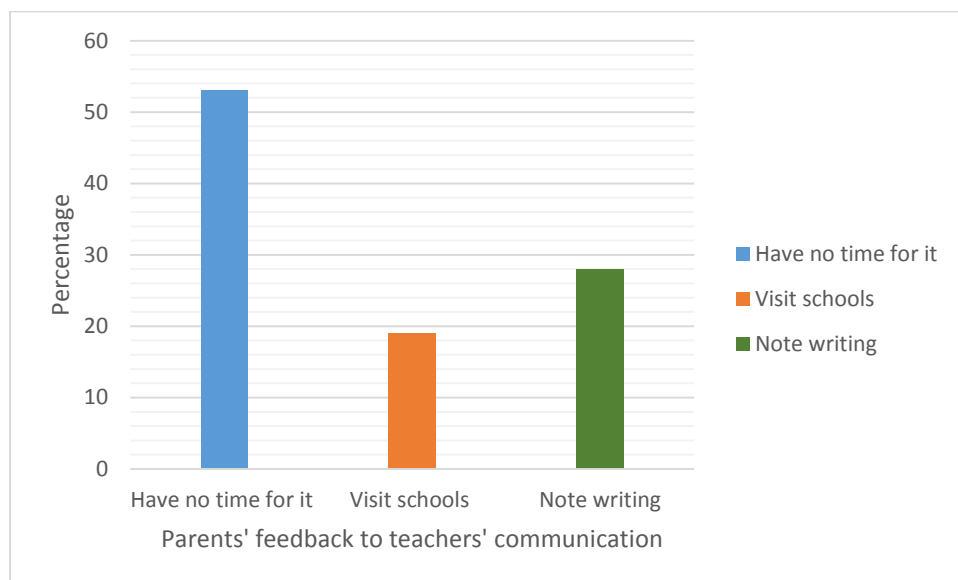
**Figure 4.4: Parents’ response to communication from school**

Figure 4.4 illustrated that 6 (60%) teachers, reported that few parents responded to communications but acting upon commitment was very poor. This could be attributed to ignorance or negative assumptions on the side of parents. These tendencies cannot promote learners achievement, thus in agreement with the study’s view that, parents in Chwele zone did not take E.C.D mathematics activities learning seriously, hence a discrepancy to learning achievement as per Hancock (2011). On the other hand, 3(30%) teachers recorded that parents responded positively. These could be few parents who; checked and signed learners homework, participated in class mathematics activities with children, and /or provided mathematics activities’ resources, and advise in areas of expertise. This kind of responsibility allows feedback revealed by Merttens (2010) that, collaboration facilitates in-depth discussion at later teacher-parent conferences to enhance children’s mathematics activities’ instruction. Contrariwise 1(10%) teachers gave irrelevant answers to the question. This could have been attributed to by lack of understanding.

#### 4.4.2 Home –school Communication and Learner Achievement

Numeracy bags contain sheets for parents to indicate feedback about children’s work and any noted understanding in mathematics activities. Muir (2012), identified that numeracy bags facilitate parent-teacher communication, and sustain negotiation in necessities for children’s learning activities’ needs. These are very important in helping parents communicate children’s effort from home and help children’s early logical capabilities.

Figure 4.5, shows feedbacks from parents to teachers’ communications.



**Figure 4.5: Parents’ feedback to teachers’ communication**

Figure 4.5 demonstrated that 80(53%) parents didn't give feedback to teachers' communication. This could be due to having a lot of other commitments or, were simply unwilling because one gave the following remarks:

*‘Is there enough time for these, surely? Every day has its challenges, I'm a loner in my home, it's me the cook, fetch for water from a far off place, feed and water animals. Besides taking care of other young children, and the home, I go looking for food and wash clothes. Some communications require us to visit school, but I cannot manage! I just have a lot on my hands; the father to these children got married to another place and abandoned us. I have seven children, all depending on my support, because they are still young! It is actually very hard for me. Today I've made it to this place because my sister visited me, so she is taking up some of my responsibilities’.*

Whereas 28 (19%) parents visited Centers to act upon or listen to teachers' demands, 42(28%) parents registered that they wrote notes to provide feedback towards teachers' communication. Sometimes this kind of behavior tries to evade responsibility, this behavior is detrimental to learners' achievement in learning mathematics. These varied discrepancies could be those that should be addressed by Hancock's,(1998) finding that, strategies should be put in place to review schooldays in order to give work with parents more time and status for realistic achievement. Thus teachers ought to be sensitive enough to capture adherence of all parents towards supporting children's learning.

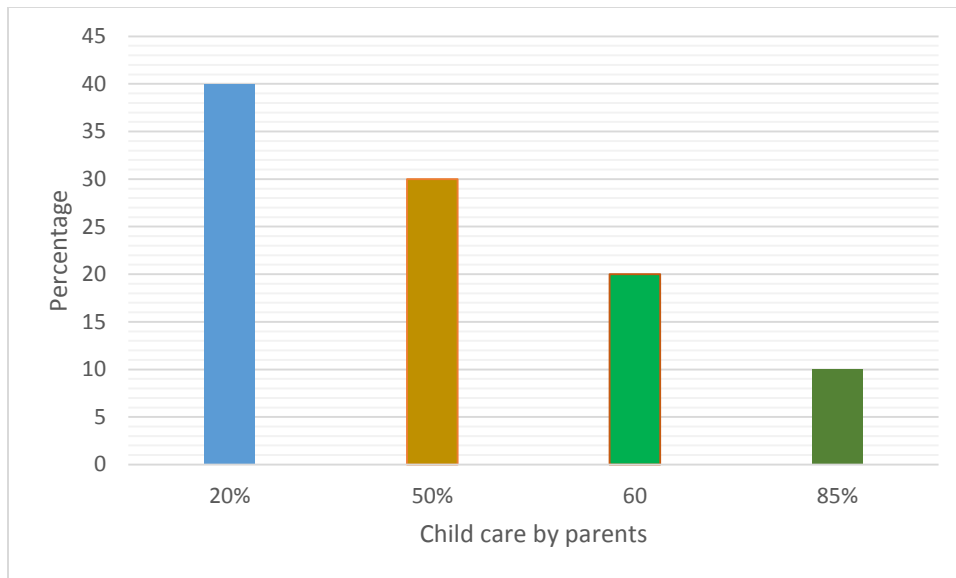
#### **4.5 Parenting Practices and Learner Achievement**

Children learning mathematics at an early age acquire achievement in all aspects of academic performance in life. Melhuish, Sylvia, Taggart, Sammons and Sira (2001) revealed that, there are possibilities of children learning mathematics early enough than most parents think. Early year's quality parenting practices ensure effective mathematics achievement later in life. Since it is likelier for children to succeed in later academic pursuits as a result of developing early mathematics skills, parents can make mathematics a core part of children's play; by choosing educational media focusing on developing number concepts and counting, and spending time on numeracy activities the same way they spend on reading to develop literacy skills. This objective sought to establish the teachers' rating of parents in providing children's basic needs, and supportive home conditions that support mathematics activities.

#### **4.5.1 Parental Provision of Basic Needs and Care Verses Learner Achievement**

Parenting practices that promote good health and nutrition through provision of balanced diet, De-worming, disease treatment, and vaccination against diseases, have significant basis on learners' performance in mathematics activities. since good health comes as a result of proper nutrition and health care, according to ( DelRosso and Marek, 1995), it enhances brain development and physical strength, suitable for handling vigorous learning situations, and vice versa. Figure 4.6 demonstrates how teachers rated parental child care.





**Figure 4.6: Child care by parents**

Figure 4.6 demonstrated that while 4(40%) teachers noted that 20% pupils appeared well fed, appropriately clothed and healthy, 3(30%) teachers confirmed that 50% learners were well fed, 2(20%) teachers consented that 60% children were well-fed, appropriately clothed and healthy, and 1(10%) teachers, affirmed that 85% learners under their care were well-fed, appropriately clothed and healthy. These results indicated that few children appeared well taken care of, majority were in inappropriate healthy conditions. From the learners' guide 35(38.89%) learners reported that elder siblings washed their clothes and bathed them, and 15(16.67%) learners asserted that they bathed themselves. Children may not be able to care for themselves well. Unhealthy conditions and care are non-compliant to demands of profitable play, which is necessary for enhancing learning. Kate (2010), asserted that proper child care is appropriately essential in making body systems function properly, to promote positive learning achievement in various learning areas, among them mathematics. Teachers then reported on how proper care, impacted on learners' achievement, as illustrated in table 4.8.

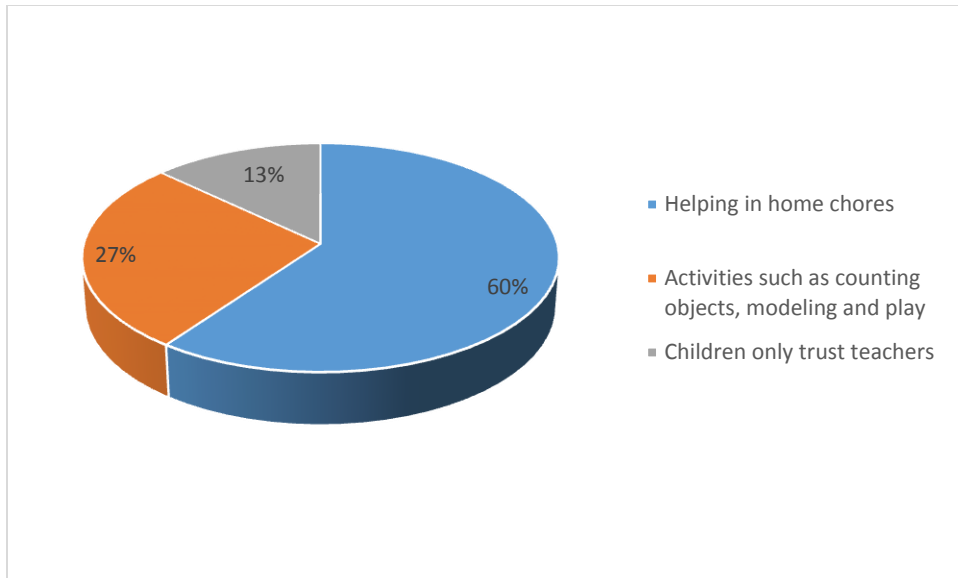
**Table 4.8: *Quality parenting practices and learner participation***

Response	Frequency	Percentage
Demonstrate active participation	7	70
Care did not guarantee the nature of participation	3	30
Total	10	100

Table 4.8 illustrated that 7(70%) teachers recorded that learners who appeared well fed, clothed and provided for with rich home environment with plenty of materials, time, and space for play demonstrated active participation in classroom mathematics activities, hence performed well. This is in agreement with Sarama and Clements (2009) reported that good parenting responsibilities enhance mathematics competencies in learners. Opposed to 3(30%) teachers, whose report indicated that participation of learners in mathematics activities was unique for every learner, and care did not guarantee the manner of parental participation.

#### **4.5.2 Supportive Home Conditions and Learner Achievement**

Home environments have consequences on child development and learning. Fan (2001) noted that family-level explanatory factors improve effectiveness of preschoolers' achievement. For instance, support given to learners by family members towards development of mathematics activities upgrade proficiency levels of mathematics performance. Figure 4.7, illustrates the manner in which parents expose children to mathematics activities while at home.



**Figure 4.7: Children exposure to mathematics related activities at home**

Figure 4.7 demonstrated that 90 (60%) parents involved children in such home chores as; sending them to buy things at the shop, collecting particular number of utensils, clothes and chairs among other activities which required them to count. One said:

*“My boy has a hoop which triggers counting. Whenever he is sent to shop or at the neighbors’ place, he counts the hoop’s rolled times. I later on help him recognize number symbols. I make sure that every chore he is involved in, deals with numbers. He collects a particular number of; plates, spoons chairs, table clothes, and many others, and that has made him know some numbers.”*

Another one said:

*“When I sent my girl to bring five plates, she brings two, sent her for two, and she brings a different number. Asking her to return but the extra, makes her wonder, and ponder over the remaining number. They actually try to learn the hard way,*

*but I m always there to help her out while while at home. She experiences difficulties dealing with my approaches, so she makes her suggestions and we discuss about them'*

While other 40(27%) parents noted that they involved children in counting stones, sticks, modeling and arranging numbers in sequence, 20 (13%) parents did not manage break through assisting children at all, because children claimed that parents were not teachers. The former is in agreement with Lee (2013) who established that, parenting activities yield considerable mathematics instruction and important numeracy skills in learners. Learners interview guide revealed that 84(93.33%) learners do not count numbers together with parents at home, only 6(6.67%) learners admitted doing so, though one o f them remarked;

*"My dad is very harsh when teaching me at home, he has severally slapped me. I don't like it, because he does not do it like our teacher. I rather play far from him, do my homework in privacy, and take to my teacher, because teacher teaches it politely. The goodness is that, teacher does not give us written homework every day. There are times we are asked to weave balls, model objects, or make kites",*

Parental help should therefore be coupled with some caution, since harsh instructions from parents scare children, hence do not yield desirable learning outcomes.

The objective also sought to understand how parents found parenting responsibility, and their responses were demonstrated in table 4.9.

**Table 4.9: Parents' views on how they find parenting responsibility**

Response	Frequency	Percentage
Lack of money, farms are small and have food problems	83	55
Try their best	67	45
Total	150	100

Table 4.9 indicated that 83 (55%) parents lacked money, had small pieces of land and lacked enough food for families, 69 (45%) reported that though money was a problem, they tried to provide good care for children. Eganon, (2010), emphasizes that healthy brains and bodies enable children learn well. Thus high percentage of parents' inability to provide basic care, negatively affect children's learning achievement.

#### **4.6 Parental Participation in Decision Making and Learner Achievement**

Partnership with families to share decisions made with schools on curriculum implementation, improves achievement in learner's mathematics activities among other areas. According to Mediralla, et al (2012) PTA recommends involvement programs that welcome parents to volunteer as partners in schools' decisions on matters that affect children and families. Engaging parents in ways that support parental involvement in mathematics activities at school and home, and improving learning by schools, create greater gains. This objective sought to determine the frequency with which Parents – Teachers' Associations conferences were held, approximate percentage of parental attendance, and parental compliance towards supporting learner's mathematics activities in school.

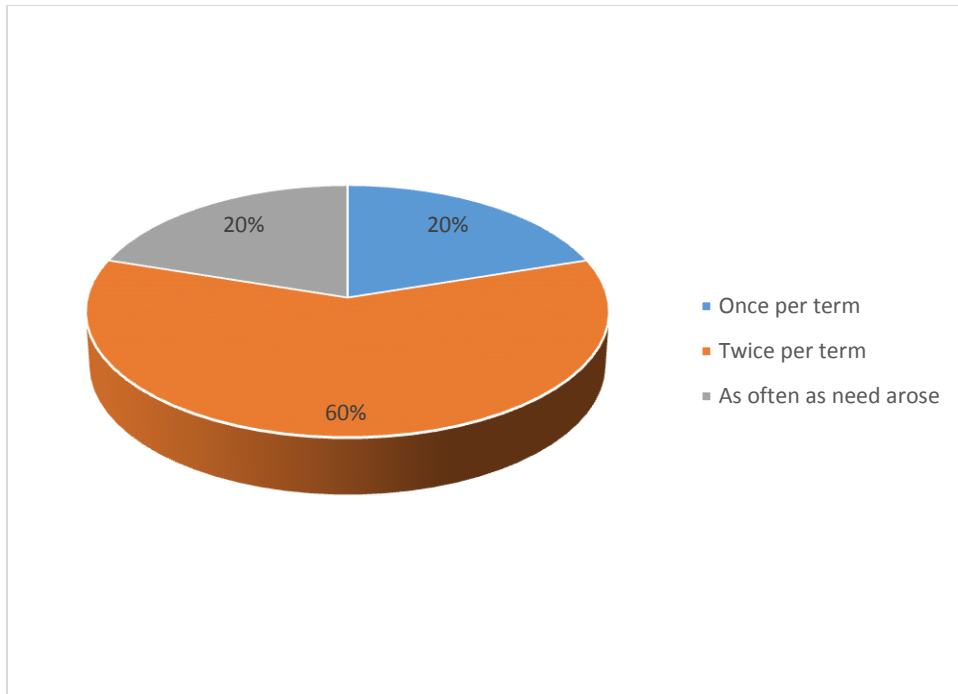
#### **4.6.1 Parental Participation in PTA Conferences and Learner Achievement**

Parents' involvement in teachers-parents organizations anticipates enabling parents to play a large role in school improvement and governance, including evaluation of school mathematics activities' curriculum. (Vincent and Martin, 2000). Frequency of conferences between parents and teachers may yield particular decisions which determine what learners achieve in learning.

#### **4.6.2 Frequency of Conferences**

Frequency of conferences between parents and teachers, and the components thereof may yield particular decisions which can determine what learners achieve in learning areas within particular periods of time.

Teachers in Chwele zone hold such conferences on mathematics activities in a manner demonstrated in figure 4.8.

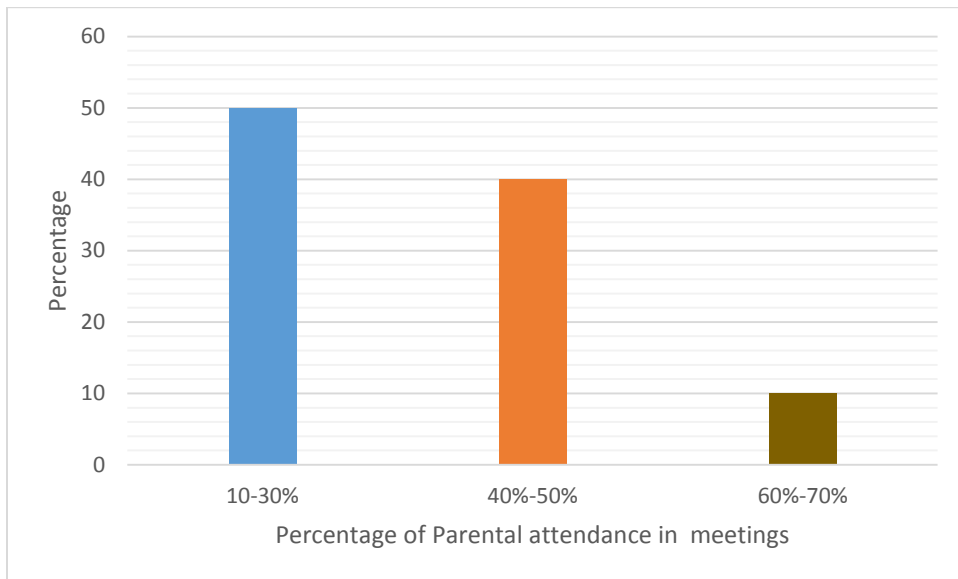


**Figure 4.8: The frequency of Parents – Teachers conferences**

Figure 4.8 illustrated that 6 (60%) teachers convened parent-teacher conferences twice per term. Whereas 2(20%) teachers held them once per term, 2 (20%) held conferences as often as there was need. These were insufficient times for such meetings, since it didn't provide enough time for familiarization with various aspects of mathematics activities curriculum, and needs for young children. If well organized, as postulated by Enzi and Account, (2016), parents-teacher collaboration increases parents' confidence, and levels of involvement thereby bettering quality of mathematics activities offered to children.

#### **4.6.3 Parents' Attendance Turnout**

Teachers gave percentages of approximate numbers of parents who frequently attended planned meetings on mathematics activities in figure 4.9 below.



**Figure 4.9: Percentage of parental attendance in meetings**

Figure 4.9 illustrated that 5(50%) teachers reported that between 10% - 30% of parents attended meetings. These could be parents who attained at least college education, therefore knew benefits of collaboration in educational matters. Sentiments by learners in response to this inquiry, confirmed all 90(100%) learners reported that parents occasionally attended parent-teachers conferences. This example was outstanding:

*“My mother only came once, and It has always irritated me, especially when my teacher keeps on asking me whether my parents are actually staying with me or not. At other times I was mocked by my friends whose parents come to school and show them a lot of love, I feel very bad. I always wish she came every time there was a meeting, she always said that she was busy.”*



While 4 (40%) teachers recorded that between 40% - 50% parents attended meetings, 1 (10%) asserted that about 60% - 70% parents do turn up for scheduled meetings on mathematics activities' matters. Since Reith, et al, (2004) noted that, such meetings encourage sharing detailed information about children's progress; for example reports like; "she is doing well in mathematics activities", and more often, parental advising is positively related to learners intrinsic motivation, and self-efficacy towards mathematics. Inadequate parental participation in such crucial gatherings negatively affects children's learning achievement.

#### **4.6.4 Parental Compliance to Decisions**

This subsection sought to establish parents' compliance to decisions arrived at during conferences. Table 4.10 demonstrates teachers' responses.

**Table 4.10: *Adherence to promises***

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
No	4	40
Some	3	30
Rarely	2	20
Yes	1	10
Total	10	100

Table 4.10 indicated that, 4 (40%) teachers noted that parents did not keep promises, 3(30%) teachers affirmed that only few parents keep their promises. Other 2 (20%)

teachers asserted that parents rarely fulfilled their promises, and 1(10%) teachers confirmed that parents kept promises decided upon, in conferences. The larger percentage of noncompliance confirmed the study’s finding that parents in Chwele zone were not compliant to children’s learning needs. Results were inconsistent with healthy findings by Siegler and Raman, (2009) postulating that, support by parents in children’s learning programs facilitates easy transfer of learning. Hence, low involvement tendencies of parents impede learning achievement. Parents, demonstrated desire for positive compliance to requirements for preschool learning ,however responded as demonstrated, in table 4.11.

**Table 4.11: Why parents did not completely comply**

Item	Frequency	Percentage
Attend to other commitment	95	63
Try, through hard ways	55	37
Total	150	100

Table 4.11 showed that 95(63%) parents were unable to comply with promises due to other responsibilities, a parent had this to say:

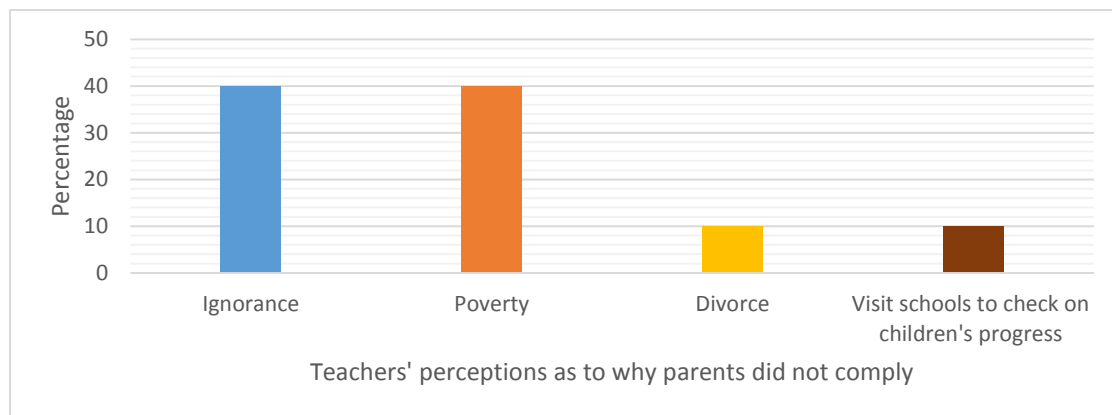
*“We are willing to participate, the only problem is low income, and this makes us attend to other seemingly important issues first, but unfortunately found delaying this side. I can say that, if food was readily available, contributing to other areas*

*could be manageable. Good weather conditions, favor crop growth, and enable us to attend to school demands easily”.*

The incapability makes it hard for children to attend school, thus negatively impeding on positive achievement in mathematics activities. A fraction of 55 (37 %) parents reported that, they always tried to adhere to demands and promises of supporting mathematics instruction. Melhuish, Sylva, Taggart, Sammons and Sira (2001)’s research on the importance of early mathematics skills show that, children who learn mathematics at an early age acquire achievement in all aspects of academic performance in life. Parents, who do not give first priority attention to early year’s education for children, may negatively affect future achievement.

#### **4.6.5 Teachers’ Alleged Views on Parental Noncompliance**

In the process of dealing with children, teachers noticed major problems encountered by most parents in effort to comply with children’s learning needs. Responses were explained in figure 4.10.



**Figure 4.10: Teachers’ perceptions as to why parents did not comply**

Figure 4.10 illustrated that 4(40%) teachers identified ignorance as a problem that hinders compliance to decisions by most parents, thought to be attributed to by low level of

education. Another equal section of 4 (40%) teachers noted that poverty was a problem, associated with low income status, definitely as a result of small farms. While 1(10%) teachers recorded that divorce contributed to the condition, because most children were under grandparents' custody, another 1(10%) teachers reported that parents responded quite well in providing support towards improving learners' mathematics activities competencies. These findings were inconsistent with Evangeluo and Sylva (2003)'s purports that, parents were sensitive in orderly monitoring, surveillance and help in implementing effective teaching practices. Poor participation in decision making in matters regarding mathematics activities' pedagogy by parents, impede on learners 'early competencies and future development.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents summary of findings, significant discussions, conclusions, essential recommendations and important facts on contribution on body of knowledge. The study sought to establish the influence of parental involvement on learner achievement in Mathematics activities in Chwele zone. It focused on parental; volunteering, communication, parenting practices, and decision making.

#### **5.2 Summary of the Study**

The purpose of this study was to establish the influence of parental involvement on learner achievement in mathematics activities in Early Childhood Centres (ECC) in Chwele zone. Kabuchai sub county, Bungoma County, Kenya. Children in Chwele zone had poor mathematics activities' abilities which also affected later performance, thought to be attributed to parental reluctance in early year's education matters. Objectives of the study were to; establish the influence of parental volunteering, communication, parenting practices, and effect of parental participation in decision making on learner's achievement in mathematics activities, with an aim of sensitizing parents on benefits of engaging in children's early years education.

The study employed descriptive survey design, targeting 27 teachers in charge and 2097 E.C.D parents in Chwele zone. Ten ECE teachers in charge and 150 parents were sampled from 10 pre - schools. Questionnaire and interview guide were administered to

teachers and parents respectively, to collect data which was analyzed both quantitatively and qualitatively, whose information helped in drawing conclusions as well as making recommendations.

### **5.3 Summary of Findings**

#### **5.3.1 Parental Volunteering and Learner Achievement in Mathematics Activities**

Findings on the influence of parental volunteering were explained by; how parents volunteered in learners' mathematics activities both at home and in the class, and how teachers ensured that parents provided necessary resources. It was revealed that, while 90% parents in Chwele zone only volunteered by providing teaching and learning resources at stake of other forms of actual participation in class activities, 10% teachers did not have volunteering parents at all. Either, 40% parents indicated that all class activities ought to be teachers' work, therefore they were less concerned. About 47% parents were never available whenever required and only 13% parents adhered to teachers' demands, when required. On volunteering in assisting children in Mathematics activities at home, 60% parents involved children in chores that prompted counting. Whereas 27% parents engaged children in counting various objects, 13% parents did not help children to count at home, claiming that children did not trust parents' help. However, 66% children indicated that there wasn't any assistance by parents in doing homework. Regarding contribution towards learning resources, 40% parents left children to collect local materials from environment, 22% parents helped in collection of materials, 13% parents purchased materials, but 25% parents didn't provide any

materials. These findings revealed that there was inadequate parental volunteering in mathematics activities.

### **5.3.2 Parental Communication and Learner Achievement in Mathematics Activities**

Findings on the effect of parental communication on learner achievement in mathematics activities found out that 40% teachers, in the zone communicated through note writing, besides other forms like; 10% teachers send learners to call parents, 20% teachers, communicated to parents on meeting during school visits, and 30% teachers met parents in the village. Also 50% teachers communicated through children's homework, 30% teachers sensitized parents, except 20% teachers found difficulty cooperating with parents. However, 70% parents reported that they could not find time to attend to children's mathematics activities' communications from teachers. Upon all forms of communications, 60% teachers admitted that few parents acknowledged receipt of information but acted upon them poorly. Findings from this objective revealed that there was poor response to communication from parents, since 53% parents had no time to attend to communications. A section of 28% parents wrote notes and only 19% parents visited schools to attend to children's learning needs.

### **5.3.3 Parenting Practices and Learner Achievement in Mathematics Activities**

This objective was explained by parental provision of basic needs, and supportive home conditions, findings indicated that 40% teachers in the zone observed a section of only 20% learners appearing well taken care of in terms of character, health, materials provision and clothing. This was besides 30% teachers who registered 50% learners, 20% teachers observed 60% learners well cared for, and 10% teachers observed 85% learners

well taken care of. Few children with proper care, demonstrated active participation in mathematics activities, confirmed by 70% teachers. From interviews, results show that the common way in which parents involved children in mathematics activities at home was by helping in home chores yielding 90% parents response. Thus children's health, stimulation and care should be parents' paramount endeavor, because helping children holistically develop, is necessary for meaningful learning.

#### **5.3.4 Parental Decision Making on Learner Achievement in Mathematics Activities**

The fourth objective aimed at investigating the influences of parental participation in decision making on learner achievement in mathematics activities. The study established that 60% teachers held P.T.A conferences on mathematics activities twice per term besides 20% in both; once per term, and as often as need arose. A report by 50% teachers registered that only between 10% - 30% parents turned out for such meetings as opposed to 40% teachers who reported that parent turnout was between 40% - 50%, and only 10% teachers indicated that parental turnout was 60% - 70%. Regarding parental compliance to discussions, 40% teachers reported that parents did not keep promises, besides, 30% and 20% teachers respectively reported that parents responded sometimes, and rarely. There were only 10% teachers confirmed that few parents kept promises. Among reasons as to why such behaviors occurred, a total of 90% teachers and 70% parents identified ignorance, poverty, and divorce as factors that hindered total parental engagement in children's education.

#### **5.4 Conclusion**



Based on the findings, it is concluded that parents in Chwele zone did not take part in actual class mathematics activities with children, since both sides of the respondents (teachers and parents) indicated that the only way parents volunteered their engagement was by providing local materials for mathematics activities. There is need for parents to participate in such school activities as field trips, assisting in areas of expertise as resource persons and other class Mathematics activities. Failure to realize these essentials undermines vital findings that encourage learner achievement.

Note writing was the major mode of communication through which teachers passed learners' mathematics activities concerns to parents. Parents exhibited poor communication patterns in matters concerning learners' mathematics activities resources development, and instruction. Reinforcing a mode of communication for less literate parents could help curb problems with communication, or else such inclinations to poor communication are detrimental to children's acquisition of knowledge.

Parents didn't have the idea of reading with children to enable them embrace mathematics activities' culture right from home. Children's care in terms of nutrition, health, and environmental stimulation, need to be given some serious attention, if learners have to positively achieve in mathematics.

Teachers didn't have enough time for P.T.A conferences on matters concerning learners' mathematics activities, and whenever it was done, only a low percentage of about 10% - 30% parents attended the conferences. It's also concluded that, ignorance, poverty and

divorce were major hindrances to parents' anticipated engagement. That is why performance in mathematics activities was wanting.

### **5.5 Recommendations**

Basing on this study's findings, the following recommendations were made:

1) Teachers should take responsibility for sensitizing parents on total voluntary participation in both material development and instruction in areas of expertise to ensure that learners achieve positive outcomes. Since parents did not fully volunteer support for mathematics activities in class, teachers can create groups of a certain manageable number of parents and assign each group a task to perform, towards helping children. Parents may be good at composing songs; some may be good at art or craft, and some are ever present whenever required to accompany children for Mathematics nature walks or trips. Such parents can be grouped together to help children perform tasks meant for enhancing Mathematics activities' learning.

2) Teachers should settle on working modes of communication to parents to ensure that every parent is reached, and at least feedback given. This is to curb inconsistencies in findings that showed how teachers used various modes of communication, but parents didn't acknowledge receipt of messages send to them. To check such discrepancies, teachers ought to create a data base of parents' cell phone contacts for conveying messages. Alternatively, village elders can be used to relay such important messages to parents lacking phones, if all communications should meet indented purposes towards children's learning Mathematics.

3) Kenyan government through ministry of education should enforce laws stipulated in the constitution 2010 to warrantee children at that level, good care and health through proper parenting practices. Most children were noticed by teachers to be lacking proper care in terms of health, material development, and behavior. It has been established that a well-cared for child attends school regularly, participates actively in class activities, and therefore by extension perform better in Mathematics activities. Thus, apart from usual provision of uniform, parents should take children for regular growth monitoring and evaluation in public health institutions and take reports back to school, at least after two months. Reinforcement should be put in place to ensure that all parents provide ECD centers with food stuff for learners' snacks to elevate hunger for less fortunate children learn.

4) Early Years Education centers administration should encourage and empower PTAs to own centers and oversee implementation of decisions consented upon in conferences concerning Mathematics activities. Findings indicated that few parents attended PTA conferences, but a section of the few responded poorly to decisions made. As a result, parents in PTAs may have to be assigned a number of fellow parents to preside over decision implementation and avail reports to centers. If it is done with respect and appreciation coupled with extrinsic motivation, parental involvement will be realized to a greater percentage, hence beneficial to learner achievement. In general the ministry of education should enforce policies attached to the above recommendations to ensure full parental participation. On the other hand, willing nongovernment organizations should be directed to assist in areas of need to help children's learning.

## 5.6 Contribution to Body of Knowledge

### Objective

1. Parental volunteering and learner achievement
2. Parental communication and learner achievement
3. Parenting practices and learner achievement.
4. Parental decision making and learner achievement

### Contribution

Holistic parental volunteering both in class and home learning requirement and literal participation in activities promote learner achievement.

Proper communication meant for learners' mathematics instruction to and from schools to parents require relevant feedback to facilitate mutual understanding amongst parties dealing with children. Successful communication support positive mathematics outcome in preschoolers.

There is a relationship between both parental provision of basic needs and supportive home conditions and positive learner achievement in [Mathematics activities. Children well taken care of, well nourished, clothed, exposed to activities stimulating environment and distanced from stereotypes that Mathematics can't be a practical culture at home, as it is with literacy, promote learner achievement.

Decision made in PTAs concerning children's education will be effective if parents played part in implementation of the same. The positive the attitude, the better implementation, hence beneficial to learners and vice versa.

## **5.7 Suggestion for Further Research**

Findings of this study created other insights that prompted suggestions for further research:

- 1) Parental volunteering was unpacked by various aspects such as; class participation, home assistance, and resource development for mathematics activities. It was not clear which aspect yielded better benefits; therefore further research was recommended to experiment on aspects that yield better achievement in mathematics activities.
- 2) Effective communication is very instrumental in learning endeavors. This study focused on communication between parents and teachers, with very minimal focus on learners. A study may be carried out to establish effect of learner communication with significant others on learning achievement in mathematics activities.
- 3) On transverse across study area, it was realized that most families were affiliated to a cult teaching contrary to educational expectations of society. Since religion support parenting to some extent, it is suggested that a study be carried out on influence of parental religious affiliations on learner achievement in Mathematics activities.
- 4) It was smelt during data collection that parents did not receive proper hearing from teachers in matters concerning children's education. A research was therefore suggested to investigate into effects of preschool management leadership styles on learner achievement in Mathematics activities in Chwele zone.

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## APPENDICES

### APPENDIX I: QUESTIONNAIRE FOR TEACHERS IN CHARGE

This questionnaire is meant to collect data on the influence of parental involvement on learner achievement in Mathematics activities in Early Childhood Education Centers in Chwele zone, Kabuchai Sub-county of Bungoma County. It is totally educational and not meant to victimize anyone, therefore indicate your answer without fear because your confidentiality will be catered for.

	<b>QUESTIONS</b>	<b>RESPONSES</b>	<b>INSTRUCTIONS</b>
	<b>INTRODUCTION AND BACKGROUND</b>		
	School	.....	INDICATE IN FULL
	Zone	.....	INDICATE IN FULL
	Designation	.....	INDICATE IN FULL
	Gender	Male Female	
	How old are you?	..... Years	INDICATE IN

			COMPLETE YEARS
	What is the highest education level that you completed?	Primary .....a Secondary .....b College .....c University .....d	CIRCLE THE MOST APPROPRIATE CODE
	What is your highest professional qualification?	Certificate .....a Diploma .....b Degree .....c Masters .....d	CIRCLE THE MOST APPROPRIATE CODE
<b>VOLUNTEERING</b>			
	How do you ensure that parents volunteer in classroom mathematics activities?	..... ..... ..... ..... .....	
	How do you ensure that parents are providing necessary mathematics activities at home?	..... ..... ..... ..... .....	WRITE YOUR OPTION
	How do parents contribute in developing resources for children's mathematics activities?	..... ..... ..... ..... .....	
<b>COMMUNICATION</b>			
	How do you communicate to parents about their children's school mathematics activities?	..... ..... ..... ..... .....	



	How do parents respond to your communication about their children's mathematics activities?	..... ..... ..... ..... .....	
	How do parents communicate children's mathematics abilities as realized from home?	..... ..... ..... ..... .....	
<b>Parenting</b>			
	Which approximate percentages of your pupils appear well cared for by their parents, in terms of character, health, material provision and clothing?	..... ..... ..... ..... .....	
	How do such children perform in mathematics activities as compared to those who are not well cared for?	..... ..... ..... ..... .....	
<b>Decision making</b>			
	How often do you schedule Parent - Teacher conferences in school on children's mathematics activities?	..... ..... ..... ..... .....	

	Give an approximation of parent's attendance in these meetings.	..... ..... ..... ..... .....	IN PERCENTAGE.
	How do you rate the participation of those in attendance to those matters in question?	Active [ ] Passive [ ]	
	Do parents keep their promises towards supporting children's mathematics activities?		
	Give reasons for your answers above.	..... ..... ..... .....	

***THANK YOU FOR YOUR RESPONSE!!***



**APPENDIX II: INTERVIEW SCHEDULE FOR PARENTS**

	<b>QUESTIONS</b>	<b>RESPONSES</b>
	<b>Introduction and background</b>	
	Gender	Male: [ ] Female: [ ]
	How old are you	.....years
	What is your highest education Level?	Primary: a Secondary: b College: c University: d
<b>1.0</b>	<b>Volunteering</b>	
1.1	How often do you volunteer in children’s classroom mathematics activities?	
1.2	How do you contribute towards resources development for children’s mathematics learning at school?	..... .... ..... ....
1.4	Which ways do you use at home to help your child learn mathematics skills?	..... ....
<b>2.0</b>	<b>Communication</b>	
2.1	How often does the school communicate to you about matters concerning your child’s mathematics activities?	Always. Occasionally. Never.
2.2	How do you normally provide feedback to the communications received from school?	..... ..... .....
<b>3.0</b>	<b>Parenting</b>	

3.1	What can you say about your effort in providing your child's, discipline, food clothing, and general care needs?	
3.2	How do you indulge your child in counting and other numeracy activities while at home?	..... .....
3.3	How do you rate your child's mathematics activities ability with your own mathematics skills?	..... .....
<b>4.0</b>	<b>Decision making</b>	
4.1	How often do You Participate in Parent – Teachers Association (PTA) Or Parents – Teachers Organization (PTO) on matters concerning your child's mathematics activities?	Often [ ] Seldom [ ]
4.2	Give reasons for your answers above.	..... .....

**APPENDIX III: INTERVIEW SCHEDULE FOR LEARNERS**

	<b>QUESTION</b>	<b>RESPONSES</b>
<b>1.0</b>	<b>Introduction and background.</b>	
1.1	Gender	Male [ ] Female [ ]
1.2	How old are you?	..... Years
1.3	In which class are you?	Baby class.....a Middle class.....b Final class.....c
<b>2.0</b>	<b>Volunteering</b>	
2.1	Do your parents normally join you in classroom mathematics activities at school?	Sometimes [ ] Not at all [ ]
2.2	How often do your parents look at and help you do your mathematics homework?	Every day [ ] Sometimes [ ] Not at all [ ]
2.3	Do your parents provide toys, time and other materials for play to use in mathematics activities at home and school?	Yes [ ] Sometimes [ ] No [ ]
<b>3.0</b>	<b>Communication</b>	
3.1	How do you go about counting activities at school?	
3.2	Does your teacher give you any homework to carry home?	
3.3	How much money have you ever lost?	.....

3.4	Show me the number by use of your fingers.	
<b>4.0</b>	<b>Parenting practices.</b>	
4.1	Do you take your breakfast every morning?	
4.2	If not Why?	..... .....
4.3	Who washes your body and clothes?	
4.4	What happens when you fall ill?	
4.5	Do your parents teach you how to count and write numbers at home?	
<b>5.0</b>	<b>Decision making</b>	
5.1	Do your parents attend school meetings?	Always [ ] Occasionally [ ] Never [ ]
5.2	Do your parents provide materials and financial support for your use at school?	

**APPENDIX IV: LETTER FROM UNIVERSITY OF NAIROBI**



**UNIVERSITY OF NAIROBI**  
**COLLEGE OF EDUCATION & EXTERNAL STUDIES**  
**SCHOOL OF EDUCATION**  
**DEPARTMENT OF EDUCATIONAL COMMUNICATION AND**  
**TECHNOLOGY**

Telephone: 020-2500759, 020-2500760

P.O. BOX 30197, 00100 NAIROBI

020-2500782, 020-2460056

P.O. BOX 92, 00902 KIKUYU

9 JUNE 2017

TO WHOM IT MAY CONCERN

**RE: KISIANG'ANI BAHATI Reg No: E57/78724/2015**

This is to certify that Kisiang'ani Bahati Registration Number: E57/78724/2015 is a student of the University of Nairobi, Department of Educational Communication and Technology. She has completed her course work in Master of Education in Early Childhood Education. Her project Title is **"Influence of Parental Involvement in Mathematics Activities in Early Childhood Education Centres in Chwele Zone, Kabuchai sub County, Bungoma County, Kenya."**

Any assistance accorded to her will be highly appreciated.

Yours faithfully,

9 JUNE 2017  
  
**PROF. PAUL A. ODUNDO**  
**CHAIRMAN,**  
**DEPARTMENT OF EDUCATIONAL COMMUNICATION & TECHNOLOGY**



**APPENDIX V: AUTHORIZATION LETTER FROM KABUCHAI**

**MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY  
STATE DEPARTMENT OF BASIC EDUCATION.**

Telephone Bungoma Central:  
Email:

When replying please quote  
Our Ref: BGC/EDU/7/50/02



REPUBLIC OF KENYA

SUB COUNTY EDUCATION OFFICE  
BUNGOMA CENTRAL  
P.O. BOX 250,  
CHWELE.  
DATE: 03/07/17

To All Head Teachers

Primary Schools,

**CHWELE DIVISION.**

**RE: AUTHORITY TO CARRY OUT RESEARCH-  
KISIANG'ANI BAHATI REG. NO E57/7872/2015**

The above named teacher is a student of University of Nairobi. She has been authorized to carry out research on **“Influence of parental involvement on learner achievement in mathematics activities in Early Childhood Development Centres in Chwele Zone, Bungoma Central Sub County,** for the period ending is 15<sup>th</sup> June, 2018.

The purpose of this letter is to request you to accord her the assistance she may require.

Thank you.

Stanley Wafula

*For*  
SUB-COUNTY DIRECTOR  
OF EDUCATION  
BUNGOMA CENTRAL  
P.O. Box 250-50202, CHWELE.

For: Sub County Director of Education  
**BUNGOMA CENTRAL.**