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Effect of Parenting Practices on ECDE Learner Achievement in Mathematics Activities in Chwele Zone, Kabuchai Sub-County, Bungoma County, Kenya

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Proper parenting practices are instrumental in determining learner achievement in learning outcomes. While appropriate parenting practices enhance learner achievement, inappropriate parenting practices inhibit learner achievement in education. In Chwele zone ECDE centres, most children go to school hungry and unkempt; they hardly avail to school what they are asked for, and mostly thought to blame it on parenting practices. Few studies carried out in the area addressed matters of Free Primary Education (FPE), School Feeding Programs (SFP), and instructional materials versus children's learning and development. Adequate efforts have not been made to establish the relationship that exists between parenting practices and learner achievement in Mathematical activities. This study examined the effect of parenting practices on learner achievement in Mathematics activities in the Chwele zone, with the purpose of establishing the effect of the provision of basic needs and supportive home conditions by parents on learner achievement in Mathematical activities. The theoretical framework used was derived from Lev Vygotsky's theory of childhood psychological development. The theory states that parents have a vital role in supporting their children's learning. The study employed a descriptive survey design to study the population of 27 Early Childhood Development (ECD) teachers in charge and 2097 parents. A convenience sampling technique was used to select a sample of 10 teachers and 150 parents from 10 ECDE centres. Questionnaires and interview schedule tools were administered to teachers and parents, respectively, to collect data. The instruments were formulated from the study's objectives and given to an expert to check their appropriateness. Descriptive analysis in frequency counts and percentages analysed quantitative data. Content analysis analysed qualitative data, which were presented in frequency tables and graphs. Findings indicated that the majority of parents did not take good care of their children in terms of healthy feeding, appropriate clothing, proper care, and demonstration of active participation in mathematics activities. From interviews, results showed that the only way in which parents involved children in mathematical activities at home was by helping with home chores. The study recommends children's healthy stimulation to be parents' paramount endeavour because helping children to

develop holistically is necessary for meaningful learning. Parents should also be made aware that proper nutrition and general child care enhance proper brain development, a condition that spurs the learning of mathematics activities.

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INTRODUCTION

Parenting practices refer to specific things that parents do while raising their children, things like imposing and using schedules, rules, expectations, punishments, and rewards. They are regular interactions that parents have with their children. According to Goldenberg and Goldenberg (2013), parenting classes reflect outlooks toward discipline and parental duties, as well as the ambitions set for children. What parents want children to be is communicated by parental level of focus, emotional displays, parental body language, and tone of voice. Parenting styles affect children's educational success. Bronfenbrenner (1994) in the bioecological model theory states that children's learning and development are based on dynamic interactions that exist in their environment. It views development as a complex system of relationships affected by multiple levels of the surrounding environment from immediate settings of cultural values, laws, and customs.

Piaget (1957), in the theory of cognitive development, suggests that children successfully go through assimilation and accommodation processes

through active participation to discover problem-solving skills. This is heavily supported by sociocultural theory by Vygotsky (1978), arguing that children learn through social interactions, building knowledge by learning from more knowledgeable others such as adults and peers. In all these, parental practices such as care, encouraging children to play outdoors, and helping them with homework, apart from general guidance, socialisation, and controlling, are believed to affect children's learning. Parents who put firm confines on their children's actions while keeping warm and welcoming environments can promote both accurate readings of parental signals and approval in warm relations that allow children to bond with their parents and their beliefs and vice versa (Jorge and Ademar, 2011).

For instance, according to Darling and Steinberg (1993), parenting practices intended to promote academic achievement show involvement by attending parent-teacher meetings or regular supervision of children's homework. Other parenting practices include positive reinforcement, discipline, or problem-solving, reflected in effective

parenting styles. Parents can ask other family members to help with homework, can engage with their children deliberately to perform activities that require explicit display of, and promote mathematical reasoning and knowledge (Donida and Cortin, 2014). Parents can connect math to everyday life and help children understand how math influences them (i.e., shapes of traffic signs, telling time and walking distance to school), and play family math games together such as computers + math = fun! Monopoly math and bingo. They can help their children by pointing out and solving the mathematics that they use in everyday life; open-ended problems can support the development of children's creative mathematical thinking.

Elsewhere, Lee (2013) recorded that the South African (SA) government, through the National Parent Centre (NPC), runs a positive parenting skills program that helps parents understand the stages of child development 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. Borrowing from Davids (2010), mothers who worked in Citrusdal areas in South Africa (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 a better understanding of the schooling process.

Parental engagement in children's schooling promotes learners' behaviour by motivating them to learn (AL-Harrasi & Al-Mahrooqi, 2014). Mass literature by Mortorell (1996) holds that good parenting, in terms of the right combination of health care, adequate food, and pro learning environment, results 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 the 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 and engage children in mathematics-related stories to help children learn, unlike less knowledgeable mothers. The provision of a balanced diet, stimulating environment, deworming, and loving care in the early years of life has significant rationale on school performance physical, cognitive, and social development of a child.

Basic Needs and Care Provision on Learner Achievement in Mathematics

Parents should provide breakfast for children before going to school, then a snack at 10 o'clock, in order to be given the strength required during mathematics activities (Mwirichia, 2013). This holds true to such fact that a well-fed child sustains a healthy brain and physical energy to keep comfortable and concentrate on classroom mathematics activities. Kate (2010) emphasised that the provision of food is essential in making body systems function properly. Parents should keep in mind the basic components of a balanced diet; carbohydrates (maize, potatoes, bananas, bread, and cassava) give 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 a daily intake of fruit and vegetables guarantees good health. "An apple daily keeps the doctor away" (Ajamera, 2020). Healthy bodies have healthy brains, and children with healthy brains and bodies actively participate in playful activities meant to enhance the learning of Mathematics.

Healthy children are less likely to; miss school and fall ill, a condition that influences regular school attendance and hence mathematics activities

learning. Studies by Meyers et al. (1989) also pack the above to prove that improved learners' diets make their bodies strong, enabling them to engage in various plays, always tasks that lead to learning. Such conditions enhance attendance and increased mathematics scores, among other competencies. These potentials are bound to every learner; parents should therefore endeavour 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 realising their potential (Price, 2012). Malnutrition causes deficiencies and health conditions that negatively impact 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 negatively affect learners' cognition and learning of mathematics.

Supportive Home Conditions and Achievement in Mathematical Activities

Learners with supportive parents who help prepare them for school every day have better attendance records and perform well when completing homework or providing needful materials to school because of the help and guidance given at home. Parents who support their children at home also make them enjoy school and learning, besides imparting a positive influence on learners' mindsets, attitudes, and behaviour early in life. However, learners who lack supportive parents struggle on their own, thereby negatively impacting their self-esteem. Engaged parents appropriately monitor their children and deliver decent consequences at home. Such children behave appropriately in school, pay more attention to classroom activities, and ultimately perform better in their studies. This is contrary to children of disengaged parents found to have a negative attitude in classroom activities and are more disruptive because of the lack of consequences at home. Parents who get involved in supporting their children in their day-to-day learning are thought to

be more aware and appreciate the challenges that teachers face in the classroom, an attitude that boosts teachers' morale. Parents can be their children's first mathematics teachers through supportive early numeracy activities if they perceive mathematics as being important (Skwarchuk et al., 2014). Studies have also revealed that informal basic numeracy activities are better predictors of children's mathematics achievement than formal numeracy activities build upon (Dunst et al., 2017).

Supportive parents also consider equipping their children's home environment with materials that expose children to varied information. 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 the development of number concepts. Such toys include magic ten frames, multi-colour abacus, bear balance counting toys, counting sticks, counting bears, play money, wooden pattern blocks, sand boards, math link cubes, wooden math learning boards 1-100, and wooden puzzle counting toys, among others. 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 the contributions the child makes to 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 in their mathematics competencies than children whose parents are less involved.

Asian parenting research has shown that the role of Asian mothers counts significantly on their children's academic achievements from kindergarten years. Wei and Eisenhartkc (2011) recorded that more emphasis is put on the 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. These children scored high in the competencies. Sarama and Clements (2009) established that home mathematics activities enhance parents' understanding of the importance of mathematics concepts in the early years of a child. Lesaux (2013) holds that parents with high knowledge of elementary mathematics teach their children at home because they value mathematics, unlike their less knowledgeable counterparts.

Statement of the Problem

Quality parenting is one of many key factors which affect many children's achievement in number work, influenced by parents' level of education, family social class, and material provision (Philips et al., 2008). Melhuish et al. (2001) asserts that early year's quality parenting practices are the secret behind effective mathematics achievement later in life. Early mathematics skills have been recognised 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. However, Early Childhood Education learners in the Chwele zone in Bungoma County have been found with difficulties performing simple mathematical 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 inadequate parental involvement in children's number-oriented activities.

Parents in Chwele Zone's Early Childhood Education Centres (ECE) are found with difficulty providing their children with basic needs and care.

They lack adequate supportive home conditions and neither provides mathematical activities-oriented materials nor time for children's play at home. Children go to school hungry and unkempt. The above scenario impedes pre-scholars' concentration in mathematical activities and is also an indicator that the home environment is not compliant with the development of mathematical 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 learning areas. None has investigated the influence of parenting practices on learner achievement in Mathematical activities, a scenario that prompted the carrying out of this study.

Purpose and Objectives

The purpose of this study was to establish the influence of parenting practices on learner achievement in mathematics activities with underlying objectives, to determine the effect of parental provision of basic needs and care, and to establish the effect of supportive home conditions on learner achievement in mathematical activities in the Chwele zone. Study outcomes were intended to sensitise preschool parents on profitable practices to help children learn mathematics.

THEORETICAL FRAMEWORK

Epstein and Dauber (1991) proposed six different types of parent-school partnership models with basic compulsions of families. It refers to the parent's responsibility in raising their children and preparing for their schoolyears by providing suitable home conditions that foster their children's growth and development throughout their early years and compulsion to learn (p. 290). This refers to the role of parents' involvement in their children's development and learning. According to Soenens et al. (2012), parental support is interrelated with other dimensions, such as psychological and behaviour control.

This study was guided by Lev Vygotsky's theory of childhood psychological development. The theory states that parents have a vital role in supporting children's learning. This construct views human psychological development as emanating through interpersonal interactions with the social environment (Brooks, 2011). The theory provides the place of parents in helping children perform mathematics activities by use of expertise and rich instructional resources environments. Epstein and associates' (2009) study on the parental involvement framework also supports this work, emphasising, besides school, that family and community positively support children's learning achievement in mathematical activities. Provision of basic needs and care for children in terms of a balanced diet, clothing, appropriate environment and care, besides supportive home conditions in terms of mathematical resource provision, help in ensuring that children's mathematical problems are identified, and interventions employed by parents to curb the problems in good time.

Parenting is one of the interactions that classify behaviours, responsibilities, and deeds. In this, parents and extended family members are aware and conversant about child maturity, and offering possessions that permit them to ascertain home environments that can enhance learning (Epstein et al., 2002)

METHODOLOGY

The study employed a descriptive survey research design. According to Shields et al. (2013), the design is used to describe the characteristics of a population or phenomenon being studied and uses interviews and questionnaires to collect data. Twenty-seven public ECE centres attached to public primary schools, 27 ECE teachers in charge, and 2097 parents spread all over the zone were targeted. Ten teachers, 150 parents and 90 children were sampled conveniently to take part in the study. Questionnaires and interview guide tools were administered to the teachers in charge, and parents, respectively, to collect data on the effect of

parenting practices on learner achievement in mathematics activities in the Chwele zone. 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. The content, face, and construct validity of the instruments were evaluated by experts and peers. The instruments were further given to an expert to check their appropriateness before administering them to a few respondents from a different population; the collected data were then analysed. After some time, the same instruments were re-administered to a similar sample; the consistency in the results obtained from the two tests was evidence enough that the instruments were reliable.

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 sensitised about the study.

Data collection from teachers was done by use of a self-administered questionnaire. Drop-and-pick style of delivering and collecting the questionnaire was used, and teachers were given one day to respond to the questions. Earlier arrangements were made by teachers in charge of the various ECE centres to call parents to schools for interviews, and data was collected. Some qualitative data was first of all sorted, coded, and organised into various categories and themes in relation to the research objectives to quantify. The quantitative data were analysed using means, frequencies, and percentages

and presented by the use of tables, graphs, charts, and descriptions.

STUDY FINDINGS

The first objective of this study was to establish the effect of parental provision of basic needs and care on learner achievement in mathematics. In this objective, a structural questionnaire seeking information on the care of children by parents and quality parenting practices was used on teachers. Responses from the items were coded thematically and analysed using means, frequencies, charts, and graphs. Results indicated that a high percentage of teachers recorded a low percentage of learners well taken care of, clothed, appropriately clothed, and healthy. A high number of teachers-70% recorded that learners who appeared well taken care of, clothed, and provided with rich home environments also participated actively in Mathematical classroom activities.

The second objective of this study was to determine the effect of supportive home conditions on learner achievement in Mathematical activities. This

objective employed an interview schedule to seek data on children’s exposure to mathematical-related activities at home and parents’ views on how they find parenting responsibility. Responses from interviews were reported in verbatim mode, and results indicated that most parents only involved children in home chores for learning mathematics at home. Parents also reported that lack of money and small farms were a reason why they did not adequately meet their parental responsibilities.

Parental Provision of Basic Needs and Care Verses Learner Achievement

Parenting practices that promote good health and nutrition through the provision of a balanced diet, deworming, disease treatment, and vaccination against diseases have a significant effect on learners’ performance in mathematics activities. Good health is a result of proper nutrition and health care. According to DelRosso & Marek (1995), it enhances brain development and physical strength, suitable for handling vigorous learning situations and vice versa. *Figure 1* demonstrates how teachers rated parental child care.

Figure 1: Child care by parents

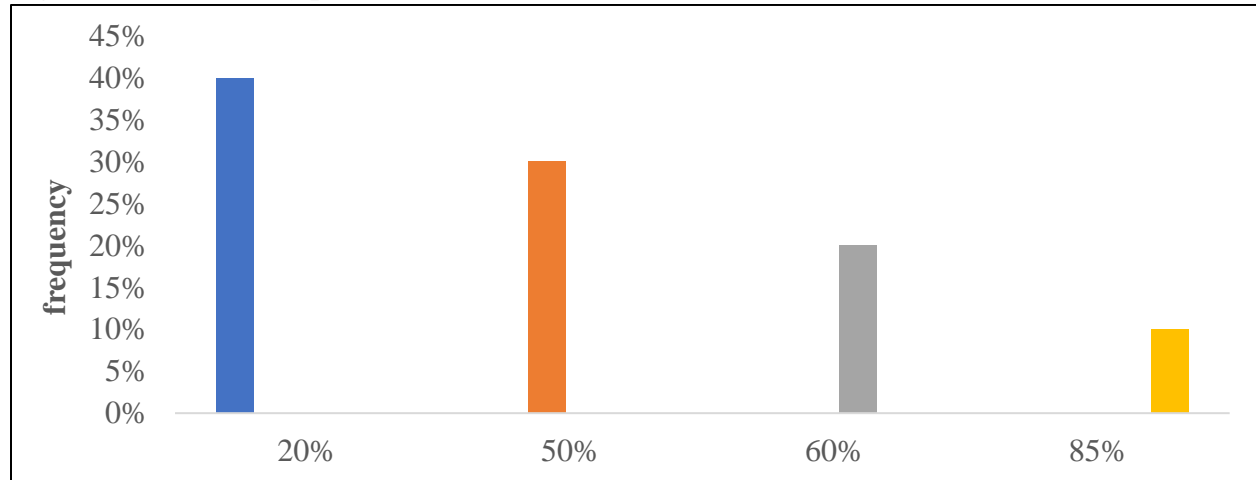


Figure 1 demonstrates that while 4(40%) teachers noted that only 20% of pupils appeared well fed, appropriately clothed, and healthy, 3(30%) teachers confirmed 50% learners, 2(20%) teachers consented 60% children, and 1(10%) teacher, affirmed 85%

learners. These results indicated that few children appeared well taken care of; the majority were in inappropriate healthy conditions. From the learners’ interview 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 with the demands of profitable play, which is necessary for enhancing learning. Kate (2010) asserts 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 influenced learners' achievement, as illustrated in Table 1.

Table 1: 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 1 illustrated that 7(70%) teachers recorded that learners who appeared well fed, clothed, and provided with a rich home environment, plenty of materials, time, and space for play demonstrated active participation in classroom mathematics activities and hence performed well. This is in agreement with Sarama and Clement's (2009) report 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 parental practices and care did not guarantee learners 'achievement in Mathematics.

Supportive Home Conditions and Learner Achievement

Home environments have consequences on child development and learning. Fan (2001) noted that family-level explanatory factors improve the effectiveness of preschoolers' achievement. For instance, the support given to learners by family members towards the development of mathematics activities upgrades proficiency levels of mathematics performance. Figure 2 illustrates the manner in which parents expose children to mathematics activities while at home.

Figure 2: Children's exposure to mathematics-related activities at home

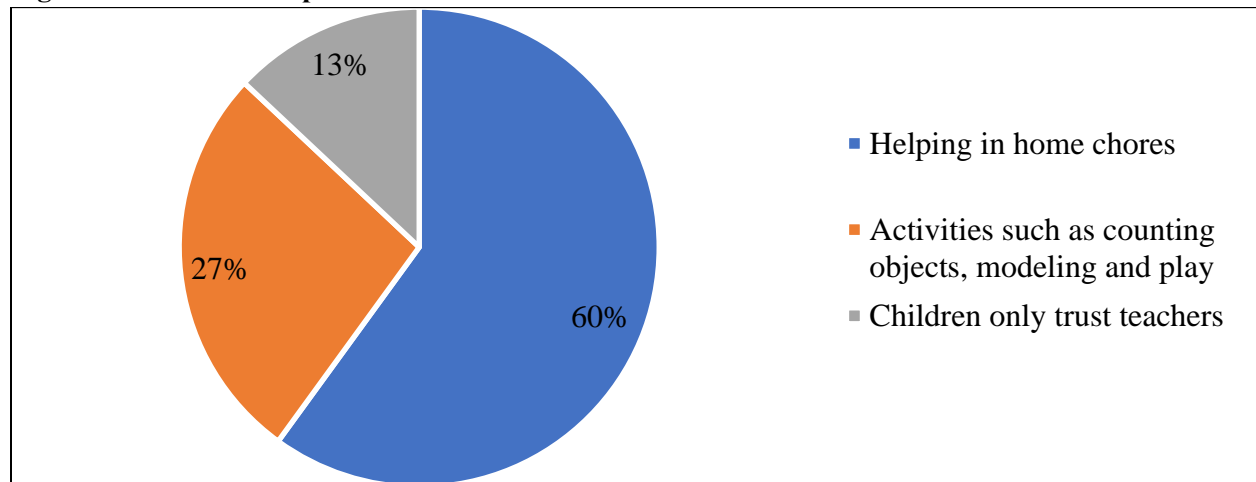


Figure 2 demonstrates that 90 (60%) parents involved children in such home chores as; sending them to buy things at the shop and collecting a

particular number of utensils, clothes, and chairs, among other activities which required them to count. One parent said:

“My boy has a hoop that triggers counting. Whenever he is sent to the shop or at the neighbours’ place, he counts the hoop’s rolled times. I later on help him recognise 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 brought two, I sent her for two, and she brought a different number. Asking her to return, but the extra makes her wonder and ponder over the remaining number. They try to learn the hard way, but I am always there to help her out 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, modelling, and arranging numbers in sequence, 20

(13%) parents did not manage breakthroughs assisting their children at all because children claimed that parents were not teachers. Parent’s activities are 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, and only 6(6.67%) learners admitted doing so, though one of them remarked;

“My dad is very harsh when teaching me at home; he has severally slapped me. I do not 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 the 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”.

The objective also sought to understand how parents found parenting responsibility, and their responses were demonstrated in *Table 2*.

Table 2: Parents’ views on how they find parenting responsibilities

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

Table 2 indicates 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) emphasises that healthy brains and bodies enable children to learn well.

CONCLUSION

This study set out to establish the effect of parenting practices on learner achievement in mathematics activities in the Chwele zone, Kabuchai sub-county, Bungoma County, Kenya. Research results indicated that parents did not take good care of their

children’s needs of clothing and healthy feeding and had no idea of reading with children to enable them to embrace mathematics activities’ culture. Learners were highly involved in home chores more than involvement in counting activities and providing them with resources to enable them to learn mathematics activities at home. Low economic status, besides having small farms, is a reason for parental poor responsibility over their children’s care and supportive home conditions. Thus, a high percentage of parents’ inability to provide basic care negatively affects children’s learning achievement.

Recommendations

The paper made the following recommendations: Kenyan government through its ministries, among them that of education, should find ways to ensure that children at this level are well taken care of. Families should be provided with the necessary requirements to support them in performing proper parenting practices and care. Most children were noticed by teachers to be lacking proper care in terms of health and behaviour. It has been established that a well-cared-for child attends school regularly, participates actively in class activities, and therefore by extension, performs better in Mathematics activities. Thus, apart from the usual provision of uniform, parents should take children for regular growth, monitoring and evaluation services in public health institutions and take reports back to school, at least after two months. Reinforcement should be put in place to support parents with foodstuff for learners' snacks to elevate hunger for less fortunate learners at the ECD centres. Parental help should also be coupled with some caution since harsh instructions from parents scare children, hence do not yield desirable learning outcomes.

Children's care, in terms of nutrition, health, and environmental stimulation, needs to be given serious attention if learners must positively achieve in mathematics. Parents should get involved in ensuring that their children are provided with play materials, listened to, protected, and allowed time for play at home and school to enhance the acquisition and proficiency of mathematical concepts and skills.

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