

THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

Influence of Parental Volunteering on Learner Achievement in Mathematics Activities in Chwele Zone, Kabuchai Sub-County, Bungoma County, Kenya

Kisiang'ani Bahati

Student, University of Nairobi, Kenya

Paul A. Odundo

Associate Professor, University of Nairobi, Kenya

Abstract.

Positive parental engagement in children's affairs improves wellbeing, academic achievement, and future productivity, as opposite to contrary parental involvement which yield negative learning outcomes. It is evident in research findings that appropriate parental engagement is directly related to positive learner achievement. This study examined the influence of parental volunteering on learner achievement in mathematics activities in Chwele zone. Descriptive survey study design was employed, targeting populations of 27 teachers in charge, and 2097 parents in 27 preschools. Convenience sampling was used to get sample populations of all respondents, 10 teachers in charge of pre – schools and 150 parents from 10 ECDE centers were respondents. Questionnaire and interview tools were administered to teachers in charge, and parents respectively to collect data. Data results were presented using frequency tables, graphs and pie charts. Findings established that 80% parents, only volunteered in provision of locally available resources at stake of participation in classroom activities, trips, actual classroom instructions and modeling, registering a considerable rate of Ignorance, poverty and divorce as hindrances to parents' volunteering in children's mathematics activities' instruction. It was concluded that parents did not fully volunteer in preschool mathematics activities, results thus supporting study findings that, inadequate parental volunteering in children's education is negatively related to learner's achievement in mathematics activities. The study recommended that teachers intensify parental sensitization on volunteering in learners' mathematics activities, if children's potentials should be realized. Further the government through the ministry of education should subsidize ECDE resources, meals, and encourage non- governmental organizations to help build pre – school infrastructure so as to improve mathematics activities' instruction.

Keywords: *Development, instruction, learner achievement, parental involvement, resources, volunteering*

1. Introduction.

Parental volunteering 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, Epstein, (2010). According to Emerson, Fear, Fox, and Sanders, (2012), Alliance Research for Children and Youth (ARCY), revealed that positive parental engagement in children's learning needs, attributes to higher enrolment rates, test scores, enrolment to advanced classes, higher level programs as well as completion of classes and increased graduation rates. Redding (2011), 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, Kraft, 2003).

According to Horn by 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, thereby improving both personal and social mathematical competencies for learners. On the contrary, an investigation by Kisitu, (2009), established that most Ugandan parents perceive that sending children of ages below four years to school for playing and interaction with peers is waste of money and time. It is also confirmed by Eju (2012) that ECDE is not included in the top priorities by Ugandan parents, due to inadequate knowledge on the influence of ECDE on school readiness. This trend has denied the country much more resourceful and intelligent human resources.

1.1. Parental Support in Classroom Mathematics Activities and Learner Achievement

Parental volunteering at school may be through attending classroom mathematics activities, attending play and sporting events and school workshops, Rain and William, (2011). Teachers should therefore teach parents, who may lack

confidence in understanding mathematics for early years, to curb difficulties associated with changes in teaching mathematics, to help children learn. Muir, (2011). Parental voluntary discussions about school routine, and helping in counting with children during mathematics activities sessions, improve learner achievement. Teachers easily identify mathematics skills potentials in children's early life at preschool, and nurture them through great monitoring; therefore parental support is instrumental in helping the course. (Doverborg and Pramling-Samuelsson 2011),

Higher parental volunteering contributes to an increased child perception level of competence, thus, supporting preschoolers' activities is needed in order to realize the anticipated achievement. Gonzales- De Hass, Willem, and Holbew (2005). Reggio Emilia atmosphere of learning, where parents, teachers, and children collaborate in classroom instruction, is commended by Clark and Moss (2011), since it facilitates easy transfer of knowledge, 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 assist in class outings or in classrooms' such roles as making number sacks, making stories and assisting in reading groups, to enhance teaching and learning at early childhood centers. Therefore voluntary provision of activities at school, provide parents with immense opportunities to become skilled at preschool mathematics programs and see for selves how children are learning.

1.2. Parental Home Assistance in Mathematics Activities and Learner Achievement

Adults can volunteer to use some aspects of Early Childhood mathematics activities, besides other forms of activities and games, to help children learn mathematics at home. Purports by Melehuish, Phan, Sylva, Sammons, Siraj and Toggart (2008), in a study on effects of home learning environment, strengthens that children are naturally attracted to mathematics, as it exists in the world around them, even without adults' guidance. Children innately learn mathematics through hands-on games, projects and asking questions. Piaget, (1996-1980)'s constructivist theory emphasizes hands-on activities, where adults can provide food items for counting, for children to acquire numbers sense and practice simple operations (subtraction and addition), using the food staffs, toys and blocks. In supporting this assertion, a study on teaching and learning in Scotland affirmed that Children learn measurement by for instance; measuring ingredients for a simple favorite recipe, own heights and the heights for others by use of tape or sticks, (Scotland 2011).

Parents should guide children in various mathematics content areas such as; number, algebra, shapes, space, measures and data, through strand units of Early Mathematical Activities (EMA), which include; classifying, comparing, ordering and matching through play, Tucker, (2010). In addition to this, Elia and Evangelou (2011) revealed that, picture books specifically written for teaching mathematics can be used to give explicit instructions at home. More importantly Askew and Eastaway, (2010), opine that, involving children in activities such as reading, doing arts, helping in home chores, playing games, building something, taking turns and playing sport, are helpful in ensuring that children keep a breast with daily evocative numeracy.

1.3. Assisting Resources Development and Learner Achievement

Parental engagement in resources provision should be core mandate in every institution of children's learning for efficiency's sake, since, resources enhance learner-centered learning. In an article on 'students' perspective and academic achievement in Kenya,' Indoshi and Othuon (2010), noted that learner-centered methods involve learners in the process of learning, yielding mastery of content and promotion of positive attitudes towards subject matter, as opposed to teacher-centered teaching methods. In agreement with the condition Muola (2010), argued that it is important to equip learning institutions with resources, since they have been proven to presenting new situations to children. Thus, parental responsibilities in equipping E.C.D centers as well as homes with adequate and appropriate materials are paramount in order to help enhance mathematics competencies in learners through hands-on activities.

Classroom 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. Parental volunteering in learning resources development promotes learner-centered pedagogies which include collaborative learning, critical thinking, and linking new facts to previous knowledge. 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. 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. This has been thought to be attributed to by inadequate parental involvement in children's number oriented activities. Parents hardly volunteer either, in classroom or mathematics activities at home, nor in resources development, a scenario realized to impede positive development of mathematics competencies in children. Assertions by Gottfried, (2013) hold that, mathematics activities are part of fundamental domains that build individuals' logical ground upon which future benefits accrue. Young children's daily home activities such as; playing games using boards and cards, shopping, and cooking, foretell their mathematics skills, score measures of mathematics knowledge and fluency. However most studies in Chwele zone have focused in the fields of Geography, History, resource management, development of indigenous languages, and cultural origins, but very few have

addressed issues pertaining Early Childhood Development and Education (ECDE). The 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 volunteering on learner achievement in Mathematics activities. This scenario prompted the carrying out of this study with the underlying purpose.

3. Purpose and Objectives

The purpose of this study was to establish the influence of parental volunteering on learner achievement in mathematics activities with underlying objectives, to: establish the influence of parental help in classroom on learner achievement in mathematics activities; determine the influence of parental assistance at home on learner achievement in mathematics activities; and analyze the influence of resources development on learner achievement in mathematics activities. Study outcomes are intended to facilitate attitude change in preschool parents so that they settle on profitable voluntary services to help children learn mathematics.

4. 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. 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)'s study, on parental involvement framework, also supports this work, emphasizing besides school, that family and community partnership positively support children's learning achievement in mathematics activities. Good skilled and talented volunteering parents in classroom activities, projects and trips can help educators in the process of teaching preschoolers. Upon this theoretical foundation, the linkage between parental volunteering and learner achievement in mathematical activities has been conceptualized in figure 1.

5. Conceptual Framework

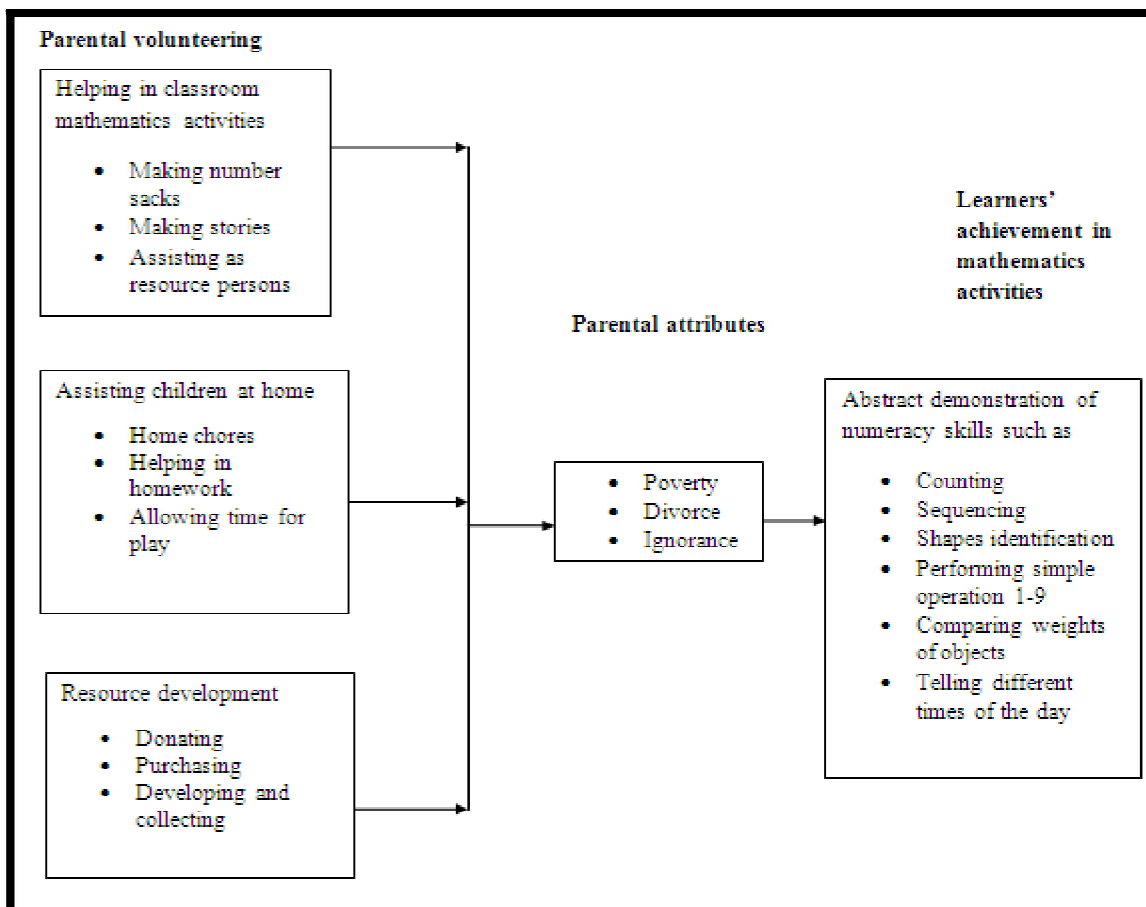


Figure 1: Conceptual Framework on Parental Volunteering on Learner Achievement in Mathematics Activities

Figure 1 shows three aspects of parental volunteering investigated, thus; helping in classroom activities by, making number sacks, making number stories, and being resource persons. Second is, assisting learning mathematics at home by; having children help in home chores, helping children at home with their homework, and allowing children time for play. Lastly, resources development by; donating, purchasing, and developing materials relevant for mathematics activities' learning in and out of school. However, parental engagement has been confounded by other parental attributes such as poverty, ignorance and divorce.

6. Methodology

The study employed descriptive survey research design, which is a qualitative method particularly used to ascertain attitudes, opinions, as well as factual information about a phenomenon (Mugenda, 2013). In this case, on the influence of parental volunteering on learner achievement in mathematics activities. The study targeted all 27 public ECE centers, 2097 parents of children of ages 3-9 years attending preschool, most of who are peasant farmers of ages 20 and above years old, and 27 ECE teachers in charge of the preschools in Chwele zone. 10 teachers, 150 parents and 90 children were sampled conveniently, to take part in the study. Questionnaire and interview tools were administered to teachers in charge, and parents respectively, to collect data.

Data collection from teachers was done by use of 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 centers to call parents to schools for interview, and data was collected. Some qualitative data was first of all sorted, coded, and organized into various categories and themes in relation to the research objectives, to quantify it, as recommended by Serem, Boit & Wanyama, (2013). The quantified data was analyzed using means, frequencies and percentages, and presented by use of tables, graphs, charts and descriptions.

7. Study Findings

This section presents results obtained from information provided by teachers, parents, and learners under, parental assistance in classroom activities, parental help in mathematics activities at home, and parental resources development thematic areas.

7.1. Parental Help in Classroom Mathematics Activities and Learner Achievement

Preschool activities need to be supported in order to achieve anticipated outcome. Support by parents to provide instruction in areas of expertise and instructional resources, facilitate easy transfer of mathematics activities' knowledge to learners. These helps children attain educational goals (Jeynes, 2010). Table 1 shows ways through which parents provide help in classroom mathematics activities, and verbal voices.

Response	Teachers		Parents	
	F	%	F	%
Providing teaching learning resources	9	90	-	-
Not available	1	10	70	47
As required.	-	-	20	13
That is teachers' work	-	-	60	40
Total	10	100	150	100

Table 1: Parental Involvement in Classroom Mathematics Activities

Reported that parents hardly volunteered participation. On the other hand, 70 (47%) parents did not volunteer at all. 60 (40%) parents who contributed locally available resources only instructed children to collect for themselves. While 20 (13%) parents volunteered only on the basis of being required by teachers. Could the reason be that, teachers have not sensitized parents enough on their responsibility concerning classroom mathematics learning needs? This partly concurs with Melehuish et al (2008), in scenarios where parents provide learning resources to ECDE learners. However, parents do not volunteer in actual classroom activities, contrasting with his findings postulating that parental volunteering in classroom mathematics activities provide immense opportunities to become skilled, so as to help children at home. A parent who was 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"

All the interviewed 90(100%) learners proved that, parents did not participate in voluntary instruction in classroom mathematics activities. Failure of parental volunteering as influential agents in these very crucial areas of instruction, may hinder learners’ achievement, as posited by (Ghormode, 2013)

7.2: Assistance in Learner Mathematics Activities 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 2 illustrates how parents volunteer helping children at home.

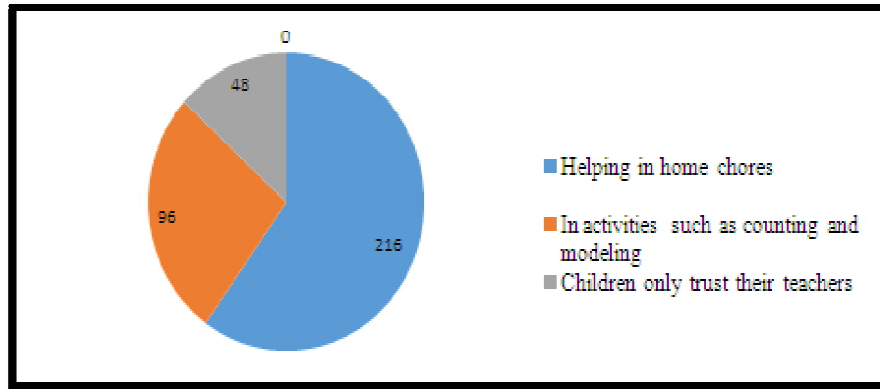


Figure 2: Parental Assistance in Mathematics Activities at Home

Figure 2 shows that 90 (60%) parents involved children in such home chores and other activities which require them to count. 40 (27%) parents involved children in counting stones, sticks, modeling and arranging numbers in sequence, complying with Piaget (1996-1980)’s constructivist theory, emphasizing hands-on activities which help children learn. While 20 (13%) parents regretted that children did not trust their assistance. A parent who was also echoed by others had this to say;

“My child cannot let me instruct him on anything concerning his school work. He has always told me that am not his teacher, but mother, his persistent denial of my help has kept me off his work”.

To this effect, there is a realization that, teachers need 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 homework, disagreeing with Vander gas, et al (2012)’s purports that, parents should be helped by schools to build cooperation with children in developing school family projects to help children learn mathematics.

7.3 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. Table 2 contains responses from both parties on instructional resources development.

Response		Teachers		Parents
	F	%	F	%
Collecting from local environment	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

Table 2: Parents’ Contribution towards Resources

Table 2 indicates 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). 2 (20%) teachers, revealed that parents, apart from providing locally available materials, donated money meant to purchase, or purchased resources for classroom mathematics activities. 1 (10%) teachers, noted that, apart

from collection, some parents develop particular mathematics resources for classroom activities. Whereas, another 1 (10%) teachers confirmed that parents did not respond positively towards resources development for mathematics activities, in school. In conjunction, 33 (22%) parents collected such materials as stones, sticks, maize cobs/stalks for children to take to school. 37(25%) parents did not treat it seriously, because they felt that, resources development was teachers' work, since teachers know what they required. A parent was heard charting with another, saying;

"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."

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 needs a strategy likened to that of England, where, parents were to be given information, and a voice to encourage partnership with schools, to enhance children's learning. (Scot and Sylva, 2002), or else learners' achievement will remain crippled.

8. Conclusion

The study therefore concluded that parents in Chwele zone do not take part in actual classroom mathematics activities with children, since both sides of respondents (teachers and parents) indicated that parents only, partly volunteered engagement by providing local materials for mathematics activities. Kenya's findings by Odundo and Gunga(2013) purport that media allows for interactive learning within classroom, thereby diversifying learning styles and learner engagement, a trend known to improve learning in children. A study on "New Wave of Evidence" by Jeynes(2010) in southwest showed that students whose parents participated in education possess better social skills, adapt well and attend school more regularly thus attain education goals. Since parents in Chwele zone are falling short of these, teachers are left with the responsibility of sensitizing parents on matters concerning voluntary services in children's learning activities. The government through the ministry of education should as well in budget allocations, include finances to subsidize ECE expenses, and even encourage non-governmental organizations to improve the sector's infrastructure, in order to enhance mathematics activities' instructions.

9. References

- i. Askew, M. Eastaway, R. (2010), *Old Dogs, New Math: Homework help for parents*, New York; The experiment.
- ii. Brooks, J., (2011). *The process of parenting* (8th Ed). Toronto ON: McGraw – Hill.
- iii. Bundy, Donald. A.p, (1997), *Health and Early Childhood Development in young many Early Childhood Developments: investing in our children's future*, Elsevier, Amsterdam.
- iv. Casey, B. M., Andrews, N., Schindler, H., Kersh, J. E., Samper, A., and Comply, J. (2008). The development of spatial skills through interventions through block building activities. *Cognitive and instruction*, 26, 269-309. Cross Ref Google scholar.
- v. Castro, M., Exposito-casas, E., Lopez-Martin, E., Lizasoain, L., Nvarro-Asencio, E., & Gaviria,J. L. (2015) , Parental involvement on student academic achievement: A meta-analysis. *Educational Research Review*, 14, 33-46. Doi: 10.1016/j.edrev.2015.01.002.
- vi. Chika, P. O. (2012). "The extend of students responses in the classroom". *International Journal of Academic Research in Business and Social Science*. Vol. 2, No. 1, PP. 22-37.
- vii. Clark, C., Hawkins, L. (2010) *Young Peoples Reading. The Importance of the home environment and family support* .London, England: National Trust. Retrieved from <http://www.literacy trust>.
- viii. Clark, A. and Moss, P. (2011). *Listening To Young Children: The mosaic Approach* (2nd ed.). London: Children's Bureau.
- ix. Defresne, J. R., Garace , J. W. Leonard, W. J., Mestre, J. P. and Wenk, L. (2010), *Classroom talk: A classroom communication system for active learning*. 7(2) 3-2: doi: 10 1007/B F 02946592.
- x. Dorothy Caddell Jim Crowther Paulo'Hara Lyn Tett,(2000), investigating the roles of parents and schools in childrens' early years ,education Scotland, university Edinburgn-Europeann conference.
- xi. Doverborg, E, &Pramling-Samuelsson, I. (2011) *Early Mathematics in the preschool context*. InPramling Samuelsson. (Eds). *Educational Economics: Nomadic studies in early childhood didacts*. Dordrecht, the Netherlands, Springer.
- xii. Ejuu, G. (2012), *The Status of Implementation of the Education Sector Early Childhood Development Policy*, Uganda, Kampala, UNESCO.
- xiii. Elia, I &Evangelou, K. (2014) *Gesture in a kindergarten mathematics classroom*. *European Early Childhood Education Journal*, 22, 45-66. Cross Ref Google scholar.
- xiv. Epstein, J.L.(2010), *Scool/Family/Community Partnerships: Carry for the children we share: Phi Delta Kappan* 92(5):81-9
- xv. Epstein,J. L. & Associates, (2010) "School/Family/Community Partnership: Caring for the Children We Share." *Phi Delta Kappan* 92 3 81 96

- xvi. Gonzalez-DeHass AR Williams PP, Holbein MF, Examining the relationship between the parental involvement and student motivation, *educational psychology Review* 2005; 17; 99-123
- xvii. Hill N.E Craft S.A. Parent-School involvement and School Performance: mediated pathways among socioeconomically comparable Africa, America and Euro-American families *journal of Educational Psychology* 2003; 96; 74-83.
- xviii. Hornby, G., Witte, C. (2010). Parent involvement in inclusive primary school schools in New Zealand: Implications for improving practice for Teachers Education Retrieved from <http://www.thefreelibrary.com/parent+involvement.inclusive+primary+schools+in+New+Zealand%3a:90218657712>
- xix. Jeynes W.H,(2010) A meta-analysis of the relation of parental environmental to urban elementary school, student academic achievement. *Urban Education*. 40(3), 237-269. (Associated with high academic performance US)
- xx. Kisitu, W, (2009), ECCE in Uganda: their Challenges and Possibilities for Achieving Quality and Accessible Provision. Research archive, University of Edinburg. UK.
- xxi. J. – A Leferre, S. – L. Kwarcuk, B.L. Smith – Chan, L. Fast, D. Kaamawar, &J. Bisanz, (2009). Home Numeracy Experiences and Children’s Mathematics Performance in Early School Years.
- xxii. Melhuish, et al, (2008). Effects of the Home Learning Environment and Preschool Centre Experience upon Literacy and Numeracy Development n Early Primary School. *Journal of Social Issues*, 64, (1), 95 – 114.
- xxiii. Muir, T. (2012). Numeracy at Home: Involving Parent in Mathematics Education, *International Journal for Mathematics Teaching and Learning*, 1 – 13. Retrieved from National Council for Curriculum and Assessment (NCCA) (2009). *Aistear. The early Childhood Curriculum Framework*. Dublin: Author...
- xxiv. Muola, J. M.(2010) A study of the relationship between academic achievement, motivation, and the home environment among pupils, *Educational Research and reviews*,Vol. 5 m 213-217.(5)
- xxv. Odundo, P. A. &Gunga, S. O. (2013). Effects of application of instructional methods on learner achievement in business studies, in secondary schools in Kenya. *International Journal of Education and Research*, 1, 1-20.
- xxvi. Rain, L.William, k.(2011), Parental Involvement and Students’ Academic Achievement: An Educational Psychology Review, 13, 1-12.
- xxvii. Redding, S. (2011), The school community: Working together for student success. In S. Redding, M., Muphy & P Sheley(eds). *Handbook on family and community engagement*. Lincoln,IL : Academic Development Institute Available at <http://www.ishe.state.il.us/grants/pdf/face>.
- xxviii. Scottish government (2011), The Big Three Essentials (Accessed on 22/09/2011 online at) [http://www. t Scotland. Org. uk/early years Matters / The BigThree.as](http://www.tScotland.Org.uk/early years Matters / The BigThree.as)
- xxix. Scott,S.,&Sylva,K.(2002).The Spokes’ Project :Supporting Parents on Kids education, Unpublished Manuscripts.
- xxx. Serem D. K., Boit J. M., & Wanyama M. N., (2013), *Understanding Research*. Eldoret, Utafiti Foundation.
- xxxi. Tella, J. Indoshi F, C. & Othua, L. A. (2010), Relationship between students perspectives on curriculum and their academic Achievement in Kenya. *Kenya of Education Research*. Vol. 1. No. 9 pp. 382-389.
- xxxii. Tucker, K. (2010), *Mathematics through Play in the Early Years*. London, Sage.