The Role of Parents and Pre-primary Education in Promoting Early Numeracy Development to Young Children in Dar es Salaam

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Abstract

This study examined the role of parents and pre-primary education in the development of early numeracy skills in Dar es Salaam, drawing on a sample of 80 respondents including 36 pre-primary children, 10 pre-primary teachers, six primary school head teachers and 28 parents of pre-primary school children. Data were collected through interviews, observation of indoor and outdoor learning activities and documentary review. The findings revealed that the majority of the parents (92.8%) did not guide children to learn through home activities related to numeracy for different reasons including being too busy. It was also established that learning activities provided in most pre-primary education were inappropriate for the children, since the level of number activities stipulated in the syllabus were below children's level of number function and development. Overcrowded classes and poorly arranged sitting plans made teachers fail to interact closely with individual children. Learning materials relevant to the basic pre-counting skills were also lacking in most pre-primary classes. Children were generally taught counting instead of how to count. The study recommend that parents should learn how to create supportive children's learning environment at home; participate actively in children's learning activities and providing relevant learning materials to their children. The pre-primary education teachers should attend proper training to improve teaching and learning methodology for pre-primary learning. The pre-primary education should reinforce the teacher-parent relationship through school-parent meetings, parents' day, class visit and close communication with parents.

Key words: Early numeracy, pre-primary education, preschool, home learning environment

Introduction

The development of numeracy skills for young children starts in early years before school and parents are the immediate teachers, whereas home is the first learning environment (Enemuo & Obidike, 2013). Broadly, numeracy can be termed as quantitative literacy as it includes the effective use of numerical skills to meet the general demand of life (Doig, McRae, & Rowe, 2003). Numeracy in early childhood includes a child's ability to classify objects according to physical attributes, comparing objects and enumeration, spatial concept (i.e., describing object location), seriation (arranging objects in series), identifying patterns and performing simple numeracy tasks such as counting, addition, subtraction and division (Epstein, 2007). Children acquire numerical skills throughout their daily activities such as playing number games, building blocks, singing number songs, rhymes, poems, reading mathematics books, family talk about numbers and all other daily activities that involve numbers (Smith-chant, Kamawar, Fast & Bisanz, 2009; Gunderson & Levine, 2011; LeFevre, Skwarchuk, & Taylor, 2013).

Early numeracy skills among pre-school children constitute an important component that can predict their achievement in later years of schooling (Duncan *et al*., 2007). The study on children's learning in primary schools conducted by Uwezo in 38 districts in Tanzania reported that, school children are not learning the basic skills—Reading , Writing and Arithmetics (3Rs) skills and the skills are poorly achieved in early primary classes (Uwezo, 2010). Furthermore, various studies on children learning conducted by Uwezo (2010, 2011, 2012, 2014) in Tanzania reveal that pupils have poor mastery of numerical skills. Likewise, the Standard IV National Assessment results of 2014 indicated that among 1,001,423 pupils who sat for mathematics, a 456,838 (45.6%) pupils passed whereas 54.4 percent failed (National Examinations Council of Tanzania - NECTA, 2014). This indicates that there is a problem in basic skills and knowledge. Therefore, this study examined the role of parents and pre-primary education in promoting early numeracy development. The term 'early numeracy' refers to knowledge of number and operations that involve number concept and counting skills children acquire during early childhood.

Background to the problem

A study on home and pre-school learning environment and their relations to the development of early numeracy skills conducted in Germany by Anders, Rossbach, Weinert, Lehrt and Maurice (2012) reported that, children develop numeracy skills through everyday interactions. For instance, when they talk about how things are more, less, bigger and smaller; read number books; tell stories; sing songs; and recite poems that include numbers and counting; play simple games that relate to numbers and when they recognise printed numerals (*ibid.*). Various studies on early childhood education (ECE) recognise the importance of promoting early numeracy due to its significance in learning because it is considered a good indicator of initial and later success in formal learning (Duncan, Claessens, Huston, Pagan, Engel, Sexton, Duckworth, & Japel, 2007; Aunio & Niemivirta, 2010; Levine, Suriyakham, Rowe, Huttenlocher, & Gunderson, 2010). Indeed, children's interaction with numerical environment and early engagement in counting activities is an essential factor in supporting children's literacy skills development (LeFevre, Skwarchuk, Smith-chant, Kamawar, Fast, & Bisanz, 2009; Levine, Suriyakham, Rowe, Huttenlocher, & Gunderson, 2010). Studies conducted by Uwezo (2010, 2011) on children's learning in primary schools in Tanzania reported that children were not effectively learning the 3Rs—Reading, Writing and Arithmetic—in early primary classes.

Uwezo findings revealed that seven out of 10 pupils had completed Standard II without mastering numeracy standards of that level i.e., addition, subtraction and basic multiplication. Anders *et al*. (2012) reported that the quality of literacy activities children had at home are different from those of numeracy due to scarcity of numeracy related resources such as toys and games and parental activities that relate to numbers such as counting with the child. Likewise, the development of numeracy skills has been associated with both structural quality of the pre-school that are described by teacher-child ratio, amount of space per child, class size, teachers' competence; and process quality that are explained by learning activities and interactions with teachers (*ibid.*). Yet, most primary schools have insufficient teaching and learning facilities and inadequate classrooms, thus the classes are overcrowded (Uwezo, 2014). These hinder teachers'

effort in promoting early numeracy. This implies that children might have a poor foundation in early numeracy skills that would have prepared them for primary education.

Statement of the problem

Numeracy development prior to entering school has been acknowledged in literature as important for children's learning success (Aunio & Niemivirta, 2010; Duncan *et. al*., 2007). Various studies conducted in developed countries such as that of Gunderson *et a*l. (2011) and Anders *et al*. (2012) reported that the differences observed in children in numeracy skills on entry to primary school depend on the quality of home learning environment and pre-school learning environment. It is evident that effective pre-school learning is promoted through adult-child and child-child interactions (Anders *et al*., 2012). Therefore, home and pre-primary school should provide appropriate and effective learning opportunities for young children. Uwezo annual learning assessment report in Tanzania (2014) explained that, most of the children who go to school do not acquire basic skills in numeracy since seven out of 10 pupils had completed Standard II without mastering numeracy standards of that level. The studies reviewed seem to support the explanations about the development of numeracy skills in children. However, they inadequately report the roles of parents and pre-primary education in promoting early numeracy development. Based on these facts, this paper intends to examine the role of parents and pre-primary education in promoting early numeracy development in young children.

Significance of the study

The results from this study are important because they show how home and pre-primary education can promote the development of early numeracy skills in young children. Moreover, results from this study can help facilitate the acquisition of early numeracy skills in pre-primary school children through plays and household activities related to numbers pertaining to early childhood education (ECE) professionals, teachers and parents, as well as inspiring the sustained promotion of early numeracy in young children. To parents and caregivers, findings from this study may help to enlighten them on their roles of involving children in household tasks and children's number-related plays such as pretending plays, singing, number games, running and jumping. They could also be encouraged to provide play facilities such as toys, blocks, puzzles with numbers and balls to their children because plays stimulate children's thinking, creativity and memorisation of different numerical concepts. The study will also inform pre-primary teachers on their roles of working together with parents in promoting the development of early numeracy skills.

Related Literature

Literature has indicated that, the development of numeracy in early childhood is social in nature, as it involves home activities that expose children to numeracy and the integration of numeracy practice in real-life tasks such as cooking, laundry and shopping as well as playing number-related games. A study by LeFevre *et al.* (2009) on the importance of home experiences in children's involvement indicated that activities such as playing board, card games, talking

about money, reading numbers and storybooks and measuring during cooking was related to the children's acquisition of number skills in school. Susperreguy (2013) emphasised that the development of numeracy occurring during home activities where parents are engaged with their children in meal preparation, chores and talking about money when shopping. Young children's development in counting skills can be promoted at home when parents and caregivers play the role of talking with the children about numbers and quantities through nursery rhymes, songs and plays (Taylor, 2013).

A study conducted by Clements (2004) on building blocks for early childhood mathematics emphasised that, children's activities should be based on the children's experience and interest with an emphasis on supporting the development of mathematical activities. These activities include counting, building blocks such as creating shapes and combining objects forming numbers; dramatic plays that encourage children to count and add during play; designing number pictures with shapes, reading numerals on a card and counting outset using objects (*ibid.*). Different scholars believe that pre-school children learn best through active, hands-on activities such as games and dramatic play (Santrock, 2008). Siegler *et al*. (2008) highlighted game play as one of the activities that provide rich experience with numbers such as hidden objects games, car race and matching number with objects; the activities that involve cognitive thinking. There are various plays that children may engage in and connect to the early numeracy learning; examples of these plays include playing with sand pits, games, building blocks, number puzzle and pretending plays. Santrock (2011) emphasises songs, rhymes, sports and other outdoor activities to stimulate children's thinking and memorisation. Likewise, Knaus (2013) stresses that learning activity that involve materials such as building blocks and puzzles providing children with practices that encourage logical thinking and the use of number concepts and mathematical language.

Gonzalez-Mena (2001) emphasises that the role of parents in promoting early numeracy is to give children an opportunity to construct mathematical knowledge by observing children's interest, setting appropriate environment for children's exploration activities and providing learning materials and playing facilities. A study conducted by Melhuish, Phan, Sylva, Sammons, Siraj-Blatchford and Taggart (2008) on the effect of the home learning environment and pre-school centres on literacy and numeracy development in primary school identifies the stimulating home learning environment as one that provides children with learning materials and parenting style that inspire the learning process, for example, playing with numbers and counting. The study on children's number knowledge development conducted in Chicago by Levine *et al*. (2010) revealed that parents who talk frequently about number may have children who are better at understanding number word and concept. However, a similar study conducted by Gunderson and Levine (2011) found that the amount of number talk that parents interact with their children varies from one family to another due to limited understanding of the importance of early mathematical interactions. A study conducted by Ngorosho (2011) on the role of home environment in literacy skills of Kiswahili speaking for primary school children in a rural Tanzania found that low income homes had inadequate books and other reading materials to support children in acquiring reading and writing skills. These literatures seem to be supportive in the family involvement in developing literacy and numeracy in

children, though literatures explain less the roles of parents in promoting early numeracy development.

The role of pre-schools is to plan for and provide suitable learning environment for young children while taking into account the development of appropriate needs in relation to the teaching and learning (T/L) materials, playing grounds and facilities as well as providing safe T/L environments (Gonzalez-Mena, 2001). Thus, teachers need to be competent in teaching pre-school children and understand what children know for them to provide the most appropriate learning environment (Doig *et al*., 2001). Mishra (2005) emphasised that the interaction of teachers with fewer children allows them to provide the best responses to individual children, pay attention to them, create appropriate care and develop appropriate classroom environment. Similarly, a study by Mtahabwa (2007) found that pre-schools had inadequate learning materials, plays and playing facilities, a situation which resulted in the use of improper methodology in teaching preschool children. A longitudinal study conducted by Anders *et al*. (2012) underscore the fact that children in classes with better teacher-to-child ratio, amount of space per child and class size produced better numeracy skills. Most of these literatures seem to explain the insufficient teaching and learning materials and unsuitable learning environment without showing on the role of pre-primary education in promoting early numeracy.

The role of parents and pre-primary schools in promoting early numeracy is to collaborate in school activities. In this regard, Zgourides (2000) asserts that the school learning environment can be planned well once parents feel that their role is to contribute to the academic success of their children. The parents and pre-school relationship in promoting children's learning focuses on parents' involvement and parents' partnership, which includes the activities that parents engaged inside or outside the classroom and the positive attitude which parents have towards their children's learning (Gonzalez-Mena, 2001). However, the study on strategies for promoting family and pre-school partnership in Tanzania conducted by Mtahabwa (2001) reported that a majority of parents have participated in the construction of school buildings and in the contribution of food but fail to provide assistance in their children's learning activities. Parent-teacher communication and relationship in learning activities is important as it contributes to the parents' greater responsiveness to the school activities and inculcates in the child's mentality the importance of school (Harvard Family Research Project report - HFRP, 2006). The role of parents and teachers to work together include attending school meetings, participating in class visits and helping children's learning. However, the study conducted by Cannon and Ginsburg (2008) on maternal belief about early mathematics versus language learning found that some parents view numeracy development in children as the responsibility of the school and not the home. Likewise, according to Uwezo Tanzania (2011) Annual Learning Assessment, a majority of parents are not involved in their children's learning process and one out of four parents (25%) discussed education issues at a school committee meeting. The literature seems to be supportive but less reported on the role of parents and pre-primary teachers as a team in promoting early numeracy development.

Methodology

The present study employed a qualitative approach to research because of the need to study real-world pre-primary school setting. It was conducted in pre-primary classes as the respondents performed their everyday activities. The study used an interpretive research design because it was largely based on naturalistic methods of data collection such as interviews, observation and documentary analysis. The researcher went physically to the primary schools with pre-primary classes and playgrounds and talked to pre-primary teachers, head teachers and pre-primary children; observed their activities and children's learning activities, read their documents such as textbooks, lesson plans, log books, school timetable and recorded all observable actions. The researcher also attempted to understand the facts on the role of parents and pre-primary education in promoting early numeracy in young children.

In this study, the sample was drawn from six pre-primary schools in Temeke Municipality, Dar es Salaam region. It consisted of 80 respondents: 36 pre-primary children, 28 parents, 10 pre-primary teachers and six primary school head teachers. Purposive sampling was applied to obtain pre-schools, pre-primary teachers, head teachers of primary school, parents of pre-primary children because they were chosen for a specific purpose, that is, the most relevant to the study and yielded the most relevant and enough data on the role of parents and pre-primary education in promoting early numeracy development. Pre-primary schools were selected on the basis of examination performance in Primary School Leaving Examination (PSLE) 2014 by selecting the five highest performing and five lowest performing primary schools from government and non-government run institutions.

Stratified sampling was used to select pre-primary children in homogeneous groups such as five and six-year-old children. A simple random sampling using a ballot process was used to obtain three government and three non-government primary schools and pre-primary children to be involved in the study. Five parents/caregivers/guardians were selected with preference from each school. Children were grouped according to their age; a ballot process whereby children were given folded pieces of paper with 1, 2, and 3, to the last number written on them depending on the size of the class was employed. Those who picked 1 to 3 were included in the sample.

The non-participant observation method was used to gather information on how teachers and children interact during learning and while playing. Indoor and outdoor learning activities were observed to identify various number activities at home and in pre-primary classes that promote counting skills. Apart from observation, documentary review also served as a source of data. Pupils' exercise-books, textbooks, logbooks, lesson plans, schemes of work and syllabus were examined for the purpose of establishing the nature of written feedback evident in children's learning activities. Also semi-structured interview schedules were used to examine the role of parents and pre-schools in promoting early numeracy in young children. Teachers and parents were interviewed to examine the number activities including plays children used at pre-school and home, how they are used to promote early numeracy and the availability of learning materials. Information was also sought on their understanding of basic counting skills taught in pre-primary classes, teaching and learning activities and appropriate learning materials for promoting counting skills.

Interviews on activities children and parents involved at home and pre-primary education were conducted. The content analysis was employed for analysing data with the quantification of data applied where necessary. The information was recorded and written, observation of early numeracy activities and documentary review were summarised then reviewed by categorising the information into themes after familiarising them by reading notes and checklist and listening to audio clips. Summarised information was coded to recognise similarities and differences according to themes. Data were interpreted, analysed and presented descriptively using descriptive measures such as frequency, percentage and tables, and then discussed before the drawing of conclusions.

Findings

Number activities parents shared with children at home

The number activities at home involved direct practices such as teaching children to count using fingers, objects and oral counting; indirect practices include daily life activities related to numbers. With regard to the issue of direct practices, the findings indicate that oral counting (78.6%) and finger counting (71.4%) were the most widely used at home followed by object counting (60.7%) whereas adding (53.6%) and taking away numbers (53.6%) were the least commonly exercised. Finger counting was reported as the most common activity used for counting. Children counted their fingers when playing with parents, care-givers, elder brothers and sisters. It was also reported that bottle covers/tops, small stones, sticks and plastic bottles were used for counting with the use of tally marks and small circles also common when performing addition and take-away tasks.

On the other hand, indirect practices allowed parents to share with children at home. In this regard, the findings indicated that, 23 parents (82.1%) involve their children in home activities such as sharing things, for example, fruits and cakes, purchasing small things like sweets, biscuits, tea-leaves, oil, sugar; arranging exercise-books in their bags; helping mothers collect ingredients during food preparation; and measuring teaspoons of sugar during tea preparation and fetching water. On the other hand, five parents (17.9%) did not involve their children in home activities because they thought that they were still too young and, thus, houseboys/girls were responsible for all the home activities. Also, 26 out of 28 parents (92.8%) did not guide children to learn through home activities related to numeracy as they were not aware of the value of home activities in promoting early numeracy development.

In addition, five parents (17.9%) reported to be involved in plays with their children whereas 23 other parents (82.1%) reported that they were not involved in plays with their children because they were busy with household and income generating activities. Another 15 (53.6%) parents reported that they did not provide playing materials to their children whereas 13 (46.4%) provided them with playing materials such as small balls (tennis), car toys, bicycle, building blocks and toys of cooking sets.

Moreover, pre-primary children were asked to identify the common plays used at home and school. The findings indicate that jumping, kicking the ball, 'rede' (throwing and catching the ball), swinging, hidden games (hide the objects and counting all seen objects), running with

sticks while counting the sticks collected, rope jumping and card games were the most common plays. Furthermore, few (40%) pre-primary teachers and 10.7 percent of the parents were able to explain how plays can foster numeracy skills.

Number activities exercised in pre-primary classes

The findings indicated that songs and counting aloud were the common methods used by all (10) pre-primary teachers. The indoor plays such as jumping were reported by four (40%) respondents, games were reported by four (40%) respondents and outdoor plays such as running and sports was reported by two (20%) respondents. Role play, jig-saw, poems, storytelling and problem-solving activities were not used in most preschools because learning and playing materials were inadequate. However, findings revealed that some pre-primary teachers were incompetent in selecting appropriate activities for children and the classes were also over-crowded. These findings were confirmed through the observation carried out in classrooms which revealed that very few activities such as singing, counting aloud and writing were used in pre-school classes. A number activities such as games, plays, building blocks, puzzles, stories, rhymes were absent due to various reasons such as lack of playing grounds and facilities, lack of learning materials and over-crowded classes.

Furthermore, the study found that the level of mathematics activities (counting based on number 1-10) stipulated in the syllabus was below the children's level of number knowledge and development. Also, the pre-primary school curriculum embraces too many subjects that the young learners had to contend with. These include Kiswahili learning activities, English Language learning activities, Mathematics activities, Personality and Sports activities, Science activities and Arts activities that could be merged for the young learners to have few but necessary activities for promoting basic skills for pre-primary school children, that is, writing, reading and arithmetic (3Rs).

Role of Parents in Promoting Numeracy Skills

Since the role of parents is to provide learning materials and guiding children to learn, the findings indicated that a majority (71.4%) of the parents failed to provide learning materials to their children due to financial constraints. However, few parents (28.6%) provided children with relevant learning materials such as abacus, number books, writing boards and counting boards. The study also found that some parents did not guide children to do their homework because some still believed this was solely a pre-primary school teachers' responsibility (see Table 1).

Table 1: Parents' role in guiding children to learn

Activities	No. of Parents	%
Guiding children to complete their homework	14	50
Giving children addition and subtraction tasks	11	39.3
Sharing stories related to numbers	3	10.7
Singing number songs	0	0
Total	28	100

Source: Field data (March - May, 2015).

In addition insufficient parent to child interaction in learning activities were noted (see Table 2).

Table 2: Parents' responses on how often they helped children to learn

How often	Frequency (f)	Percentage (%)
Every day during evening	7	25
During weekends	8	28.6
When electricity is off	4	14.3
None	9	32.1
Total	28	100

Source: Field data (March - May, 2015).

As Table 6 illustrates, seven parents (25%) guided children to complete their homework after completing household activities in the evenings. Four (14.3%) parents sang and shared stories with their children whenever electric power went off. Eight (28.6%) parents guided their children to complete homework and other learning activities exercised rarely during weekends. Nine (32.1%) parents did not interact with their children because they were busy with household activities and income generating activities and, thus, sent their children to private tuition centres.

Role of Pre-primary school Teachers in Promoting Numeracy Skills

The role of the school is to create suitable learning environment that offer an opportunity for children to learn by providing them with enough books, qualified teachers and adequate learning space. The observation of indoor learning environment revealed that there were inadequate books and desks as well as pre-primary education teachers. The findings indicate that desk-child ratio and book-child ratio were also irrelevant to the children learning because in some pre-schools, classes were over-crowded with 3-5 children sharing a single desk and some sharing books that each child is supposed to have at his or her disposal (see Table 3).

Table 3: Teacher-child ratio, desk-child ratio and book-child ratio in preschool

Item	Preschool					
	A	B	C	D	E	F
Desk-Children ratio	1:3	1:3	1:2	-	1:5	1:2
Teacher-child ratio	1:33	1:53	1:34	1:84	1:93	1:12
Book-child ratio	1:2	-	1:1	-	-	-

Source: Field Data (March - May 2015)

The findings also indicate that indoor and outdoor learning environment were not suitable due to inadequate playing grounds and facilities. The findings indicate that only one out of six preschools had relevant playing grounds, two pre-schools had few playing grounds since pre-primary children shared playing grounds with elder children from the regular primary school

whereas in three other schools there were no playing grounds. Also, the classrooms in all the schools sampled were poorly arranged; T/L materials and other equipment were kept in a corner and thus the children's learning corner had become a storage space for learning materials. These observations imply that pre-primary education perform inadequately their roles of providing suitable learning environment to children in relation to the development of early numeracy.

Parents and pre-primary education collaboration in promoting early numeracy

The role of parents in promoting early numeracy is to establish a connection between what children learn at school and what takes place in the home. Parents should thus co-operate with schools by making class visits and attending parent meeting. The study found that only eight out of 28 parents participated in school meetings. The majority of the parents failed to attend parents' meetings and make class visits because they were unaware of the importance of home and school relationship. These findings were also affirmed through information obtained after reviewing the children's logbooks from one of the schools that indicated that only 28 out of 51 logbooks were just signed by pre-school parents to show that they had seen the homework but without providing their comments on the children's progress.

Discussion of findings

Doig *et al*. (2003) assert that children develop numeracy skills through everyday interactions such as talking about size, number and measurement, reading number books, singing number songs, telling number stories, and playing games and puzzles that include numbers. Levine *et al*. (2010) attest to how parent-child talk about number during daily real-life tasks at home help to foster the children's understanding of number words and concepts. However, this study found that parents were less involved with their children in home activities because they were unaware of the value of home activities and plays and their role in promoting numeracy skills through home activities and plays. As a result, they ended up providing inadequate play resources that could otherwise benefit the children. In fact, some of these parents were also busy with household and income generating activities. These findings are supported by Gunderson and Levine (2011) who explained that the amount of number talk that parents interact with their children varies from one family to another due to the less understanding about the importance of early mathematical interactions. Daily home activity can provide rich mathematical environment to young children because through those activities children interact with number related activities such as laying the table, arranging things, family talk about numbers, stories, songs, games and plays (Taylors, 2013). Thus, the role of parents is to strengthen parent to child interaction and children involvement in daily home activities as they have serious implication in promoting children's ability in learning counting skills and also allow children’s exposure to number activities and promote number skills.

When children join pre-school classes, the pre-school teachers have important tasks to connect the informal knowledge obtained at home to formal knowledge associated in school (Cannon *et al*., 2008). Counting experiences which children obtain at home and pre-primary school are important in the development of children's understanding of number and arithmetic. In fact,

stories, poems, rhymes and outdoor activities provide meaningful early numeracy learning in young children when they are used for the purpose of developing children's numerical understanding and to stimulate children's thinking and memorising (Taylor, 2013). Conversely, the study found that teachers failed to perform their role of providing proper numeracy activities due to incompetence in selecting suitable method for the particular activity, over-crowded classes, lack of learning materials, playgrounds and facilities and unsuitable classrooms and furniture. Also, plays and physical manipulative activities such as building blocks, making puzzles and number games were inadequately involved.

Furthermore, parents' and other primary caregivers' involvement in children's learning activities at home allow children to have ample opportunity to work with materials that stimulate and encourage their curiosity and logical thinking. The quantity and quality of interactions young children have with parents, peers and other caregivers play an important role in the children's development in counting skills. The strong influence of parental resources and activities related to literacy and numeracy skills may be attributed to the differences that can be witnessed in the stimulating the environment at home (Anders *et al*., 2012). However, this study found that parents failed to provide learning materials to their children due to financial difficulties as well as insufficient parent-child interaction in learning activities, and unawareness of their role in promoting numeracy skills through parent-child interaction.

One of the roles of pre-school teachers is to provide children with opportunities to experience learning in real-world settings and effective learning environment that are designed to inspire them to learn (Gonzalez-Mena, 2001). This study found that the learning environment was not favourable because the teacher-child ratio was large and the learning space per child was not enough to involve hands-on manipulative activities and plays. Teachers taught children rote counting (verbally count from memory) using songs and oral counting instead of how to count, a strategy that could involve object counting, plays and games that involve numbers and demonstration and practices that could enable the child to link objects and numbers.

The role of parents and pre-primary teachers is to work as a team in promoting early numeracy through parents' day, parent-teacher meetings and parents to participating in class visits. Havard Family Research Project (HFRP) report (2006) underscores the importance of the parent-teacher communication and relationship in learning activities as these features contribute to parents' greater knowledge of the learning activities. Yet, this study found that parents were less involved in their children's learning activities since a majority did not guide children to do their homework and very few provided relevant learning materials. Moreover, the low attendance of parents in school meetings and making of class visits observed in this study attest to the limited participation of parents in their children's learning. These findings are supported by Mtahabwa (2001) who reported that the majority of parents participate in the construction of school buildings and contribution of food but largely fail to provide assistance in the children's learning activities. Likewise, Cannon *et al*. (2008) explained that some parents view numeracy development in children as the responsibility of the school and not the home.

Conclusion and Recommendations

Based on the findings from this study, the following conclusions emerge: Firstly, many parents are still not aware of their pivotal role in promoting early numeracy through home activities and plays, although they differ in the extent to which they involve their children and how in home activities and plays. Secondly, teachers' incompetency in teaching the 3Rs (writing, reading and Arithmetic) in young children, overcrowded classes, lack of teaching and learning materials, unsuitable playing grounds, classrooms and furniture hinder the teachers to perform their roles in promoting early numeracy. Moreover, the lack of collaboration between parents and pre-schools observed constituted a challenge to effective promotion of early numeracy development because parents were less involved in guiding their children to accomplish their exercises and they also had low attendance in terms of making class visits and attending school meetings.

The study recommends that, since children's involvement in home activities related to numeracy and parents' involvement in children's learning enhance children's informal knowledge of numbers and counting skills relevant to formal school learning, parents should therefore should participate actively in children's learning activities and provide relevant learning materials to their children. Also, parents should provide children with adequate and relevant learning materials and playing materials to facilitate children's home learning activities. The integration of number learning activities in plays and other activities such as games, songs and stories have to constitute important aspects of children's learning activities every day. Furthermore, pre-primary teachers should attend proper training to improve on their teaching and learning methodology specifically for pre-primary education. On the whole, properly cultivated, home and school relationship can strongly promote children's interest in numeracy and learning in general. Thus, pre-schools should reinforce the teacher-parent relationship through school-parent meetings, parents' day, class visits and close communication with the children's parents.

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