

Suitability of Children's Outdoor Play Environment in City ECD Centers for their Cognitive Development

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Abstract: *Childhood play is so essential for children's development. There is an emergent body of evidence supporting the robust link between cognitive competence and high-quality outdoor childhood play. This implies that the outdoor play space must be more than simply places for children to run around, it should have adequate play equipment to cater for the cognitive, physical, social and developmental needs of the children. Meaningful planning of the environment should be done in a suitable context to provide profound outdoor play is within the supervision of the instructors. This study aimed to investigate the status of outdoor play environments in Early Childhood Development (ECD) centers in relation to the cognitive development of the children. The main concern of the study was to establish whether the ECD outdoor play environments were suitable enough in terms of space, equipment and planning for the children's cognitive development. The study was done in Kisumu city in Kenya. The city has 512 ECD centers with the majority of these being public and run by Parents Teachers Associations (PTAs). Purposive sampling was used to select all the 20 urban ECD centers within the city. Data was collected from all the head teachers and the teachers in all the 20 selected centres by use of interviews, an event observation schedule and observation checklist. The data that was collected was mainly qualitative and thus was analyzed descriptively. According to the results of the study, ECD centers' outdoor play environments did not accord opportunities for children's cognitive development. Nearly all the outdoor play environments in the ECD centres had only equipment and materials for physical play not cognitive development. From the findings, the study recommends that the management of the ECD centres should plan for enough space, varied equipment and materials and design outdoor environment to enable children engage fully in outdoor play for their holistic development. In-service courses should also be facilitated through District Center for Early Childhood Education to refresh teachers on the role of outdoor play environment in children's development.*

Key Words: *Outdoor play, Cognitive skills, ECD Centres*

I. Introduction

Childhood play is so essential for children's development. There is an emergent body of evidence supporting the robust link between cognitive competence and high-quality outdoor childhood play. In a longitudinal study done in ECD centres in USA, Bergen and Mauer (2000) found that children who had high levels of outdoor play encompassing literacy materials were likely to be spontaneous readers of place signs and have greater verbalizations activity at age 5. Piaget, a cognitive theorist considered childhood play to be a major tool for facilitating children's cognitive development (as cited by Bjorklund, 2005). Another study by Van Ijzendoorn *et al.* (2005), the findings indicated that between the ages of 1.5 and 5 years, and again between the ages of 5 and 10 years, a sequence of changes takes place in children's behavior which indicates a fundamental reorganization of their intentional, executive, and self-reflexive processes. The research indicated that these changes can be steered and enhanced by effective outdoor play.

According to Piaget's stage theory, the changes in play through each stage parallel each stages of cognitive and emotional development (as cited in Burriss & Tsao, 2002). In his view, children who engage in outdoor play over and over again with the same object are actually practicing eye-hand coordination and developing sensory motor and cognitive skills simultaneously. Different kinds of play require different levels of cognitive sophistication, and that is why different types of play should be featured in ECD centres to cater for different stages of childhood development (Camerer *et al.*, 2004). In regard to Piaget's view to the provision of outdoor play in children's centers, it is clear that teachers should prepare play and play environments to reflect the various developmental milestones of the children under their care. This can only be possible if the outdoor play environment is organized in a manner that can accommodate all stages and developmental dimensions of the children.

Taking a lead in showing the important role of outdoor play in cognitive development, the Ministry of Education in Kenya in the Early Childhood Development Service Standard Guidelines for Kenya of 2006 requires that for any ECD center to qualify for registration it should have not only an outdoor space for children's play but also an assortment of play equipment to ensure holistic development of the children

(Achokaet al., 2007). This implies that the outdoor play space must be more than simply places for children to run around, it should have adequate play equipment to cater for the cognitive, physical, social and developmental needs of the children. Meaningful planning of the environments should be done in a suitable context to provide profound outdoor play is within the supervision of the instructors.

In light of the above observations, this study aimed to investigate the status of outdoor play environments in Early Childhood Development (ECD) centers in relation to the cognitive development of the children. The main concern of the study was to establish whether the ECD outdoor play environments were suitable enough in terms of space, equipment and planning for the children's cognitive development.

II. Methodology

The study was done in Kisumu city in Kenya. It is a port city in Kisumu County, Kenya. It has an elevation of 1,131 m, with a population of 409,928 according to 2009. It is the third largest city in Kenya after Nairobi and Mombasa. Kisumu city has 512 ECD centers with the majority of these being public and run by Parents Teachers Associations (PTAs). Kisumu city was selected because it is expanding very rapidly and there was need to establish whether the expansion had any impact on availability of children's environment and play in the ECD centers.

The study used phenomenology design. The research design seeks the individual's perceptions and meanings of a phenomenon or experience (Creswell, 2002). The study population comprised of all the teaching staff (head-teachers and ECD teachers) in all the ECD centers in the city. Heads of ECD centers were selected because they are for the resources to be used by children in the center. On the other hand the teachers were selected because they are involved in the preparation of activities for children and in the organization of outdoor play space. From the study population, purposive sampling was used to select urban ECD centers within the city. These centers were identified with the help of District Centre for Early Childhood Education (DICECE) Officers. The number of ECD centers that formed sample was 20.

Data was collected from the all the head teachers and the teachers in all the 20 selected centres by use of interviews, an event observation schedule and observation checklist. The data that was collected was mainly qualitative. In this case, head teachers and ECD teachers were interviewed to elicit information on the nature of the outdoor playgrounds in their centers in relation to the cognitive development of the children. For observation purposes, a checklist was used to obtain information on the availability of play equipment, which offers an opportunity for cognitive development in outdoor play.

The data collected was qualitative and thus was analyzed descriptively. Data from the various instruments was described and interpreted from the researcher's perspective and compared with other researcher's views which either supported or contradicted the presentation of the data. Data analysis in this study took place simultaneously with data collection. As each individual responded to the interview questions, the responses were analyzed and compared for relevance of the research themes.

III. Results And Discussion

Information collected from the checklist for opportunities for cognitive development in the outdoor play showed that ten centres had plants within their outdoor environment. This means that during play time children can observe touch, smell and experiment on the different types of plants, thus creating knowledge that form the basis of scientific knowledge and skills in later years. There were no plants in the outdoor play environment in ten ECD centres. Therefore children did not have the opportunity to learn anything about plants in these ECD centres.

Water was available in three out of the twenty ECD centres. Seventeen ECD centres did not have water at all. In the three ECD centres that had water, it is only a single center that had a water pond specifically designed for children's water play activities.

Seeds were seen in two ECD centers. The seeds can be used by children to do counting, sorting, ordering and matching important. These are very important concept in mathematics activities. Children can also make patterns and from shapes using seeds thus acquiring a good foundation for mathematics at an early stage. Eighteen ECD centres had no trace of a seed in the entire outdoor play environment.

Language is the tool that children utilize in their communication during play whenever they are performing, counting, touching, smelling, ordering and matching activities during the manipulation of various materials; they talk, discuss and listen. It is during such times that they improve their speaking, listening skills and vocabulary. Language activity area is enhanced and extended to outdoor play.

Soil was available in all the ECD centres all although in eight ECD centers, the soil was very little and was hardly enough for children to scoop and play with it. When Children play with soil, they touch and feel the texture, observe the small animals like worms and insects found in the soil. This provides a good chance for children to be exposed to science experiences that they hear about during indoor science activity. They can also mix the soil with water to make modeling clay and improve their creativity. Further, children use soil

symbolically in fantasy play to represent maize meal. Fantasy play develops children's cognitive ability as they make imagination.

Blocks were available in one ECD center and missing in nineteen ECD centers. The availability of blocks enhances children's cognitive development in several ways. One is that they strengthen perception of space such as under below, above, inside and outside. Secondly, children develop concepts of big, little, more than, less than, equal to, longer and shorter. Thirdly, is the fact that in the process of block play children become aware of whole part relationships. Fourthly, children can classify the blocks according to shapes, sizes, colours and types. All these actions performed by children as they manipulate blocks. These are activities that enhance mathematical concept in Early Childhood Education.

There was sand in four ECD schools centers and there was none in sixteen ECD centres. One ECD centre out of the four had well-made and protected sand trays. The other three had sand that was heaped in an open place. The presence of sand in an ECD centres enables children to be creative by making castles and tunnels. Sand is also good for children to engage in filling and emptying activities. Filling and emptying exposes children to other mathematical concept namely; capacity, measurement and volume. Again as stated earlier although children will be playing, they will be practically experiencing mathematical activities.

Literature on outdoor play indicates that children learn many things while playing outdoors. Learning outdoors depends on whether the environment provides affordances that will enable children to develop cognitively. Results from the study indicate that very few teachers and head teachers have an idea on the importance of outdoor play environment as a good resource for children's learning. Results from the checklists for opportunities children's development showed that half of the ECD centers had plants in the outdoor play environment. However, they were scattered and few. These plants were mainly flowers and other small plants that grew naturally. Children can examine the various leaves, flowers, pods and seeds thus distinguishing them in terms of colour, texture and smell. These are good opportunities to construct scientific knowledge. Children also engage in activities such as sorting, matching and ordering which are important basic mathematics concepts.

In one center, children played buying and selling using leaves and stones. This activity gave them the chance to practice counting and imagination skills. Children in two different ECD centers were seen chasing butterflies. This was a good opportunity for them to observe the butterfly and get the details about them. In so doing they learnt the characteristics of a butterfly and practiced observation skills, which are essential in later learning of science. This is supported by Rivkin (2000) who highlights that outdoor environments enhance children to observe what is going on in the environment including animals, weather or construction and thus develop their cognitive skills. Analysis of results from teacher interviews showed that a few teachers constructed sand pits for children's play. Further, the results from children's event schedule indicated that in only one ECD center one child joined others in constructing sand castles and tunnels. Sand play is a core activity for young children. They can learn about the different properties of sand like when dry, can flow like a liquid. Sand activity allows children to develop an understanding of texture and learn about volume and capacity in a practical way (Tassoni and Hucker, 2000). The fact that sand pit was unavailable in most ECD centres implies that ECD teachers do not value sand as an important material for children's learning.

Water which has been regarded as a very useful component in children's outdoor play was available in very few ECD centres and missing in a majority of centres. Results from the analysis of teachers and head teachers' interviews revealed that although a few teachers were aware of importance of water play activities, it was not reflected by the results of the checklist for cognitive development. There were only two ECD centres that had water. In the children's event schedule, only two children were involved in filling, emptying and floating pods in a pool of water which had settled on the ground after a down pour indicating the need for clean water for children's play. Water provides an excellent learning environment for children. As children manipulate water play materials, they begin to understand why and how many things happen. They can experiment with concepts such as more/less, same/different, many/few, empty/full, before/after, greater than/less than and counting (Crosser, 2009).

Analysis of results from the checklist for opportunities for cognitive development indicates that there were soil in all ECD centres but in some centers, the soil was not adequate for children to learn from it. Soils should be plenty within the ECD to allow children to learn how soil supports plants, the animals that can be found in the soil and that soil can be mixed with water to make models. Teachers should also ensure that soils are available in their settings for children to acquire knowledge through contact with the soil. Kellert (2002) supports learning in the natural environment and argues that children's affinity for the natural environment is connected to the child's development and his or her way of knowing. Results showed that blocks were unavailable in all ECD centres except three. This points to the fact that teachers and ECD teachers in most ECD centers deny children the cognitive development opportunities provided by blocks. Ness and Feranga (2007) emphasize the importance of block play by asserting that they are frequently mentioned as contributing to the development of special skills as children pile blocks on top of one another. As their play become more

sophisticated, children pay attention to the colours, shapes and sizes of blocks. Casey et al. (2008) supports this view and suggests that blocks allow children to play directly with spatial concepts, which could assist their growing representations of spatial relationships between objects in the physical world. Teachers should therefore encourage block play among children by ensuring that blocks are available, varied and adequate in number. In connection to this, Bruce (2012) argued that the outdoors in some respect should be considered as an extension of the indoor program. He says that despite the fact the environment is different in many ways, he believes that in both settings, children should be "excited and calm, intense and casual, co-operative and protective, attentive and preoccupied. Bruce further, explains that the outdoors can be used just as effectively as an indoor science center for serious and sustained inquiry. It can only be possible when early years teachers get rid of their unconscious belief that effective learning only happens when children are still, quiet and calm with a pencil and paper at hand. There is an idea that when children are physically active they cannot be learning anything to do with the curriculum should be not be held by any teacher.

IV. Conclusion

According to the results of the study, ECD center outdoor play environments did not accord opportunities for children's cognitive development. Nearly all the outdoor play environments in the ECD centres had only equipment and materials for physical play not cognitive development. Many ECD centers did not have natural elements for children to learn from. Those that had natural things for children to explore and learn from were not deliberately conserved for children's education but rather because they were found there. Also, blocks were only available in one school yet children's block play is very crucial in understanding several basic concepts of mathematics such as size, ordering, matching and pattern making. The other core material that was missing in all ECD centers except four was sand. Sand should be available in all children's centers because apart from being soothing and relaxing to children, sand play presents cognitive benefits to children. They can learn about the different properties of sand. Children can make prints and solid shapes with wet sand. The activity is sensory and allows children to develop an understanding of texture. Teachers and head teachers need to recognize that children's outdoor play is very important in acquiring knowledge on the world around them.

V. Recommendations

From the findings of this study, some recommendations have been made. These recommendations will be useful in enhancing the role of outdoor play in the cognitive development of children in ECD centres. They have been done with the understanding that the outdoor play and environment is an extension of indoor learning and contributes greatly to the overall development of children in all dimensions. The following are the recommendations that were proposed.

- i. Teachers and head teachers should plan for space, varied equipment and materials and design outdoor environment to enable children engage fully in outdoor play for their holistic development.
- ii. Children's cognitive development in ECD centers' outdoor play environments should be enhanced by providing an assortment of equipment and materials which enhance gross and fine motor development.
- iii. The outdoor play environment and the activities should be designed and organized to facilitate children's optimum cognitive development.
- iv. In-service courses should be facilitated through District Center for Early Childhood Education to refresh teachers on the role of outdoor play environment in children's development.
- v. The Ministry of Education should make follow ups in all ECD centers to ascertain the extent to which the Early Childhood Development Service Standard Guidelines have been implemented.

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