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Availability of play resources for utilization of play in ECDE curriculum in ECDE centres in Kericho Sub-county



Review article

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Koech Zipporah Mutindi¹ (D) Ezekiel Nyambega Omwenga² & Pamela Wadende³

¹Department of Early Childhood Education, Kisii University, Kenya ²Department of Curriculum, Instruction and Educational Media, Kisii University, Kenya ³Department of Psychology, Kisii University, Kenya

Correspondence: eomwenga@kisiiuniversity.ac.ke

Abstract

Play involves the child socially, emotionally, physically, cognitively and development of language and literacy skills. The aim of the study was to determine the availability of play resources and the use of play in child development learners at ECDE centers in Kericho sub-county. The study adopted Piaget's theory of intellectual development (1896-1980). The mixed-methods approach was used, adopting qualitative and quantitative techniques. The target population consisted of 161 school heads and 347 preschool teachers, in which a sample of 48 head teachers and 104 preschool teachers were selected using both simple and stratified random sampling techniques from all educational areas in the sub-county. Data was collected through questionnaires, interviews and observation schedules and analyzed using descriptive statistics. The results of the study were presented in frequency distribution tables, pie charts and bar charts. Qualitative data of the interviews and the observation were analyzed in themes and categories, identifying the similarities and differences that emerged. The study concluded that different resources were available for use in ECDE curriculum. Locally available resources were available compared to purchased resources.

Keywords: ECDE centers, play, resources, teaching and learning, utilization



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1.0. Introduction

When teachers join learners play, they create a space for children's imagination, choices, initiatives, and thoughts, with a focus on educational themes, and events to cultivate their understanding of the various features of the world that children experience. surrounds. Learning environment entails teachers to be involved with children (Frost, 2010). A clear early childhood environment develops children's development through learning and play. Facilitate the management of classes and support the implementation of the objectives of the program (Ostrosky and Meadan, 2010). How the child's physical environment is designed and configured to affect the child's behavior. Children's physical environment provides growth and development through activities and materials in designated leisure areas. The design of the piece plays an important role in the social and linguistic interaction of children. Classrooms that are not well designed can cause social disruption and negative interactions between learners, learners, and teachers. For example, if the reading and writing center is near the music area, children who focus on writing skills will be affected. Learners' may be disappointed if they do not have an organized environment in which they can be nominated (Ryan, 2013). On the other hand, the physical environment is a direct reflection of the planning and learning of teachers. Here, teachers and learners spend most of their time and the place where they can create their names. It must be orderly, comfortable and personal and provide various manipulations for cognitive, social, emotional and physical development (Ostrosky and Meadan, 2010).

Teachers cannot use play because of unavailability of play devices and the early childhood centres do not have enough recreational facilities, equipment, and physical infrastructure (Gaunlett et al., 2010). Play objects, space and time are essentials resources in preschool classes, since the levels and types of play for children depend on the availability of these resources. Mahindu (2011) investigates the influence of selected play resources on precise features of child development. She used 36 children from 2 to 3 years old. Each child in the study participated in various play materials. The results showed that children who used different sources of play grew better than children who were not exposed to any other material. The language for boys and girls is the same, but boys try to play more objects than girls. This brings with it the enormous importance of play material to improve children's play. Therefore, parents and teachers must demonstrate how important it is to have resources for ECDE learners. Spencer and Wright (2014) suggested that ECDE teachers should create the right environment to encourage children, but decided to remain tough and not interact with children while having fun. The lack of ECDE teachers in children's play was described as a mistake in early childhood. Sometimes teachers find themselves in a difficult situation, regardless of whether they play with children or not, for fear of disturbing the play activity. Playful and outdoor events take longer than other indoor activities. The ECDE Calendar and Development (ECDE) (Ministry of Education, 2010) offers five exercises per

week to play. It is a reasonable indication that it is essential to learn to play in the guidelines for the initial development of the child. Kenya Government Education Reform Program in 2014. It also indicates a helpful and encouraging situation in which children can achieve early childhood development (Supplement to Kenya Gazette, 2014). As mediators, children's teachers model flexible thinking and problem-solving skills required in relationships with peers.

2.0 Problem Statement

Playing is essential for a child's holistic learning and development. Play not only aids children and improves writing, reading, problem-solving, and concentration skills, but it also helps generate social learning experiences in which they can express potential pressures and problems. According to White (2012), the piece seems simple, but it is crucial for the growth of the child and constitutes the basis for lifelong learning. The national policy on early childhood education in 2006 emphasizes the use of the work as the best way to implement the curriculum (Ministério da Educação, 2010). ECDE's overall goal is for children to be active and learn while playing. Kericho County statistics from the Kericho District Early Childhood Center (Kericho DICECE, 2018) indicate that 90% of ECDE teachers do not fully employ the teaching and learning materials offered at ECDE Centers in Kericho. In addition, little research has been done on the use of the game, which is used as a teaching approach in the ECDE curriculum. In the last ten years, the time spent playing at ECDE centers in Kenya has been reduced. It is the result of the mastery of education in modern and urban areas, which hinders the comprehensive development of children. The guidelines and practices at school and at home have led to unlimited and independent fun in children's lives. Today's children are less active than in previous generations. They mainly deal with organized indoor activities, such as playing videos and television, which are a sedentary lifestyle. When children play, they perform many crucial tasks, such as developing and practicing newly developed skills, using language, taking turns, meeting friends, and regulating emotions. Decreasing play reduces children's creativity, using their imaginations, exercising, and developing their mental and emotional skills. Therefore, the need for more research on the availability of Play Resources for Utilization of Play in ECDE Curriculum in ECDE Centres in Kericho Sub-County.

3.0 Literature Review

Playful materials have a positive effect on children when it comes to learning to have fun and exploring the world with creative imagination (Cecebi & Unluer, 2010). Children should have the opportunity to explore different resources and play with objects. This encourages children's creativity too. Touching materials is, therefore, an essential part of the learning process, so its adequacy is important and sustainability is important (Hansmann, 2010). Children learn best when they are part of a safe and stimulating environment with manipulative material. Teachers, parents

and school administrators are anticipated to deliver toys for children so that they can partake in significant play that impacts the language skills development. Through play, children learn languages since it comprises many of the socially interactive and intellectual fundamentals known to improve language skills. Materials for play vary from strings, balls, swings, clay, blocks, beads and scales (Han et al., 2010).

The ECE Framework (2006), recommends that parents must provide safety and protection, reassurance, socialization, play, and educational material. The interactive presentation and availability of educational materials in schools, as well as carefully selected thematic collections, attract preschoolers to a variety of ideas. Children are active learners and, if they want to develop skills and competences, they need to work and have access to material to play with. Greater talk time when playing with colleagues is associated with better understanding and production (Ostrosky and Meadan, 2010). The British government has developed a keen interest in developing the standard for preschoolers, providing adequate facilities and materials for play to promote the overall development of students (Aliza and Rahaty, 2011). They still believe that children are fun by nature. His first experiences exploring his senses mean that he plays alone and then alone with others. Research available in the Western world shows that play material generally differs by gender. Materials for girls play are attractive and valuable, while resources for boys are aggressive and competitive (Goldstein, 2012). The material must be organized in such a way that the possibilities of learning and discovery optimize the development of language skills.

The physical influence of these playful materials promotes coordination, which is important for the development of communication and visual coordination (Giannopulu & Pradel, 2010). The anticipation, preparation and training of teachers before and after the competition offers the opportunity to hear and use a new vocabulary relevant to that moment. Other skills developed during the play include clear and simple instructions for daily activities, a good listener, praise and jokes on the radio. All of these activities are aimed at helping children who acquire essential listening and language skills. Language skills are, first of all, paths to cognitive development, because they allow children to talk about their experiences and discoveries. With the availability of playful material, children learn words that describe concepts and words that can be used to talk about activities and events in the field (Tarman and Tarman, 2011).

In addition, Goswami (2015) reports on the cognitive development and learning of children in Cambridge. Explain that playing with children depends on the materials available and how children learn to deal with it. He says it is not enough to give the child something to play with. Children go through a phase of trial and error and decide to manipulate them. To learn actively and creatively, stimulating preschool structures must be encouraged and children must participate in various activities and explore different materials. The material must be opened so that the child can transform objects in different ways. There must also be many opportunities for children to present their ideas (Duffy, 2006). Children need paints, puzzles, scissors, blocks of various shapes and sizes, bricks, easels, brushes, glue materials, table toys, plain, structured paper, sheets, vases, boxes, egg boxes, various colors, musical tools and clay outside the home. Sand, water storage towers and other outdoor materials can help children expand their creative skills.

Studies on the effects of performance materials structured differently in two groups of children have shown that children who use toys with an open and different goal are more creative than children who have closed-loop resources with specific and limited benefits (Nwokah, Hsu and Gulker, 2013). Another study of playful sources and materials found that teachers, parents, and children who prefer toys prefer to deal with imaginary and dramatic playful objects, such as clothes and tea sets (Truscott, 2014). However, it should be noted that this research was carried out more than 20 years ago and, therefore, does not reflect current perceptions. According to Elkind (2007), toys have been structured and marketed in large part in recent years. The production of specialized, complicated, and technologically advanced play equipment has grown considerably. It seems that the objectives for the manufacture of these toys vary widely, from entertainment and the promotion of ECDE to the promotion of mass consumption of toys, through the exclusive use of many toys (Elkind, 2007). Due to the often-active nature of these structured toys, children's spontaneous playing is not encouraged and their internal learning motivation is not encouraged. It has been argued that when toys are passive and open, children can be active participants, using their intrinsic and innate impulses to develop their learning content freely and creatively (Canning 2007, Gerber, 2002).

According to Brooker and Edwards (2010), the aspect of school management is neglected. Also, their research has shown that clients and teachers constantly use play structures, but ignore structure maintenance. Repairs are only possible in case of problems. Gauntlett (2014) established that motivation in indoor environs is mainly accomplished by provision of toys that support play. They also noted that access to a variety of materials and toys is related to children's cognitive development. Proven toy materials and supports are most effective when open and flexible and offer children multiple opportunities for creativity, social interaction with peers and adults, parenting, and deep commitment. Playground media, space, and time are important in kindergarten classes, as the level and type of children's play depends largely on the availability of these sources. They explained this material; The planned materials and experiments should allow different forms of movement for the development of motor skills, natural characteristics, such as horizontal tree trunks, rope structures, and temporary arrangements for physical challenges that increase the possibilities of recreational activities.

Mahindu (2011) noted the effects of selected play material on some aspects of child growth. She used 36 children between 2 and 3 years old. Each child was busy with different play resources. The results showed that children who used different materials had better social skills than those

who did not use a variety of materials. To encourage and expand play, adults must support and promote it, ensuring there is enough room to maneuver and a wide selection of toys and other items to accommodate different play options. A study by Kerich (2015) on the availability of playground equipment in Kisumu ECD centers for comprehensive development revealed that there are devices in Kisumu ECD centers that improve performance. These include those that inspire climbing, sliding, jumping, and swinging. However, she reported that the equipment was inadequate in most centers. The results also showed that ECDE centers for outdoor recreation environment only had equipment and material to play. A similar study conducted by Nkugu (2015) in Yatta showed that the supply of play materials has increased cognitive development in children. He also discovered that the didactic organization of play materials helped children with cognitive development in a meaningful and familiar way. Based on this knowledge, the materials of play are, therefore, essential for improving children's play, which promotes imagination and creativity. For teachers who want to use play as a teaching method, different play materials are available.

4.0 Theoretical Framework

The study adapted Piaget's theory (1896-1980) or intellectual development. Jean Piaget is best known for introducing stages of child development. These phases include sensorimotor, preoperational, actual operating and regular operating hours and are directly related to the part. He notes that intellectual growth occurs when children experience assimilation or manipulation. Piaget emphasizes that, by playing, children learn best by actively discovering, doing and researching their environment. Brooker and Edward (2010) compete with Piaget's theory of assimilation and adaptation. Piaget's idea that children actively learn and study what is crucial for the transformation of the primary school curriculum. According to Piaget (1958), assimilation and adaptation require active, not passive learners, because problem-solving skills cannot be learned, but must be discovered in order to assimilate and adapt quickly. However, Piaget's theory does not take into account the impact of individual variances, environment, culture, sex or inspiration on the child's intellectual development, which allows the inclusion of Vygotsky's theory. Vygotsky's theory of social development stresses the essential role of social interactions in the event of cognition (Vygotsky, 1978). Vygotsky, like Piaget, believed that young children are curious and actively participate in their learning, discovery and development of a new understanding / pattern.

Vygotsky's pedagogical theories are based on a Marxist view of the relationship between human consciousness and physical resources. He claimed that children develop in a social matrix created through interaction between social associations and interaction between them and other children. These experiences are internalized as imagined. While Piaget emphasized the discovery of his initiative, Vygotsky focuses on the role of the teacher. He does not believe that children are passive recipients of knowledge informed by experienced teachers, but he sees the teacher as a scientific assistant. The social environment has become important in teaching, and effective teachers provide a motivating and inspiring learning environment.

Vygotsky noted that learning is a necessary and universal aspect of the process to be developed. It is claimed that playing with imagination is a crucial part of a child's healthy development. Fantastic play is crucial for intellectual development, but it is threatened by today's hectic life. Children who do not engage in imaginative play because their time is too structured or spend on TV or other media do not develop language and feel that they are crucial for young children's development. Vygotsky goes on to explain that play forms children's sense of the world, how they learn thinking and how they acquire language. Language is a symbolic communication system, as well as a cultural tool used to convey culture and history. Play is therefore an essential part of language development and the child's understanding of the outside world. During the game, children have a continuous dialogue with themselves or with others. According to Vygotsky, language also serves as a goal for the regulation or self-regulation of cognitive processes, such as memory and thoughts. Discovering the language playfully is an integral part of this transition. In child-friendly play, children play different roles and can experience different language skills to be controlled from the outside. Through play, children become more competent in their language and begin to control their thought processes.

Vygotsky suggests that the child's performance differs from the case in which he tries to solve his problem, and that the other child or adult helps the child. When a child learns to perform a task, such as building a bridge with a block and a more competent person offering help, the child can enter a new development and problem-solving zone (Vygotsky, 1978). For Vygotsky, cognitive, social and motivational factors were intertwined in development. However, this cannot be the case because children's reasoning is not automatically shown at the same age in different beliefs. This led to the Smilansky study being included in four stages of the game.

Sara Smilansky (1968) developed a study based on Piaget's theory of intellectual development. The study consists of four phases that reflect children's cognitive development. The four Smilansky phases include functional play, constructive play, creation or structuring of objects or objects by children, dramatic or symbolic games, games and rules of the game (Smith, 2010). Children learn best during play. When teachers use play as a teaching method, all aspects of children's growth and development are strengthened. This is because play positively supports social, emotional, physical, cognitive, language and reading abilities. Play is crucial for the development of healthy children and the improvement of self-regulation (Ginsburg & Milteen, 2012). The right to play is a requirement for all children in the Kericho sub-county under the Child Education and Development Bill (2015) of the Kericho District. The use of play in children's curriculum is an important tool for promoting school readiness.

5.0. Methodology

The study adopted a descriptive research project. The design allowed the researcher a broader coverage and a complete description of the characteristics and relationships observed in the target population. The plan was chosen because it is beneficial to collect a significant number of respondents' opinions in a large area (Lippert et al., 2015). Therefore, the study variable was natural and was not manipulated by the researcher. The target population was 161 school heads and 347 preschool teachers from 161 ECDE public centers in Kericho sub-county (Kericho DICECE, 2016). A stratified sample was used to determine the number of ECDE teachers for the study. The researcher classified the areas of Kericho sub-county into seven groups. After stratification, the researcher wrote the names of the ECDE Centers on paper and selected them according to the sample size required for each subgroup. Stratified and then simple randomized sampling was used to obtain the sample size of 48 principals and 104 preschool teachers in Kericho sub-county, which represents 30% of the target population. Kothari (2011) suggests that a sample size of at least 30% is deemed satisfactory. In this study, a combination of the following research tools was used for triangulation purposes, to verify the information collected from observations, interviews and questionnaires to produce accurate results to ensure data collection. Based on the data collection instruments, qualitative and quantitative data techniques were used. The qualitative data from the interviews and observations were analyzed in themes and categories, identifying similarities and variances that arose.

6.0 Findings and Discussions

The aim of the study sought to discover the availability of playful resources for the use of playfulness in the ECDE curriculum. The preschool was asked to assess the availability of play resources in their schools. Different questions were structured in order to collect data on availability and use. Teachers, on the other hand, were interviewed in the same way. The researcher further personally visited the sampled schools to observe and check the available resources using a checklist. The results are indicated in Tables 1 & 2.

play in ECDE curriculum											
	Utiliz	Utilized		Not		Not		Available		Total	
			utili	zed	available						
	F	%	F	%	F	%	F	%	F	%	
Drawing	70	67	4	4	29	28	1	1	104	100	
Painting	22	21	5	5	32	31	45	43	104	100	

16

Table 1: Teachers' ratings on availability and utilization of play resources for utilization ofplay in ECDE curriculum

104

100

22

21

15

Modeling

61

59

5

5

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Language activities	25	24	5	5	26	25	48	46	104	100
Science activities	46	44	2	2	34	33	22	21	104	100
Maths/numbers work	54	52	5	5	36	35	9	8	104	100
Music and movements	14	13	6	6	21	20	63	61	104	100

The results on the availability and use of recreational resources for recreational use in the ECDE curriculum established that 67% of schools used it, while 4% said they did not use it. In availability, 28% said the resources were not available and only 1% of the centers said that the game resources were available. Painting resources were used by 21% of the centers, against 5%, while 43% indicated that painting resources were available, but 28% of the centers had no resources. This implies that most schools did not use painting resources; This may have been attributed to the fact that art is not taken seriously at ECDE. The modeling function was used in the majority of 59%, while 5% was not used. The study also noted that 15% of centers, 22% said that modeling resources were available, while 21% of respondents said that resources were available. This implies that modeling resources in most centers were available and used compared to other resources in the activity.

Linguistic activities were used in 24% of the centers, compared to 5%, indicating that they did not use it. Regarding availability, 46% said that it was 25% said that the resources were not available. A study by Mahindu (2011) reported that insufficient materials encourages aggression, fighting and fighting for the few that exist, therefore they were not safe, since it exposes them to psychological problems that hinder the acquisition of skills. linguistics by children. during the game. The materials for scientific activities were used by 44%, while 2% did not use them, while 21% of the centers said that the resources were available in their centers, in contrast to 33% that did not have them . In math / numbers, labor resources, the majority of 52% said that resources were used, while 5% did not use them, 35% did not have the resources, while 8% said that the resources were available.

Denise (2007) reiterated that play is an crucial component of child development. Play begins in the child's childhood and ideally continues in her life. When they play, children learn to socialize, think, solve problems, mature and, above all, have fun. The work connects children with their imagination, their environment, their parents, their family and the world. Welsch (2008) examined how children learn from literature, picture books, music, and fingerprints. Their findings show that dramatic stories in children's literature are an effective way to play with cognitive, linguistic, and

social benefits. Symbolic or story-specific props help children expand narrative lines and encourage staging. Musical and movement resources were used in the centers in 13%, 6% were not used, while a majority of 61% indicated that resources were available, in contrast to 20% who indicated that they had no resources. The results indicate that music was probably not used, probably because the resources for the activity were not available in most centers. This has been confirmed. Anderson-McNamee, (2010) reports that the centers included a high-quality play-based learning program: a daily program that includes active use inside and outside, integrating music, movement, creative-expression, and connections. Among adults and children who moderated moderate to high levels of physical activity, this means that educators were sometimes physically active with children. This suggests that music and movement are important as part of game-based learning.

Response	Available Adequate		Available inadequate		Unavail	able	TOTAL		
	F	%	F	F	%	%	F	%	
Open space	59		44	1			104	100	
		57			1	42			
Swing	67	63	21	17	16	20	104	100	
Sliding panels	15	14	8	81	78	8	104	100	
Sand play areas	22	21	14	69	65	13	104	100	
Water play areas	18	17	7	79	76	7	104	100	
Block play areas	31	30	23	50	48	22	104	100	
See-saws	17	16	21	67	63	20	104	100	
Tyres	41	39	41	23	21	39	104	100	

Table 2: Teachers' ratings on available outdoor play facilities

Results in outdoor facilities establish that 57% of respondents reported that adequate and available open space was available, while 42% said it was available but inadequate. Only 1% said it was not available. Facilities are important in the acquisition of learning skills (Ojuondo, 2015). He concluded in his study that a resource-rich physical environment helps support learning. In addition, the materials provided need to encourage children, stimulate questions, stimulate thinking, and provide a challenge. The majority of 63% of respondents said they had adequate swing, 20% said they were available but inadequate, while 16% reported that the wings were not available at their centers.

The findings coincide with those of Mawere (2015), who discovered in his study that swings,

slides, swings, and sandbaths were available in almost all ECD centers. However, the results are not in agreement with the findings of the study by Mukiti (2016) that established that 40.7% in their study registered changes as inadequate and 37% indicated that the changes were not available in the centers. In the sliding panels, it was established that only 14% indicated that they were available and adequate compared to 8% who said that the panels were available but inadequate and the majority 78% indicated the unavailability of the sliding panels. This suggests that most schools in the region did not have slides at their centers. The findings are consistent with Mukiti's (2016) findings that the slides were inadequate or unavailable at ECDE centers in the secondary Matungulu location.

In the sand play areas, only 21% of the centers indicated their availability and suitability, while 7% said that the areas were available but not adequate and 66% said that it was not available in their centers. This shows that the sand play areas were not available, although the sand is evaluated inexpensively. This can be attributed to the fact that the sand was dirt or was not considered important for play activities. As Goldstein (2012) indicates, children need many outside opportunities to develop essential social skills and social skills. This includes pushing each other on the swing, pulling a cart with another child, and playing together in the sand. Physical play, constructive play, and sociodramatic play also involve social play, especially if the team encourages more than one child to participate. Water play areas were adequate and available in 17% of centers, while 7% were available but not adequate and 76% not. This implies that water play areas are not available in most schools.

The study findings coincide with the findings of Mawere (2015) who reported that all the ECDE centers in her study had no play areas with water. Blocked play areas were adequate and available in 30% of centers, while 22 were available but not adequate and 48% not. Miller, Tichota, and White (2014) explained that boxes and other containers help children learn about shapes and sizes and take advantage of construction and stacking. Additionally, children can use the containers by playing with sand, water, and other materials to explore the measurement. Regarding the balance, only 16% of the centers indicated availability and adequacy, while 20% stated that the areas were available but not adequate and 64% said that they were not available in their centers. These results were in line with the findings of Wanjiku (2016), which established that only a few governments supported by the centers were equipped with services such as swings and slides. Thirty-nine (39%) of those surveyed said they had an adequate swing, 40% said they were available, but 22% reported that no changes were available at their centers.

7.0 Conclusion

The study established that 67% of schools utilized the available resources in the ECDE curriculum. This showed that not all schools utilized the available resources. The study instruments classified the resources that included: - Painting, modeling, language activities, science activities resources, number-work resources, music and movements, and outdoor facilities. The study concluded that different play resources were available for the utilization of play in the ECDE curriculum. Locally available resources were available compared to resources that are purchased.

8.0 Recommendations

The study made the following recommendations based on the study findings: The study recommends that all stakeholders work together to assist pre-schools in their locality with sufficient play equipment and materials needed to promote participation in outdoor activities. Teachers, headteachers, parents, and the county government need to change their attitude towards play and work together to equip schools within their locality with play equipment. The county government needs to be sensitized on the need to increase its funding towards the provision of infrastructure in the preschools within their county. Parents, on the other hand, need to be sensitized on how they can avail play equipment through donations and improvisation.

References

- Aliza, A., & Rahaty, M. (2011). Teaching and Learning through Play. *World Applied Sciences Journal*, 15-20.
- Anderson-McNamee, J. (2010). The importance of play in early childhood development. *MSU Extennsion*, 1-3.
- Brooker, L., & Edwards, S. (2010). Introduction: From challenging to engaging play. *Engaging play*, 1-10.
- Cecebi, E. O., & Unluer, E. (2010). Preschool children's using of play materials creatively. *Procedia Social and Behavioral Sciences*, 4457-4461.
- Denny, J. H. (2009). The relationship between preschool teachers' beliefs about school readiness and classroom practice in Tennessee child care programs
- Duffy, S. B. (2006). Virtual mathematics: the logic of difference
- Elkind, D. (2007). *The power of play: How spontaneous, imaginative activities lead to happier, healthier children.* Massachusetts: Da Capo Lifelong Books.
- Gauntlett, D. (2014). The LEGO System as a tool for thinking, creativity, and changing the world. *LEGO Studies: Examining the Building Blocks of a Transmedial Phenomenon*, 1-16.
- Gauntlett, D., Ackermann, E., Whitebread, D., Wolbers, T., & Weckstrom, C. (2010). The Future of Play, Billund. *LEGO Learning Institute*.
- Giannopulu, I., & Pradel, G. (2010). Multimodal interactions in free play play of children with autism and a mobile toy robot. *NeuroRehabilitation*, 305-311.
- Goldstein, J. (2012). *Play in chidlren's development, health and well-being*. Brussels: Fueldesign.
- Goswami, U. (2015). *Children's cognitive development and learning*. Cambridge: CPRT Research Survey.
- Hansmann, R. (2010). "Sustainability Learning": An Introduction to the Concept and Its Motivational Aspects. *Sustainability 2010*, 2873-2897.
- Kerich, M. E. (2015). The Availability of Children's Outdoor Play Equipment in City ECD Centers for their. *International Journal of Education and Research*, 505-516.
- Kericho DICECE. (2017). County Annual Education Report. Kericho: Unpublished Mahindu, J. (2011). Influence of play on the development of preschool Children's social skills in Kabete Zone, Kenya. Unpublished master of Education in early childhood education in the Department of educational communication and technology. Nairobi: University of Nairobi.
- Mawere, M. (2015). Indigenous knowledge and public education in sub-Saharan Africa. *Africa Spectrum*, 50(2), 57-71.
- Miller, D., Tichota, K., & White, J. (2014). How play in a nature explore classroom supports preschool and kindergarten-age children's math learning: A single case study at an early education program in Nebraska.

Ministry of Education. (2010). *Curridulum Development*. Nairobi: K.I.E. Focus Publisher.

- Mukiti, A. N. (2016). Institutional based factors influencing the implementation of early childhood development programmes in public early childhood centres in Matungulu sub-county, Kenya (Doctoral dissertation).
- Nkugu, R. (2015). *Play and children's Academic perfomance in yatta Sub-county, Machakos County, Kenya*. University of Nairobi: Masters Theses.
- Nwokah, E., Hsu, H.-C., & Gulker, H. (2013). The Use of Play Materials in Early Intervention. *American Journal of Play*, 187-201.
- Ojuondo, M. A. (2015). Influence of play on development of language skills among preschool children in Kisumu central sub-county, Kenya. University of Nairobi: Masters Thesis.
- Ostrosky, M., & Meadan, H. (2010). Helping children play and learern together:. *national Association for the education of young children*.
- Ryan, H. (2013). The Effect of Classroom Environment on Learners Learning. Honors Theses, 2075.
- Spencer, K., & Wrighte, P. (2014). Quality outdoor play spaces for young children. YC Young Children, 28.
- Tarman, B., & Tarman, I. (2011). Teachers' Involvement in Children's Play and Social Interaction. *Elementary Education Online*, 327-337.
- Truscott, J. (2014). An exploration of nature-based play at Australian pre-schools.
- Wanjiku, N. J. (2016). Determinants of Quality Outdoor Play Environment In Early Childhood Development Centres In Ng'Enda Zone, Kiambu County, Kenya. *Unpublished MEd Thesis: Kenyatta University*.
- Welsh, H. (2008). The social costs of civil conflict: evidence from surveys of happiness. *Kyklos*, 61(2), 320-340.