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# Availability of Play Materials and Their Influence on Children Acquisition of Physical Skills in Koibatek Sub-County, Baringo County, Kenya

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## Abstract

Play contributes to learners developing physical skills, their understanding of different concepts, their ability to solve problems, their self-confidence and motivation, and an awareness of the needs of others. The study was guided by this objective: - To determine the availability of play materials and their influence on children acquisition of physical skills in Koibatek Sub-County, Baringo County. The study was guided by experiential learning theory by Kolb. The researcher adopted descriptive research design. The researcher targeted all the 250 ECDE centers in Koibatek Sub-county. Simple random sampling was used to select 152 ECDE centers and purposively selected 152 ECDE teachers, one teacher from each selected ECDE centers. Validity of the research tools were established by use of education experts at the university, while reliability of the instruments was tested using pilot data and a co-efficient threshold of more than 0.70 accepted. The data was collected using a questionnaire. Data findings were analyzed with the help of a Statistical Package for Social Sciences (SPSS) and the results presented using tables, graphs and narrative. The study findings indicated that there were adequate play materials in the ECDE centers. In addition, availability of play materials, significantly influenced acquisition of physical skills (p=0.000), with the later contributing to 34.0% of the physical skills. The study recommended enforcing the ECDE standard guidelines and deploying adequate, trained and qualified ECDE teachers to implement curriculum. The researcher paid keen attention to research ethical issues and got the informed consent of the respondents and guarded against plagiarism and ensured confidentiality.

**Keywords**: availability, play-materials, children, acquisition, physical-skills, Kenya.



## INTRODUCTION

Play can be explained as the process that is personally directed, intrinsically motivated as well as freely chosen. The work of Lester and Russell [1] eluded that, young people and especially learners' control and determine the intent and content of their play, by adhering to their own ideas, interests and instincts, in its own way for its own reasons. Due to emergence of play based on technology and structured play sessions, the meaning and nature of play has been led to confusion. The motor play of toddlers and infants includes objects manipulation, the behaviors of reaching and grasping as well as locomotion efforts serves as a way in which adults can study difficulties in sport potential developmental and overall development [2]. The interventions of adults in promoting the motor abilities of the disabled are as significant as those who focus on development of physical skill. Children who are 6 months and older, play is important to engage and strengthen leg muscles. Floor games that need kicking and pushing of legs are important for younger infants. Toddlers can be supplied with outdoor and indoor play services of diverse slope and texture to walk over once ambulatory.

According to Tamis-LeMonda [3] during motor experiences, adult encouragement and warmth will encourage more active play pretend play includes pretending an action or object is something that it really is, for instance, a banana as a telephone. Pretend play develops at the age of 15 months with simple actions, for example, putting dolly to bed or pretending to sleep, developing into role play and longer story sequences. Socio-dramatic play is a pretend play with others, a narrative line and a sustained role taking, which is common from the age of 3 years.

It can entail understanding the intent of others, development of intricate story lines and novel. Children negotiate roles and meanings [4]. Sports and physical activity in particular have positive impact on personal development aspect among young children, for instance, leadership and self-esteem [5]. Nevertheless, evidence indicates that extensive exposure and outdoor equipment availability are major aspects in capitalizing

positive effects on development of physical skill among children. Play is an unencumbered activity by the direction of an adult, and does not depend on imposed rules or manufactured items by someone apart from the children themselves [6].

Children actively engage in freely chosen activities when they play, for instance, they are motivated and also are self-directed from within. According to Ginsburg [7] on the position of Pediatrics Academy of America, he stated that during the development of a child, play is important because it contributes to social, physical, cognitive as well as emotional well-being of youth and children [7]. The United Nations High Commission for Human Rights [8] acknowledges play as a fundamental right of each child, thus deemed as important on the development of children. In Europe, many commentators' concern is that the outcome of children's pattern being over-scheduled and over-supervised, with declining play time with their parents or peers, is likely adversely affect their resourcefulness, the independence skills of children as well as the entire range of benefits of their development.

In a major research review by Lester and Russell [1], examining the contemporary opportunities of play of children across the world, provide a compelling and a very useful review of stressors of environment in the contemporary life, related to increasing urbanization, which negatively affect the play experiences of children. With regards to the above statement, they make the talking point that half of children across the world will be living in the cities soon. A study of Lego Learning Institute [9] on periodicals and newspapers review showed that there extensive debates regarding this issue has been on the public press since the mid-1990s.

In many Sub-Saharan communities, studies done by Dawes and Biersteker [10] indicated that as the child becomes more mobile and mothers have to return to domestic and productive labour, others such as siblings and grandmothers take over this role, playing a significant part in all aspects of the child's learning and development. There is substantial variation in how intelligence is defined within different cultures [11]. As a result, different aspects of physical functioning or cognitive performance may be more highly valued in some cultural contexts than in others.

The Kenyan Government has been committed to developing its Early Childhood Development Policy (ECD, United Nations Education, Scientific and Cultural Organization [UNESCO][12-14]. The success of the ECD programme in Kenya is, to some extent, dependent upon the understanding of how and why such children in Kenya play. Most children naturally develop the ability to run and walk. However, they require practice and instruction to develop hopping, galloping, sliding, catching, jumping, throwing, kicking bouncing, and sticking skills. Children incorporate these skills into sports, games, and dance. Playgrounds are perfect places for a child to develop mental connections, socialize, and develop fine and gross motor skills.

Moreover, the work of Kombo and Khalayi [15] posited that, there is a growing concern among Kenyan pre-school education practitioners on the current approach to ECE that emphasizes the academic component at the expense of other areas of child development. Over emphasis on academic achievement observed, goes against child development research findings that define quality and relevance of ECE to be, that which caters for total development of the child. Mahindu [16] carried out a study on the influence of play on the development of preschool children's social skills in Kabete Zone, Kenya. The study revealed that availability of play materials influenced children's social skills development. However, majority of the teachers allocated 30 minutes for children play in the timetable which was deemed inadequate for children play. Findings also revealed that grouping of children into age and ability assisted them acquire social skills.

According to a study by Ojuondo [17] on aspects of play that contributed towards the development of language skills in Kisumu Central Sub County and that examined types of play, availability of play materials, role of the teacher during play and school policy on play as elements of play that influenced language skill development, the researcher found out that learners who were exposed to different types of play like manipulative, creative, dramatic and physical plays with play materials achieved higher scores because the children acquired listening, speaking, reading and writing skills during interaction with teachers who played active roles to instruct and direct play than those who were not exposed to any form of plays.

There is need to ensure that when it comes to games all regions of the country participate, many schools that perform well in games and sports also perform well in the academic work. This will only be achieved if those at the ECD level of study get to enjoy playing and value of playing, some of the learners in some of the well achieving schools in Koibatek Sub County attribute their love for games to the good and early introduction to games while they were in their lower levels of learning [18]. It is therefore important to determine the influence of play on acquisition of physical skills of the learners in public ECDE Centres in Koibatek Sub-county, Baringo County in Kenya.

**Statement of the Problem**

Playing contributes to Learners developing physical skills, their understanding of different concepts, their ability to solve problems, their self-

confidence and motivation, and an awareness of the needs of others. The fact that not all the learners get the chance and the opportunity to exploit the benefits and the joy that comes with playing, is worrying about the generation that we are going to have in the near future, the main reason for this problem is because many people fail to recognize the importance of play. Though play is important, there is insufficient evidence of the enough play required for optimal development in early childhood [19]. Frost [20] argues that many educators, politicians and parents, think play wastes away academic time therefore physical education is not given the due attention that is required. This is evident in schools since teachers concentrated on acquisition of cognitive skill rather than physical skills. Programs that do not advocate outdoor play often focus on learning cognitive and academic skills, rather than encouraging needed physical pursuits and social interactions. Not only is play rarely used in public pre-school but also the quality of play activities has often been hindered by many factors such as inadequate playground, limited play materials, limited or no play time, pressure by parents on teachers to meet academic standards.

Little play also leads children not to develop the physical skills, which in turn leads to unhealthy children, who lack coordination, balancing and performing tasks in their daily lives. However, no evidence of the study done in Koibatek Sub-county, on the influence of play on learners' acquisition of physical skills thus children in Koibatek Sub-County continue to exhibit challenges related to play and physical skills acquisition. Therefore, the researcher sought to find out the influence of play on learners' acquisition of physical skills in ECDE centres in Koibatek Sub-County, Baringo County in a bid to formulate intervention programs.

**Play Materials and Physical Skills Acquisition**

The preschool years are the period when young children acquire basic motor skills. As put forward by Jones and Gretchen [21] the skills fall into two categories: fine motor and gross motor. Recall that fine-motor skills involve use of the hands and fingers, whereas gross-motor skills are the movements that allow the individual to become mobile and engage in skills requiring body movement. Perceptual-motor development is also discussed in terms of the relationship between movement and the environment. Frost, Wortham, Reifel [22] proposes that children move through a developmental progression in the acquisition of motor skills. This progression includes the reflexive movement phase, the rudimentary movement phase, the fundamental movement phase, and the specialized movement phase. The sequence of the appearance of these phases is universal, although the rate of acquisition of motor skills varies from child to child.

Children will always play, but adults must provide children with opportunities, time to themselves and spaces for play if they are to get the full benefits [23]. Since time immemorial people have been playing games even before civilization came to Africa, people use to compete within their communities for recreational, this continued even after civilization and colonization of African countries, institutions participate in competitions with other institutions through games, this can be seen as an important way of ensuring that the Learners participate in Play. According to McCarty [24], play is a process that is freely chosen, personally directed and intrinsically motivated. That is, children and young people determine and control the content and intent of their play, by following their own instincts, ideas and interests, in their own way for their own reasons. Studies have shown that playing is good for developing motor functioning and most infants and toddlers acquire fundamental movement skills through unstructured physical activity and play.

While research does indicate that play can help to foster specific skills, Lester and Russell argue that it should not be perceived simply as a tool for learning and that the role of play within a particular moment, the joy it brings and the right that children have to play regardless of the positive outcomes, should be recognized as its primary drivers. The reduction in school playtime may be as a result of negative attitudes towards giving children time to play in school.

Singer, *et al*. [25] concurs that playtime is perceived as a waste of time that could be spent on academic forms of learning. However, according to Pellegrini and Holmes [26] eliminating or reducing break times are counterproductive as this may be the only opportunity children have to let off steam and socialize with their peers. Therefore, break times at school are both important and educational. In effect Pellegrini has argued that 'playful' breaks from learning, that is, unstructured breaks, actually improve, rather than hinder, cognitive performance [27]. Children need unstructured play time to develop these abilities. Sadly, most children spend more time, watching television, playing video games, attending academic focused programs or adult directed lessons. It is much more beneficial to be playing with friends outdoors, creating with various materials, building with blocks or playing make-believe.

In Kenya, the program is largely constitutive of the developmental experiences of young children zero to six years and has primarily focused on the custodial care and cognitive development of children in preparation for formal schooling [28]. The government of Kenya has endeavoured to implement a holistic Early Childhood Development (ECD) program for children zero to eight years to fulfill its commitment to the recommendations of the Jomtien World Conference on

Education for All [EFA] and the 2001 Dakar Framework for Action.

This is achieved through ensuring pre-school learners develop competencies in reading, counting, and ability to write correctly specified words and names which is enhanced by play. Studies show that children in schools with play facilities and equipment develop physical skills like throwing and catching, running for a certain distance and balancing as compared to their counterparts who are not exposed to play facilities and equipment. A study done in Makadara Sub-County, Nairobi County [29] looked at the general physical development like increase in body size and general physique, while this study looks at the physical skills that the children develop like jumping, balancing and throwing and catching. The study done in Makadara by Ngecha [29], used questionnaires and interviews to study the general physical development in preschool children, while this study employed a variety of instruments like observation schedule, resource checklist and questionnaires. This study examined whether there is a difference in the physical skills development of children in schools that have and those that do not have play equipment.

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## METHODOLOGY

This study employed a descriptive survey design. According to Orodho [30] descriptive survey design was used to allow the researcher to gather information, summarize, presents and interpret for the purpose of clarification. The target population of the study comprised of Population is a well-defined or set of people, service, elements, and even group of things or households that are being investigated. The researcher targeted all the 250 ECDE centres in Koibatek Sub-county and ECDE teachers. Therefore, the study population consisted of ECDE teachers.

Sampling is the process of selecting a number of individuals from a population which contains element representative of the characteristics found in the entire group [30]. The researcher targeted all the 250 ECDE centres in Koibatek Sub-county. Cohen, Manion & Morrison [31] formulae for determining the sample size was used as follows:

$$n = \frac{x^2 Np(1-p)}{\mathrm{d}^2(N-1) + x^2 p(1-p)}$$

$X^2$ =table values of chi-square at d.f =1 for desired confidence level (0.5=3.841)
N= Population size
P=population proportion (assumed to be 0.5)
d=degree of accuracy (expressed as a proportion

Substituting for N=250, we have

$$n = \frac{3.841 * 250 * 0.5(1-0.5)}{0.025(250-1) + 0.025(1-0.5)} = 152.$$

Therefore, the sample of the study was 152 ECDE centres as determined using sample determination formulae, which represent 61%, of total population [31]. Simple random sampling was used to select the 152 ECDE centres The ECDE centres was coded using serial numbers and written on identical papers bearing names of schools and put in a box and then mixed and shuffled well. To select the ECDE centres one paper was drawn without replacement. The

number was listed on a sheet of paper. This is repeated until the sample is obtained. One ECDE teacher was selected purposively from the each selected ECDE centre and therefore 152 ECDE teachers were selected to participate in the study.

Data was collected using questionnaires for ECDE teachers. A questionnaire is a research instrument that gathers data from over a large sample [32]. The questionnaires were filled by ECDE teachers.

The work of Robson [33] prescribed that validity refers to the accuracy of results. Validity means that the measure you are recording actually assesses what is supposed to measure whenever measurement is carried out using research instruments [18]. In the study, the validity is taken to mean the extent to which the instruments cover the objectives. It refers to quality of data gathering instrument or procedures that enable the instruments to measure what is supposed to measure [34]. Validity of the research tools were established by use of education experts at the university who included the supervisors in the school of education. The experts considered the content and construct of the items in the questionnaire. The items that were not appropriate were edited.

Reliability is the ability of instruments to give consistent results after a number of repeated trials [35]. It will be enhanced through use of instrument triangulation technique which is an accepted technique in survey research that is qualitative in nature since it lends credibility to the findings of the study [36]. In this study, a reliability co-efficient of reproducibility of more than 0.7 reflect the acceptable reliability. This is the collection of information to prove some facts as put forward by Kombo and Tromp [32]; the researcher obtained an introductory letter from the Faculty of Education Administration and policy studies of Kisii University and a research permit from the National Council for Science, Technology and Innovation [NACOSTI].

After which, the researcher sought permission from the county and Sub-County Education officers respectively in Baringo County to make the office aware of the planned research to enable the researcher to collect data from the sampled ECDE centres. The researcher visited individual ECDE centres to conduct the research by administering the questionnaire and filling in the observation schedule.

Data collected was analyzed, where by the data was pre-processed to eliminate unwanted and unusable data which could be contradictory or ambiguous. Chi-square was contacted to establish the relationship between the variables thought to be influencing physical skills, which includes the availability of children's play materials, allocation of time to children's play, and teacher's role. Regression analysis was conducted to evaluate the contribution of significant factors (independent variable) to the physical skills of the child. The output of the data analysis was presented using various statistical tools such as tables, graphs and narratives.

The researcher was fully aware that it is voluntary activity for the respondents to participate in the research and therefore the information was treated confidential. The researcher ensured that research questions do not invade personal lives of the respondents. The researcher gave credit and acknowledgments to all the information which was referred to [36].

## FINDINGS

### The Influence of Play Materials on Acquisition of Physical Skills

This section presents results of investigation on the influence of play materials on acquisition of physical skills in ECDE centre. This tested the hypothesis $\mathbf{H_{01}}$: There is no statistically significant relationship between play materials and acquisition of physical skill in ECDE centres. Chi-square test of independence was used to test for significant relationship between the variables and the play materials on acquisition of physical skills. A cross tabulated table between play materials and acquisition of physical skills was obtained by conducting Chi-square procedure in SPSS. The study results indicated that, the highest proportion 74 (48.7%) of the respondents who indicated that the ECDE centres have played materials to a great extent acquire physical skills to a great extent. This was followed by 9.2% of the respondents indicating so with 5.3% and 2.6% indicating that ECDE centres who have play materials to a greater extent acquire physical skills to a great and greater extent respectively (Table 1).

These results imply that, overall a high proportion 100(65.8%) of the respondents who indicated the ECDE centres having play material to a great or greater extent acquire physical skill to a great or greater extent. Chi-square test of independence indicated that there was significant relationship (Chi-square = 18.563; df=10; p-value=0.046) between availability of children's play materials and acquisition of physical skills Bodrova & Leong [37] in Koibatek Sub-County, Baringo County.

**Table-1: Cross tabulation between availability of play materials and Acquisition of physical skills**

| Play Material | | Acquisition of physical skills | | | | Total |
|---|---|---|---|---|---|---|
| | | Disagree | Undecided | Agree | Strongly Agree | |
| Strongly Disagree | N | 1 | 0 | 0 | 0 | 1 |
| | N% | 100.0% | 0.0% | 0.0% | 0.0% | 100.0% |
| Disagree | N | 0 | 3 | 5 | 0 | 8 |
| | N% | 0.0% | 37.5% | 62.5% | 0.0% | 100.0% |
| Undecided | N | 2 | 2 | 21 | 2 | 27 |
| | N% | 7.4% | 7.4% | 77.8% | 7.4% | 100.0% |
| Agree | N | 1 | 11 | 74 | 14 | 100 |
| | N% | 1.0% | 11.0% | 74.0% | 14.0% | 100.0% |
| Strongly Agree | N | 0 | 4 | 8 | 4 | 16 |
| | N% | 0.0% | 25.0% | 50.0% | 25.0% | 100.0% |
| Total | N | 4 | 20 | 108 | 20 | 152 |
| | N% | 2.6% | 13.2% | 71.1% | 13.2% | 100.0% |

**Table-2: Chi-square test of independence**

| Statistic | Value | Df | p-value |
|---|---|---|---|
| Pearson Chi-Square | 52.189 | 12 | .000 |
| Likelihood Ratio | 22.142 | 12 | .036 |
| Linear-by-Linear Association | 7.236 | 1 | .007 |
| N of Valid Cases | 152 | | |

The results of table 5 imply that there was significant influence of the extent of availability of play materials in an ECDE centre and acquisition of physical skills.

## CONCLUSION

From the study findings teachers are key in ensuring that the ECDE learners acquire physical skills. Therefore, the inadequacy of teachers can be detrimental in the children's play. It is the duty of the teacher to teach motor skills in a clean, concise manner so children can learn proper movement at an early age.

### Recommendations

From the study it is evident that play materials are adequate, appropriate and as such they can enhance acquisition of physical skill. However, the MOE should reign on those ECDE centres who have not invested in acquisition of play materials. The ministry needs also to set aside budgets for acquisition of play materials and employment of qualified teachers and support staff.

## REFERENCES


1. Lester, S. & Russell, W. (2010). *Children are right to Play: An examination of the importance of play in the lives of children worldwide*. The Hague, the Netherlands: Bernard van Leer Foundation.
2. Baranek, G. T. (2004). Autism during infancy: A retrospective video analysis of sensory-motor and social behaviors at 9–12 months of age. *Journal of Autism and Developmental Disorders. 29*, 213-224.
3. Tamis-LeMonda, C. S. (2008). When infants take mothers' advice: 18-month-olds integrate perceptual and social information to guide motor action. *Developmental Psychology*. *44*, 734–746.
4. Roskos K. Christie J, eds. (2007). *Play and literacy: Research from multiple perspectives*. 2nd ed. Hillsdale, N.J.: Lawrence Erlbaum Associates.
5. Meier, G. (2012). *Laureus Chairman Edwin Moses welcomes U.S. Government report on youth sport and urges congress to reverse budget cuts.*
6. Ouellette, J. (2007). The death and life of American imagination. *The Rake: Magazine.*
7. Kenneth, R., & Ginsburg, M. D. (2007). MSEd and the Committee on Communications and the Committee on Psychosocial Aspects of Child and Family Health (2007)«The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds». *Pediatrics*, *119*(1), 182-191.
8. United Nations Centre for Human Rights. (1989). Right to adequate food as a human right. New York: United Nations.
9. Knoop, H. H., & Jensen, A. F. (2003). Time for playful learning?-a cross-cultural study of parental values and attitudes towards children's time for play.
10. Kraak, A. (2008). A critical review of the national skills development strategy in South Africa. *Journal of Vocational Education and Training*, *60*(1), 1-18.
11. Sternberg, R. J., & Grigorenko, E. L. (2004). Why we need to explore development in its cultural context. *Merrill-Palmer Quarterly (1982-)*, 369-386.
12. Bogonko, B. (2006). playing under the fig trees in Kenya. *Nairobi: UNSCO (198*.
13. Linde, K., Barrett, B., Bauer, R., Melchart, D., & Woelkart, K. (2006). Echinacea for preventing and

treating the common cold. *Cochrane Database of Systematic Reviews*, (1).
14. Meidan, M. (2006). China's Africa policy: business now, politics later. *Asian Perspective*, 69-93.
15. Kombo, K., & Khalayi, W. (2011). *Factors that Influence the quality and Relevance of ECE in Kenya Unpublished MED*(Doctoral dissertation, Thesis University of Nairobi, Kenya).
16. Mahindu, J. W. (2011). *Influence of play on the developement of preschool children's social skills in Kabete Zone, Kenya*(Doctoral dissertation, University of Nairobi, Kenya).
17. Ojuondo, M. A. (2015). Influence of play on development of language skills among preschool children in Kisumu central sub-county, Kenya.
18. Drew, W. F. (2013). *From Play to Practice-Connecting Teachers Play to Childrens Learning*. National Association For The E.
19. Jones, R. A., & Okely, A. D. (2011). Physical activity recommendations for early childhood. *Physical activity*, 10.
20. Rubin LJ, Badesch DB, Barst RJ, Galiè N, Black CM, Keogh A, Pulido T, Frost A, Roux S, Leconte I, Landzberg M. Bosentan therapy for pulmonary arterial hypertension. New England Journal of Medicine. 2002 Mar 21;346(12):896-903.
21. Jones, E. & Gretchen R. (2011) *The Play's the Thing: Teachers' Roles in Children's Play*. 2nd edition. Teacher's College Press.
22. Kenya Institute of Education. (2008). *Early childhood development and education syllabus*. Nairobi: Kenya Institute of Education.
23. Cole-Hamilton, I. (2011). *NCB Highlight: Play and Well-being.* London: NCB. Available at Children's Play Information Services.
24. McCarty, M. E. (2001). How Infants Use Vision for Grasping Objects, *Child Developmen.* 72, (4) 973–987.
25. Singer, B. F., Neugebauer, N. M., Forneris, J., Rod-velt, K. R., Li, D., Bubula, N., & Vezina, P. (2014). *Locomotor conditioning by amphetamine requires cyclin-dependent kinase 5 signaling in the nucleus accumbens*. Neuropharmacology.
26. Pellegrini, A. D., & Gustafson, K. A. T. H. Y. (2005). Boys' and girls' uses of objects for exploration, play, and tools in early childhood. *The nature of play: Great apes and humans*, 113-135.
27. Pellegrini, A. D., & Nathan, P. E. (Eds.). (2011). *The Oxford handbook of the development of play*. Oxford Library of Psychology.
28. Ngaruiya, S. (2004). Assessing the influence of different early childhood development models on pre-school children's school readiness in Kenya.
29. Ngecha M. W., Kahiga R. M., Digolo P. O. (2011). *Factors Hindering Outdoor Play In Preschools In Makadara District – Nairobi County, Kenya.* Unpublished MED, Thesis University of Nairobi: Kenya.
30. Orodho, J. A. (2009). Elements of education and social science research methods. *Nairobi/Maseno*, 126-133.
31. Mills, G. E. (2000). *Action research: A guide for the teacher researcher*. Prentice-Hall, Inc., One Lake Street, Upper Saddle River, New Jersey 07458.
32. Kombo, K. D. & Tromp, L. A. D. (2006). *Proposal and thesis writing: An introduction.* Nairobi. Paulines Publications Africa.
33. Robson, C. (2011). *Real World Research: A Resource for Users of Social Research Methods in Applied Settings*, (2nd Ed.). Sussex, A. John Wiley and Sons Ltd.
34. Kumar, R. (2005). *Research Methodology: A Step by Step Guide for Beginners*, (2nd Ed.). New Delhi. Sage Publication.
35. Kerlinger, F.N. (2003). *Foundations of Behavioral Research*, Harcourt Brace Jovanovich.
36. Kothari C.R (2008). *Research Methodology, Methods and Techniques*. (2nd ed) New Delhi: Pitman Publishers.
37. Bodrova, E. & Leong, D. (2007). *The importance of play, why children need to play*.Early Childhood Today. London. UTR Press.