



The Implementation on Role Play in Early Children Mathematics Skills

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Abstract. The aims of the research is knowing the children's mathematic skill through role play in Pelita hati Kindergarten Mojokerto. This action research used John Elliot model, which every cycle consists four stage, which is planning implementing, observing, and reflecting. The result of the research indicates improving in the children's mathematic skill in Pelita hati Kindergarten Mojokerto. The improvement occurs because in every meeting, there is remedy in order to make children familiar to role play. The children's mathematic skill through playing character in Pelita hati Kindergarten 82% improvement based on expected criteria.

Keywords: Mathematic Skill · role play · 5–6 years old children

1 Introduction

Early childhood education teachers are required to be innovative in the learning process. This has an impact on children, namely with innovative learning of children's passion in learning. Innovative in the learning process, among others, when teachers choose methods, media, and activities carried out in the learning process. Learning in Early Childhood Education uses methods, one of the method of playing while learning. In early childhood learning teachers must design learning that is tailored to the characteristics of children, namely the child's world is play so that teachers in designing activities to make learning through play activities.

Through role play activities, children develop aspects of child development such as social emotional, language, cognitive, and motor physical. One of the child's development is cognitive there are various fields such as: problem solving, mathematics, and critical thinking. Learning mathematics in Early Childhood Education (PAUD) can be done by playing as with role playing.

Role playing is an activity carried out by children by interacting with others to imitate an activity that has been seen before such as buying and selling activities. Examples of role-playing have previously there are two daughters playing as children and mothers, the child plays his role according to the role of the child and mother in reality [11]. The sequence of role play gives the child a new form of desire. It teaches the child to desire by linking his desires with the fictitious "me" for his role in the game and its rules. In this way, a child's greatest achievement is played, a feat that tomorrow will

become the basic level of his real action and morality [11], so role-playing is a way to shape the person not just for the concept of problem solving. In role playing, there are also activities of interaction with peers or partners. Vygotsky believes social interaction makes children learn social skills such as cooperation and *kalaborasi* that support and improve cognitive development [5]. Interactions carried out by children will add new experiences and knowledge that the child does not know yet.

In the implementation of role-playing methods there are five advantages caused according among others: (1) stimulate the child's motor development, because in play requires movements, (2) stimulates the development of children's thinking, because in play requires solving problems how to do the game properly and correctly, (3) train the independence of children in doing things independently do not depend on others, (4) train the children discipline, because in the game there are rules that must be obeyed and implemented, (5) children are more enthusiastic in learning, because the instinct of early childhood learning is to play in which it contains lessons [2].

One of the advantages of role playing that has been presented before is that it stimulates the development of thinking or cognitive development. The development of cognitive aspects of the field of mathematics. From the cultural process of children acquiring mathematical thinking [6]. Not only from the culture but from the games that children do. Children's play gaining experience and matching in children's math learning [4]. Therefore, culture and games are a source for children to learn mathematics.

Learning in Early Childhood Education uses the method of playing while learning. Through children's play learning, this is supported by research that play is the child's way of exploring the child's own world and building knowledge. Children gain information by interacting socially [12]. Research conducted in children aged 4-6 years as many as 181 children showed that children's knowledge develops through a variety of different activities [7]. Shows collaborative action as children and teachers speak during learning activities provide evidence of a child's understanding of concepts [1]. From the results of the study there are similarities between the results of research and studies on the ground so that teachers are expected to have insights to develop learning, especially developing children's mathematical abilities through role playing.

In fact, in TK Pelita Hati Mojokerto in learning using notebooks and pencils as a medium and using lecture methods in math learning, so that children are focused on counting activities in books, and do not use play methods while learning according to the characteristics of children. This affects the child's learning interest in learning. How children learn is different from adults, therefore early childhood education teachers have a responsibility to help the child's learning process, especially in terms of obtaining information that is in accordance with the characteristics of the child. From that background, researchers aim to conduct research related to the application of role playing to the mathematical abilities of children aged 5-6 years.

2 Methodology

Based on the problems finding and efforts to solve the problem, researchers use a class action research design (PTK). The reason researchers use this study is because it is considered appropriate because there are problems in the learning process in the classroom,

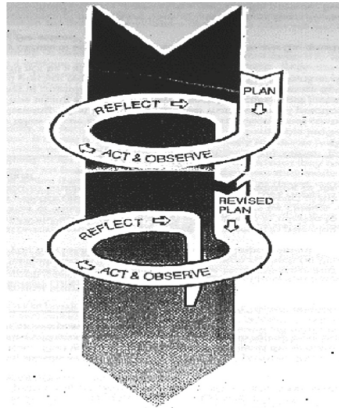


Fig. 1. Cycle model developed by Kemmis and MC Taggart (1988)

Table 1. Class Success Criteria

Score	Criteria
85%–100%	Very completed
75%–84%	completed
45%–74%	unfinished
1%–44%	Incomplete

not individual problems and is done as an effort to improve mathematical skills through role-playin.

This class action research uses a collaboration model with a reference cycle model that has been developed by Kemmis and Taggart (1988) with the usual stages traversed, namely: (1) Planning, (2) implementation, (3) Observation, (4) reflection [3]. The stages of the cycle model can be seen in Fig. 1.

The subjects in this study were group B children (5–6 Years) at Pelita Hati Mojokerto kindergarten consisting of 25 children. Data collection techniques use observation, documentation and interviews. Indicators of research achievement are seen from the completion of children’s learning in one class that can be seen in Table 1.

If the results of the study have shown that it is completely stretched to very thorough, then the research will be dismissed because it has shown improvement.

3 Results

From the results of research conducted starting from pre-action, the implementation of research in cycle I and the implementation of research in cycle II can be known that children’s mathematical abilities, especially in addition and subtraction, have increased very rapidly. Data obtained through observation, and documents are then rewritten and

Table 2. Improved children's mathematical abilities through role-playing from Pre-action, Cycle I and Cycle II research

No	Value	Pre-action	Cycle I	Cycle II
1	Class Success	52%	65%	82%

presented. After going through the analysis process in the data framework then concluded. From the results of the analysis can be seen the results of the cyclical findings presented by the researchers as follows:

In Table 2 it appears that the child's mathematical ability in pre-action shows a completion percentage of 52% with incomplete categories, cycle I shows a completion percentage of 65% entered into the unfinished category, cycle II reaches 82% with the category completed. The increase in mathematical ability from pre-action to cycle I increased by 13%. Cycles I to II increased by 17%, and pre action to cycle II increased by 30%.

4 Discussion

Games that can develop mathematical skills one of them is role playing. This has been shown in this study and obtained the result of an increase in mathematical ability by 30%. The improvement of the results that have been presented is an important role carried out by teachers because teachers are trying to improve the activities that have been done. This improvement is done because the teacher is one of the determining factors of learning success [10]. Improvements made by teachers are the role of teachers in creating fun and effective learning. Therefore, teachers play an important role in the learning process [8].

5 Conclusion

By using role playing can improve mathematical skills in addition and insurance in TK Pelita Hati Mojokerto. This is seen from the increase in pre-inkdakan to cycle II by 30%. In pre-action shows a completion percentage of 52% with incomplete categories, cycle I shows a completion percentage of 65% entered in the unfinished category, cycle II reached 82% with the complete category.

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References

1. Cohrssen, Caroline. Church, Amelia. Mathematics Knowledge in Early Childhood: Intentional Teaching in the Third Turn. *Children's Knowledge-in-Interaction*. 73–89. 2017. Dari http://link.springer.com/chapter/10.1007/978-981-10-1703-2_5.
2. Hamalik, Oemar, *Proses Belajar Mengajar*. Jakarta: Bumi Aksara. 2001.
3. Kemmis, S. and R McTaggart, *Action Research - some ideas from The Action Research Planner*, Third edition, ed. Deakin University. 1988.
4. Kotsopoulos, D., Makosz, S., Zambrzycka, J., & McCarthy, K. The Effects of Different Pedagogical Approaches on the Learning of Length Measurement in Kindergarten. *Early Childhood Education Journal*, 43, 531-539. 2015. Dari <https://link.springer.com/article/https://doi.org/10.1007/s10643-014-0686-x>.
5. Morrison, George S. *Dasar-Dasar Pendidikan Anak Usia Dini*. Jakarta: Indeks. 2012.
6. Oers, Bert V. Emergent mathematical thinking in the context of play. *Educational Studies in Mathematics*, 74(1), 23–37. 2010. Dari <https://link.springer.com/article/10.1007/s10649-009-9225-x>.
7. Sandberg, Anette., Brostro, Stig., Johansson, Inge., et al. Children's Perspective on Learning: An International Study in Denmark, Estonia, Germany and Sweden. *Early Childhood Educ Journal*, 45 (1). 71-81. 2015. Dari <http://link.springer.com/article/https://doi.org/10.1007/s10643-015-0759-5>.
8. Sanjaya, W. *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Prenada: Jakarta. 2009.
9. Sudono, Anggani. *Sumber Belajar dan Alat Permainan*. Jakarta: PT Grasindo. 2000.
10. Sutikno, S. *Belajar dan Pembelajaran*. Lombok: Holistica. 2013.
11. Vygotsky, L. S. *Mind in Society*. Cambridge, MA: Harvard University Press. 1978.
12. Wasik, B A., Vessels J L Jacobi. Word Play: Scaffolding Language Development Through Child Directed Play. *Early Childhood Education Journal*. 45 (6), 769–776. 2017. Dari <https://link.springer.com/article/10.1007/s10643-016-0827-5>

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