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Efforts to Improve Numeracy Skills by Fishing for Colorful Coral Stones at RA Perwanida Kutorejo Mojokerto

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ABSTRACT

This study aims to improve children's numeracy skills through the use of colorful coral fishing media in Group A of RA Perwanida Kutorejo, Mojokerto. The background of this study is the low numeracy skills of children, particularly in recognizing numbers, counting objects, and matching numbers with the number of objects. This study used the Classroom Action Research (CAR) method with two cycles. Each cycle consisted of planning, action implementation, observation, and reflection. The subjects were 17 children in Group A aged 4–5 years. Data were collected through observation, field notes, and documentation, then analyzed descriptively using qualitative and quantitative methods. The results showed an increase in children's numeracy skills after being given the intervention using the colorful coral fishing media. Initially, most children still had difficulty counting correctly. After the intervention in Cycle I, children's numeracy skills began to improve, although not optimally. In Cycle II, children's numeracy skills improved significantly, with a success rate of over 80%. Therefore, it can be concluded that the use of colorful coral fishing media can improve children's numeracy skills in Group A of RA Perwanida Kutorejo.

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Introduction

Early childhood education is an important foundation for children's cognitive, affective, and psychomotor development. At this age, children are in their golden age which greatly determines the quality of future development (Hurlock, 2012). Therefore, proper stimulation through learning activities is the main need to build the foundation of academic, social, and emotional skills. One aspect of cognitive development that needs special attention is the ability to calculate. Numeracy skills are not only limited to knowing number symbols, but also the skills of connecting numbers with the number of objects, comparing quantities, and performing simple operations (Suyanto, 2005). This ability is an important foundation for children to face mathematics learning at the next level.

Unfortunately, the reality on the ground shows that early childhood numeracy skills are still often low. The results of initial observations in Group A of Sunan Drajat RA Perwanida Kutorejo Mojokerto showed that most children had difficulty recognizing numbers, counting sequences, and matching the number of objects with number symbols. This condition indicates the need for innovation in learning.

The learning methods that have been applied so far are still conventional and do not involve concrete media. Children are often only asked to memorize numbers without being given direct experience, so they are easily bored and lack enthusiasm (Sujiono, 2013). In fact, early childhood learns more effectively through real experiences and play activities.

To answer these challenges, learning media that is creative, interesting, and in accordance with the characteristics of children is needed. Learning media functions as an intermediary that makes it easier for children to understand abstract concepts through concrete experiences (Arsyad, 2011). Thus, the selection of the right media can affect the quality of numeracy learning.

One of the media that is considered appropriate is fishing for colorful coral stones. This medium is not only simple, but it is also easy to make from materials available around. The colors of coral stones are able to attract children's attention while stimulating their interest in counting activities. Colorful coral rock fishing activities provide a fun play-by-play learning experience. Children are invited to fish for a certain amount of rocks, then match the catch with the number symbol. In this way, they practice numeracy skills while improving fine motor coordination (Brewer, 2007).

In addition, this activity involves various aspects of development. Children not only learn cognitively through arithmetic, but also develop social skills through cooperation with friends, practice patience, and build motivation to learn (Santrock, 2011). Thus, this media has great potential in improving the quality of numeracy learning in RA. Previous research has shown that the use of concrete media can improve motivation and early childhood learning outcomes. For example, research by Purnomo (2015) found that game-based media is able to significantly improve numeracy skills in kindergarten children. These findings reinforce the importance of using creative media such as coral rock fishing.

In addition, Vygotsky (1978) in sociocultural theory emphasized that children's learning is greatly influenced by interaction with the environment and the use of assistive devices. Learning media can function as tools of mediation that help children build an understanding of mathematical concepts through real experiences. Coral rock fishing media is also in line with the approach of playing while learning which is a characteristic of early childhood education. According to Piaget (1962), children in the preoperational stage learn most effectively through games that provide opportunities

for exploration. Therefore, this media is expected to be able to bridge the abstract concept of counting with the concrete experience of children.

In the context of the 2013 Early Childhood Education Curriculum, teachers are required to design learning that is fun, meaningful, and in accordance with the stages of child development (Ministry of Education and Culture, 2014). Colorful coral rock fishing media can be one alternative to meet these demands. Based on this analysis, the researcher considers it important to develop classroom action research that focuses on the use of coral rock fishing media. Classroom action research was chosen because it allows teachers and researchers to improve learning practices through repetitive reflection (Kemmis & McTaggart, 1988).

Thus, this study is directed to answer the problem of low numeracy skills of children in Group A Sunan Drajat RA Perwanida Kutorejo Mojokerto. Researchers are trying to test the extent to which colorful coral rock fishing media can effectively improve children's numeracy skills. The title of this research is "Efforts to Improve Numeracy Skills with Colorful Coral Rock Fishing Media in Group A Sunan Drajat RA Perwanida Kutorejo Mojokerto." Through this research, it is hoped that it can contribute to early childhood learning practices as well as become a reference for teachers in developing innovative media to improve the quality of early childhood education.

Methods

According to David Hopkins in Kunandar (2008: 44–45), classroom action research (PTK) is a form of self-reflection activity carried out by educational practitioners in real situations with the aim of improving rationality and fairness in educational practices, understanding of the practice, and the situation in which the practice takes place. This definition emphasizes that PTK is not only theoretical research, but reflective practice that is directly related to the improvement of the learning process in the classroom. Suharsimi Arikunto (2006: 57) stated that PTK is research conducted by teachers in the classroom with the main goal of improving or improving the quality of learning. Thus, PTK functions as a means for teachers to find solutions to learning problems directly, while strengthening their professional competence.

There are several reasons why researchers chose PTK in this study. First, PTK allows for continuous reflection in learning so that improvements can be made gradually. Second, PTK has advantages as expressed by Shumsky in Kunandar (2008: 69), namely fostering a sense of mutual belonging, encouraging creativity, producing positive change, and increasing agreement in problem solving. This is very relevant to the purpose of research to improve early childhood numeracy skills through concrete media. This study uses PTK in collaboration between researchers and peer teachers. Arikunto (2006: 60) emphasized that the purpose of PTK is not only to solve problems,

but also to find out why the problem can be solved through actions taken. Therefore, this research focuses on systematic steps that can improve children's numeracy skills.

Arikunto (in Unyil & Kartono, 2018) explained that PTK consists of four stages, namely planning, implementation of actions, observation, and reflection. These four stages take place cyclically and repeatedly until optimal results are obtained. According to Arikunto (2015: 47–48), the cycle can be stopped if the results obtained have shown significant improvement and students feel satisfied. The subject of the study was a student of Group A Sunan Drajat RA Perwanida Kutorejo with a total of 17 children, consisting of 9 boys and 8 girls. The selection of this subject is based on the low numeracy skills that children in the group have. The object of the research is the calculated ability that is improved through the medium of fishing for colorful coral stones.

In this study, there are two variables, namely the bound variable in the form of children's numeracy ability and the independent variable in the form of the use of coral rock fishing media. These two variables are linked through the implementation of class actions that are expected to show significant improvement from cycle to cycle. The research procedure was carried out in two cycles. The first stage is planning, where the researcher identifies problems, designs learning media, prepares lesson plans, and prepares research instruments. The second stage is the implementation of actions, where teachers carry out learning using coral rock fishing media in accordance with the plan made. The third stage is observation, where researchers and collaborators record student activities during the learning process. This observation was carried out to assess the enthusiasm, participation, and development of children's numeracy skills. The fourth stage is reflection, where the researcher evaluates the advantages and disadvantages of the actions that have been taken, then designs improvements for the next cycle.

Data collection techniques are carried out through observation, tests, and documentation. Observation is used to observe the activities of children and teachers during learning. The test is given to measure a child's numeracy ability before and after an action. Documentation in the form of photos and videos is used as empirical evidence that strengthens the research results.

The research instruments used include observation sheets, counting tests, and documentation cameras. The observation sheet records the interaction of teachers and students, as well as the development of numeracy skills. The counting test is prepared based on indicators of the child's ability to recognize numbers, count objects, match numbers, group, and perform simple counting operations. Cameras are used to document learning activities. The assessment rubric is prepared based on five main indicators, namely recognizing numbers, counting objects, matching numbers with the number of objects, grouping objects, and performing simple counting operations. Each

indicator has assessment criteria from very good to poor. This score is then processed to determine the level of children's numeracy ability.

Data analysis was carried out qualitatively and quantitatively. Qualitative analysis is used to examine the results of observations and documentation, while quantitative analysis is used to calculate the value of a calculated test. The combination of the two provides a comprehensive picture of the development of children's numeracy skills. The success of learning is determined by the achievement criteria of at least 80% of students obtaining good or very good grades. If the results of the actions in the first cycle have not reached the target, then it will be continued to the second cycle by correcting the weaknesses found in the previous cycle.

With this method, it is hoped that colorful coral rock fishing media can significantly improve children's numeracy skills. Furthermore, this research also contributes to early childhood learning practices, especially in the development of concrete media that are creative, innovative, and fun for early childhood. Finally, through this classroom action research, teachers not only play the role of educators, but also as researchers who are able to reflect on their practices. Thus, the results of the research are expected not only to improve children's numeracy skills, but also to strengthen teachers' professionalism in managing learning.

Result

This research was conducted at RA Perwanida Kutorejo in Group A Sunan Drajat in the 2024/2025 academic year with the aim of improving children's numeracy skills through playing with colorful coral stones. Initial data indicated that most children still had difficulty recognizing numbers, writing numbers, and matching number symbols with the number of objects. Pre-action observations revealed that the children's numeracy skills were only 65.58%, with only 41% achieving the Minimum Completion Criteria (KKM). In Cycle I, learning activities using the coral stones were implemented.

The learning process was designed through planning, implementation, observation, and reflection. Observations showed an increase in children's participation and motivation, although achievement of the KKM remained low. Of the 17 students, only 8 (47%) completed the activity, while 9 (53%) did not. The average success rate increased to 71.76%. This indicates that the use of coral stones had a positive impact, but was not yet optimal in improving children's numeracy skills.

Furthermore, in Cycle II, improvements were made based on the results of the reflection on Cycle I. The teacher reinforced the learning strategy by providing more motivation, reviewing previous material, and intensively guiding the children in using coral reef media. The results showed significant improvement. Of the 17 students, 11 (65%) achieved the highest score of 100, while 6 (35%) completed the task with an

average score of 80. Overall, the success rate increased sharply to 93.23%. The children's improvement in numeracy skills was evident in several aspects, namely: (1) increased interest and enthusiasm in participating in numeracy activities, (2) improved number recognition and number differentiation skills, (3) improved ability to match numbers with the number of objects, and (4) improved simple arithmetic operations.

The coral reef fishing activity proved to be an active, enjoyable activity for children, while simultaneously developing concentration and fine motor skills. A comparison of the results from the pre-cycle, Cycle I, and Cycle II showed a clear upward trend. The pre-cycle only reached 65.58%, increased to 71.76% in cycle I, and finally reached 93.23% in cycle II. Thus, the colorful coral fishing media proved effective in improving the numeracy skills of Group A Sunan Drajat RA Perwanida Kutorejo children.

Discussion

The results of the study showed that there was an increase in early childhood numeracy skills through the use of colorful coral rock fishing media. The increase can be seen from the comparison of pre-cycle, cycle I, and cycle II results which show a significant trend. This condition strengthens the view that game-based learning media is very effective in improving early childhood cognitive skills (Suryana, 2019). In the first cycle, although there was an increase compared to the pre-cycle, the results were not optimal. This is because children are still in the stage of adapting to the new media used. Children need time to understand the rules of the game and how to relate them to counting activities. This phenomenon is in line with Piaget's opinion that early childhood learns through a gradual process of assimilation and accommodation (Piaget, 2002).

The improvements made in the second cycle have been proven to be able to increase the achievement of children's learning outcomes. Teachers provide intensive guidance, improve learning strategies, and provide greater motivation to children. As a result, the achievement rate increased to 93.23%. This supports the research of Susanto (2021) who stated that effective teacher mentoring can increase motivation as well as early childhood learning outcomes. The medium of fishing for colorful coral rocks not only serves as a cognitive aid, but also involves the psychomotor aspects of the child. Rock fishing requires hand-eye coordination, precision, and patience, which then impacts fine motor skills. This finding is in line with Yuliani's (2018) research which emphasizes the importance of concrete media to train children's cognitive and psychomotor skills.

From the affective aspect, it can be seen that children are more enthusiastic about learning to count with fun media. The child shows a happy, focused, and active expression of questioning. According to Vygotsky's theory, social interaction and active involvement in learning activities can improve the child's proximal developmental zone (Vygotsky, 1978). Thus, coral stone media succeeded in creating an interactive learning

atmosphere. The significant increase in numeracy ability is also influenced by the visual appeal of the coral rock medium. The colorful stones provide a strong visual stimulus that attracts the child's attention. Research by Fitriani (2020) shows that brightly colored learning media can improve concentration and memory retention in early childhood. Thus, the visual aspect is one of the factors for the success of this media.

In addition to increasing learning motivation, coral stone media also helps children understand the concept of numbers concretely. Your child can see, count, and match the number of objects directly to the number symbol. According to Bruner (1966), the enactive and iconic stage is very important in the child's cognitive development before reaching the symbolic stage. Therefore, the use of concrete media such as coral stones is very relevant in learning to count. These findings also reinforce the view that conventional learning with minimal media tends to make children bored quickly. In contrast, game-based learning can overcome boredom while providing a meaningful learning experience. The results of this study are in line with the study of Hurlock (2012) which emphasizes that children learn more effectively when they feel happy and actively involved in the learning process.

The involvement of teachers in managing learning is also an important factor in the success of this research. The teacher plays the role of a facilitator who directs children to understand the concept of numbers through the medium of games. According to Rohani (2017), teachers' ability to design, manage, and reflect on learning is the key to improving the quality of early childhood education. In addition, the reflection carried out in each cycle helps teachers to continue to improve the learning process. The classroom action cycle provides room for teachers to evaluate weaknesses, then improve them on subsequent actions. This is in line with the concept of classroom action research put forward by Kemmis & McTaggart (1992) which emphasizes cycles of reflection and continuous improvement.

The use of colorful coral stone media also has implications for the social aspect of children. Rock fishing activities are carried out alternately, so that children learn to wait their turn, share, and work together. This shows that this media not only improves the cognitive aspect, but also the social-emotional aspect of the child. Saputra's research (2021) also found that group play-based learning is able to improve early childhood social skills. Furthermore, the results of this study confirm the importance of learning media innovation in early childhood education. Teachers need to be creative in choosing media that suits the characteristics of children, so that learning is not monotonous. This study shows that teachers' creativity in utilizing simple media such as coral stones can have a significant impact on children's learning outcomes.

The effectiveness of this medium also shows that fun learning does not have to use expensive or sophisticated means. With simple and easy-to-obtain materials,

teachers can create interesting and useful media. This supports the opinion of Munandar (2016) who states that teacher creativity is the main key in optimizing the early childhood learning process. From a long-term perspective, the successful use of coral rock fishing media can be an innovative learning model that can be applied in other PAUD institutions. With adjustments according to the context, this media has the potential to improve the quality of numeracy learning in various early childhood education institutions. Overall, this discussion shows that colorful coral fishing media is effective in improving early childhood numeracy skills because it is able to combine cognitive, psychomotor, affective, and social aspects in an integrated manner. The success of this research is in line with various theories of child development and the results of previous research that emphasize the importance of concrete media, educational games, and teacher creativity in early childhood learning.

Conclusion

Based on the results of the classroom action research that has been carried out with the title Efforts to Improve Counting Skills with Colorful Coral Stone Fishing Media for Group A Sunan Drajat RA Perwanida Kutorejo Mojokerto for the 2022/2024 Academic Year, which has been implemented in two cycles of activities, resulting in learning using colorful coral stone fishing media successfully increasing the counting skills of Group A Sunan Drajat RA Perwanida Kutorejo by 25%. Pre-cycle, after being given action in cycle I using colorful coral stone fishing media, it increased to 44%. The researcher then provided action in cycle II with an adjusted sheet, the counting skills increased to 87.5%. From the results of the study, it can be concluded as follows: 1) The application of playing media fishing for rocks has proven effective in improving children's counting skills. Through this activity, children are more enthusiastic in recognizing numbers and counting in a fun way. 2) This method is able to increase children's active involvement in the process of learning to count. Interactive play activities encourage children to be more focused, participate, and practice counting in a way that is not boring.

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