

Improving Fine Motor Skills Through Cutting Activities with Geometric Shapes

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Abstract

This research aims to improve fine motor skills through the activity of cutting geometric shapes in Class B PAUD Restu Ibu, using materials such as origami paper, cardboard, wax paper, pieces of cloth and straws. The method used is the Classroom Action Research Model by Kemmis and McTaggart, consisting of three cycles with four stages: planning, implementation, observation and reflection. The research took place from late February to early April, involving 10 children aged 5-6 years. Data collection was carried out through observation, interviews and documentation. The results show an increase in children's fine motor skills through cutting activities. The average score for each cycle increased: Cycle 1 = 59.1; Cycle 2 = 69; and Cycle 3 = 79.1. Interviews indicated that cutting activities were very fun and not boring for students. The research conclusion is that the activity of cutting geometric shapes can improve the fine motor skills of Class B children at PAUD Restu Ibu, South Jakarta.

Keywords: cutting activities, early childhood, fine motor skills

1 INTRODUCTION

In formal education, various challenges are often encountered. Currently, at Restu Ibu Early Childhood Education (PAUD), many children in Class B still do not demonstrate optimal fine motor skills in activities such as drawing, folding, cutting, weaving, threading, and beading. Factors hindering fine motor skill development include the use of inappropriate and monotonous methods that lead children to engage mainly in writing and completing worksheets. This limits their opportunities to explore, feel, and use their hands creatively. Children often follow their teachers' instructions without being given the chance to express their ideas and creativity, resulting in underdeveloped fine motor skills.

Identified problems include Based on these issues, the author limits the research to the development of fine motor skills, focusing on finger movement, wrist capability, and hand-eye coordination through cutting geometric shapes. The main research question is: "How can the fine motor skills of Class B children at PAUD Restu Ibu be improved through cutting activities with geometric shapes?"

The objectives of this research are to Understand the development of fine motor skills in Class B through play activities, identify ways to enhance fine motor skills in 5-6-year-olds through cutting activities, Evaluate the advantages and disadvantages of cutting geometric shapes for improving fine motor skills (Nugraha, et al, 2023; Ayuningtyas et al 2023).

The research is expected to benefit children by enhancing their fine motor skills through cutting activities, fostering interaction between students and teachers, and helping children recognize basic geometric shapes such as squares, triangles, and circles. For teachers, it serves as a basis for improving fine motor skills during lessons, enhancing teaching methods, and identifying children's issues early for timely intervention. For the school, it

aims to inform the design and development of teaching methods to enhance children's fine motor skills.

2 RESEARCH METHOD

The research method used in this study is Classroom Action Research based on the Kemmis and McTaggart model. This model was chosen to improve the quality of learning and teacher performance in the classroom. The Kemmis and McTaggart model includes several components: planning, implementation, observation, and reflection, followed by re-planning for the next cycle. In this model, the implementation and observation components are combined, as both occur simultaneously during the action phase; when the action is carried out, observation must also take place. The Classroom Action Research process begins with recognizing a problem, followed by planning, implementing actions, conducting observations, reflecting, and re-planning, forming a cycle (Wijaya Kusumah et al., 2010:27). The data sources for this research are Class B students at PAUD Restu Ibu, consisting of 10 children with varying abilities and backgrounds, as well as 3 teachers from PAUD Restu Ibu. Data collection techniques include observation, interviews with the principal, teachers, and students, and documentation.

This research was conducted at PAUD Restu Ibu, located at Jalan Rambutan RT 009 RW 007 No. 18, Jagakarsa, South Jakarta. The reason for selecting PAUD Restu Ibu as the research site is that during the initial observation, it was found that several students had not yet achieved optimal fine motor skills; out of 10 students, 9 were still lagging. This motivated the researcher to conduct a study at PAUD Restu Ibu to find the best solutions to these issues.

Data analysis techniques refer to methods for analyzing data to transform it into information, allowing the characteristics or properties of the data to be understood (Alma, Buchari, 2009:52). The data analysis techniques utilized observation sheets for students from the pre-cycle, Cycle 1, Cycle 2, and Cycle 3.

The research method involved observing all students participating in the study using observation sheets based on research rubrics at the end of each cycle. Each student's observation sheet was scored using a specific formula (Ngalim Purwanto, 2002:102). The scores obtained by the students were categorized into four criteria: BB (Belum Berkembang = Not Developed, 0–25), MB (Mulai Berkembang = Beginning to Develop, 26–50), BSH (Berkembang Sesuai Harapan = Developing as Expected, 51–75), and BSB (Berkembang Sangat Baik = Developing Very Well, 76–100).

3 RESEARCH RESULT AND DISCUSSION

The implementation of cutting activities with geometric shapes can enhance the fine motor skills of young children. This improvement is evident in the results from Cycle 1, Cycle 2, and Cycle 3 after applying the cutting activities method.

3.1 Action Results

Before the intervention, the observation results during the pre-cycle showed that out of a total of 10 children, 2 were in the "Not Yet Developed" (BB) category, 7 were in the "Starting to Develop" (MB) category, and only one child was in the "Developing as Expected" (BSH) category. No children fell into the "Very Well Developed" (BSB) category. These pre-cycle observation results indicated that the fine motor skills of Class B children at PAUD Restu Ibu were still low, prompting the researcher to act with the aim of improving the children's fine motor skills. The chosen intervention was a cutting activity involving geometric shapes.

After conducting three cycles of intervention, each consisting of three sessions, a gradual improvement in children's fine motor skills was observed. The stages of the intervention results can be explained as follows:

3.1.1 Action Results to First Cycle

Based on observations during the activity of cutting geometric shapes in the first meeting of the first cycle, the children were in the adjustment phase with the activity, which they rarely performed. Some children adjusted quickly, while others took longer. Several children were seen cutting the paper with irregular patterns, merely cutting the paper without following the straight or curved lines. The researcher and the class teacher in the first meeting of the first cycle spent more time guiding and motivating the children to cut the geometric shapes on the paper without teacher assistance.

In terms of fine motor skills during the first cycle across three meetings, the data showed that none of the 10 children were in the BB (Not Yet Developed) category. In the MB (Starting to Develop) category, 5 children were present, while 4 children were in the BSH (Developing as Expected) category, and 1 child was in the BSB (Very Well Developed) category. Compared to the pre-cycle results, there was noticeable improvement in the children's fine motor skills through the activity of cutting geometric shapes. However, since only 5 children reached the BSH and BSB categories (the minimum target being 8), the action research was continued to the second cycle.

3.1.2 Action Results to Second Cycle

The children started to become accustomed to the activity of cutting geometric shapes and followed the lessons quite well. This was because the teacher demonstrated the steps for cutting geometric shapes more clearly and provided enough guidance and motivation for the children to cut the shapes without the teacher's assistance. Additionally, the variety of image patterns and the use of different media during the activity of cutting geometric shapes contributed to this improvement.

Observations in the second cycle showed a significant improvement in the children's fine motor skills. During the second cycle, across three meetings, the data showed that none of the 10 children were in the BB (Not Yet Developed) category. In the MB (Starting to Develop) category, there were 3 children, 4 children were in the BSH (Developing as Expected) category, and 3 children were in the BSB (Very Well Developed) category. The results from the second cycle demonstrated notable progress in the children's fine motor skills compared to the results from the first cycle. However, like the outcome of the first cycle, although there was an improvement in the children's fine motor skills, since only 7 children were in the BSH and BSB categories (with a target of at least 8 children), the action research continued to the third cycle.

3.1.3 Action Results to Third Cycle

The children had become accustomed to the activity of cutting geometric shapes and were participating in the lessons very well. This was because the teacher demonstrated the steps for cutting geometric shapes very clearly and provided excellent guidance and motivation so that the children could cut the geometric shapes without the teacher's assistance. Additionally, the variety in image patterns and their smaller size ensured that the children did not get bored while performing the cutting activity. Observations during the third cycle showed an optimal improvement in fine motor skills.

In the third cycle, conducted over three meetings, the data revealed that none of the 10 children were in the BB (Not Yet Developed) or MB (Starting to Develop) categories. Five children were in the BSH (Developing as Expected) category, and five were in the BSB (Very Well Developed) category. The results from the third cycle demonstrated an optimal improvement in the children's fine motor skills, with 10 children reaching the BSH and BSB categories, exceeding the target of 8 children. Therefore, the action research was concluded after the third cycle.

3.2 Discussion

The classroom action research conducted to improve fine motor skills in Group B children at PAUD Restu Ibu Jakarta consisted of three cycles. Each cycle included planning, implementation, observation, and reflection phases. The learning activities in this research were aimed at enhancing children's fine motor skills, particularly in terms of precision and neatness. The learning activities to improve fine motor skills were carried out through the activity of cutting geometric shapes. The reason for choosing the activity of cutting geometric shapes was that cutting requires the use of fingers and hand-eye coordination, as well as precision, accuracy, and neatness. Additionally, cutting geometric shapes is an activity that attracts children's interest because it involves cutting various materials such as HVS paper, origami paper, cardboard, oil paper, and fabric scraps, along with a variety of image patterns such as lines, triangles, squares, and circles that they enjoy.

Based on observations, the fine motor skills of Group B children at PAUD Restu Ibu before the intervention were not well developed. After Group B children participated in the intervention through the activity of cutting geometric shapes over three cycles, there was an improvement in the children's fine motor skills. In Cycle I, the children's fine motor skills improved, with 5 out of 10 children (50%) reaching the BSH (Developing as Expected) and BSB (Very Well Developed) categories. Based on this data, further intervention was needed as the target success indicator of 80% had not yet been achieved. The obstacles encountered in Cycle I were that the teacher's instructions on how to cut geometric shapes were unclear, so many children still relied on the teacher's assistance. Additionally, the material used in the cutting activity was limited to one type and was large, causing difficulties and boredom for the children. The researcher and the observer/collaborator jointly addressed the obstacles in Cycle I. Based on discussions, several solutions were determined to address the challenges of Cycle I, including increasing the variety of materials and reducing their size, as well as maximizing the teacher's/observer's explanations, attention, and motivation to the children.

In Cycle II, the teacher optimized explanations, attention, and motivation for the children, and increased and reduced the size of materials for the activity of cutting geometric shapes. The fine motor skills being enhanced focused on two aspects: precision and neatness. The results from Cycle II showed that 7 out of 10 children (70%) were in the BSH and BSB categories. Although there was improvement, further action was still necessary as the 80% success indicator had not yet been reached. The obstacle in Cycle II was that the teacher's demonstration of how to cut geometric shapes was not optimal, leading some children to still seek the teacher's assistance. Although the materials were more varied than in Cycle I, they were still not optimal. The teacher/researcher and observer/collaborator worked together to resolve the issues in Cycle II. Based on discussions, several solutions were determined to address the challenges of Cycle II, including increasing the variety of materials and adding geometric shape patterns such as houses and mosques, while maximizing the teacher's explanations, attention, and motivation to the children.

In Cycle III, during the activity of cutting geometric shapes, the teacher maximized explanations, attention, and motivation to the children, and added more variety to the materials and geometric shape patterns for the cutting activity. The fine motor skills being improved focused on two aspects: precision and neatness. The results from Cycle III showed that 9 out of 10 children (90%) were in the BSH and BSB categories. From these results, it can be concluded that there was significant improvement in the fine motor skills of Group B children at PAUD Restu Ibu. In terms of precision, the children were able to cut geometric shapes accurately and quickly according to the patterns. In terms of neatness, the children were able to cut geometric shapes neatly and quickly in line with the patterns. Each child experienced an improvement in fine motor skills because the activity of cutting geometric shapes was repeated, which helped develop their finger strength and hand-eye coordination. As their finger strength and hand-eye coordination improved, the children became more proficient in the activity of cutting geometric shapes.

Based on the results of this research, the fine motor skills of children improved through the activity of cutting geometric shapes. This activity involved fine motor actions that required the use of fingers and hand-eye coordination, demanding precision, accuracy, and neatness. This is in line with what Sumantri stated, that fine motor skills are the ability to control small muscles for the successful execution of fine motor tasks (Sumantri, 2005: 143).

Sumantri further explains that the fine motor development goal for children aged 5-6 years is to develop fine motor skills related to the ability to use both hands, to control emotions during fine motor activities, to move body parts connected to finger movements, and to coordinate the eyes and hand movements (Sumantri, 2005: 9).

3.3 Table

The recap of the results of the classroom action research can be seen in the following table:

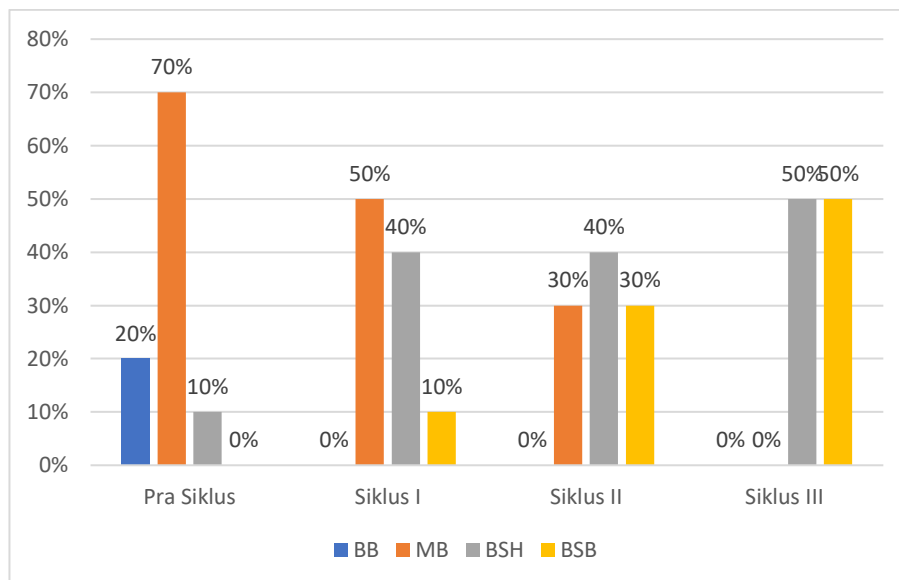
Table 1.
Recap of Observation Results for Pre-Cycle, Cycle I, Cycle II, and Cycle III

Criteria	Pre-Cycle	cycle 1	cycle 2	cycle 3
BSB	0	1	3	5
BSH	1	4	4	5
MB	7	5	3	0
BB	2	0	0	0

Table 1 shows that the fine motor skills of the children improved gradually. The children with the BSH (Developing as Expected) criteria in the pre-cycle progressed to the BSB (Very Well Developed) criteria in Cycle I. Meanwhile, 4 out of 7 children with the MB (Starting to Develop) criteria in the pre-cycle progressed to the BSH criteria in Cycle I, although 3 children remained in the MB category. Additionally, 2 children in the BB (Not Yet Developed) category progressed to MB in Cycle I. The development of the children's fine motor skills became more evident in Cycle II, where the number of children in the BSB category increased to 3 after gaining an additional 2 children from the BSH category. The children in the BSH category gained 2 children from the MB category, but there were still 3 children categorized as MB. The fine motor skills of the children saw optimal improvement after the actions taken in Cycle III. This is evident as the number of children in the BSB category increased from 3 in Cycle II to 5 in Cycle III (an increase of 2 children from Cycle II). The number of children in the BSH category remained at 5 from Cycle II, and there were no longer any children in the BB or MB categories. Therefore, the activity of cutting geometric shapes was concluded after Cycle III.

3.4 Graphic

The development of the children's fine motor skills can be seen in Graphic 1.



Gambar 1. Graphic of Development Children's Fine Motor Skills

In the graph above, it is shown that during Cycle III, conducted over three sessions, the activity of cutting geometric shapes using materials like cardboard, origami paper, and pictures of places of worship demonstrated that the children's fine motor skills had improved beyond the predetermined success indicators. This improvement was evident by comparing the results of Cycle II with Cycle III. Observations from Cycle III showed that 10 out of 10 children (100%) fell into the BSB (Very Well Developed) and BSH (Developed as Expected) categories, thus achieving the success indicators.

3.5 Equation

The equation used to calculate the observation results in each cycle is as follows:

a) Score for every student = $(\text{Student Score} / \text{Max Score}) \times 100$

Example Fahmi on Cycle III = $(30/40) \times 100 = 75$

b) Average Score (Mean) Cycle I, Cycle II
and Cycle III Class B PAUD RESTU IBU

$$\bar{x} = \frac{X_1+X_2+X_3+X_4+X_5+X_6+X_7+X_8+X_9+X_{10}}{n}$$

Example to Cycle III $\bar{x} = \frac{93+73+53+70+75+70+93+88+78+98}{10} = \frac{791}{10} = 79,1$

Average Score in B Class on Cycle III is **79,1**

c) Completeness percentage to Cycle III

$$= \frac{\text{Student that passed}}{\text{Total Student}} \times 100\%$$

$$= \frac{10 \times 100\%}{10} = \mathbf{100\%}$$

4 CONCLUSION

Based on the results of the research described in chapter IV, it can be concluded that there is evidence of improvement between learning using the activity of cutting out geometric

shapes and improving the fine motor skills of class B students at PAUD Restu Ibu Jagakarsa Jakarta in the 2023/2024 school year. This is known from the results of observations made by researchers at the pre-cycle, cycle I, cycle II and cycle III stages.

Thus, this classroom action research states that there is an improvement between learning using the activity of cutting out geometric shapes and improving the fine motor skills of class B students at PAUD Restu Ibu Jagakarsa Jakarta in the 2023/2024 academic year, although it is still not perfect.

5 ACKNOWLEDGEMENT

The author would like to thank the STKIP Kusuma Negara campus as the place where the author studied the Early Childhood Education study program. The author would also like to express his thanks to the supervisor as well as the lecturers who have provided their knowledge and the Principal and PAUD teachers Restu Ibu who have given the author the opportunity to conduct research so that the author was able to complete this thesis.

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