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Research Article

Efforts to Improve Fine Motor Abilities through Collage Activities in Early Childhood

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ABSTRACT

This study aims to improve fine motor abilities in early childhood through structured collage activities as part of a learning intervention. Fine motor skills are essential for early childhood development, particularly in supporting hand–eye coordination, muscle control, and readiness for academic tasks such as writing and drawing. The research employed Classroom Action Research (CAR), conducted in two cycles, each consisting of four stages: planning, implementation, observation, and reflection. The research subjects were 15 early childhood learners identified as experiencing delays in fine motor development. Data collection techniques included direct observation, documentation, and pre-test and post-test assessments to measure changes in children's fine motor performance. The results of the study indicate a notable improvement in children's fine motor abilities after the implementation of collage activities. In the first cycle, only 51.67% of children achieved the categories of "expected development" and "very good development." After revising the learning strategies and optimizing the use of collage materials in the second cycle, this percentage increased significantly to 83%. The findings demonstrate that collage activities effectively stimulate fine motor muscles, enhance hand–eye coordination, and improve children's concentration and accuracy in completing tasks. In addition, collage activities contribute positively to children's creativity, independence, and engagement in learning. Overall, collage activities are proven to be an effective, enjoyable, and easily implemented learning strategy for improving fine motor skills in early childhood education. The study recommends the integration of collage-based activities into daily learning practices to support optimal motor development in young children.

Keywords: Classroom Action Research; Collage Activity; Early Childhood; Fine Motor Skills

1. INTRODUCTION

Early childhood education essentially encompasses all efforts and actions taken by educators and parents in the care, nurturing, and educating of children by creating an environment where children can explore experiences and providing opportunities (Fatdilah et al., 2024). Early childhood education aims to unlock the full potential of early childhood during a period of significant physical and mental growth and development (Latifah & Prasetiya, 2023). One focus is fine motor development, which involves small muscle movements, such as buttoning clothes or twisting and squeezing objects. This is crucial because fine motor development is closely related to a child's readiness to engage in various learning activities, both at home and at school (Ludyanti et al., 2023; Marwan & Rohayati, 2025; Suggate et al., 2019). Fine motor development is a crucial aspect of early childhood growth and development. This ability encompasses coordination between small muscles, such as those in the fingers and hands, which is essential for daily activities such as writing, drawing, cutting, and buttoning clothes. Therefore, appropriate fine motor stimulation during the golden age is crucial for a child's readiness to enter the next level of education. However, in practice, many young children still exhibit delays in fine motor development. This is characterized by difficulty holding writing instruments correctly, cutting, or arranging small objects. These delays can be caused by a lack of varied activities involving fine motor skills in the child's learning environment. When children experience difficulty coordinating hand and finger movements, it can lead to delays in writing and other fine motor-related activities. If not addressed promptly, this condition can impact the child's ability to engage in more complex learning processes at later stages, such as copying text, drawing patterns, or arranging letters and numbers precisely (Rachmawati, Y., & Rachmadyanti, 2022; Putri & Sumarni, 2021).

Fine motor skills are a crucial developmental aspect that requires attention in early childhood education. These abilities involve the coordination of small muscles, especially in the hands and fingers, which play a significant role in daily activities such as writing, holding tools, and cutting and pasting (Siregar & Afriani, 2020). Early childhood is in a golden age of development, where appropriate stimulation can have a long-term impact on their cognitive, social, and physical

development (Rohmah et al., 2022). Therefore, providing stimulation to develop fine motor skills must be done optimally and in a fun way.

One effective way to improve fine motor skills is through art activities, particularly collage. Collage activities involve sticking various materials onto a specific medium, thereby stimulating hand-eye coordination and training children's manipulative skills (Putri & Astuti, 2021). Collage has advantages as a learning medium because it combines elements of creativity, sensory development, and motor coordination. Children not only learn to stick but also recognize textures, colors, and shapes, which ultimately have a positive impact on their visual-motor development (Widyastuti et al., 2023). According to research by Astuti & Nurani (2020), collage activities significantly contribute to the development of children's hand and finger muscles, especially when done regularly with a variety of materials and patterns. This activity also helps children become more careful, patient, and focused.

In practice, collage activities can be done with simple materials such as colored paper, seeds, cotton, and scraps of fabric. Using a variety of materials can increase children's interest in engaging in fun learning activities (Rahmah & Ismail, 2021). Early childhood education should be based on the principle of playing while learning. Fun-designed collage activities will motivate children to be active and engaged and explore their motor skills naturally (Sulastri et al., 2022). However, in some early childhood education (PAUD) units, learning activities still focus on cognitive aspects and tend to overlook the importance of fine motor stimulation. This results in some children experiencing delays in basic writing and manipulative skills (Hartati & Lestari, 2023). Collage activities can be a creative solution that teachers can easily implement to improve children's fine motor skills. Furthermore, this activity also promotes togetherness and the ability to work in small groups (Maulidya & Anggraini, 2021).

Based on initial observations, this problem also occurs in the Nurul Huda Playgroup (KB), which still shows varied and uneven development. Based on initial observations conducted by classroom teachers, it was discovered that some children had difficulty performing activities involving manual and finger skills, such as holding a pencil, cutting with scissors, or sticking paper to a specific surface. This is a particular concern, given that these skills are crucial for children's readiness for learning at the next level.

Furthermore, learning activities at the Nurul Huda Kindergarten tend to focus on classical activities such as singing and listening to stories, while activities specifically stimulating fine motor skills have not been systematically designed. Activities such as doodling, stringing beads, or playing with sand are sometimes done incidentally and are not always integrated into daily thematic learning. Teachers at the Nurul Huda Kindergarten also acknowledged that limited learning facilities and media are a barrier to designing activities that can stimulate fine motor skills. For example, a sufficient supply of various art materials such as colored paper, glue, seeds, or fabric scraps is not routinely available for use in collages or other creative activities.

Discussions with teachers also revealed that children often become easily bored by monotonous learning activities. This leads to a lack of active engagement in the learning process. This situation certainly results in a lack of fine motor stimulation, which children need during their golden years of development. Another problem is the low level of parental involvement in supporting children's developmental stimulation at home. Some parents assume that fine motor development will develop naturally without the need for special activities. However, without appropriate and consistent stimulation, children's manipulative skills can be stunted and impact their future school readiness. One activity that can be used to stimulate fine motor skills is collage. According to Farida Mayar (2022), collage is a creative application created by combining painting techniques and pasting certain materials. This collage activity can train hand muscles and improve hand-eye coordination (Nisa, 2021). Collage is also an activity that involves forming pieces into a picture (Putri et al., 2021). In other words, collage is not just an ordinary art activity but also contains educational elements that indirectly stimulate children's overall fine motor development.

College activities also have educational and fun value, in line with the principles of early childhood learning that emphasize play while learning. Through collage, children can express themselves, learn about various textures, and improve concentration and creativity. This activity is considered appropriate for children aged 3-4 years because it can stimulate cognitive development (Fatika et al., 2021). Furthermore, collage provides a multisensory experience that can enrich children's learning process and help them recognize shapes, colors, and patterns through activities that simultaneously engage the senses of sight and touch. Collage activities have actually been introduced on several occasions, but their implementation remains simplistic and has not been thoroughly evaluated in relation to improving fine motor skills. Teachers have not yet used collage as a planned and sustainable learning strategy. Collage also plays a role in developing children's imagination and self-expression. Children are given the opportunity to choose colors, arrange patterns, and determine the final result of their work, which also strengthens self-confidence and creativity (Herlina & Kartini, 2021).

The importance of developing fine motor skills is also evident in indicators of children's readiness for elementary school, where children are required to write, draw, and perform other manual activities independently (Arifah, 2020). If fine motor skills are not developed early, children will experience difficulties in later learning. Therefore, collage is an appropriate strategy for stimulating these skills from an early age (Wulandari, 2022). Numerous studies have shown that art activities,

including collage, have a positive impact on children's emotional development. The process of creating artwork can be a means of emotional therapy, helping children feel relaxed and comfortable (Kurniawan & Sari, 2020). Through college activities, children also learn to complete tasks. This process fosters a sense of responsibility, perseverance, and the habit of working neatly and in a structured manner (Novitasari et al., 2023).

Teachers play a crucial role in designing and facilitating collage activities that are appropriate to the child's age and developmental stage. Selecting the right tools and materials and providing clear instructions are key to the success of this activity (Ramadhani et al., 2022). Furthermore, parental involvement in college activities is crucial. These activities can be continued at home as part of ongoing stimulation of children's motor development (Nugraheni & Ningsih, 2020). Providing fine motor stimulation through collage also aligns with the thematic-integrative learning approach widely implemented in current early childhood education curricula. Collage activities can be integrated with themes, such as animals, plants, or families (Wahyuni, 2021). In practice, collage activities can also serve as a tool for assessing child development. Teachers can observe the development of children's coordination, perseverance, and creativity through the products they produce (Rosyidah et al., 2023).

Based on this description, a planned and systematic effort is needed to improve fine motor skills in early childhood through collage activities. This study aims to determine the extent to which collage activities can be an effective learning alternative for developing fine motor skills in early childhood at the Nurul Huda Playgroup (KB). This is expected to contribute to the development of more meaningful learning.

2. RESEARCH METHOD

This study used the Classroom Action Research (CAR) method, which aimed to improve the learning process and enhance the fine motor skills of early childhood children through the implementation of collage activities. CAR was chosen because it allows researchers to make continuous improvements through several cycles of action. The study was conducted with early childhood education (PAUD) students at a preschool. The subjects were 15 children who exhibited delays in fine motor development, including paper tearing skills, sticking accuracy, hand-eye coordination, and neatness of collages. Data collection was conducted through observation, documentation, and performance assessment techniques throughout the learning process. Observations were used to record the development of children's fine motor skills before, during, and after the intervention. Researchers used observation sheets compiled based on fine motor skill indicators, such as picking, sticking, cutting, and arranging small objects. Additionally, documentation in the form of photographs of children's collage-making activities and their work was collected as visual evidence of skill development.

The data collection process was carried out in three stages: pre-cycle, cycle I, and cycle II. In the pre-cycle stage, researchers observed the children's initial condition in terms of fine motor skills. Then, in Cycles I and II, actions were taken in the form of collage activities designed in stages and engagingly, in accordance with the developmental characteristics of early childhood. Each cycle consisted of planning, implementation, observation, and reflection, conducted systematically to identify improvements. Data analysis in this study utilized qualitative and quantitative descriptive analysis techniques. Qualitatively, the researcher described children's activities and responses to the collage activities, including engagement, persistence, and ability to complete tasks. Quantitatively, observational data on fine motor skill indicators were processed into percentages of achievement. This data was compared between cycles to determine the extent of improvement after the interventions were implemented. The results of the data analysis in each cycle served as the basis for reflection and improvement of learning in the following cycle. If indicators in Cycle I still did not meet the success criteria (i.e., at least 75% of children were in the minimally developing category as expected), revisions were made to the collage activity implementation strategy in Cycle II. Thus, data analysis in this classroom action research serves not only to evaluate results but also as a basis for decision-making for continuous improvement of the learning process.

3. RESULTS AND DISCUSSION

This research was conducted in two cycles, each consisting of planning, implementation, observation, and reflection. The focus of the action was the implementation of collage activities to improve the fine motor skills of 15 early childhood children who exhibited developmental delays in this area. The researchers began by identifying the problem, formulating research questions, and establishing research objectives. Next, they conducted a literature review related to fine motor development theory, the characteristics of early childhood, and the benefits of collage. They also developed an action plan, a lesson plan (RPPH), fine motor development indicators, observation instruments, and tools and materials for the collage activity, including colored paper (origami, used magazines), scissors (used by the teacher when assisting), paper glue (glue stick or white glue), animal patterns (printed on HVS paper), crayons/colored pencils (optional, for decoration), and a work surface (cardboard or thin plywood). The collage activity was implemented in the classroom in several cycles, each consisting of planning, implementation, observation, and reflection. Children were asked to create collages under teacher guidance, and observations were conducted to record the children's activities and fine motor skills during the activity. Reflection is carried out to assess effectiveness and evaluate obstacles, as well as make improvements in the next cycle if

necessary.

3.1 Cycle 1

In cycle I, collage activities were conducted using simple materials such as colored paper, cotton, and dried leaves. Children were asked to create collages by attaching the materials to a prepared pattern. Observations showed that most children still had difficulty pinning, applying glue, and attaching the materials correctly.

Table 1. Data on children's fine motor development in cycle I

No.	Child's Name	Tearing Paper	Pasting Accuracy	Hand-Eye Coordination	Neatness of Collage
1	Child A	BSH	MB	BSH	MB
2	Child B	MB	MB	MB	BB
3	Child C	BSB	BSH	BSB	BSH
4	Child D	MB	MB	MB	MB
5	Child E	BSH	BSH	BSH	BSH
6	Child F	BB	MB	MB	MB
7	Child G	BSH	BSH	BSH	MB
8	Child H	MB	MB	MB	MB
9	Child I	BSB	BSB	BSB	BSB
10	Child J	BSH	BSH	BSH	BSH
11	Child K	MB	MB	MB	BB
12	Child L	BSH	BSH	MB	MB
13	Child M	BSB	BSH	BSH	BSH
14	Child N	MB	MB	MB	MB
15	Child O	BSH	BSH	BSH	BSH

Based on observations in Cycle I, for the paper tearing indicator, 3 children were in the Very Good Development (BSB) category, 6 children were in the Developing as Expected (BSH) category, 5 children (33%) were Beginning to Develop (MB), and 1 child (7%) was Not Developing (BB). This data indicates that more than half of the children had achieved quite good paper-tearing skills, but some still had difficulty controlling finger movements while tearing, requiring further practice and guidance. For the sticking accuracy indicator, results were slightly lower. Only 2 children reached the BSB category and 6 children (40%) the BSH category, while 7 children (40%) were in the MB category. This indicates that precise placement of paper strips remains a challenge for most children. A lack of concrete examples and a lack of varied materials are suspected to be the causes of suboptimal results in this indicator.

For the hand-eye coordination indicator, children performed better than the other indicators, with 2 children in the BSB category, 6 in the BSH category, and 7 in the MB category. No children fell into the BB category. However, the neatness of the collages was still low. Only 1 child (7%) achieved the BSB (low-stake learning), 5 children (33%) achieved the BSH (low-stake learning), the majority (7 children) were still MB (low-stake learning), and 2 children (13%) were BB (low-stake learning). This indicates that the children were not yet able to complete the collage assignments neatly. Thus, the results of the first cycle generally indicate that learning through collage activities was quite effective, but improvements in implementation strategies and teacher guidance are still needed to achieve optimal results in the next cycle. Therefore, teachers need to implement more varied, enjoyable learning strategies that are appropriate to the characteristics of early childhood to make the learning process more meaningful and improve children's developmental outcomes (Astuti, 2022; Lestari, R., & Pratiwi, 2023; Ningsih, S., & Mulyani, 2021). Problems encountered during the learning process indicate that most children still rely on teacher guidance to complete assignments, reflecting their low level of independence. Furthermore, children's eye-hand coordination is not yet optimal, making it difficult for them to perform collage activities correctly. Children's learning motivation is also relatively low, especially because some of them are not yet accustomed to college activities, so they show less enthusiasm in participating in activities.

3.1.1 Reflection and Improvement

The results of the reflection from Cycle I were used as the basis for designing improvements in Cycle II. Several improvements were made, including providing a variety of collage materials, such as seeds, scraps of fabric, and sawdust, to attract children's interest and enhance their creativity. The teacher also provided clearer instructions and conducted live demonstrations to help children understand the stages of the activity. To increase children's engagement and enthusiasm for the activity, the teacher provided praise and positive encouragement throughout the learning process. Furthermore, children were given the freedom to create independently, allowing them to feel more free to express their ideas and imagination.

3.2 Cycle II

In Cycle II, children demonstrated improved development. Hand and finger coordination improved, they gained confidence in completing their collages, and their work displayed greater neatness and creativity. Children also appeared more focused when holding and attaching collage materials and were able to complete the task without much assistance. This activity helps optimally develop fine motor skills because it involves coordinated and directed finger movements. This increase is in line with research showing that art activities such as collage can improve children's fine motor skills and imagination (D. Astuti, 2021; Rahmawati, E., & Yuliani, 2022; Sari, 2023).

Table 2. Data on children's fine motor development in cycle II

No.	Child's Name	Tearing Paper	Pasting Accuracy	Hand-Eye Coordination	Neatness of Collage
1	Child A	BSH	BSH	BSH	BSH
2	Child B	BSH	MB	BSH	MB
3	Child C	BSB	BSB	BSB	BSB
4	Child D	BSH	BSH	BSH	BSH
5	Child E	BSB	BSH	BSH	BSH
6	Child F	MB	MB	MB	MB
7	Child G	BSB	BSH	BSB	BSH
8	Child H	BSH	BSH	BSH	BSH
9	Child I	BSB	BSB	BSB	BSB
10	Child J	BSB	BSH	BSH	BSH
11	Child K	MB	MB	MB	MB
12	Child L	BSH	BSH	BSH	BSH
13	Child M	BSB	BSB	BSB	BSB
14	Child N	BSH	BSH	BSH	BSH
15	Child O	BSB	BSH	BSB	BSH

Based on observations in Cycle II, there was a significant improvement in the fine motor skills of early childhood children through collages activities. For the paper tearing indicator, 7 children were in the Very Well Developed (BSB) category, 6 children were in the Developing as Expected (BSH) category, and only 2 children (13%) were still in the Beginning to Develop (MB) category. No children were in the Not Yet Developed (BB) category. This indicates that most children were able to perform the paper-tearing activity well and in a directed manner.

For the accuracy of pasting, 3 children were in the BSB category, 9 children in the BSH category, and 3 children (20%) in the MB category. Although the number of children achieving the BSB category was not optimal, there was a general improvement in the children's ability to paste collage materials more accurately compared to the previous cycle. This was also supported by improvements in the methods used, such as providing ready-to-use cut materials and clearer visual examples, which helped children better understand the task.

The eye-hand coordination indicator showed positive development. A total of 5 children were in the BSB category, 8 children in the BSH category, and 2 children in the MB category. Furthermore, the neatness indicator for college results showed positive progress. Three children were in the BSB category for neatness. Nine children were in the BSH category, while the rest were in the MB category, and none were in the BB category. This achievement indicates that the collage activities refined in cycle II successfully improved fine motor coordination and the aesthetics of children's work. Therefore, it can be concluded that learning through collage activities has proven effective in improving fine motor skills in early childhood.

The total number of children achieving the BSH and BSB categories increased in each indicator. In the paper tearing indicator, 13 children (86.67%) achieved the BSH and BSB categories, indicating a significant increase from the previous cycle. In the sticking accuracy indicator, 12 children (80%) achieved the BSH and BSB categories, indicating a significant increase from the previous cycle. The eye-hand coordination indicator showed positive progress, with 13 children (86.67%) achieving the BSH and BSB categories, indicating a significant increase from the previous cycle. In terms of neatness, 12 children (80%) achieved the BSH and BSB categories, indicating a significant improvement from the previous cycle. With these four indicators, 83% of children achieved minimal development as expected. These results exceeded the success indicators in this study. Collage activities have a positive impact on children's fine motor skills. Learning based on concrete and repetitive activities can improve the fine motor development of early childhood (Putri, R. A., & Anwar, 2021; Hapsari, 2022; Lestari, D., Nugroho, T., & Yuniarti, 2023).

3.3 Discussion

The research results show that the implementation of collage activities in early childhood education significantly improves the fine motor skills of young children. This activity provides direct stimulation to the fine muscles of the hands and trains eye-hand coordination, which is crucial for basic activities. This aligns with findings by Lestari (2021), who stated that art activities such as collage can strengthen children's fine motor skills through direct involvement and enjoyable, practical experiences. The visible improvement from cycle I to cycle II illustrates the effectiveness of the learning strategy designed to be based on hands-on, enjoyable practice. In cycle I, children's engagement was still low, and many were unable to complete the collage independently. This indicates that children were initially still in the exploration stage and needed intensive guidance. However, in cycle II, children began to show improvements in motor skills, both technically (pinching, tearing, and sticking) and behaviorally (independence, concentration, and self-confidence).

Furthermore, this approach also supports the principle of "playing while learning," which is a hallmark of early childhood education. Children not only learn collage techniques but also gain multisensory experience with texture, color, shape, and pattern. Similar findings were also reported by Wulandari (2022), who emphasized that collage activities can be a holistic learning medium that simultaneously engages sensory, perceptual, and imaginative aspects. In addition to motor development, collage activities also have a positive impact on children's social-emotional aspects. During the process, children are taught to follow instructions, be patient when arranging materials, collaborate with peers, and take pride in their own work. This reinforcement is crucial in developing a confident and independent character in children.

In Cycle I, learning activities were designed to develop children's fine motor skills through collage activities. The theme used was "Animals," and children were asked to create animal pictures by gluing colored paper scraps onto pre-prepared patterns. The activity steps consisted of (1) the teacher introducing the theme and collage materials, (2) showing examples of animal collages, (3) asking the children to tear colored paper and paste it according to the provided pattern, (4) the teacher providing assistance and encouragement throughout the process, and (5) asking the children to show their work to their peers. The activity took approximately 45 minutes. During the process, some children showed enthusiasm and active involvement, but others still had difficulty tearing and pasting the paper correctly. Observations were conducted using a fine motor development assessment sheet based on the following indicators: paper tearing ability, pasting accuracy, hand-eye coordination, and neatness of the collage.

Based on reflections from cycle I, improvements were made in cycle II. The activity theme remained "Animals," but with a different approach. This time, children were given a wider variety of collage materials to choose from, such as origami paper, cotton, and dried leaves. Additionally, some of the paper was cut into smaller pieces to make it easier for children who had difficulty tearing. The teacher provided more visual and interactive examples and allotted a longer time limit, 60 minutes. The collage activities in cycle II were carried out in a more enjoyable atmosphere with children's songs as background, and the teacher actively assisted each child individually. This is in accordance with Nurhidayati (2022), who showed that teacher creativity in utilizing surrounding materials plays a significant role in increasing children's participation and enthusiasm in art activities such as collage. Observations showed significant improvements. Most children were more enthusiastic, skilled at arranging and pasting collage materials, and showed neater work. At the end of cycle II, 86% of children achieved the BSH or BSB category, which indicates that the success indicator had been achieved.

4. CONCLUSION

The research results show that collage activities significantly improve fine motor skills in early childhood. Children become more confident, skilled, and independent in completing tasks involving hand-eye coordination. A learning approach based on concrete and fun activities has proven effective in supporting children's overall development. Results from the four indicators showed that 83% of children had achieved at least the expected development. This result exceeded the success indicator in this study. Providing collage activities has a positive impact on children's fine motor skills. Based on these results, it is recommended that educators in early childhood education (PAUD) incorporate collage activities into their routine learning strategies, particularly to stimulate children's fine motor skills. Teachers need to design varied activities, use accessible materials, and create a positive and enjoyable learning environment. Training is also needed for teachers in designing and evaluating college activities effectively. Further research can be conducted to develop a more comprehensive arts-based learning model integrated into the early childhood education curriculum.

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