

# The Application of Plup Painting Collage Activities in Enhancing Fine Motor Skills in Students with Cerebral Palsy

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## Keywords

Students with cerebral palsy;  
Fine motor skills;  
Pulp painting collage activity

## Abstract

This study aims to determine how applying pulp painting collage activities improves fine motor skills in third-grade cerebral palsy students at SKh Ahsan Firdaus. This study uses an experimental method with a Single Subject Research (SSR) A-B-A model design. The study's results indicate that the average fine motor skills of the subjects in the baseline phase A1 were 40%, which then increased significantly in the intervention phase B with an average of 92.8%. In the baseline phase A2, after the intervention was stopped, the average fine motor skills of the subjects remained at a high level, namely 83.12%. The conclusion indicates that the application of pulp painting collage activities positively improves fine motor skills in cerebral palsy students at SKh Ahsan Firdaus. The implications of this study highlight the importance of applying creative art methods, such as pulp painting collage, in therapy for children with cerebral palsy to enhance fine motor skills and support their functional development.

## Kata Kunci

Siswa Cerebral Palsy;  
Kemampuan Motorik Halus;  
Kegiatan Kolase Pulp Painting

## Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh penerapan kegiatan kolase plup painting dalam meningkatkan kemampuan motorik halus pada siswa cerebral palsy kelas III SDKh di SKh Ahsan Firdaus. Penelitian ini menggunakan metode eksperimen dengan desain Single Subject Research (SSR) model A-B-A. Hasil penelitian menunjukkan bahwa rata-rata kemampuan motorik halus subjek pada fase baseline A1 sebesar 40%, yang kemudian meningkat secara signifikan pada fase intervensi B dengan rata-rata sebesar 92,8%. Pada fase baseline A2, setelah intervensi dihentikan, rata-rata kemampuan motorik halus subjek tetap berada pada level tinggi, yaitu 83,12%. Kesimpulan menunjukkan bahwa penerapan kegiatan kolase plup painting memiliki pengaruh positif dalam meningkatkan kemampuan motorik halus pada siswa cerebral palsy di SKh Ahsan Firdaus. Implikasi penelitian ini adalah pentingnya penerapan metode seni kreatif, seperti kolase plup painting, dalam terapi anak cerebral palsy untuk meningkatkan keterampilan motorik halus dan mendukung perkembangan fungsional mereka.

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## INTRODUCTION

Children with special needs require educational support, therapy, or assistance to reach their full potential. One category of children with special needs is children with physical disabilities, namely those who experience disorders of the muscular, skeletal, or nervous systems that affect their motor skills (Hikmawati, 2011, p. 714). Children with physical disabilities often face difficulties in performing daily motor activities, both gross and fine motor skills. One of the most common forms of physical disability is cerebral palsy (CP). This neurological developmental disorder affects movement control and body posture and is characterized by muscle stiffness, coordination difficulties, and abnormal movement patterns. Cerebral palsy can affect various aspects of a child's life, including their ability to interact with their surroundings, communicate, and live independently (Zakiyah, 2024). Therefore, appropriate therapy and adaptive educational approaches are crucial to support the development of children with CP, enabling them to achieve a better quality of life and function optimally in society.

Motor skills are basic abilities used throughout life; fine motor skills are movements performed by specific body parts without requiring significant effort (Saripudin, 2019). Fine motor skills involve the coordination of small or delicate muscles, requiring coordination between the eyes and hands and reasonable control, enabling precision and accuracy in movements. According to Anindita & Apsari (2019, p. 214), cerebral palsy is damage to brain tissue, particularly in the motor centre, which can occur from the prenatal period through the development of the central nervous system. This condition causes motor function disorders such as muscle stiffness, paralysis, uncontrolled movements, and balance disorders. As a result, children with cerebral palsy have difficulty controlling their body movements, which also affects their fine motor skills (Siaahan & Armanila, 2022).

Based on the researcher's observations at SKh Ahsan Firdaus, an 11-year-old third-grade student with right hemiplegic CP was found to have significant impairments in fine motor skills. Muscle stiffness in the right side of the body caused the child to have difficulty performing basic activities such as squeezing, pinching, or sticking paper. Impaired hand and finger coordination also made his movements less precise and poorly coordinated. The student has demonstrated some basic skills, such as holding writing instruments and scribbling, but has not yet been able to use his right hand optimally. He is forced to use his less dominant left hand for writing, which causes difficulties when using small-sized books. The teacher has provided regular fine motor exercises, such as using tweezers and drawing patterns, but these activities have not attracted the student's interest in learning.

External factors such as limited teaching aids, a shortage of teaching staff, and minimal support from the home environment also affect the student's fine motor development (Chairunnisa & Raharjo, 2024). Teachers face time and resource constraints due to managing many students simultaneously, making it difficult to focus on individual needs (Nurph et al., 2024). This situation underscores the need for an enjoyable, practical, easy-to-implement approach to optimally stimulate children's fine motor skills.

The issues identified in the field indicate that the fine motor skills of students with cerebral palsy remain relatively low. This necessitates a structured learning program involving activities that optimistically stimulate children's fine motor skills. One relevant approach is collage art activities, which, according to Pura (2019, p. 138), can train hand and finger movement control as an important aspect of fine motor development.

As an art technique, collage combines various materials to create new visual works (Zakiyyah et al., 2023). This activity stimulates creativity and contributes to sensory development and motor coordination. One form of collage applicable to children with cerebral palsy is pulp painting, which uses recycled pulp painting as the primary medium. This activity involves tearing, crumpling, mixing, picking up, and pasting, which effectively trains the child's fine motor flexibility and hand-eye coordination.

Fine motor skills in children with cerebral palsy require special attention, as neglecting them can negatively impact various aspects of the child's development (Agustin et al., 2024). These challenges

can lead to difficulties performing daily activities, reduced self-confidence, and hindered participation in academic activities requiring motor skills. This condition may also affect social development and disrupt the overall learning process (Oktavia et al., 2025).

Research specifically examining the application of pulp painting collage activities on students with cerebral palsy in the context of fine motor skills has not been conducted to date. Although there are many studies on art therapy for children with special needs, painting collages as a specific method to improve fine motor skills is rarely discussed. Therefore, this study aims to address this gap by examining the impact of applying pulp painting collage activities on improving fine motor skills in students with cerebral palsy at SKh Ahsan Firdaus. This study is expected to contribute to developing more effective art therapy methods for students with cerebral palsy and provide empirical evidence that educators and therapists can use to improve the quality of education and therapy for children with special needs

## METHOD

This study uses an experimental method in a quantitative approach. According to Sugiyono (2019, p. 72), a quantitative approach is used to study a specific population or sample with data collection techniques using instruments that are then analyzed statistically to test hypotheses. Furthermore, the experimental method aims to observe the effect of independent variables (treatment) on dependent variables (results) in a controlled situation.

The experimental design used in this study is Single Subject Research (SSR). According to Yuwono (2020, p. 11), SSR is a research method that repeatedly observes changes in target behaviour in one subject in two conditions, namely before and after the intervention, during a specific period such as daily, weekly, or even hourly. This single-subject research is part of behavioural analysis.

The design applied is A-B-A, an extension of the A-B design. Repeating the baseline phase, this design demonstrates the cause-and-effect relationship between independent and dependent variables (Yuwono, 2020, p. 72). This study consists of three stages: the first baseline (A1) as the initial condition before treatment, lasting for four sessions; followed by the intervention phase (B) with treatment, given in eight sessions; and the second baseline (A2) which measures the post-intervention effect in four sessions. This study aims to evaluate the application of pulp painting collage activities in improving the fine motor skills of students with cerebral palsy at SKh Ahsan Firdaus.

This study was conducted at SKh Ahsan Firdaus. The school is located at Kp. Bojen Lebak RT.003 RW.003, Bojen, Kec. Sobang, Kab. Pandeglang Prov. Banten. The subject of this study was a student with hemiplegic cerebral palsy enrolled in the third grade of SKh. The student experienced fine motor skill impairments characterized by muscle stiffness and suboptimal hand movement coordination, resulting in difficulties performing activities requiring precision, hand and finger flexibility, and poor eye-hand coordination.

The instrument used in this study was a test instrument in the form of an observation sheet for fine motor skills. This instrument recorded the student's fine motor skills through pulp painting collage activities, such as tearing, squeezing, pinching, and sticking within a specified time.

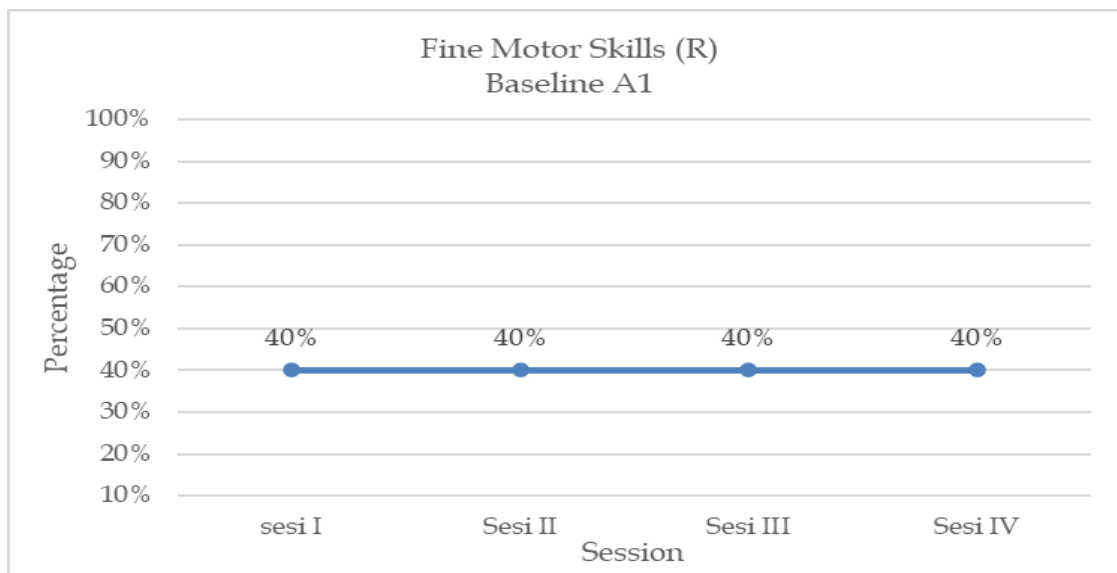
## RESULTS AND DISCUSSION

### Result

The research was conducted using a quantitative experimental study design with a single-subject method, also known as Single Subject Research (SSR), to provide answers to the research questions. The research design used in this study was A1-B-A2.

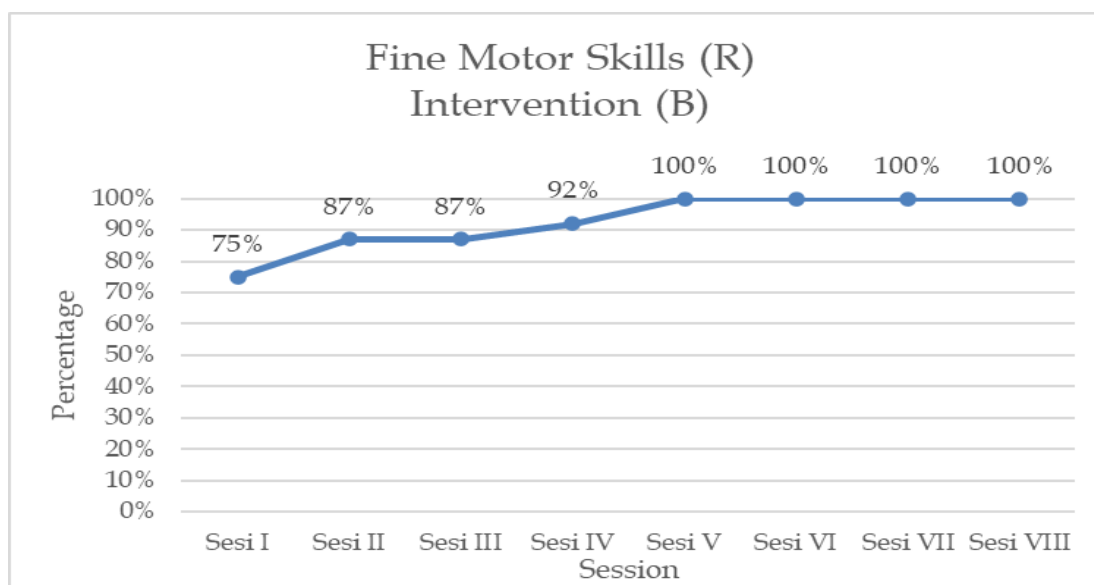
Based on the research conducted at SKh Ahsan Firdaus, the application of collage pulp painting activities in improving fine motor skills in students with cerebral palsy can be described in detail. This study used an experimental approach with a Single Subject Research (SSR) design pattern A1-B-A2, part of the quantitative method. The study was conducted over 16 sessions, consisting of 4 sessions in the

baseline phase A1, eight sessions in the intervention phase, and four sessions in the baseline phase A2. The results of this activity are illustrated in the following graph.



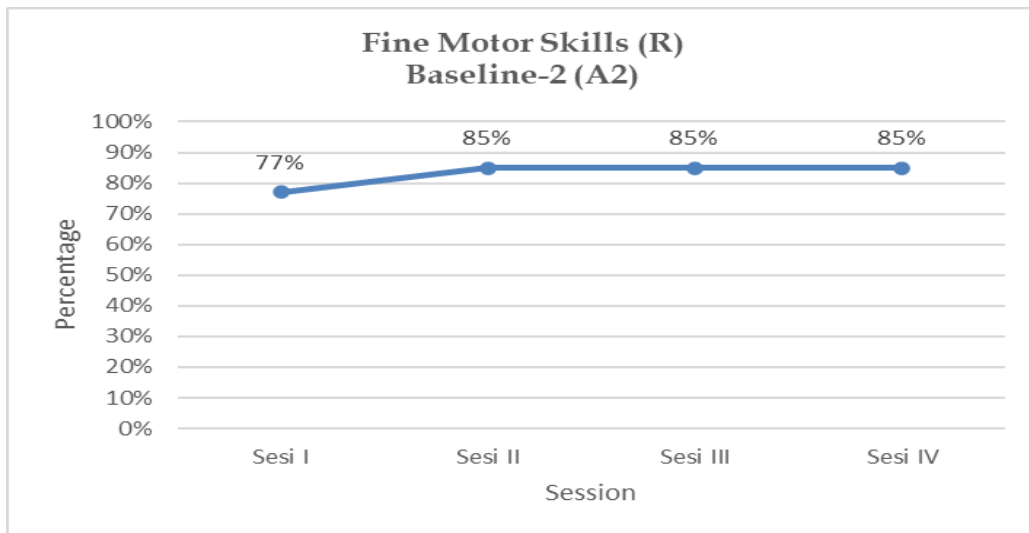
Graph 1. Fine Motor Skills of Children in the Baseline-1 Phase (A1)

Based on the graph above, in the baseline-1 phase (A1), the aim was to assess the subjects' fine motor skills before intervention (treatment). Figure 1 shows that the scores remained flat (no change) in sessions 1, 2, 3, and 4, with a percentage of 40%.



Graph 2. Fine Motor Skills of Children in the Intervention Phase (B)

Based on the graph above, in the Intervention Phase (B), the fine motor skills of the subjects in the intervention phase (treatment) improved. Graph 2 shows an increase in scores (there is a change), with the percentage value in session 1 obtaining a percentage value of 75%, in session 2 obtaining a percentage value of 87%, session 3 obtaining a value of 87%, session 4 obtaining a value of 92%, and sessions 5 to 8 obtaining a value of 100%.



Graph 3. Fine Motor Skills of Children in the Baseline-2 Phase (A2)

Based on graph 4.2 above, in Baseline A2, the fine motor skills of subjects in Baseline 2 (A2) Graph 3 show an increase in scores (an improvement from baseline 1) with a percentage value in session 1 obtaining a percentage value of 77%, in Session 2, the percentage value was 85%, in Session 3, the percentage value was 85%, and in Session 4, the percentage value was 85%.

Based on the data from Baseline-1, Intervention (B), and Baseline-2 (A2), the following can be combined into a graph of the overall data obtained:

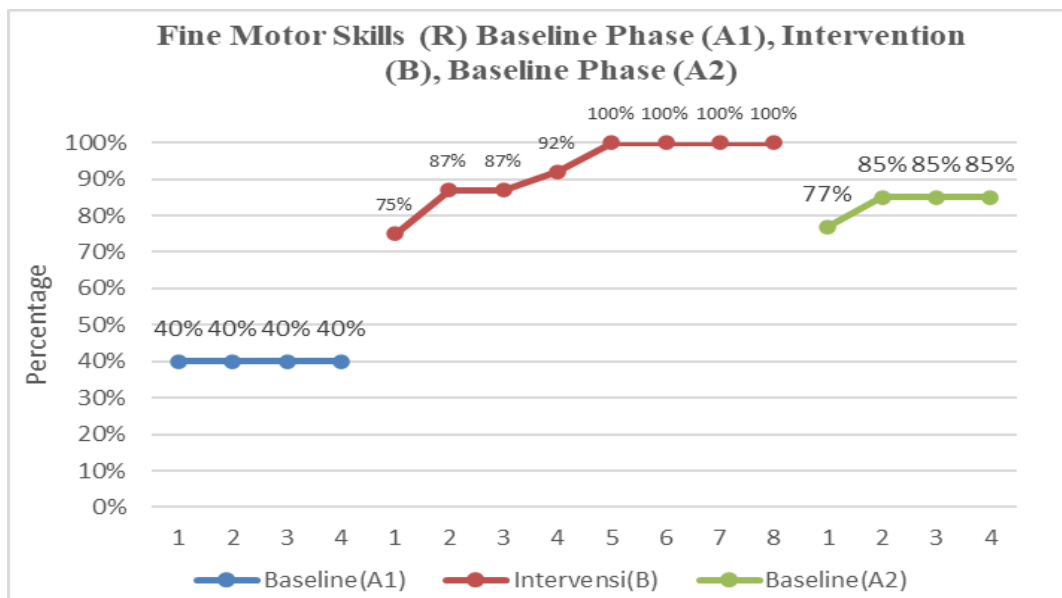


Figure 4. Visual Analysis of Fine Motor Skills at Baseline-1 (A1), Intervention, and Baseline-2 (A2)

The combination of graphs 1, 2, and 3 are presented in graph 4, which displays a visual analysis of the target behaviour, namely fine motor skills in children with cerebral palsy. This graph includes three stages: the first baseline phase (A1), the intervention phase (B), and the second baseline phase (A2). The combination of the three graphs aims to provide a more comprehensive and detailed overview of the research, which consisted of a total of 16 sessions: 4 sessions in phase A1, eight sessions in phase B, and four sessions in phase A2. The purpose of presenting the graphs in an integrated manner is to facilitate analysis of changes in fine motor skills that occurred during the three phases.

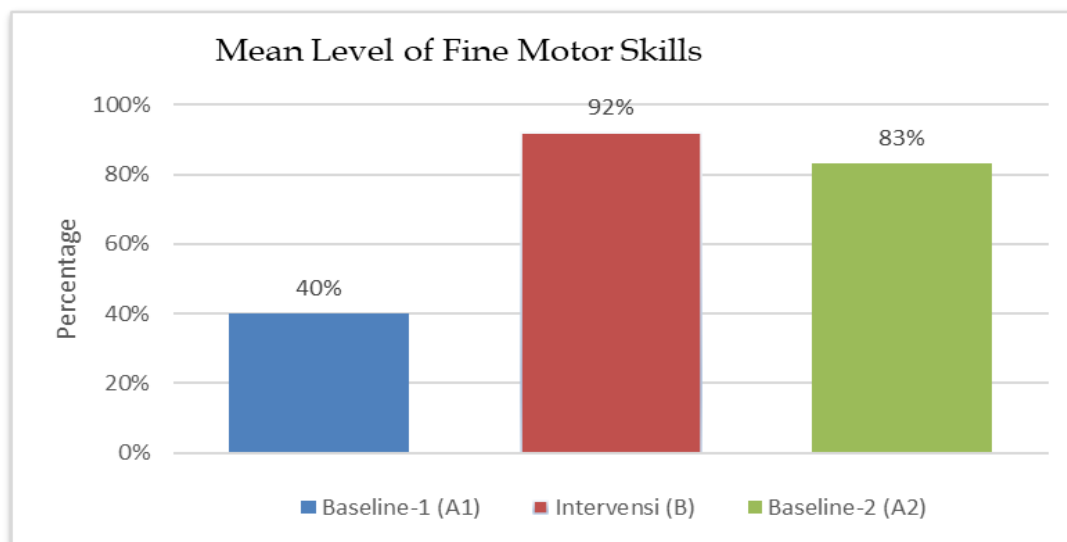


Diagram 1. Average Percentage at Baseline 1 (A1), Intervention (B), and Baseline-2 (A2)

Based on diagram 1, it is known that the average in the first baseline phase (A1) was 40%. This percentage indicates that the children's fine motor skills were still at a very low level before the intervention. Upon entering the intervention phase (B), the average value increased significantly to 92%, indicating that the intervention/treatment provided was highly effective in improving the children's fine motor skills. The consistent increase demonstrates that the children responded well to the intervention.

Meanwhile, in the second baseline phase (A2), the average score obtained was 83%. After the intervention was stopped, the children's fine motor skills remained at a high level, although there was a slight decrease compared to when the intervention was ongoing. This shows that the effects of the intervention persisted, although they were not completely stable without follow-up or ongoing support.

## Discussion

Based on the study's results, using pulp painting collage activities can improve fine motor skills in subjects with cerebral palsy. The problem in this study stems from the finding that subjects experience muscle stiffness in their limbs and uncontrolled movements, especially in the hands, which causes difficulty in moving the fingers and a lack of coordination between the hands and eyes. As explained by Anindita & Apsari (2019:215), children with cerebral palsy experience motor impairments characterized by muscle stiffness, partial or complete paralysis, uncontrolled movements, and difficulties in maintaining balance and coordination, which impact their fine motor skills.

The pulp painting collage activity is an alternative medium to enhance children's fine motor skills (Rosalianisa et al., 2023). This activity was chosen because it involves tearing, squeezing, mixing, pinching, and sticking, which require using small hand muscles and direct eye-hand coordination. Damayanti (2020:3) explains that plump painting requires children to move their hands and fingers, accompanied by careful eye coordination. Through this activity, subjects are physically trained and actively and enjoyably engaged, thereby positively impacting their fine motor skill development.

This study employed a Single Subject Research (SSR) design with an A-B-A pattern comprising three phases: the first baseline (A1), intervention (B), and the second baseline (A2). During the A1 phase, which lasted four sessions, the children's fine motor skills were still relatively low, with a stable percentage of 40%. During the intervention phase, which lasted for eight sessions, there was a significant improvement in the children's fine motor skills, with an average of 92.8%. Meanwhile, in the

A2 phase, which also lasted for four sessions, although there was a slight decrease compared to the intervention phase, the skills mainly achieved remained intact, with an average achievement of 83.12%. This indicates a positive effect of applying pulp painting collage activities in improving the fine motor skills of students with cerebral palsy at SKh Ahsan Firdaus. These results show several advantages, including that using pulp painting collage activities can provide positive results as a learning activity in improving fine motor skills in students with cerebral palsy.

Silvia (2020, 50) states that squeezing, printing, and sticking objects with the hands can improve accuracy, precision, and flexibility in fine motor activities. Students focus on learning increases because these activities directly involve visual, tactile, and fine motor experiences. According to Damayanti (2020, p. 3), painting requires children to move both hands and fingers, accompanied by careful eye coordination, which helps train the accuracy and flexibility of hand muscles and improves eye-hand coordination.

Behind the advantages of pulp painting collage activities, several drawbacks need to be considered. Creating pulp painting is quite time-consuming and labour-intensive, making children quickly tired, especially for children with cerebral palsy who have physical limitations. Additionally, some children feel uncomfortable with the soft and wet texture of the pulp painting, making them reluctant to touch it. Therefore, a gradual approach and intensive teacher guidance are needed to ensure children feel comfortable (Mahyani & Hasibuan, 2024). Supervision is also required during the activity to ensure safety and suitability for the child's abilities (Ayu, 2023).

Based on the results obtained in this study, implementing pulp painting collage activities can improve the fine motor skills of children with cerebral palsy at SKh Ahsan Firdaus.

## CONCLUSION

This study used a Single Subject Research (SSR) design with an A1-B-A2 pattern to examine the effectiveness of pulp painting collage activities in improving fine motor skills in students with cerebral palsy at SKh Ahsan Firdaus. The main problems faced were limited hand and finger movement due to muscle stiffness, abnormal movement patterns, and a lack of fine motor stimulation in previous learning.

The study consisted of three phases: the first baseline (A1) with 4 sessions, the intervention (B) with 8 sessions, and the second baseline (A2) with 4 sessions. During the A1 phase, the students' initial fine motor skills were still relatively low, with an average score of 40%. After receiving intervention through pulp painting collage activities over 8 sessions, there was a significant improvement, with an average score of 92.8%. The intervention was stopped at the 8th session as the data showed stable results. Subsequently, in phase A2 conducted without intervention, the average score remained high at 83.12%. This indicates that learning outcomes persisted even without further treatment.

The pulp painting collage activity proved effective in training fine motor skills, improving eye-hand coordination, and providing visual and tactile stimulation that enhanced students' concentration and participation. The findings of this study reinforce previous findings that art-based and manipulative media are beneficial for children with physical or neurological impairments and support the hypothesis that such activities positively impact the fine motor development of students with cerebral palsy.

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