



Enhancement of Fine Motor Skills Through the Smudging Technique in Group A Children at TKIT Al-Hidayah Subang

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Abstract

Keywords:

Smudging
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Fine motor skills;
Early childhood;

This study aimed to improve the fine motor skills of children aged 4-5 years through the smudging technique (usap abur) in Group A of TKIT Al-Hidayah Subang. The study employed Classroom Action Research (CAR) using the Kemmis and McTaggart model, consisting of two cycles: planning, action, observation, and reflection. The participants were 12 children. Data were collected through observation and documentation, then analyzed using descriptive quantitative and qualitative techniques. The results showed a significant improvement in fine motor skills at each stage: classical mastery — defined as the proportion of children reaching at least the Developing as Expected category — increased from 25.00% in the pre-action stage to 66.67% in Cycle I and reached 100.00% in Cycle II, with 75.00% of the children in the Developing Very Well category and the remaining 25.00% in the Developing as Expected category, thereby meeting the $\geq 80\%$ success indicator established in the Methods section. These findings indicate that the smudging technique effectively enhances hand-eye coordination, finger flexibility, accuracy, and children's independence in completing learning activities. Therefore, the smudging technique can be used as an alternative learning strategy to improve fine motor skills in early childhood education.

Abstrak

Kata Kunci:

Teknik usap
abur;
Kemampuan
motorik halus;
Anak usia dini;

Penelitian ini bertujuan untuk meningkatkan kemampuan motorik halus pada anak usia 4-5 tahun menggunakan teknik usap abur di Kelompok A TKIT Al-Hidayah Subang. Metode yang digunakan adalah Penelitian Tindakan Kelas (PTK) berdasarkan model Kemmis dan McTaggart,

dilaksanakan dalam dua siklus yang meliputi tahap perencanaan, pelaksanaan, observasi, dan refleksi. Penelitian ini melibatkan 12 anak sebagai subjek. Pengumpulan data dilakukan melalui observasi dan dokumentasi, kemudian dianalisis secara deskriptif baik secara kuantitatif maupun kualitatif. Hasil penelitian menunjukkan adanya peningkatan kemampuan motorik halus pada setiap siklus. Persentase keberhasilan klasikal meningkat dari 25,00% sebelum tindakan menjadi 66,67% pada Siklus I dan mencapai 100,00% pada Siklus II. Peningkatan ini menunjukkan bahwa teknik usap abur efektif dalam melatih koordinasi mata dan tangan, kelenturan jari, ketelitian, serta kemandirian anak. Oleh karena itu, teknik usap abur dapat dijadikan sebagai alternatif pembelajaran untuk meningkatkan kemampuan motorik halus anak usia dini.

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1. Introduction

Fine motor skills are a crucial aspect of early childhood development because they are closely related to the coordination of finger and eye movements. These skills form the foundation for various early abilities, such as writing, holding tools, and performing daily activities that support a child's independence. Providing proper, continuous stimulation from an early age plays an important role in optimizing the development of a child's fine motor skills, better preparing them for elementary education (Husaen, 2024). However, not all preschool children receive adequate fine motor stimulation. Low fine motor skills in children often stem from a lack of diverse learning activities that specifically stimulate fine finger and hand movements in both school and home environments (Husaen, 2024; Armstrong-Carter et al., 2021).

Interactive learning media have great potential to revolutionize education by providing personalized, engaging learning experiences that meet students' diverse needs and learning styles (Sopiah et al., 2025). One form of interactive media for learning activities involves using crayons applied with the smudging technique. This technique involves coloring or painting with one's fingers, without tools such as brushes or pencils. This technique involves coloring or painting activities using fingers, without tools like brushes or pencils. Fine motor skills include the ability to move the small muscles in the fingers and hands, requiring coordination between the eyes and hands, such as drawing, coloring, and pasting (Suradin & Wahyuningsih, 2023). Through the smudge technique, children are trained to control finger movements, regulate pressure, and coordinate hand movements with their vision. This activity supports the view that children learn through direct experience and concrete activities (Khotimah & Agustini, 2023), and adults can support

it (Etnawati, 2022). Moreover, this activity aligns with the Standards for Child Development Achievement Levels (STPPA), emphasizing the importance of finger movement skills, eye-hand coordination, and art activities in children aged 4-5 years (Kemendikbud, 2014).

Previous research shows that the smudging technique can significantly improve Group A children's fine motor skills, with the percentage increasing from 12.50% at the initial stage to 81.25% in the second cycle after the intervention (Izza & Fitrianingtyas, 2025). Other studies support these findings, showing that smudging stimulates fine motor development in preschool children (Pranitasari & Aulina, 2025). Ideally, children aged 4-5 years should already be able to move their fingers more purposefully, coordinate their eyes and hands, and perform simple activities such as drawing, coloring, pasting, and cutting. However, initial observations at TKIT Al-Hidayah Subang show that Group A children's fine motor development has not yet progressed optimally; some children still struggle with grasping, purposeful finger movements, and eye-hand coordination, indicating that they still need guidance and appear less confident.

Several previous studies have examined the effect of the smudging technique on children's fine motor skills, generally reporting improvement of varying magnitude (Izza & Fitrianingtyas, 2025; Pranitasari & Aulina, 2025; Kholilah & Mayar, 2024; Iqbal et al., 2025). While these studies confirm that the technique is broadly effective, most report classical mastery below 100% even after two cycles, and few detail the specific instructional adjustments applied between cycles that account for the observed change. The novelty and contribution of the present study lie in its explicit documentation of a structured, cycle-by-cycle refinement strategy combining clearer step-by-step demonstration, individualized guidance, more engaging media, and continuous motivation and reinforcement that enabled all 12 children in Group A to reach at least the Developing as Expected category (100% classical mastery, with 75% reaching Developing Very Well) within only two cycles. By linking each instructional adjustment directly to its corresponding outcome rather than reporting percentage gains alone, this study offers a more replicable model of iterative refinement for early childhood educators using the smudging technique.

Based on the difference between the ideal conditions and the actual conditions observed in the field, this study aims to (1) understand the initial condition of children's fine motor skills before the application of the smudging technique, (2) describe the application of the smudging technique in improving fine motor skills, and (3) evaluate the results of the improvement in fine motor skills of Group A children at TKIT Al-Hidayah Subang after applying the smudging technique through Classroom Action Research.

2. Methods

This study uses the Classroom Action Research (CAR) method based on the Kemmis and McTaggart model (Kemmis et al., 2014) and was conducted in four cyclical stages: planning, action, observation, and reflection (Kurniawan et al., 2023). The study was carried out at

TKIT Al-Hidayah Subang, located at Jalan H. Agus Salim Number 22, Cigadung Village, Subang District/Subang Regency, in the even semester of the 2025/2026 academic year. The research subjects were all children from Group A, totaling 12 children: 3 boys and 9 girls.

The action was conducted in two cycles, each consisting of two meetings. In each cycle, the researcher acted as the teacher and taught the smudging technique, while the classroom teacher collaborated by observing the teacher's activities and the children's fine motor skills. Data were collected through observations using observation sheets for children's fine motor skills and teacher activity sheets, as well as documentation in the form of photos of learning activities. The indicators of fine motor skills observed included: (1) the child pressing simple patterns with fingers, (2) the child applying crayons, (3) the child rubbing crayons, (4) the child evening out crayon colors, (5) the child stopping on time, and (6) the child being orderly in carrying out activities.

Each cycle consisted of two meetings held during regular class hours, with each meeting lasting approximately 60 minutes: a preliminary activity (10 minutes) to introduce the day's theme and materials, a core activity (40 minutes) in which children practiced the smudging technique, and a closing activity (10 minutes) for reflection and reinforcement. In Cycle I, both meetings introduced the basic steps: pressing simple patterns with fingers, applying and rubbing crayons, and evening out colors through whole-group demonstration followed by independent practice. Based on the reflection conducted at the end of Cycle I, the two meetings of Cycle II retained the same core steps but added a slower, closer teacher demonstration for each small group of children, brief individual guidance for children who still required assistance, more visually engaging pattern media, and continuous verbal motivation and reinforcement delivered throughout the activity.

The classroom teacher (acting as collaborator/observer) scored each of the six fine motor indicators for every child at every meeting using a four-point observation checklist (1 = Not Yet Developed, 2 = Starting to Develop, 3 = Developing as Expected, 4 = Developing Very Well). The scores for all indicators were summed for each child and converted into a percentage using the formula $P = (f/n) \times 100\%$, where P is the percentage of fine motor skills, f is the total score achieved by the child, and n is the total possible score (Saleh, 2004). The resulting percentage was then classified into one of the four developmental categories using standard percentage ranges (0-25% = Not Yet Developed; 26-50% = Starting to Develop; 51-75% = Developing as Expected; 76-100% = Developing Very Well). The content validity of the observation sheet was established through expert judgment: a lecturer in early childhood education reviewed the six indicators for alignment with the STPPA physical-motor competencies before data collection began. Observer reliability was supported by having the researcher and the classroom teacher independently score two trial sessions before Cycle I; the resulting scores were compared and discussed until an acceptable level of

agreement was reached, after which the classroom teacher continued as the sole observer to maintain consistent scoring across all meetings.

We analyzed the data using qualitative and quantitative descriptive methods. We obtained qualitative data through observations and documentation and used them to describe the learning process and the development of children's fine motor skills. For quantitative data, we calculated scores and the percentage of achievement indicators in each cycle using the formula described above. The study was considered successful if at least 80% of the children reached at least the Developing as Expected (DAE) category — that is, the combined proportion of children in the Developing as Expected (DAE) and Developing Very Well (DVW) categories — and demonstrated the ability to control finger movements and accuracy in filling in the picture area according to the smudging technique, with success indicators based on the Standards for Child Development Achievement Levels (STPPA) in physical motor aspects (Kemendikbud, 2014). This combined DAE–DVW threshold was adopted because classical mastery in classroom action research is conventionally defined as the proportion of children who have moved beyond the two lowest developmental categories (Not Yet Developed and Starting to Develop), rather than the proportion reaching the single highest category alone; this definition is applied consistently in reporting the results below.

3. Result and Discussion

Results of Pre-Action

The observation results before the action was taken on January 19, 2026, were conducted to provide an initial overview of the children's fine motor skills before applying the smudge technique. The observation results indicated that the fine motor skills of the children in Group A were still considered low, as shown in Table 1.

Table 1
Recapitulation of Observation Results on Children's Fine Motor Skills in Pre-Action

No.	Development Category	Number of Children	Percentage (%)
1	Not Yet Developed	0	0
2	Starting to Develop	9	75,00
3	Developing as Expected	3	25,00
4	Developing Very Well	0	0
Total		12	100

Source: Observation results of children's fine motor skills in Pre-Action, 2026.

Table 1 shows that of the 12 children, only 3 (25.00%) reached the Developing as Expected category, while 9 (75.00%) remained in the Beginning to Develop category. Most children have difficulty flattening crayons, sweeping colors with their fingers, and controlling hand movements to stay within the drawing pattern. This situation aligns with Suradin dan Wahyuningsih's (2023) view that motor development does not occur automatically, but requires stimulation

and repeated practice to optimize finger and hand movement coordination.

Results of Cycle I

In Cycle I, the smudging technique was carried out over two sessions, with a learning theme planned in the Daily Learning Implementation Plan (RPPH). Table 2 shows observations of children's fine motor skills in Cycle I.

Table 2
Summary of Observation Results on Children's Fine Motor Skills in Cycle I

No.	Development Category	Number of Children	Percentage (%)
1	Not Yet Developed	0	0
2	Starting to Develop	4	33,33
3	Developing as Expected	8	66,67
4	Developing Very Well	0	0
Total		12	100

Source: Observation results of children's fine motor skills in Cycle I, 2026.

Based on Table 2, 8 children (66.67%) are in the Developing as Expected category, while 4 children (33.33%) are still in the Beginning to Develop category. Compared with the pre-intervention results, Cycle I shows improvement in the children's fine motor skills. Over the past decade, numerous studies have emphasized the significance of early interventions in enhancing fine motor skills among young children, directly linking these improvements to the foundational principles of early childhood development. Fine motor skills, which involve precise hand and finger movements, are critical to a child's overall development and influence their ability to perform essential tasks such as writing, drawing, and manipulating small objects. The intervention strategies implemented in this study, though they did not fully meet the desired success indicators, highlight the need for personalized guidance and targeted activities to foster skill development.

Research consistently shows that interventions incorporating hands-on activities, such as art-based projects, can significantly enhance fine motor skills by giving children opportunities to practice coordination and control. Proceeding with Cycle II, with clearer demonstrations and individualized guidance, aligns with Vygotsky's Zone of Proximal Development, which emphasizes scaffolding and social interaction in learning new skills (Kapoor, 2026; Ponmani & Geetha, 2022). Moreover, including engaging media and ongoing motivation supports Bandura's Social Learning Theory, which posits that observational learning and reinforcement are crucial for skill acquisition. By critically analyzing these improvements in the context of existing literature, it becomes evident that such targeted interventions are not only beneficial in addressing children's immediate needs but also in laying a solid foundation for their future educational endeavors. Thus, while initial results may not fully meet set expectations, iterative enhancements and strategic approaches play a pivotal role in achieving long-term developmental milestones. (Saka,

2024; Olesova, Sadaf, and Yan, 2026; Mangal, Clark, and Hildenbrand, 2024).

Results of Cycle II

Refining the steps taken in Cycle II produced optimal outcomes, as shown in Table 3.

Table 3
Recapitulation of Observation Results on Children's Fine Motor Skills in Cycle II

No.	Development Category	Number of Children	Percentage (%)
1	Not Yet Developed	0	0
2	Starting to Develop	0	0
3	Developing as Expected	3	25,00
4	Developing Very Well	9	75,00
Total		12	100

Source: Observation results of children's fine motor skills in Cycle II, 2026.

Table 3 shows that all children achieved the success indicators established in this study during Cycle II. A total of 9 children (75.00%) reached the Developing Very Well category, while 3 children (25.00%) were in the Developing as Expected category. No children remained in the Not Yet Developed or Starting to Develop categories. These results indicate a clear improvement in children's fine motor skills following the implementation of the scribbling activities.

The improvement was also reflected in the children's participation and performance during the activities. The children demonstrated greater activeness, confidence, and independence when completing scribbling tasks. They were able to apply crayons according to the patterns, control their hand movements more effectively when swiping colors, and complete the activities within the allocated time. These findings demonstrate that the children's fine motor skills improved and that the success indicators of the study were achieved in Cycle II.

Comparison of Results Across Cycles

Table 4 presents a comparison of classical completeness in children's fine motor skills at each research stage.

Table 4
Comparison of Children's Fine Motor Skills Results in Pre-Action, Cycle I, and Cycle II.

Research Stage	Not Yet Developed	Starting to Develop	Developing as Expected	Developing Very Well	Classical Mastery
Pre-Action	0	9	3	0	25,00%
Cycle I	0	4	8	0	66,67%
Cycle II	0	0	3	9	100,00%

Source: Primary data processed, 2026.

Table 4 shows that classical completeness increased consistently, from 25.00% at the pre-action stage to 66.67% in Cycle I and finally 100.00% in Cycle II—an increase of 75.00% from the initial condition to the end of the study. This improvement indicates that the finger painting technique provided an engaging learning experience suitable for the developmental characteristics of children aged 4-5 years. Activities such

as applying, smearing, and spreading color with fingers offer children opportunities to practice eye-hand coordination, finger flexibility, precision, concentration, and independence in completing tasks.



Image 1

Implementation of learning activities using the smear technique

The research findings affirm Santrock's (2011) perspective that fine motor skill development is significantly influenced by engaging children in activities that require object manipulation, drawing, coloring, and other art forms tailored to their developmental stage. Sumantri (2005) further underscores that these skills reach their optimal potential when children receive targeted stimulation through activities designed to enhance finger flexibility, eye-hand coordination, precision, and perseverance. This foundational development of sensorimotor skills in early childhood plays a critical role in shaping their future abilities across academic, social, and practical domains. Coordinating hand movements, a key part of sensorimotor growth, is essential for personal care tasks and academic work such as writing and mathematics.

Art activities that incorporate direct finger usage, like finger painting, are particularly effective in fostering these skills. They provide captivating, enjoyable, and self-directed tactile experiences that simultaneously engage sensory and motor systems in an organic environment. This dual activation of sensory and motor pathways enriches the learning experience and supports a natural progression in skill acquisition. The importance of such activities is echoed in studies by Stanko-Kaczmarek and Kaczmarek (2016), Bitu, Galinon-Mélénec, and Molina (2022), and Neveu, Monseur, and Rousselle (2026), which highlight the profound impact of tactile art experiences on the holistic development of fine motor and sensorimotor skills in children.

This study aligns with the findings of Izza and Fitrianingtyas (2025) and Pranitasari and Aulina (2025), which demonstrate that finger painting activities can consistently enhance the fine motor skills of children in group A. This study's uniqueness lies in applying the finger painting technique with cyclical action improvements, including step-by-step demonstrations, individual guidance, and continuous reinforcement, which enabled all research subjects to achieve 100.00% classical completeness in just two cycles. This suggests that finger painting can serve as an effective, enjoyable alternative art learning activity aligned with the Merdeka Curriculum to comprehensively stimulate young children's fine motor development.

4. Conclusion

Based on classroom action research conducted in two cycles with children in Group A at TKIT Al-Hidayah Subang, the study concludes that using the "usap abur" technique can enhance the fine motor skills of children aged 4-5 years. The classical completion rate increased from 25.00% in the pre-action stage to 66.67% in Cycle I, and reached 100.00% in Cycle II. A total of 9 children (75.00%) were in the "Developing Very Well" (BSB) category and 3 children (25.00%) were in the "Developing as Expected" (BSH) category.

These results indicate that the "usap abur" technique effectively trains eye-hand coordination, finger flexibility, precision, concentration, and children's independence, while creating an active and enjoyable learning atmosphere. Therefore, the "usap abur" technique can be recommended as an alternative art learning activity for early childhood education teachers, with adequate support from school facilities and media, as well as continued stimulation from parents at home. Future research is suggested to develop the "usap abur" technique with different themes, media, or subjects, or to combine it with other activities to further stimulate aspects of early childhood development.

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