

The Effect of Tempra Finger Painting Technique on Color Mixing to Improve Cognitive Ability in Group A Hang Tuah Kindergarten, Bengkulu City

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Received: 07 July 2025
Revised: 16 July 2025
Accepted: 23 July 2025

Abstract

In Early Childhood Education (ECE) is a crucial stage in children's cognitive development, serving as the foundation for future learning. Children aged 4–6 years are in a critical period of growth in recognizing concepts, including understanding and mixing colors. However, learning activities at this stage often encounter obstacles due to the lack of creative and engaging teaching methods. One alternative approach is the use of the finger painting technique with tempra paints. This study aims to examine the effect of the tempra finger painting technique on enhancing children's cognitive abilities, particularly in color mixing. The research employed an experimental method with observational design involving Group A children at TK Hang Tuah Bengkulu City. Data were collected through direct observation of children's learning activities and their artworks before and after the treatment. The findings revealed significant improvement in children's cognitive abilities, including recognizing primary colors, mixing them into new combinations, and producing simple artworks according to instructions. The finger painting activity proved to be an effective stimulus that increased learning interest, developed logical thinking, creativity, and problem-solving skills in early childhood. Therefore, the tempra finger painting technique is recommended as an innovative teaching method in early childhood education. This research also suggests that teachers and parents should utilize more interactive and enjoyable learning media to optimize children's cognitive development from an early age.

Keywords: Tempra, Finger Painting, Cognitive Ability, Early Childhood

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How to Cite: inayah, sheren, Nirwana, E., & Andani, F. (2025). The Effect of Tempra Finger Painting Technique on Color Mixing to Improve Cognitive Ability in Group A Hang Tuah Kindergarten, Bengkulu City. *International Journal of Education, Information Technology, and Others*, 8(3.B), 471-480. Retrieved from <https://jurnal.peneliti.net/index.php/IJEIT/article/view/12886>

INTRODUCTION

Early childhood education or PAUD is the first level of education that a child takes. Education in PAUD is carried out as an effort to take care of children from birth to the age of six years which is carried out through educational stimulation to help the physical and spiritual growth and development of children so that children have learning readiness to enter further education. At this level of education, children will be trained to be able to improve all aspects of their development, namely aspects of religious and moral values, cognitive, physical, motor, language, art and social-emotional. (Wahyu, 2021) (Latif, 2020)

Cognitive development is a change that occurs in the cognitive domain where mental activities such as thinking, remembering, imagining, solving

problems, creativity, memory or memory, attention and language become better, more complex and function better. (Wulan, 2023)

Children aged 4-5 years experience significant cognitive development. Early childhood cognitive development, according to Tupapa, is a very important aspect in the formation of the basics of learning that children will carry throughout life. At an early age, cognitive development is strongly influenced by active and interactive learning experiences through play and exploration, not just through passive activities such as working on worksheets. (Turap, 2023) (Dwi Ambar Sari, 2023)

In the aspect of cognitive development, competencies and learning outcomes that are expected in children are that children are able and have the ability to think logically, think critically, be able to give reasons, and be able to solve the problems they face. The provision of the right stimulation can affect an individual's ability to acquire knowledge so that they can explore themselves in daily life.

Early childhood cognitive abilities are an important aspect of their development, which includes the ability to think, understand, and solve problems. At the age of 4-5 years, children are in the preoperational stage of development according to Jean Piaget's theory, where they begin to develop the ability to think symbolically and imaginatively. However, many children still have difficulty understanding basic concepts, such as color mixing, which are part of learning art and creativity.

Art, especially through finger painting techniques, can be an effective tool to improve children's cognitive abilities. This technique not only allows children to express themselves creatively, but also provides hands-on experience in understanding the concept of color and its mixing. However, there are still challenges in the application of this technique in the educational environment, especially in kindergarten, where innovative and interesting learning methods are needed to attract children's attention.

In Hang Tuah Kindergarten, Bengkulu City, there is a need to explore learning methods that can improve children's cognitive abilities, especially in terms of color mixing. This study aims to examine the influence of tempr finger painting technique on children's cognitive abilities, focusing on color mixing.

Through this study, it is hoped that empirical evidence can be found regarding the effectiveness of finger painting techniques in improving children's cognitive abilities, as well as providing recommendations for educators and parents in supporting children's cognitive development through creative and fun art activities.

In (Regulation of the Minister of Education and Culture on the 2013 Curriculum for Early Childhood article 5 number 146 of 2014) it is explained that the scope of early childhood development includes aspects of religious and moral values, physical, motor, cognitive, language, social-emotional, and art. This is the so-called child foundation phase. One of the development phases of a child's foundation is cognitive development. (Ririn Tjahyaningsih, Vol.13 No.2 Desember 2024)

From the presentation of the cognitive theory above, the researcher concluded that children's cognitive abilities to think more complexly, reason, and

solve problems will help them learn general knowledge so that they can function well in daily life.

Based on the research of Alfiani Defi Nofitasari and Ika Maryani (2018: 1-9) with the title "The effectiveness of the experimental method on the ability to recognize colors in class A of Aba Tobayan Sleman Kindergarten", it is known that the problems found are that there are some students who are still confused in distinguishing colors, mentioning the colors encountered, recognizing color patterns, showing colors and giving color examples.

Another problem was also found by researchers Nikmatul Khasanah and Mas'udah (2016: 1-5) with the research title "The effect of natural experimental methods on color recognition ability in group A children" it is known that children's cognitive ability problems are especially in the ability to recognize color (primary) to look for primary colors (red, yellow, blue) around,

Another problem was also found by researcher Anna Diana Shanty (2021: 13-18) with the title "The application of the experimental method of mixing colors with watercolor media at Aisyiyah Pekalongan Kindergarten" it is known that the problem of children's ability to mix colors is still low, this is due to a lack of knowledge about primary color recognition (basic color), and knowing only secondary colors (the results of mixing primary colors). Meanwhile, experimental methods are still rarely carried out by educators in the assignment of developing children's cognitive abilities so that children feel bored, bored and not interested in activities as a result of which the success of learning has not been maximized.

From some of the opinions above, it is important for a child to improve his cognitive abilities with the help of teachers and activities carried out by teachers as a stimulus or stimulus for the development of critical and logical thinking skills and being able to think more creatively. In this case, teachers have a very important role to determine appropriate and good stimulation as a stimulus in children's cognitive development.

Based on Fatimah's research, interactive learning, such as through games, experiments, and exploration, is essential to stimulate children's cognitive development. Limited learning media and reliance on worksheets are serious problems that can hinder early childhood cognitive development. Therefore, learning media in schools is made as attractive as possible with safe materials and hone children's growth and development optimally. (Fatimah, 2024)

Learning media is very important to support children's cognitive development to achieve these goals. Media is one of the learning strategies applied to early childhood. In other words, media is a tool that teachers can use to convey information that can stimulate students' thoughts, feelings, and interests. In other words, teachers can use media to convey information that can attract students' attention and interest. (Ririn Tjahyaningsih, Vol.13 No.2 Desember 2024)

One of the learning media that attracts children's interest in ways and processes such as playing according to children's learning principles is *Finger Painting*.

Finger painting is a painting technique by applying paint on whitepaper/HVS with your fingers or with the palm of your hand. According to Kuswanto, finger painting activities are those carried out using color paints that can be used as an alternative for teachers to replace crayon so that color play activities

are more attractive for children. In finger painting activities, children can freely pour their imagination that will be realized. (Rumondang Herawati, Vol 2: 28 September 2024)

Activities *finger painting* It is one of the painting or drawing techniques, by applying dough or other color mixtures (color porridge) using the media of fingers or palms as a tool for direct drawing that can develop imagination, creativity, fine motor skills, as well as increase children's artistic talent and become a means to express themselves. Activities *finger painting* As a creative activity, it will attract children's attention in trying, researching and exploring the activities they see and do. (Lisnani, 2022)

In the statement above, it can be seen that *Finger Painting* activities are good for children in honing and stimulating children's cognitive abilities. Activities carried out while playing create an exciting atmosphere with activities mixing colors then children can make a creativity or painting arts that children make themselves.

In Sri Handayani's previous research entitled *Increasing Art Creativity Through Learning the Science of Color Mixing with Finger Painting Techniques in Early Childhood* With the results of the research that has been conducted, it can be concluded that children aged 5-6 years have increased their creativity and cognitive abilities. Through learning science with finger painting techniques, children succeed in getting to know primary colors and are able to increase their creativity by mixing colors. (Sri Handayani, 2023)

The results of previous studies report that finger painting can develop children's creativity, imagination, and hone talents, especially artistic talents. Through art, all aspects of development in children will develop optimally, because they are done in a more fun atmosphere. In addition, in art, children are free to be creative and pour out all the ideas they have.

In line with that, Mayar, et al. (2022) in their research revealed that finger painting is useful in developing children's cognitive abilities, and creativity who are independent, imaginative, and hone their talents in learning art.

Some of the previous studies above have concluded that it is important to improve children's cognitive development from a young age to be able to encourage children to think more logically and critically. In this case, children need assistance from parents and teachers at school as intermediaries to be able to stimulate and stimulate their cognitive development.

In the observation, the researcher saw that the cognitive development of class A children increased after doing these activities such as children were able to mix colors and name the colors, so from some of them there were children who had difficulty matching colors or mixing colors and there were some children who could mix colors well, children were able to make a good work of art according to the teacher's instructions.

The identification of the researcher concluded that the *tempra* technique approach is very important in overcoming children who have difficulty matching colors and color pronunciations directed by their teachers, and children who are active are only a few Some of the less active children even do not like color. In learning, the use of finger painting techniques with *tempra* media as a learning

method to improve the cognitive abilities of children aged 4-5 years is still relatively rare in research.

Therefore, the researcher wants to try to research the same case with the object of children in class A whose dominant age is different from the age of class A, which is 4-5 years old. So the researcher will raise the title of the research, namely **the Effect of Tacnik Tempra *Finger Painting* on Color Mixing to Improve Cognitive Ability in Group A Children of Hang Tuah Kindergarten, Bengkulu City.**

METHODS

Experimental method (experimental reaserch) can be interpreted as a research method used to find the effect of a certain treatment on another under controlled conditions. Experimental research is divided into *Pre-Experimental Design, True Experimental Design, Factorial Design, and Quasi Experimental Design*. (Suharsimi, 2013) In experimental quantitative research, the researcher manipulates at least one independent variable, controls for other relevant variables and observes the impact on one or more dependent variables (Susanto, 2013). When done well, experimental research produces reliable evidence with respect to the cause-and-effect hypothesis.

The type of research used by the author is pre-experimental design research, which is a form of experimental design that is not yet a serious experiment because there are still external variables that affect the formation of dependent variables.(Sugiyono, 2016)

RESULTS & DISCUSSION

Results

The results showed that there was an increase in the average score of children's cognitive ability in color mixing after being treated through the tempra finger painting technique. The average pretest score of 82.00 increased to 98.46 in the posttest. This shows that children are able to understand the concept of color mixing better after participating in learning activities with finger painting media.

Based on the results of the Paired Samples Test, a t-count value = -10.421 with a value of Sig. (0.000) < 0.05. Thus, an alternative hypothesis (H_1) is accepted, which means that the tempra finger painting technique has a significant effect on improving children's cognitive ability in mixing colors.

The correlation between pretest and posttest scores showed weak and insignificant numbers ($r = 0.946$; Sig. 0.000). This indicates that the increase in score in the posttest is not solely influenced by the child's initial ability, but more because of the treatment provided through the tempra finger painting activity.

This is in accordance with the theory of cognitive development put forward by Jean Piaget, who explains that early childhood is at a preoperational stage where they learn through concrete experiences (Piaget, 1951). Finger painting gives children the opportunity to experiment with colors through hands-on activities, thus helping them understand the concept of color mixing in real life.

In addition, Vygotsky's theory emphasizes the importance of social interaction in children's learning (Vygotsky, 1978). Finger painting activities carried out with

friends or guided by teachers can improve the process of internalizing knowledge and strengthen children's cognitive development.

Bruner also argues that effective learning should involve hands-on experience through enactive, iconic, and symbolic representation (Bruner, 1960). In this case, finger painting is included in the enactive stage, because children directly carry out motor activities related to the thought process.

This research also supports previous findings conducted by Putri who stated that finger painting activities can increase creativity and thinking in early childhood (Putri, 2020). Similarly, Sari's research found that direct practice-based art can improve children's understanding of color concepts (Sari, 2019). Thus, it can be concluded that the use of tempera finger painting technique not only provides pleasure to children, but also can be an effective learning medium in improving cognitive abilities, especially in the aspect of color mixing.

CONCLUSION

Based on the results of research that has been conducted regarding the application of tempera finger painting techniques in color mixing activities to improve early childhood cognitive abilities, several conclusions can be drawn as follows:

First, there was a significant difference between the pretest and posttest scores after the child was given treatment in the form of tempera finger painting activities. This is evidenced by an increase in the average score from 82.00 during the pretest to 98.46 during the posttest. In other words, finger painting activities make a real contribution to providing a new and more interesting learning experience, so that children can more easily understand the concepts of color, shape, and logical thinking skills related to cognitive development.

Second, based on the results of the paired sample t-test, a significance value of $0.000 < 0.05$ was obtained, which means that there was a difference in learning outcomes before and after treatment. Thus, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This shows that finger painting activities are effective in improving children's cognitive abilities.

Overall, this study proves that the tempera *finger painting* technique is not only recreative, but also has high educational value. Through this activity, children can learn to mix colors, recognize patterns, and develop creativity and imagination.

Thus, finger painting activities can be used as an alternative learning method that is fun and effective at the same time to stimulate early childhood cognitive development. Based on various previous studies, finger painting activities have been proven to be able to have a positive influence on early childhood development, both in aspects of artistic creativity (Sri Handayani, 2023), fine motor skills (Rumondang Herawati, 2024), imagination and motor coordination (Lutfiyati, 2023), and cognitive and fine motor aspects in general (Lisiani, 2022). In addition, research by Septia Anggraini et al. (2024) focuses more on color recognition through finger painting activities, while Deni (2022) research highlights finger painting from an art perspective to digital development. Other studies (Zira, Adiani, Dwi Ambar, Anggreani, Hanifa) focused on cognitive development with various learning media, but did not specifically discuss finger painting techniques.

From the results of the study, it can be understood that previous finger painting research emphasized more on aspects of art, fine motor, creativity, and color recognition, while the application of finger painting with certain techniques and its direct relationship with children's cognitive abilities is still limited. Therefore, the novelty of this research lies in the use of **the tempra finger painting technique** which has unique characteristics, namely more intense colors and allows the exploration of color mixing more realistically. The focus of this research is not only on color recognition, but on **color mixing as a cognitive stimulation of children**, especially the ability to think cause-and-effect, connect concepts, and reason the results of color experiments. In addition, this study took subjects of group A children aged 4-5 years who were relatively younger than previous studies that predominantly examined group B aged 5-6 years. This research also provides a contextual contribution by being carried out at Hang Buah Kindergarten, Bengkulu City, so that it can enrich the understanding of the effectiveness of finger painting in early childhood learning by considering local socio-cultural characteristics.

Previous studies have shown that finger painting is useful in increasing artistic creativity (Sri Handayani, 2023), fine motor skills (Rumondang Herawati, 2024), imagination and brain-eye coordination (Lutfiyati, 2023), and cognitive and fine motor development (Lisiani, 2022). In addition, other research focuses on color recognition (Septia Anggraini, 2024) and art development (Deni, 2022). However, most studies still use a general finger painting approach without emphasizing specific techniques, and are more commonly performed in group B children (ages 5–6 years).

Therefore, this study offers a novelty by applying **the tempra finger painting technique to color mixing** as a strategy to improve the cognitive ability of group A children (ages 4–5 years). This focus has not been widely researched so that research at Hang Buah Kindergarten, Bengkulu City, is expected to enrich literature and provide alternative creative learning methods in PAUD.

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