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IMPROVING FINE MOTOR SKILLS USING DOUGH AS A MEDIUM FOR CHILDREN AGED 4–5 YEARS AT KHOIRU JANNAH KINDERGARTEN

MENINGKATKAN KETERAMPILAN MOTORIK HALUS MENGGUNAKAN ADONAN SEBAGAI MEDIA PADA ANAK USIA 4–5 TAHUN DI TK KHOIRU JANNAH

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Abstract

This study aimed to determine the improvement of fine motor skills among children aged 4–5 years through the use of cake dough media at TK Khoiru Jannah. The research employed Classroom Action Research (CAR) using the Kemmis and McTaggart model, which consists of four stages: planning, action implementation, observation, and reflection. The research was conducted in two cycles, involving 11 children from Group A at TK Khoiru Jannah as research subjects. The results showed that the children's fine motor skills improved in each cycle. The percentage of fine motor skill achievement in the pre-cycle was 40.91%, increasing to 63.86% in Cycle I and further increasing to 82.27% in Cycle II. The improvement was evident in the children's ability to hold, grasp, squeeze, pinch, roll, move their fingers, and shape the dough into various forms more neatly, carefully, and in a coordinated manner. In addition, the children became more active, enthusiastic, confident, and able to participate well in learning activities using cake dough media. Based on the research findings, it can be concluded that the use of cake dough media is effective in improving the fine motor skills of children aged 4–5 years at TK Khoiru Jannah. Cake dough media can be used as an alternative learning medium that is innovative, enjoyable, and appropriate to the characteristics of early childhood in developing fine motor skills through play activities.

Keywords : Fine Motor Skills, Dough As A Learning Medium.

Abstrak

Penelitian ini bertujuan untuk mengetahui peningkatan keterampilan motorik halus pada anak usia 4–5 tahun melalui penggunaan media adonan kue di TK Khoiru Jannah. Penelitian ini menggunakan metode Penelitian Tindakan Kelas (PTK) dengan model Kemmis dan McTaggart, yang terdiri dari empat tahapan: perencanaan, pelaksanaan tindakan, observasi, dan refleksi. Penelitian dilaksanakan

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dalam dua siklus dengan melibatkan 11 anak dari Kelompok A di TK Khoiru Jannah sebagai subjek penelitian. Hasil penelitian menunjukkan bahwa keterampilan motorik halus anak mengalami peningkatan pada setiap siklus. Persentase pencapaian keterampilan motorik halus pada tahap pratindakan adalah 40,91%, meningkat menjadi 63,86% pada Siklus I, dan kembali meningkat menjadi 82,27% pada Siklus II. Peningkatan tersebut terlihat dari kemampuan anak dalam memegang, menggenggam, meremas, mencubit, menggulung, menggerakkan jari-jemari, serta membentuk adonan menjadi berbagai bentuk dengan lebih rapi, cermat, dan terkoordinasi. Selain itu, anak-anak menjadi lebih aktif, antusias, percaya diri, dan mampu berpartisipasi dengan baik dalam kegiatan pembelajaran menggunakan media adonan kue. Berdasarkan temuan penelitian, dapat disimpulkan bahwa penggunaan media adonan kue efektif untuk meningkatkan keterampilan motorik halus anak usia 4–5 tahun di TK Khoiru Jannah. Media adonan kue dapat dijadikan sebagai alternatif media pembelajaran yang inovatif, menyenangkan, dan sesuai dengan karakteristik anak usia dini dalam mengembangkan keterampilan motorik halus melalui kegiatan bermain.

Kata Kunci : Keterampilan Motorik Halus, Adonan sebagai Media Pembelajaran.

1. INTRODUCTION

Early childhood education is an important foundation for children's subsequent development because early childhood is characterized by rapid growth and development in various aspects, including physical-motor, cognitive, language, social-emotional, moral, and artistic development. Children aged 0–6 years require appropriate educational stimulation to support the optimization of their physical and psychological development and to prepare them for the next level of education (Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, 2021). This period is commonly regarded as a critical or “golden age” because children's brain development occurs rapidly, making them highly responsive to stimulation from their surrounding environment (Fadlillah, 2020). Therefore, early childhood learning needs to provide meaningful experiences that are appropriate to children's developmental characteristics.

One of the fundamental principles of early childhood education is learning through play. Play is not merely a recreational activity but an important means through which children explore their environment, acquire new experiences, and develop various aspects of their abilities. Fadlillah (2020) emphasizes that early childhood education should pay attention to the principle of learning through play because play is a natural way for children to learn and develop cognitive, language, social-emotional, and motor abilities. A safe, comfortable, and enjoyable learning environment also provides children with opportunities to explore their potential optimally (Fadlillah, 2020). Consequently, learning activities in kindergarten should be designed to involve children actively rather than placing excessive demands on academic performance before they are developmentally ready.

Physical-motor development is one of the important developmental domains in early childhood. It involves the coordination of muscles, nerves, and the brain, enabling children to perform movements in a purposeful and coordinated manner. Motor development also provides a foundation for children's exploration of their environment and supports other developmental domains, including cognitive and social-emotional development (Mayar & Sriandila, 2021). Physical-motor development is generally divided into gross motor and fine motor development. Gross motor skills involve large muscles and include activities such as running, jumping, and climbing, whereas fine motor skills involve small muscles and include activities such as writing, drawing, and holding objects (Mayar & Sriandila, 2021).

Fine motor skills are particularly important because they involve the controlled use of small muscles, especially those of the fingers and hands, together with eye-hand coordination. Suyadi (2021) explains that fine motor skills involve physical abilities that require small-muscle coordination and eye-hand coordination and develop gradually according to children's growth and the stimulation they receive. Therefore, children need activities that strengthen and increase the flexibility of their finger

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muscles (Suyadi, 2021). Similarly, Santrock, as cited by Lestari and Wulandari (2021), describes fine motor skills as the ability to control small movements, including grasping, holding, and manipulating objects. Thus, fine motor development involves not only muscle strength but also accurate movement control and coordination (Lestari & Wulandari, 2021).

The development of fine motor skills is also closely related to children's readiness to participate in later learning activities. The Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia (2021) states that fine motor development is important because it becomes a foundation for children's learning activities, particularly those related to writing and other academic activities. Consequently, fine motor stimulation needs to be provided optimally from an early age (Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, 2021). Uun and Yuntina (2023) further explain that fine motor abilities develop increasingly as children grow older and involve the fingers, wrists, and eye-hand coordination. Fine motor movements do not require considerable physical strength but require careful coordination and accuracy (Uun & Yuntina, 2023).

Based on the theoretical discussion presented in the research, fine motor ability can therefore be synthesized as a physical skill involving small muscles and eye-hand coordination. The indicators used in the study consist of holding, grasping, finger flexibility, skillfulness, and accuracy and neatness. These indicators are relevant for observing children's ability to manipulate materials and perform purposeful hand movements. More specifically, fine motor development includes the ability to hold objects appropriately, grasp objects with stability, move the fingers flexibly, perform hand movements in a directed manner, and complete activities accurately and neatly.

The development of fine motor skills requires continuous and appropriate stimulation. According to Schiller, as cited by Ratna (2020), children's fine motor abilities may develop naturally, but without adequate stimulation their development may remain at a minimum level and may not reach optimal potential. Fine motor stimulation for children aged 4–5 years can be provided through learning activities based on play that require accuracy, carefulness, and patience. The availability of appropriate play materials and sufficient opportunities to practice various movements also influences the development of children's fine motor abilities (Ratna, 2020).

One form of activity that can provide such stimulation is a cooking activity. Cooking-class activities can involve various fine motor movements, including stirring dough, cutting ingredients, squeezing dough, rolling dough, pressing dough, and molding dough. These activities provide children with opportunities to exercise their fingers and hands through direct manipulation of materials (Ratna, 2020). In this context, cake dough can function not only as a food ingredient but also as a concrete learning medium that provides direct sensory and motor experiences.

Cake dough is generally produced by mixing several ingredients, such as flour, water, sugar, eggs, and fat, until a particular texture and consistency are obtained (Priyati, 2020). The physical characteristics of dough are influenced by its constituent materials, including properties such as elasticity, cohesiveness, viscosity, and structural stability (Salehi, 2020). The process of producing dough includes mixing, stirring, and forming the dough structure, and each stage requires appropriate techniques (Priyati, 2018).

From an early childhood education perspective, cake dough provides an opportunity for experiential learning because children can directly manipulate the material. Activities involving stirring, pouring, squeezing, pressing, rolling, and shaping allow children to practice hand and finger movements while simultaneously engaging in an enjoyable learning experience. Rauf, as cited by Andini (2018), explains that dough-processing activities involve physical movements such as stirring and shaping that can support children's motor skills. Meanwhile, Seefeldt, as cited by Wasik (2020), explains that manipulative activities such as mixing, pressing, squeezing, and shaping materials can strengthen children's finger muscles and improve hand coordination (Andini, 2018; Wasik, 2020).

The use of cake dough is particularly relevant to the characteristics of children aged 4–5 years because the material is soft, easily manipulated, and allows children to produce various forms. Through squeezing, pressing, rolling, pinching, and shaping, children can exercise finger strength,

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eye-hand coordination, and finger flexibility. In addition, the activity can encourage children to participate actively and provide them with opportunities to express creativity through the forms they create.

Nevertheless, the implementation of cake dough as a learning medium also requires appropriate preparation and teacher supervision. The activity requires materials and equipment, may require additional preparation time and costs, and can make the learning environment untidy if not properly managed. Children also need close supervision to ensure that the use of materials and equipment remains safe and appropriate to the learning procedures. These considerations indicate that the effectiveness of cake dough as a learning medium depends not only on the characteristics of the material but also on how teachers organize and facilitate the learning experience.

The empirical problem addressed in the study is the low level of fine motor ability among children aged 4–5 years at TK Khoiru Jannah. The observed difficulties included children's inability to coordinate their fingers and hands effectively when squeezing, pinching, rolling, pressing, and shaping objects neatly. Such conditions indicate the need for learning activities that are attractive, enjoyable, concrete, and appropriate to children's developmental stages. Instead of forcing children to perform advanced writing activities before they are ready, learning should provide preparatory experiences that strengthen the muscles and coordination required for later writing skills.

Therefore, the integration of cake dough into early childhood learning represents a potentially appropriate strategy for addressing the identified fine motor difficulties. The activity allows children to learn through direct manipulation while practicing the specific movements required for fine motor development. The research itself reports that children's fine motor achievement increased from 40.91% in the pre-cycle to 63.86% in Cycle I and 82.27% in Cycle II, with improvements observed in holding, grasping, squeezing, pinching, rolling, moving the fingers, and shaping dough more neatly and accurately. These findings strengthen the theoretical rationale that meaningful, play-based, and concrete activities can provide appropriate stimulation for fine motor development.

Based on the theoretical foundation and the practical problem identified at TK Khoiru Jannah, this study is therefore important to investigate the implementation of cake dough as a learning medium for improving fine motor skills among children aged 4–5 years. The study focuses not only on whether children's fine motor abilities improve but also on how the cake-dough activities are implemented as a learning experience. Accordingly, the purpose of this study is to investigate the process of improving the fine motor skills of children aged 4–5 years through the use of cake dough as a learning medium at TK Khoiru Jannah and to determine whether the use of cake dough can improve their fine motor skills.

2. RESEARCH METHOD

This study employed Classroom Action Research (CAR) to investigate the improvement of fine motor skills among children aged 4–5 years through the use of cake dough as a learning medium. Classroom Action Research was selected because it enables teachers and researchers to identify learning problems occurring in the classroom, implement an appropriate intervention, observe changes in children’s development, and reflect on the effectiveness of the learning activities. The research was based on the action research model developed by Kemmis and McTaggart, which consists of interconnected stages of planning, action, observation, and reflection. These stages were implemented systematically through repeated cycles to improve the quality of the learning process and children’s developmental outcomes (Kemmis & McTaggart, 1988).

The research was conducted at TK Khoiru Jannah, Jatipulo, Palmerah, West Jakarta, involving children in Group A who were approximately 4–5 years old. The participants consisted of 11 children. The selection of this group was based on the classroom situation in which several children demonstrated difficulties in performing fine motor activities. The difficulties were particularly visible in activities requiring children to hold and manipulate objects, squeeze, pinch, roll, press, and form materials accurately. These conditions indicated the need for learning activities that could provide

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meaningful opportunities for children to strengthen their fingers and hands while engaging in enjoyable play-based experiences.

The research was conducted during May–June 2026. The study was organized into a pre-cycle stage and two action cycles. The pre-cycle stage was conducted to identify the initial condition of the children's fine motor skills before the intervention. Following the pre-cycle observation, the researcher designed and implemented learning activities using cake dough. The intervention was subsequently carried out through Cycle I and Cycle II. Each cycle followed four stages: planning, implementation of action, observation, and reflection. The results obtained from each cycle were used to determine the necessary improvements for the subsequent cycle.

At the planning stage, the researcher prepared learning activities that incorporated cake dough into children's play and learning experiences. The researcher developed learning plans, prepared cake dough and supporting materials, determined the fine motor indicators to be observed, and prepared observation instruments. The activities were designed to provide children with opportunities to directly manipulate the dough through actions such as pouring ingredients, mixing, squeezing, pressing, rolling, pinching, and shaping. These activities were selected because they involve repeated movements of the fingers and hands and require coordination between visual perception and hand movements.

At the action stage, the learning activities were implemented directly in the classroom. Children were introduced to the cake dough and were encouraged to explore and manipulate it independently with appropriate teacher guidance. The teacher demonstrated the procedures and provided opportunities for children to perform the activities themselves. Children were encouraged to squeeze and press the dough, roll it using their hands, pinch parts of the dough, and form it into simple shapes. The activities were conducted in an atmosphere that emphasized play, exploration, participation, and enjoyment. The teacher provided assistance when necessary while allowing children sufficient opportunities to develop their own skills through direct experience.

The observation stage was conducted simultaneously with the implementation of the learning activities. Observations focused on changes in children's fine motor abilities during the manipulation of cake dough. The indicators observed included children's ability to hold objects, grasp and manipulate materials, demonstrate finger flexibility, perform movements skillfully, and produce forms with greater accuracy and neatness. These indicators were derived from the conceptualization of fine motor development in the research, which emphasizes the involvement of small muscles, particularly those of the fingers and hands, as well as eye-hand coordination (Suyadi, 2021; Uun & Yuntina, 2023). Observation was also used to record children's participation, enthusiasm, confidence, and ability to complete the activities.

The reflection stage was conducted after each cycle. The researcher analyzed the observation results and evaluated the strengths and weaknesses of the learning activities. Reflection was used to determine whether the planned actions had successfully improved children's fine motor skills and to identify aspects that needed modification. If some children continued to experience difficulties, the learning activities were adjusted in the following cycle by providing clearer demonstrations, additional opportunities for practice, appropriate teacher assistance, and more engaging challenges. Thus, the second cycle was designed as an improvement based on the findings obtained during the first cycle.

Data were collected primarily through observation and documentation. Observation was used to obtain information about children's fine motor performance before and after the implementation of cake dough activities. The researcher observed children directly while they participated in the learning activities and recorded their achievement according to the predetermined indicators. Documentation was used as supporting evidence of the learning process and children's participation during the research activities. The collected data were then organized and compared across the pre-cycle, Cycle I, and Cycle II to identify changes in children's fine motor development.

The assessment of children's fine motor skills was conducted using developmental achievement categories. The assessment focused on observable performance rather than written tests because

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children aged 4–5 years learn and demonstrate developmental competencies primarily through direct activities and play. The assessment considered children's ability to perform the targeted movements independently and accurately. The scores obtained from observations were converted into percentages to determine the level of achievement in each stage of the research.

The percentage of children's achievement was calculated by comparing the total score obtained with the maximum possible score and multiplying the result by 100. The development of children's fine motor skills was then examined by comparing the percentage obtained in the pre-cycle with the results of Cycle I and Cycle II. Improvement was considered to have occurred when children demonstrated better performance in holding, grasping, squeezing, pinching, rolling, moving their fingers, and shaping the dough more accurately and neatly.

3. RESULT AND DISCUSSION

This study was conducted to examine the improvement of fine motor skills among children aged 4–5 years through the use of cake dough as a learning medium at TK Khoiru Jannah, Jatipulo, Palmerah, West Jakarta. The research involved 11 children in Group A and was implemented through a pre-cycle stage followed by two cycles of Classroom Action Research. Each cycle consisted of planning, action, observation, and reflection. The learning activities provided children with direct opportunities to manipulate cake dough through squeezing, pressing, rolling, pinching, and shaping activities.

The initial observation conducted during the pre-cycle showed that the children's fine motor skills were still relatively low. Several children experienced difficulties when performing activities that required finger strength, flexibility, coordination, and accuracy. Children were not yet consistent in holding and grasping materials properly, squeezing and pressing the dough, rolling the dough, or forming it into specific shapes. Some children also needed considerable assistance from the teacher to complete the activities. The average achievement of fine motor skills in the pre-cycle was 40.91%. This result indicated that the children needed more varied and developmentally appropriate stimulation through activities involving direct manipulation of materials.

Following the pre-cycle observation, the researcher implemented learning activities using cake dough in Cycle I. During this cycle, children were introduced to the dough and given opportunities to explore and manipulate it. The children practiced several movements, including holding, grasping, squeezing, pressing, rolling, pinching, and shaping the dough. The learning activities were designed as play-based experiences so that children could develop their fine motor abilities while enjoying the process.

The results of Cycle I demonstrated an increase in children's fine motor achievement. The percentage increased from 40.91% in the pre-cycle to 63.86% in Cycle I. Children began to demonstrate better control of their fingers and hands and were increasingly able to manipulate the dough independently. Nevertheless, some children still required teacher guidance, particularly when performing movements requiring greater precision and when shaping the dough neatly. The findings from Cycle I therefore became the basis for reflection and improvement in Cycle II.

In Cycle II, the learning activities were improved based on the results of reflection from Cycle I. The teacher provided clearer demonstrations and greater opportunities for children to practice the targeted movements. Children were encouraged to manipulate the dough more independently and to pay greater attention to the shape and neatness of their work. The activities continued to emphasize squeezing, pressing, rolling, pinching, finger movement, and shaping.

The results showed a substantial improvement in children's fine motor skills. The achievement increased from 63.86% in Cycle I to 82.27% in Cycle II. Compared with the pre-cycle achievement of 40.91%, the overall increase reached 41.36 percentage points. The children demonstrated greater ability to hold and grasp materials, move their fingers flexibly, manipulate the dough, and produce shapes with greater accuracy and neatness. They also appeared more active, enthusiastic, and confident when participating in the learning activities.

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The development of children's fine motor skills across the research stages can be presented as follows.

Research Stage	Fine Motor Achievement
Pre-Cycle	40.91%
Cycle I	63.86%
Cycle II	82.27%

The results indicate a consistent improvement after cake dough was introduced as a learning medium. The increase between the pre-cycle and Cycle I was 22.95 percentage points, while the increase between Cycle I and Cycle II was 18.41 percentage points. The total increase from the pre-cycle to Cycle II was 41.36 percentage points. These findings demonstrate that cake dough activities were associated with improved fine motor performance among the participating children.

The findings demonstrate that the use of cake dough can provide an effective and meaningful learning experience for stimulating fine motor development in children aged 4–5 years. The improvement observed throughout the research is closely related to the characteristics of fine motor development, which involve the coordinated use of small muscles, particularly the fingers and hands, together with eye-hand coordination. Suyadi (2021) explains that fine motor skills involve physical abilities using small muscles and eye-hand coordination and develop gradually through maturation and appropriate stimulation.

The activities implemented in this study correspond directly with the movements required for fine motor development. When children squeezed the dough, they exercised the muscles of their fingers and hands. When they pinched small portions of dough, they practiced more precise finger movements. Rolling and pressing required coordinated movements involving both hands, while shaping the dough required children to coordinate visual perception with hand movements. Thus, the learning process did not merely produce a physical product but also provided repeated opportunities for children to exercise and coordinate their small muscles.

The improvement from 40.91% in the pre-cycle to 63.86% in Cycle I suggests that children responded positively when they were given concrete materials that could be touched, manipulated, and transformed. Before the intervention, children experienced difficulties in several fine motor activities. Through cake dough activities, however, they received direct sensory-motor experiences. This finding is consistent with the theoretical explanation that fine motor development requires stimulation through activities that encourage accuracy, carefulness, and repeated finger movements. Schiller, as cited in Ratna (2020), emphasizes the importance of stimulation through play activities that require children to exercise precision, patience, and careful movement.

Another important factor is the play-based nature of the intervention. Young children generally learn effectively through activities that are enjoyable, concrete, and connected to their experiences. Cake dough provides an open-ended material that children can explore without being limited to a single predetermined form. Children can squeeze, press, roll, pinch, combine, and reshape the material repeatedly. This characteristic allows children to practice the same motor movements in different ways while maintaining their interest in the activity.

The results also support the view that manipulative activities can strengthen children's finger muscles and improve hand coordination. Seefeldt, as cited in Wasik (2020), explains that activities involving mixing, pressing, squeezing, and shaping can provide opportunities for children to strengthen their finger muscles and develop hand coordination. In the present study, these movements were naturally integrated into the cake dough activity. Consequently, fine motor stimulation occurred as part of an enjoyable learning experience rather than as repetitive motor exercises conducted separately from play.

The improvement observed in Cycle II is particularly important because it indicates that the effectiveness of the activity was not limited to initial exposure. The children's achievement increased to 82.27% after the learning process was refined. This improvement suggests that repetition, teacher guidance, and opportunities for independent practice contributed to children's development. The reflection stage in Cycle I allowed the teacher to identify difficulties experienced by the children and

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modify the learning process in Cycle II. This iterative process is one of the important characteristics of Classroom Action Research because classroom interventions can be continuously improved based on actual observations of children's responses.

The children's increased independence was also an important qualitative finding. During the later stages of the intervention, children became more capable of manipulating the dough without continuously depending on the teacher. They showed greater confidence when attempting to squeeze, roll, pinch, and shape the dough. The thesis findings indicate that the children became more active, enthusiastic, and confident during the learning activities. This suggests that the benefits of cake dough activities may extend beyond physical motor development to children's participation and confidence in learning.

The findings are also relevant to developmentally appropriate practice in early childhood education. Fine motor skills are important because they support children's ability to perform various daily activities and prepare them for more complex tasks requiring controlled hand and finger movements. The Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia (2021) positions fine motor development as an important foundation for children's subsequent learning activities, including writing. Therefore, providing children with opportunities to strengthen their fingers and improve hand-eye coordination through enjoyable activities can contribute to their broader developmental readiness.

The cake dough medium also provides a practical alternative to conventional fine motor activities. Instead of relying primarily on worksheets or pencil-and-paper tasks, teachers can provide materials that children can manipulate directly. The thesis background indicates that some learning activities related to beginning writing were not sufficiently appropriate to the developmental characteristics of 4–5-year-old children and could become unpleasant when imposed. Cake dough offers a more playful alternative because children can develop the underlying motor abilities required for later writing through meaningful manipulation before being expected to perform more formal writing tasks.

Furthermore, the cooking-related context of the activity creates opportunities for integrated learning. Activities such as pouring, mixing, squeezing, rolling, pressing, and shaping can simultaneously stimulate fine motor skills, concentration, coordination, and creativity. In an early childhood classroom, such activities can therefore be developed into interdisciplinary learning experiences involving language, cognitive development, social interaction, creativity, and physical development.

Nevertheless, the implementation of cake dough activities requires appropriate preparation and supervision. The thesis identifies several practical considerations, including the preparation of materials, the need for close supervision, and the possibility of creating a messy learning environment. These limitations do not negate the benefits of the activity but indicate that teachers need to prepare the learning environment carefully. Materials should be prepared before the activity, children should be guided regarding hygiene and appropriate use of materials, and sufficient time should be allocated for cleaning after the activity.

Overall, the findings demonstrate that cake dough can function as a meaningful play-based medium for fine motor stimulation among children aged 4–5 years. The progressive improvement from 40.91% in the pre-cycle to 63.86% in Cycle I and 82.27% in Cycle II indicates that children benefited from repeated opportunities to manipulate the dough. The findings support the idea that fine motor development is strengthened when children are provided with concrete, enjoyable, and developmentally appropriate experiences involving controlled finger and hand movements. The use of cake dough therefore represents a practical classroom strategy that can make fine motor stimulation more engaging while supporting children's independence, confidence, coordination, and accuracy.

DISCUSSION

The findings of this study indicate that the use of cake dough as a learning medium contributed to the improvement of fine motor skills among children aged 4–5 years at TK Khoiru Jannah. The

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improvement was demonstrated by the progressive increase in children's fine motor achievement from 40.91% in the pre-cycle to 63.86% in Cycle I and 82.27% in Cycle II. This development indicates that providing children with repeated opportunities to manipulate a soft and flexible material can support the development of finger and hand movements, eye-hand coordination, and accuracy.

The initial condition observed during the pre-cycle provides an important explanation for the need for an alternative learning medium. Children experienced difficulties in performing activities involving holding, grasping, squeezing, pinching, rolling, pressing, and shaping. These difficulties indicate that the children had not yet developed sufficient control and coordination of their small muscles. The theoretical framework in the study explains that fine motor skills involve the use of small muscles, particularly the muscles of the fingers and hands, accompanied by eye-hand coordination. Fine motor development occurs gradually and requires appropriate stimulation according to children's developmental characteristics (Suyadi, 2021).

The use of cake dough provided children with direct and repeated experiences involving the movements required for fine motor development. When children squeezed the dough, they had to use their fingers and palms to exert pressure. Pinching required more specific and controlled finger movements, while rolling required children to coordinate the movements of both hands. Pressing and shaping required children to control the strength and direction of their movements according to the form they wanted to produce. These activities therefore provided functional opportunities for children to exercise different aspects of fine motor control within one integrated learning experience.

The improvement observed in Cycle I can be understood from the concrete characteristics of cake dough. Unlike activities that require children to manipulate small rigid objects or complete worksheets, dough can be easily pressed, stretched, rolled, pinched, and reshaped. This flexibility allows children to repeat movements without experiencing immediate failure when their first attempt is unsuccessful. The children can simply reshape the material and try again. Such repeated practice is particularly relevant for young children because motor skills develop progressively through opportunities for stimulation and practice. The thesis theoretical framework similarly identifies activities requiring accuracy, carefulness, and patience as important forms of stimulation for fine motor development.

The findings are consistent with the explanation provided by Seefeldt, as cited in Wasik (2020), that manipulative activities such as mixing, pressing, squeezing, and shaping can strengthen finger muscles and support hand coordination. The cake dough activity in this study incorporated precisely these types of manipulation. Consequently, the improvement in fine motor performance can be interpreted not simply as the result of children using a different material but as the result of the specific motor actions required when interacting with the material.

An important aspect of the findings is the relationship between fine motor stimulation and eye-hand coordination. Fine motor development does not only involve stronger fingers; children also need to coordinate what they see with how they move their hands. When children attempted to form dough into particular shapes, they visually monitored the material and adjusted their hand movements accordingly. For example, children needed to determine how much pressure to apply when pressing the dough or how much force to use when rolling it. This corresponds with the conceptualization of fine motor development in which finger and hand movements are closely related to eye-hand coordination and accuracy (Uun & Yuntina, 2023).

The increase from 63.86% in Cycle I to 82.27% in Cycle II further demonstrates the importance of reflection and improvement in the classroom action research process. During Cycle I, although the children showed progress, some still needed assistance to perform movements accurately and produce neat shapes. The learning process was subsequently improved in Cycle II by providing children with clearer demonstrations, greater opportunities for practice, and more encouragement to work independently. The increased achievement in Cycle II suggests that children benefited from the continuity of the learning experience rather than from a single exposure to cake dough.

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The findings also reveal that the learning process involved more than physical movement. According to the research findings, children became more active, enthusiastic, and confident during the cake dough activities. This is important because young children's engagement can influence the quality of their participation in learning. A material that is enjoyable and easy to manipulate can encourage children to remain involved for longer periods and provide more opportunities for motor practice. Thus, the attractiveness of the medium may indirectly support motor development by increasing children's willingness to participate.

Cake dough also provides an opportunity for children to experience learning through play. The thesis emphasizes that early childhood learning should be connected with children's developmental characteristics and should provide a safe, comfortable, and enjoyable environment. In this context, manipulating dough can transform fine motor stimulation from an isolated exercise into a meaningful play experience. Children are not simply asked to move their fingers repeatedly; instead, they are invited to create, change, and explore a material according to their ideas.

This characteristic is particularly relevant when considering the difficulties associated with overly formal fine motor activities. The thesis background reports that beginning-writing activities observed in the research setting were not always developmentally appropriate for children aged 4–5 years and could become unpleasant when children were pressured to perform them. The use of cake dough provides an alternative route for strengthening the prerequisite abilities needed for later controlled hand movements. Rather than immediately emphasizing written output, children can first develop finger strength, flexibility, coordination, and accuracy through enjoyable manipulation activities.

The results can also be interpreted from the perspective of the indicators used in this study. The assessment focused on holding, grasping, finger flexibility, skillfulness, and accuracy/neatness. Each indicator was naturally represented in the cake dough activities. Holding and grasping were practiced when children handled the dough and supporting materials. Finger flexibility was stimulated through squeezing and pinching. Skillfulness developed through repeated manipulation and shaping. Accuracy and neatness became increasingly visible when children attempted to create forms according to the teacher's demonstration or their own intended designs.

The improvement in accuracy and neatness is particularly meaningful because these abilities require children to regulate their movements rather than merely produce force. A child may have sufficient hand strength to squeeze dough but still have difficulty controlling the amount of pressure or producing a particular shape. Through repeated manipulation, children gradually learn to adjust their movements according to the desired outcome. The increase to 82.27% in Cycle II therefore suggests not only improvement in physical strength but also improvement in children's ability to control and coordinate their movements.

Another factor that may have contributed to the improvement is the sensory experience provided by the dough. The soft and flexible texture gives children immediate tactile feedback as they press, squeeze, roll, and pinch it. Although the thesis primarily evaluates fine motor development rather than sensory development, the concrete characteristics of the medium provide children with direct feedback about their actions. When children apply greater or lesser pressure, the dough changes shape accordingly. This may help children connect their hand movements with visible outcomes during the learning process.

The findings also support the use of cooking-related activities as a medium for integrated early childhood learning. The theoretical discussion in the thesis identifies activities such as stirring, pouring, squeezing, rolling, pressing, and shaping as actions that can stimulate children's fine motor abilities. Such activities can be integrated into classroom learning without separating physical development from cognitive and creative experiences. Children can simultaneously practice motor control while exploring materials, following simple instructions, making choices, and producing a concrete result.

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Nevertheless, the implementation of cake dough as a learning medium requires careful classroom management. The thesis identifies several limitations, including the need for material preparation, close supervision, and the possibility of creating a messy learning environment. Teachers therefore need to prepare an appropriate workspace, provide materials in manageable quantities, supervise children throughout the activity, and allocate sufficient time for cleaning. These practical considerations are particularly important in early childhood settings where children are still developing their ability to manage materials independently.

The findings should also be interpreted within the scope of the study. The research involved only 11 children in one Group A classroom at TK Khoiru Jannah and was conducted through Classroom Action Research over two cycles. Therefore, the results demonstrate improvement within the specific classroom context rather than establishing that cake dough will produce identical outcomes for all groups of children. Nevertheless, the consistent improvement across the research stages provides classroom-based evidence supporting the use of cake dough as an alternative medium for fine motor stimulation.

Overall, the discussion demonstrates that cake dough provides a developmentally appropriate, concrete, and enjoyable medium through which children can repeatedly practice fine motor movements. The increase from 40.91% to 63.86% and finally to 82.27% reflects progressive improvement following the implementation and refinement of the learning activities. The effectiveness of the activity appears to be related to the combination of tactile manipulation, repeated finger and hand movements, eye-hand coordination, opportunities for independent practice, and the playful nature of the learning experience. Thus, cake dough can be considered a practical alternative for teachers seeking to stimulate fine motor development among children aged 4–5 years while maintaining an enjoyable and child-centered learning environment.

4. CONCLUSION

This study concludes that the use of cake dough as a learning medium can improve the fine motor skills of children aged 4–5 years at TK Khoiru Jannah, Jatipulo, Palmerah, West Jakarta. The implementation of cake dough activities provided children with meaningful opportunities to practice fine motor movements through direct manipulation, including holding, grasping, squeezing, pinching, rolling, pressing, and shaping. These activities also supported children's finger flexibility, hand control, eye-hand coordination, skillfulness, and accuracy in producing forms.

The improvement in children's fine motor skills was demonstrated by the progressive increase in achievement throughout the Classroom Action Research. The average achievement increased from 40.91% in the pre-cycle to 63.86% in Cycle I and 82.27% in Cycle II. This increase indicates that the implementation and refinement of cake dough activities provided increasingly effective stimulation for children's fine motor development. In addition to the quantitative improvement, the children demonstrated greater active participation, enthusiasm, and confidence during the learning activities.

The findings suggest that cake dough is a practical and engaging alternative medium for fine motor stimulation in early childhood education. Its soft and flexible characteristics allow children to repeatedly squeeze, press, roll, pinch, and shape the material according to their developmental abilities. Through these experiences, children can develop fine motor skills naturally within a play-based learning environment rather than through activities that are predominantly worksheet-based or formally structured.

5. REFERENCES

Andini, T. (2018). *Metode cooking class untuk menstimulasi motorik anak*. Jurnal Pendidikan Anak, 4(1), 1–10.

Fadlillah, M. (2020). *Buku Ajar Konsep Dasar PAUD*. Bantul: Samudra Biru.

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia. (2021). *Pendidikan Anak Usia Dini*. Jakarta: Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.

Mayar, M., & Sriandila, M. (2021). *Media Pembelajaran Fisik Motorik*.

Priyati. (2018). *Analisis tahapan pembuatan adonan terhadap volume pengembangan kue*. Jurnal Tata Boga, 6(2), 217–225.

Priyati. (2020). *Roti atau Kue*. Kawan Media.

Ratna, W. (2020). *Pengaruh Bermain Sambil Belajar Terhadap Perkembangan Motorik Anak*. Jurnal Edukasi Anak Usia Dini, 6(1), 15–22.

Salehi, F. (2020). *Karakteristik fisik dan kimia adonan berbasis tepung lokal*. Jurnal Teknologi dan Industri Pangan, 15(3), 361–368.

Suyadi. (2021). *Psikologi Belajar PAUD*. PT Remaja Rosdakarya.

Suyati. (2020). *Stimulasi Gerak Jari untuk Meningkatkan Motorik Halus Anak*. Jurnal Pendidikan Anak Usia Dini, 4(2).

Tari, R. (2020). *Analisis Faktor Perkembangan Motorik Halus pada Anak Usia Dini*. Jurnal PAUD TE, 5(1), 38–41.

Uun, & Yuntina, L. (2023). *Perkembangan Motorik Halus Anak Taman Kanak-Kanak*, 21(2).

Watini, S. (2019). *Pendekatan Kontekstual Dalam Meningkatkan Hasil Belajar Pada Anak Usia Dini*, 3(1).