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MANAGEMENT OF THE USE OF PLAYDOUGH MEDIA IN IMPROVING FINE MOTOR SKILLS OF CHILDREN AGED 4-5 YEARS

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ABSTRAK

Penelitian tindakan kelas ini dilakukan untuk menanggapi keterbatasan perkembangan motorik halus anak usia 4–5 tahun di TK Negeri Bonto Sinjai Tengah, di mana proses pembelajaran awal ditandai dengan rendahnya keterlibatan serta kurangnya media pembelajaran yang efektif. Berlandaskan teori konstruktivisme dan pembelajaran berbasis pengalaman, playdough dimanfaatkan sebagai media untuk menciptakan aktivitas belajar yang bermakna sekaligus menyenangkan. Tujuan penelitian ini adalah memperbaiki proses pembelajaran sekaligus meningkatkan keterampilan motorik halus anak melalui siklus tindakan berulang. Penelitian dirancang menggunakan model Penelitian Tindakan Kelas Kemmis & McTaggart dalam dua siklus dengan melibatkan seorang guru dan anak-anak pada kelas taman kanak-kanak. Data dikumpulkan melalui observasi, wawancara, dan dokumentasi, lalu dianalisis secara deskriptif dan kualitatif untuk menangkap perubahan perilaku maupun hasil belajar. Temuan menunjukkan bahwa setiap siklus menghasilkan perubahan positif: anak menjadi lebih terampil memanipulasi benda, lebih kreatif dalam membentuk, serta lebih aktif berpartisipasi. Disimpulkan bahwa pemanfaatan playdough sebagai media pembelajaran mampu mentransformasi dinamika kelas, memperkuat peran guru sebagai fasilitator, dan mendorong keterlibatan aktif siswa. Penelitian ini berkontribusi secara teoretis dengan memperkuat model pembelajaran berbasis pengalaman, secara praktis dengan menawarkan strategi yang mudah direplikasi, serta secara kelembagaan dengan mendorong kebijakan integrasi media konkret dalam pendidikan anak usia dini.

Kata Kunci: Playdough, Motorik Halus, Anak Usia Dini

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ABSTRACT

This classroom action research addressed the limited development of fine motor skills among children aged 4–5 years at TK Negeri Bonto Sinjai Tengah, where the initial learning process was characterized by low engagement and the lack of effective learning media. Grounded in constructivist theory and experiential learning, playdough was managed as a medium to create meaningful and enjoyable activities. The purpose of this study was to improve both the process of teaching and learning and the achievement of children's fine motor skills through iterative action cycles. The research was designed as classroom action research (Kemmis & McTaggart model), carried out in two cycles involving one teacher and children in a kindergarten class. Data were collected through observation, interviews, and documentation, then analyzed descriptively and qualitatively to capture improvements in behavior and learning outcomes. Findings revealed that each cycle contributed to positive changes: children became more skillful in manipulating objects, more creative in shaping materials, and more engaged in classroom activities. It was concluded that using playdough as a learning medium transformed classroom dynamics, strengthened the teacher's role as facilitator, and encouraged active participation. This study contributes theoretically by reinforcing experiential learning models, practically by offering replicable strategies for teachers, and institutionally by suggesting policies that support the integration of concrete media in early childhood education.

***Keywords**: Playdough, Fine Motor, Early Childhood*

INTRODUCTION

Early childhood education (PAUD) is the primary foundation of human development that determines the direction of cognitive, social, emotional, and motor growth [1] In this golden age, proper stimulation is important in maximizing children's potential, including fine motor skills [2] Observations at the Bonto Sinjai Tengah State Kindergarten show that most children aged 4–5 years have not reached the standard of fine motor development as stated in Permendikbud Number 137 of 2014 [3] This condition is reflected in the child's difficulty when

[1] Nik Evina Nik Roseli and others, 'Case Study on Fine Motor Skills Development in Early Childhood Education', *International Journal of Academic Research in Business and Social Sciences*, 14.9 (2024), doi:10.6007/IJARBSS/v14-i9/22749.

[2] Jumiyati, Dian Eka Priyantoro, and Uswatun Hasanah, 'Implementation of Coloring Activities Early Childhood in Developing Fine Motor Skills', *Journal of Childhood Development*, 3.1 (2023), pp. 1–12, doi:10.25217/jcd.v3i1.3139.

[3] Muhammad Arfan Mu'ammar, Mahrus Soleh, and Afdol Awae, 'Development of Fine Motor and Visual Motor Skills in Preparing Early Childhood Writing', *Journal of Pedagogy and Education Science*, 2.02 (2023), pp. 116–23, doi:10.56741/jpes.v2i02.79.

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holding stationery, scissors, kneading, or shaping dough. The limitations of monotonous teaching methods, the lack of learning media, and the lack of variety of activities are the leading causes of weak fine motor stimulation in the classroom. This situation is in line with Piaget's view of constructivist theory, which emphasizes the importance of direct experience and concrete activity in learning, especially at the preoperational stage, where children learn through the manipulation of real objects [4].

To answer this problem, teachers need learning strategies that are fun, participatory, and based on sensorimotor experiences. One of the relevant media is playdough, a flexible dough that can be shaped according to the child's imagination [5] Playing with playdough allows children to practice eye and hand coordination, strengthen finger muscles, and develop creativity [6] This approach aligns with Vygotsky's theory of learning about the zone of proximal development, which emphasizes the importance of adult support and the use of mediated tools so that children can optimize their potential [7] Thus, using playdough can be seen as a pedagogical effort to improve the learning process while meeting early childhood development needs.

Some previous studies have shown the effectiveness of playdough in improving children's fine motor skills. Ningsih found a significant increase from 40% to 85% in group A children of Dharma Wanita Persatuan Kindergarten after two learning cycles using playdough [8] Similar results were obtained by Rahmawati at Pertiwi Kindergarten, where fine motor skills increased from 45% to 88% after intervention [9] Millati's research using natural playdough at Ma'had

[4] Didi Suryadi and others, 'Stimulation of Motor Skills through Game Models in Early Childhood and Elementary School Students: Systematic Review in Indonesia', *Retos*, 51 (2023), pp. 1255–61, doi:10.47197/retos.v51.101743; Pedro Flores and others, 'Association between Motor and Math Skills in Preschool Children with Typical Development: Systematic Review', *Frontiers in Psychology*, 14 (2023), doi:10.3389/fpsyg.2023.1105391.

[5] Ridho Gata Wijaya and others, 'The Effect of Playing Playdough and Collage on Improving Fine Motor Skills in Early Childhood in Terms of Independence', *Retos*, 51 (2023), pp. 1146–52, doi:10.47197/retos.v51.101396.

[6] Elfrida Suriani Ngawan, I Made Elia Cahaya, and Elizabeth Prima, 'Peningkatan Kemampuan Kognitif Melalui Kegiatan Bermain Palydough Bagi Anak Usia 5-6 Tahun', *Jurnal PAUD: Kajian Teori Dan Praktik Pendidikan Anak Usia Dini*, 7.1 (2025), p. 37, doi:10.17977/um053v7i1p37-46.

[7] Lia Ratu Manggali, Indra Zultiar, and Asep Munajat, 'Peningkatan Kreativitas Anak Melalui Metode Bermain Plastisin Pada Anak Usia 5-6 Tahun', *Calakan : Jurnal Sastra, Bahasa, Dan Budaya*, 3.1 (2025), pp. 86–91, doi:10.61492/calakan.v3i1.311.

[8] Nurwati Ningsih, 'Differences in Fine Motor Development Before and After Playing Playdough in Children Preschool Children (5-6 Years Old)', *Health Frontiers*, 1.1 (2023), pp. 61–68, doi:10.62255/mjhp.v1i1.85.

[9] Badriah Rahmawati, 'Upaya Meningkatkan Kreativitas Anak Usia Dini Melalui Kegiatan Mewarnai Di TK Pertiwi 1 Raja Basa Lama' (IAIN Metro, 2019).

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Islam Kindergarten also showed an increase from 30.88% to 87.64% in cycle II, confirming the added value of this environmentally friendly media [10]

In addition, Tri Rahayu et al.'s research at ABA Carikan Kindergarten proved that there was a gradual increase from 25% in the pre-cycle to 70% in the second cycle after the application of simple playdough [11] Putri's literature review also confirms that playdough is one of the most consistent media in developing fine motor skills in early childhood among various alternative media such as *busy books* and *kinetic sand* [12] Although these studies have proved the effectiveness of playdough, most were carried out outside the context of the Bonto Sinjai Tengah State Kindergarten, so it is not necessarily entirely in accordance with the needs of the children at the research site.

However, there are important research gaps to fill. Most previous studies have focused more on the end result in an increase in children's developmental scores, without paying enough attention to the learning process in the classroom. In addition, the use of playdough in the context of previous research is still limited to specific regions or institutions, so its application in the Central Bonto Sinjai State Kindergarten has not been empirically tested. This raises the need to conduct classroom action research (PTK) that is more contextual and process-oriented. Thus, this study not only evaluates the results but also uncovers how teacher strategies and child involvement can optimize the effectiveness of playdough.

The research gap is also seen in the aspect of variation in the use of playdough. Most previous studies have not integrated playdough activities with a scientific approach, as emphasized in the 2013 Early Childhood Education Curriculum. In fact, if designed in a structured PTK cycle, playdough play activities can support children in observing, questioning, trying, reasoning, and communicating the results of their work. Therefore, this study is urgently carried out to prove the relevance and effectiveness of playdough in Central Bonto Sinjai State Kindergarten, which has unique characteristics in terms of children and educational resources.

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[10] Inayatul Millati, 'Meningkatkan Kemampuan Motorik Halus Anak Melalui Bermain Playdough Alami Pada Kelompok B3 Di TK Ma'had Islam Kota Pekalongan Tahun Ajaran 2020/2021', *AUDIENSI: Jurnal Pendidikan Dan Perkembangan Anak*, 1.2 (2022), pp. 124–34.

[11] Tri Rahayu, Syamsuardi Syamsuardi, and Evarastina Mattemmu, 'Upaya Meningkatkan Kemampuan Motorik Halus Melalui Bermain Membuat Playdogh Dengan Bahan Sederhana Pada Kelompok B Di TK ABA Carikan Kab. Magelang Jawa Tengah', *Jurnal Pemikiran Dan Pengembangan Pembelajaran*, 3.4 (2021), pp. 87–96.

[12] Windya Putri, 'Implementasi Motorik Halus Anak Usia 3-4 Tahun Melalui Playdough Dalam Meningkatkan Bermain Sensorimotor Di TK Islam Bina Balita Bandar Lampung' (UIN Raden Intan Lampung, 2019).

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The novelty of this research lies in integrating playdough with the PTK cycle based on a scientific curriculum. Teachers use playdough as a medium for free play and design systematic activities such as forming geometries, letters, numbers, and simple animal figures. Thus, this research presents an innovation in combining a play approach with structured learning, which has not been touched by much previous research. This is expected to make a real contribution to improving the fine motor learning process at Bonto Sinjai Tengah State Kindergarten.

In addition, this research emphasizes the humanist dimension by providing space for exploration and appreciation of children's work. Instead of pursuing fine motor skills targets, this research presents a fun, creative, and participatory learning atmosphere. This innovation is important because early learning should emphasize joyful learning, per the characteristics of child development. With this approach, the research is expected to provide an alternative learning model that is more adaptive and inspiring for PAUD teachers [13]

In general, this study aims to improve the fine motor skills of children aged 4–5 years in Kindergarten Negeri Bonto Sinjai Tengah through playdough media in the PTK cycle. This big goal is simultaneously directed to improve the quality of the learning process, create an active classroom atmosphere, and increase student participation. By emphasizing the principle of play while learning, this study seeks to prove that simple media can effectively support children's overall growth and development [14]

In particular, this study seeks to answer several main questions, namely: (1) how the process of using playdough can improve children's fine motor skills in Bonto Sinjai Tengah State Kindergarten; (2) the extent to which the child's fine motor skills develop after the intervention; and (3) whether consistent use of playdough can result in significant improvements in each action cycle. These questions focus on assessing the effectiveness of media and evaluating the role of teachers in managing sensorimotor experience-based learning. Thus, the research results are expected to answer the existing gap and become a foothold in developing more innovative learning strategies in the future.

[13] Kilhee Byon, 'Development of a Competency-Based "Play in Early Childhood Education" Teaching-Learning Model Using Flipped Learning for Training Childcare Teachers', *The K Association of Education Research*, 10.1 (2025), pp. 607–20, doi:10.48033/jss.10.1.28.
[14] Erni Tresna A, Qurrotul Aeni, and Tharisa Basariahna S, 'The Use of Learning Media In PAUD to Develop Children's Cognitive and Socio-Social Abilities', *Feelings: Journal of Counseling and Psychology*, 1.2 (2024), pp. 109–22, doi:10.61166/feelings.v1i2.9.

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RESEARCH METHOD

This study uses a Classroom Action Research (PTK) design with the Kurt Lewin model, which consists of four main stages: planning, action, observation, and reflection in repetitive cycles [15] PTK was chosen because it is collaborative and reflective, allowing teachers and researchers to diagnose learning problems and then try concrete solutions to improve classroom learning quality. The characteristics of the continuous PTK cycle make this design relevant to gradually improving weaknesses in children's fine motor development. In other words, PTK is not just descriptive research, but a means of real improvement through actions carried out directly in the classroom [16]

This research was carried out at Bonto State Kindergarten, Bulu Lohe Hamlet, Central Sinjai District, Sinjai Regency, in group A with 25 children aged 4–5. The location selection was based on preliminary observation results that showed that most children had difficulty in activities involving fine motor skills, such as holding stationery, cutting patterns, or shaping dough [17] The subjects were chosen purposively because they were in accordance with the research objectives, namely, classes with real problems in fine motor skills. The research procedure is carried out through a cycle that includes: (1) the planning stage in the form of the preparation of learning tools with playdough media and observation instruments; (2) the implementation stage in the form of the application of learning with playdough; (3) the observation stage in the form of recording children's fine motor development through observation sheets; and (4) the reflection stage in the form of analysis of results which will be the basis for improvement in the next cycle. The cycle is repeated until a significant increase corresponds to the success indicators [18]

Research data was collected through observation, interviews, and documentation to understand the learning process and outcomes comprehensively. The main instrument is the researcher, who is assisted by supporting instruments such as fine motor development observation sheets, children's skill assessment

[15] Mami Hajaroh and others, 'Advancing Professional Competence of Teachers via Classroom Action Research', *International Journal Of Community Service*, 5.2 (2025), pp. 132–38, doi:10.51601/ijcs.v5i2.855.
[16] I Komang Sukendra and others, 'PKM. PENULISAN PENELITIAN TINDAKAN KELAS DAN PUBLIKASI ILMIAH GURU DI SMAK NEGERI 3 SUKAWATI', *Jurnal Pengabdian Kepada Masyarakat Widya Mahadi*, 1.2 (2021), pp. 1–10, doi:10.59672/widyamahadi.v1i2.1210.
[17] Pete Wright, 'Transforming Mathematics Classroom Practice through Participatory Action Research', *Journal of Mathematics Teacher Education*, 24.2 (2021), pp. 155–77, doi:10.1007/s10857-019-09452-1.
[18] Máirín Glenn and others, *Action Research for the Classroom* (Routledge, 2023), doi:10.4324/9781003288183.

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rubrics, interview guidelines with teachers/parents, and photo and video documentation [19] Data analysis was carried out quantitatively by calculating the percentage of learning completeness and increasing scores in each cycle, and qualitatively by describing changes in children's behavior, participation, and interaction during the activity. The validity of the data is maintained through triangulation of sources (teachers, students, parents), triangulation of techniques (observation, interviews, documentation), and triangulation of time to ensure consistency of information. Instrument validation is obtained through discussions with peers and classroom teachers to account for scientific research results.

RESULTS AND DISCUSSION

The study's results showed a gradual increase in children's fine motor skills from pre-cycle to cycle II. In the early pre-cycle conditions, most children still show delays, such as a lack of skill in holding tools, difficulty rolling dough, or an inability to form simple patterns. There was an improvement after the implementation of cycle I with the use of playdough media, even though the target had not been reached. For example, the child began to be able to press, roll, and shape, but the results were not consistent. In cycle II, after the learning strategy was improved and the activities were more varied, a significant spike was seen, where almost all children could perform fine motor skills well, according to the established indicators [20]

Key findings from each cycle showed a significant increase in learning completion. In the pre-cycle, the completeness of fine motor learning only reached 36%. After the action in cycle I, the achievement increased to 64%, although some children still had difficulty in the precision of forming objects. In cycle II, the percentage of completeness jumped to 88%, indicating that most children managed to achieve development according to the indicators of fine motor ability. This increase proves that playdough media is effective in practicing motor coordination and increasing children's active participation in learning [21]

The action process in each cycle improved teacher-student interaction and increased child participation. In cycle I, some children are still shy and need

[19] Nur Amalia and Fitni Wilis, 'Improving Teacher Quality through Classroom Action Research', *Journal of Community Service and Empowerment*, 2.3 (2021), pp. 133–39, doi:10.22219/jcse.v2i3.17934.
[20] Sugito Muzaqi and others, 'Meningkatkan Kemampuan Motorik Halus Anak Usia 4-5 Tahun Melalui Pembelajaran Seni Rupa', *Incrementapedia : Jurnal Pendidikan Anak Usia Dini*, 5.2 (2023), pp. 110–15, doi:10.36456/incrementapedia.vol5.no2.a8686.
[21] Dea Sri suhartini and others, 'Media Playdough Untuk Membantu Perkembangan Motorik Halus Pada Anak Usia Pra Sekolah', *Kolaborasi: Jurnal Pengabdian Masyarakat*, 3.3 (2023), pp. 193–99, doi:10.56359/kolaborasi.v3i3.258.

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intensive direction from teachers. Teachers also tend to focus too much on giving instructions, limiting children's exploration space. After reflection, in cycle II, the teacher gave more opportunities for children to experiment with playdough and appreciate their work. This increases children's confidence, encourages student interaction, and creates a more pleasant classroom atmosphere. Exploration-based approaches are more effective in developing creativity while training children's fine motor skills [22]

Supporting data was obtained through observation, interviews, and documentation. Observations showed increased consistency in children's hand movements from cycle to cycle. Interviews with teachers and parents confirmed that children were more enthusiastic when learning to use playdough than with previous methods. Documentation in the form of photos and videos shows the children's work that has become more complex over time, for example, simple shapes such as spheres initially developed into the shapes of animals, numbers, and letters in cycle II. The evidence of triangulation of this data emphasizes the reliability of the research results.

Comparisons between cycles confirm a significant improvement trend regarding results and processes. From pre-cycle to cycle I, important initial improvements were seen, while from cycle I to cycle II, the improvement was more pronounced regarding the percentage of completeness and the quality of child participation. Factors that support success include using media in accordance with the characteristics of early childhood, adaptive teacher strategies, and parental support in motivating at home. The obstacles that had arisen were time constraints and activity variations, but modifying cycle II strategies could overcome them. Thus, this PTK answered the initial problems found in the classroom. The data is analyzed and tabulated to strengthen the understanding of the upward trend. The following is a summary table of children's fine motor development results from pre-cycle to cycle II.

Table 1. Children's Fine Motor Development per Cycle

level	Completion Percentage	Description
Pre-Cycle	36%	Children still struggle with basic skills such as grasping and rolling.
Cycle I	64%	It is starting to improve, but some children are still careless in forming patterns.
Cycle II	88%	The majority of children are skilled and able to

[22] Ngawan, Cahaya, and Prima, 'Peningkatan Kemampuan Kognitif Melalui Kegiatan Bermain Palydough Bagi Anak Usia 5-6 Tahun'.

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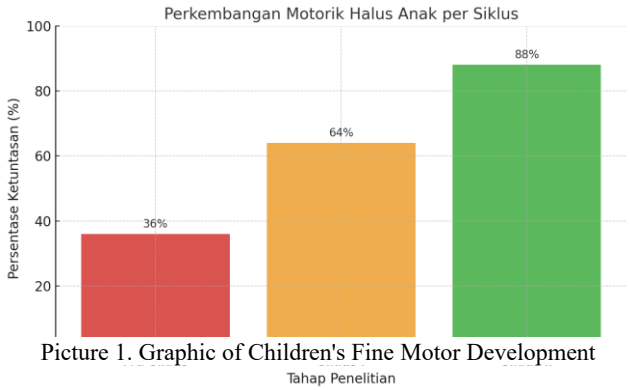
produce more complex shapes.

Table 1 shows a significant increase from pre-cycle to cycle II. This narrative confirms that playdough media is effective for fine motor development because it provides a space for exploration, per the characteristics of early childhood learning. These results are consistent with other studies that have found that simple manipulative media can improve motor skills while facilitating active learning [23]

In order to be more detailed regarding the narrative development of children's learning outcomes from pre-cycle to cycle II, it is important to present a more concrete visual picture of the increasing trend. Visualization in the form of a percentage graph can clarify the direction of improvement in each cycle, so that readers can easily compare children's achievements from the initial condition to the final result of the action. The visualization is in the form of the following graph.



Picture 1. Graphic of Children's Fine Motor Development

The graph above shows a clear upward trend from pre-cycle to cycle II. Children's fine motor completeness jumped from 36% pre-cycle to 64% in cycle I, and 88% in cycle II. This sharp increase demonstrates the effectiveness of the intervention through the playdough media. The most significant jump occurred in the transition from cycle I to cycle II, after the learning strategy was improved based on the reflection results. This aligns with the findings that implementing children's exploration-based strategies is more effective than instructional methods alone [24]

Although the quantitative data in the percentage graph shows a significant increase, the analysis has not fully answered how the learning process takes place

[23] Rahma Dewi and Indah Verawati, 'The Effect of Manipulative Games to Improve Fundamental Motor Skills in Elementary School Students', *International Journal of Education in Mathematics, Science and Technology*, 10.1 (2021), pp. 24–37, doi:10.46328/ijemst.2163.

[24] Lianda Velić and Marci S. DeCaro, 'Comparing Effectiveness of Exploratory Learning Activities given before Instruction: Generating Multiple Strategies vs. Inventing One Strategy', *Instructional Science*, 2025, doi:10.1007/s11251-024-09701-8.

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in the classroom. Therefore, a qualitative analysis was conducted using a coding approach using the NVivo application. The resulting coding table provides details of Categories, Dimensions, behavioral indicators, and frequency of occurrence that explain the dynamics of changes in children's behavior in more depth.

Table 2. Coding Results of NVivo Qualitative Analysis of Children's Fine Motor Development

Category	Dimension	Observed Behavior Indicators	Frequency of Occurrence	interpretation
Improvement of fundamental motor skills	Grasping playdough	Children can grasp the dough more firmly and stably	18	Indicates the development of finger muscles and grip strength.
	Pressing & leveling the dough	The child presses the dough consistently, and the surface results are flatter	15	Hand movements are more coordinated and precise.
	Rolling the dough	The child rolls the dough into a simple oval or cylindrical shape	14	Subtle manipulative skills are increasingly trained.
Active participation in learning activities	Enthusiasm for following the teacher's instructions	The child pays attention to the teacher's instructions with focus and enthusiasm	20	Playdough media attracts children's interest and focuses on learning.
	Free exploration	The child creates free forms (animals, letters, numbers) without special instructions	17	Children's creativity develops through exploratory activities.

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	Presentation of the work	Children dare to tell their work in front of their friends	12	Confidence increases along with motor skills.
Collaborative learning atmosphere	Interaction between students	Children help each other and discuss the shape of the dough	16	There is social learning that supports collaborative skills.
	Small group discussions	Children collaborate to create forms together in small groups	11	Playdough facilitates cooperative learning naturally.
	Appreciation of friends' work	Children give positive comments or applause for their friend's work	13	Increase empathy, appreciation, and a positive classroom atmosphere.

Based on Table 2, which shows the results of NVivo coding above, the category of improvement of fundamental motor skills is the most dominant aspect, with a high frequency of occurrence in the indicators of grasping (18 times) and pressing the dough (15 times). This indicates that there has been real progress in the coordination of children's hand and finger movements. The active participation category also stood out, especially the enthusiasm to follow the teacher's instructions (20 times), which showed that playdough media was very effective in attracting children's attention and motivation. Meanwhile, the category of collaborative learning atmosphere appeared in the form of interaction between students (16 times) and appreciation of friends' work (13 times), confirming that learning through playdough not only trains motor skills but also builds social-emotional skills.

By combining quantitative results (percentage of completeness from 36% to 88%) and qualitative results (Categories and Dimensions of children's behavior), the results of this study became more comprehensive. Playdough has proven to be a medium that can have a multidimensional impact: improving fine

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motor skills, motivating participation, and strengthening social relationships between children [25]

In order to make the results of the qualitative analysis easier to understand holistically, the findings from the coding table are then mapped in the form of a concept map. This visualization shows the hierarchical relationship between categories, dimensions, and behavioral indicators, thus emphasizing the relationship between fine motor development, active participation, and collaborative atmosphere in learning with playdough media.

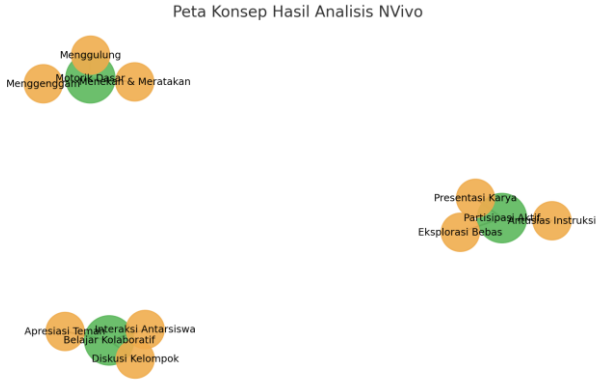

Figure 2. Concept Map of Fine Motor Development

The visualization of the concept map above describes the results of NVivo's analysis more intuitively. The three Basic Motor Categories, Active Participation, and Collaborative Learning are at the center of the analysis, each having a directly related dimension. This relationship shows how playdough media not only trains children's basic motor skills (such as grasping, pressing, and rolling), but also encourages active participation (enthusiasm, free exploration, presentation of works), as well as creating a collaborative learning atmosphere (interaction, discussion, peer appreciation) [26]

This interpretation of the concept map confirms that the impact of playdough media is multidimensional. Improvement in basic motor skills is not a single outcome, but is closely related to increased motivation for children to participate and the development of healthy social interactions in the classroom. Thus, the study results show the integration between early childhood's physical,

[25] Mar'atus Sholikhah, Sylvi Harmiardillah, and Sabilatul Abidah, 'Optimization of Fine Motor Development: Stimulation of Preschool Children with Playdough Therapy in Kindergarten Level', *Jurnal Surya*, 17.01 (2025), pp. 45–50, doi:10.38040/js.v17i01.1185.
[26] Yuniyartika Yuniyartika and Sudaryanti Sudaryanti, 'The Effect of Playdough Media Play on Early Childhood Development: Fine Motor and Cognitive', *JETL (Journal of Education, Teaching and Learning)*, 9.1 (2024), p. 81, doi:10.26737/jetl.v9i1.5954.

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cognitive, and social-emotional aspects through meaningful but straightforward media [27]

The findings of this study succeeded in answering the gap described in the introduction, namely, the low fine motor skills of early childhood due to the limited variety of learning media. Initially, most children cannot perform simple activities such as grasping, pressing, or rolling optimally. However, through two cycles of actions with playdough media, a significant increase was seen in the completeness of learning outcomes and active participation of children. This shows that action design based on reflective cycles can be a solution to improve previously less effective learning practices [28]

The improvement in each cycle shows that the reflection process in PTK allows teachers to identify the weaknesses of the initial action and correct them in the next cycle. For example, in the first cycle, there are still many children who are passive in exploring forms, but after improving the strategy by providing opportunities for free exploration, children's involvement increases in the second cycle. Thus, this research improves the achievement of results and provides a more participatory and interactive learning process.

With the success of achieving the target in cycle II, this study fills the gap in the literature that previously did not highlight playdough as a learning medium in State Kindergarten, especially in the context of Central Sinjai. Thus, this research not only answers the practical gap in the classroom but also makes a theoretical contribution in enriching the model of implementing PTK based on concrete media in early childhood learning.

The results of this study are also in line with Piaget's theory of constructivism, which emphasizes the importance of children's direct experience in building knowledge and skills. Playdough allows children to experiment, try, and construct knowledge through manipulative activities. These findings are consistent with previous research showing that game-based media can improve fine motor coordination in early childhood [29].

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[27] Aditi Gandotra and others, 'An Exploratory Study of the Relationship between Motor Skills and Indicators of Cognitive and Socio-Emotional Development in Preschoolers', *European Journal of Developmental Psychology*, 20.1 (2023), pp. 50–65, doi:10.1080/17405629.2022.2028617.

[28] Saiful Prayogi and others, 'Enhancing Physics Learning Outcomes through a Reflective Learning Model Supported by Logic Inference Worksheets: A Classroom Action Research Study', *Multi Discere Journal*, 2.2 (2023), pp. 91–106, doi:10.36312/mj.v2i2.2721.

[29] Darizal Darizal and others, 'The Effect of Playdough Play on Early Childhood Fine Motor Improvement in Yogyakarta National Kindergarten', *International Journal of Multidisciplinary Research and Analysis*, 06.03 (2023), doi:10.47191/ijmra/v6-i3-04; Wijaya and others, 'The Effect of Playing Playdough and Collage on Improving Fine Motor Skills in Early Childhood in Terms of Independence'.

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From the perspective of previous research, these results corroborate national and international studies that state that concrete media such as plasticine or playdough can improve children's manipulative skills. The difference is that this study emphasizes the management of the use of playdough in the PTK cycle, so that teachers are not only facilitators, but also reflectors who assess the effectiveness of each action. Thus, this study expands the understanding of the role of teachers in managing learning media in early childhood classrooms.

However, there are also differences in findings. Some previous studies have only highlighted improvements in fine motor skills, while this study has shown an additional impact on social-emotional aspects, such as increased interaction between students and children's courage to present work. These findings show that the use of playdough has the potential to be broader than just motor skills, but can also build children's character in the context of inclusive classes [30]

The context of the Bonto Sinjai Tengah State Kindergarten class, consisting of 25 children aged 4–5 years, greatly influenced the success of the action. The characteristics of children in the preoperational stage of development make them very responsive to concrete media and play activities. Supportive school environment factors, such as the availability of spacious classrooms and the involvement of accompanying teachers, also strengthen the effectiveness of the implementation of playdough. This shows that the success of PTK cannot be separated from the real conditions of the class that support the implementation of actions [31]

In addition, the heterogeneous background of children also gives color to the class dynamics. Children who were previously less confident proved to be more courageous after participating in learning with exploration-based playdough. The interaction between students shows the positive influence of the media in fostering togetherness and cooperation [32] Thus, the results of this study not only

[30] Nurima Ika Yuli Syafira, 'Pengembangan Kreativitas Anak Selama Masa Pandemi Covid-19 Melalui Permainan Playdough Dari Tepung', *Jumat Pendidikan: Jurnal Pengabdian Masyarakat*, 2.3 (2021), pp. 136–40, doi:10.32764/abdimaspen.v2i3.1951.

[31] Zusniyah Khalimatus Sa'deyah and Siti Mudlikah, 'Pengaruh Stimulasi Media Permainan Playdough Terhadap Perkembangan Motorik Halus Anak Usia 54-59 Bulan', *IJMT : Indonesian Journal of Midwifery Today*, 4.1 (2025), p. 33, doi:10.30587/ijmt.v4i1.9649; Yuniyartika and Sudaryanti, 'The Effect of Playdough Media Play on Early Childhood Development: Fine Motor and Cognitive'.

[32] Syed Sajjad Hussain Shah, Huma Rani, and Qummer Iqbal, 'From Likes to Life: The Influence of Social Media on Higher Education Students' Social Behaviors', *ACADEMIA International Journal for Social Sciences*, 4.1 (2025), pp. 341–55, doi:10.63056/ACAD.004.01.0077.

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answer fine motor problems, but also contribute to children's personality and social aspects.

This contextual interpretation also confirms that the application of playdough media can be successful if supported by the active role of teachers. The teacher is a facilitator who gives direction, but still gives children freedom to explore. Flexible but targeted classroom management has been proven to support learning success, so that this approach can be replicated in other classes with similar characteristics [33]

In implementing this PTK, the main challenge is the limited learning time that only lasts for a certain duration every day, so teachers need to manage strategies for using media effectively. In addition, not all children immediately show a positive response in the initial cycle, so patience and differentiation strategies are needed to accommodate individual differences. However, this challenge gives an important implication that teachers must design adaptive and inclusive learning [34]

The theoretical implications of this study are the strengthening of constructivist theories and experiential learning models relevant to early childhood. Practically, this study recommends that teachers integrate play media in daily learning as a strategy to improve children's motor and social skills. Thus, this PTK improves practice in the research classroom and can serve as a reference for teachers in other schools who face similar problems [35]

The contribution of this research lies in the innovation of the implementation of playdough media management combined with the PTK cycle, thus providing a practical model for teachers in improving the quality of learning. This research also expands the treasure of literature on early childhood learning media, especially in the local context of rural public schools that have received less attention. These findings can be a foundation for teachers to be more creative in choosing and managing simple but high-impact learning media [36]

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[33] Gwendolyn M. Lawson and others, 'Barriers and Facilitators to Teachers' Use of Behavioral Classroom Interventions', *School Mental Health*, 14.4 (2022), pp. 844–62, doi:10.1007/s12310-022-09524-3.

[34] Kresna Agung Yudhianto, Nanang Zakaria, and Marzuki Marzuki, 'Mentoring Inclusive Learning In Secondary Schools To Improve Teachers' Understanding And Skills In Teaching Students With Special Needs In Solo City', *Ngejha*, 4.2 (2025), pp. 1–11, doi:10.32806/nja.v4i2.787.

[35] Wing Sze Emily Chow, Kate de Bruin, and Umesh Sharma, 'A Scoping Review of Perceived Support Needs of Teachers for Implementing Inclusive Education', *International Journal of Inclusive Education*, 28.13 (2024), pp. 3321–40, doi:10.1080/13603116.2023.2244956.

[36] Zilvanhisna Fitri and others, 'Interactive Learning Media for Fruit Recognition in Early Childhood Using Backpropagation', in *Proceedings of the 4th International Conference on Social*

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Furthermore, this research contributes to developing innovative teaching methods based on play activities. Through the PTK cycle, teachers are proven to make continuous reflection and improvement, ultimately improving their professional competence. This is relevant to the demands of an early childhood education curriculum that prioritizes holistic and child-centered learning [37]

From a policy perspective, this research can potentially influence educational practices at the school and regional levels. Positive results can be recommendations for policymakers to encourage using concrete media in early childhood learning and to integrate PTK's reflective strategies in teacher professional development. Thus, this research impacts the research classroom and contributes more broadly to improving the quality of early childhood education in Indonesia [38]

To clarify the contribution of this research more systematically, a mapping is needed that confirms the position of the research results in three main domains, namely theoretical contributions, practical contributions, and policy contributions. The presentation in the form of the following table helps provide a comprehensive summary so that readers, researchers, and educational practitioners can briefly understand the direction of the impact of this research.

Table 3. Summary of Research Contributions

Field of Contribution	Contribution	Expected Impact
Theory	Strengthen Piaget's constructivist theory and experiential learning approach with empirical evidence that concrete media, such as playdough, improve children's fine motor skills and social interaction.	It becomes an academic foundation for further research that develops similar concrete media in various early childhood education contexts.
Practical	Providing a model for implementing PTK based on playdough media that is simple,	Teachers can use this strategy to simultaneously improve children's fine

Science, Humanity and Public Health, ICoSHIP 2023, 18-19 November 2023, Surabaya, East Java, Indonesia (EAI, 2024), doi:10.4108/eai.18-11-2023.2342565.

[37] Tran Thi Thai Ha, Vu Thi Thuy Lien, and Tran Thi Hang, 'Early Childhood Education through a Child-Centered Approach: Theoretical Foundations and Key Issues', *Macrolinguistics and Microlinguistics*, 6.2 (2025), pp. 74–84, doi:10.21744/mami.v6n2.40.

[38] Faiza A. Dali, Anton Kaharu, and Rusmin Husain, 'Meta-Analysis of Challenges and Solutions in Early Childhood Education in Indonesia', *International Journal of Scientific Research in Science and Technology*, 12.1 (2025), pp. 81–94, doi:10.32628/IJSRST25121159; Nazlatan Ukhra Kasuba and Lydia Freyani Hawadi, 'An Analysis of Early Childhood Mental And Character Education in Rural Areas in Indonesia', *At-Ta'dib*, 18.2 (2024), pp. 189–208, doi:10.21111/attadib.v18i2.10051.

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	affordable, and easily replicated by teachers in early childhood classes, especially in public schools with limited resources.	motor skills, creativity, and participation.
Policy	Offer recommendations for schools and local governments to encourage the use of concrete media in early childhood learning and make PTK an instrument for teachers' professional reflection.	Improving the quality of early childhood learning more broadly through evidence-based policy support.

Table 3 shows that the contribution of this research does not stop at the class level where PTK is implemented, but extends to the theoretical, practical, and policy realms. From the theoretical side, this study strengthens the view that children learn best through direct experience and manipulation of real objects, per the principles of constructivism. Practically, the results of this study inspire teachers to optimize simple media such as playdough as a means of learning that not only improves motor skills but also facilitates creativity and social interaction [39]. Meanwhile, in the policy realm, this research can be used as a foothold for stakeholders in designing teacher development programs based on PTK while encouraging the application of concrete media in early childhood classes [40] Thus, this research contributes to strengthening the bridge between theory, classroom practice, and educational policy oriented to children's needs.

CONCLUSION

Classroom action research at Bonto Sinjai Tengah State Kindergarten showed that playdough media changed learning dynamics from initially less engaging activities to a more lively, participatory, and meaningful process. From the initial condition where children still have difficulty grasping scissors or performing simple manipulative activities, they gradually show noticeable development after going through two cycles of actions. Each stage—from planning, implementation, observation, to reflection—drives transformation: teachers are more creative in managing the classroom, children are more actively

[39] Špela Klofutar, Janez Jerman, and Gregor Torkar, 'Direct versus Vicarious Experiences for Developing Children's Skills of Observation in Early Science Education', *International Journal of Early Years Education*, 30.4 (2022), pp. 863–80, doi:10.1080/09669760.2020.1814214; Sri suhartini and others, 'Media Playdough Untuk Membantu Perkembangan Motorik Halus Pada Anak Usia Pra Sekolah'.

[40] Ferry Darmawan, Arif Hakim, and Sophia Novita, 'Game-Based Learning Media Training for Early Childhood for 21st-Century Teachers', *ETHOS: Jurnal Penelitian Dan Pengabdian Kepada Masyarakat*, 12.1 (2024), pp. 31–42, doi:10.29313/ethos.v12i1.3181.

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exploring, and the learning atmosphere is more enjoyable. Thus, this study succinctly answers that playdough is not only a medium, but a bridge for children to train fine motor skills, hone creativity, and build independence.

These results make an important contribution in both theoretical and practical realms. Theoretically, this research reinforces the view of constructivism and experiential learning that emphasizes the active involvement of children through concrete media. These findings expand the understanding that simple manipulative games can serve as pedagogical instruments supporting motor and social-emotional development. Practically, this study provides a real model of the implementation of PTK that other teachers can imitate to improve the quality of learning. At the institutional level, these results encourage schools to provide facilities and training for teachers and the basis for parents to utilize playdough as an educational play activity at home.

Furthermore, these findings have important significance for improving early childhood education quality, especially in schools with similar socio-cultural characteristics. The success of this action in the classroom opens up opportunities for implementing similar strategies at the education level or other subjects that require fine motor skills and children's creativity. Therefore, further research is recommended to test the effectiveness of playdough media in more diverse age groups or in integration with specific subjects. Meanwhile, for teachers, schools, and policymakers, the practical recommendation of this study is to make concrete media such as playdough a routine part of learning and make PTK a means of continuous reflection for professional development. In this way, the study's results do not stop as local findings, but can have a wider resonance in the renewal of early childhood education practices.

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