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Coconut Pulp as a Learning Media to Stimulate The Creativity Of Early Children

Henny[1]*, Wa Ode Febrianti Ahmad[1]

[1] Pendidikan Guru Pendidikan Anak Usia Dini, Universitas Muhammadiyah Buton, Indonesia
* corresponding author: henipgpaud2018@gmail.com

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ABSTRACT

Penelitian ini mengkaji bagaimana ampas kelapa dapat menjadi alat pembelajaran inovatif untuk menumbuhkan kreativitas anak-anak di TK Lahumoko, Indonesia. Melalui aktivitas langsung seperti menggambar bebas, membuat kolase, eksperimen mencampur warna, dan menulis huruf dengan ampas kelapa, kami mengamati bagaimana ekspresi kreatif anak-anak berkembang dengan cara yang menyenangkan. Studi ini menggunakan metode penelitian tindakan partisipatif dan menunjukkan bahwa bahan alami ini tidak hanya memicu imajinasi, tetapi juga memperkuat keterampilan motorik halus dan kerja sama tim di kalangan anak usia dini. Meskipun sebagian besar anak menunjukkan perkembangan yang baik, kami menemukan bahwa beberapa anak masih membutuhkan bimbingan tambahan agar mampu melampaui kebiasaan meniru teman sebayanya—hal ini mengingatkan kita bahwa dukungan guru yang terampil sangat penting dalam proses belajar. Temuan ini menekankan perlunya pelatihan bagi pendidik agar dapat memimpin kegiatan bermain terbuka secara efektif. Keberhasilan ampas kelapa sebagai alat belajar menunjukkan bahwa bahan sehari-hari dari lingkungan anak dapat mengubah proses pendidikan jika digunakan secara kreatif. Pendekatan ini sejalan dengan teori pendidikan yang telah mapan dan menawarkan solusi praktis serta berkelanjutan untuk kelas-kelas pendidikan anak usia dini. Yang terpenting, penelitian ini menunjukkan bahwa sumber daya sederhana dapat membuka potensi besar anak-anak bila dikombinasikan dengan strategi pengajaran yang bijaksana.

This research investigates how coconut pulp can be an innovative learning tool to nurture creativity in young learners at Lahumoko Kindergarten, Indonesia. We observed children's creative expression blossom excitingly through hands-on activities like free drawing, collage creation, color mixing experiments, and letter writing with coconut pulp. The study, conducted using participatory action research, revealed that this natural material sparked imagination and strengthened preschoolers' fine motor abilities and teamwork. While most children thrived, we noticed some needed extra guidance to move beyond copying peers - reminding us how skilled teacher support can make all the difference. These findings emphasize why educators need training to effectively lead open-ended, play-based activities. Coconut pulp's success as a learning tool shows how everyday materials from children's environments can transform education when used creatively. This approach aligns with established educational theories while offering practical, sustainable solutions for early childhood classrooms. Most importantly, it demonstrates how simple resources can unlock young minds' potential with thoughtful teaching strategies.

1. Introduction

Early childhood education is a level before the basic education level, which is a coaching effort aimed at children from birth to the age of six which is carried out by providing educational stimuli to help physical and spiritual growth and development so that children are ready to enter education (Suryana et al., 2022a). Furthermore, it is held in formal, non-formal, and informal channels (Alif et al., 2020).

Early childhood education is a form of education that focuses on laying the foundation for growth and six developments, namely: moral and religious development, physical development (gross and fine motor coordination), cognitive intelligence (thinking power, creativity), socio-emotional (attitudes and emotions), language and communication, according to the uniqueness and stages of development according to the age group that early childhood is going through (Kinkead, 2023).

Early childhood education is essential, and educators must be professionals. (Paschal, 2023) professionalism means working according to procedures, following ethical procedures and Early childhood science, and not making mistakes. The requirement for early childhood Indonesian educators to enter professional work groups has been included in Law No. 20 of 2003 concerning the National Education System. (Republic of Indonesia Law Number 20 of 2003 concerning the National Education System, 2003) states that early childhood education is a professional whose task is to plan, carry out the learning process, assess learning outcomes, provide guidance, support, and protect students.

Based on the results of researcher observations at the Kindergarten of Lahumoko Village, Kambowa District, North Buton Regency, learning at school, children are focused on learning to write words, letters, numbers, draw, and color patterns in daily learning. Children are directed to follow the teacher's writing and are fixated on examples written or drawn by the teacher on the board. Children are not allowed to express their ideas through pictures or spoken words. Children never learn freely in an environment that can stimulate creativity because they are limited by the density of learning time. Situations like this are repeated daily so that creativity is less than optimally stimulated. This shows that children are bored with monotonous activities carried out indoors. Bjorklund (2022) said that activities that are not varied and monotonous in the type of repeated activities can have a less than optimal impact on the growth and development of early childhood learning.

In addition, children seem less active in the learning process. Children are also less enthusiastic about activities provided by the teacher. Children are not allowed to imagine in every activity. In addition, children are not facilitated to draw freely according to their imagination or color pictures according to their imagination. Teachers do not allow children to express their ideas in various learning activities. The learning concept applied is very conventional and does not facilitate learning by playing while learning. This explanation is emphasized by (Rakotomanana et al., 2023), the fact that this has an adverse effect from providing suboptimal creativity stimulation to early childhood children.

In addition, based on pre-research data, it was found that teachers' educational background at Darma Wanita Tunas Bangsa Kindergarten is not in early childhood education. This causes a lack of knowledge in facilitating activities by the concept of early childhood. In addition, the condition of supporting learning facilities and infrastructure is lacking. Based on several problems described, the author is interested in researching "Coconut Pulp as a Learning Media to Stimulate Early Childhood Creativity". According to (Rizka et al., 2023), early childhood children can play with various natural materials such as Coconut Pulp, leaves, twigs, and materials found around the house and around the school to stimulate their development.

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2. Method

The research method used in this study is qualitative with a participatory action research approach. Qualitative research aims to understand phenomena in depth and holistically through interaction between researchers and research subjects. According to (Lim, 2025), qualitative research uses natural settings to interpret phenomena that occur and involves various existing methods (Szymańska, 2023). Qualitative research seeks to discover and describe narratively the activities carried out and the impact of the actions carried out on their lives.

In addition, Hall et al. (2021) stated that a Participatory Action Research approach can be done with mutual trust and a good relationship between researchers and participants. This approach encourages the active involvement of researchers as participants in the planning, implementation, and evaluation of research issues. Added by Siswadi & Syaifuddin (2024), the Participatory Action Research (PAR) research flow has a repeating cycle of planning, action, observation, and reflection stages to determine the success of the research. The primary data collection method for the research conducted at Lahumoko Kindergarten used interviews, observations, and documentation studies. Data collection is done naturally at the data source (Tracy, 2024).

The data collected from various sources is then analyzed using the descriptive qualitative technique of the (Huberman & Miles, 1983) model, which consists of three main stages: data reduction/condensation, data presentation, and conclusion. Data reduction is done by sorting and summarizing essential data relevant to the research's focus. Furthermore, the data is presented in a descriptive narrative, making it easier for researchers to interpret the meaning behind the data. Finally, conclusions and verification are drawn and verified continuously during the research process to obtain valid conclusions that can be scientifically accounted for. Through this approach, researchers hope to accurately describe the use of Coconut Pulp to stimulate children's creativity at Lahumoko Kindergarten, North Buton Regency.

3. Result and Discussion

The researcher's findings in the field revealed that using natural materials to stimulate children's creativity in Lahumoko Kindergarten, North Buton Regency, starts with planning, action, observation, and reflection stages, which can be described as follows.

a. Planning

At this planning stage, researchers and participants plan the research by designing various activities to stimulate early childhood creativity in Lahumoko Kindergarten. Some of the activities designed in this study are (1) Free Drawing Activity with Coconut Pulp, (2) Collage Activity with Coconut Pulp, (3) Playing color experiments with Coconut Pulp, and (4) Playing free letters with Coconut Pulp. These activities can stimulate the development of children's creativity. These activities also allow children to develop their ideas and imagination in doing every activity the teacher gives. As expressed by Suryana et al. (2022b), learning intentionally designed to stimulate children to have a creative attitude will stimulate their innovative thinking. Therefore, teachers need to pay attention to the design of the learning environment, provide media to support children's creativity, and pay attention to the characteristics of the media used according to the age and developmental stages and needs of children so that the implementation of the learning process is fun, exploratory and children's creativity continues to develop.

In addition, at this planning stage, researchers collaborate with teachers to provide tools and materials to support the research and prepare learning designs according to the age and

developmental stages of children, such as dried Coconut Pulp media, glue, various types of color tempera, paper, scissors, Daily Learning Plans (Teaching Modules) and other equipment. This planning is expected to foster collaboration between teachers and researchers so that they can gain knowledge about solving the problems they face. Teachers will not only always be the object of research but can become the leading actors in improving their learning in the future.

b. Action

The use of dry Coconut Pulp to stimulate the creativity of early childhood at Lahumoko Kindergarten, North Buton Regency, is carried out through various activities, which can be described as follows.

1) Free Drawing Activity with Coconut Pulp

The free drawing activity is conducted with the teacher to facilitate the researchers in carrying out this activity. The free drawing activity using Coconut Pulp as a Learning Media at TK Lahumoko begins with preliminary activities such as praying, singing, and storytelling about the daily theme. After conducting the initial activities, the teacher proceeded to the main learning activity, the Free Drawing Activity with Coconut Pulp, on the theme of "Animals." The children received an explanation regarding the opening activity and the core activity that will be conducted. As expressed by (Badelah, 2021), through preliminary activities, teachers can assess children's readiness to learn and stimulate their mental preparedness for learning by providing motivations related to the upcoming lessons.

Next, the children are introduced to the tools and materials prepared by the teacher and directed to focus on listening to the teacher's explanation regarding the rules of the activity. The teacher designed the classroom in circular groups to comfort the children during activities and to facilitate the teacher and researchers in observing the development of the children's creativity. Next, the teacher stimulates ideas and inspiration and explores the children's imagination related to their experiences by showing various pictures of pets around them so they can engage in a Free Drawing Activity with Coconut Pulp. The teacher provided the tools and materials for each child in their group. According to Azhari (2023), in his research, he revealed that in learning to draw freely, early childhood needs to be given various inspirations to build their ideas and concepts so that their learning process is more active.

Several children asked questions about the activities during the learning process, and some children understood the teacher's directions. The teacher-guided, accompanied, and directed the children in free drawing activities with Coconut Pulp media. In addition, the teacher also helped children who were not yet able to use the media properly. The teacher and researchers observed the process of developing children's creativity in this core activity. The children looked delighted doing the Free Drawing Activity with Coconut Pulp. According to Jarmiati et al. (2020), free drawing learning activities effectively stimulate creativity in early childhood. In implementing this free drawing activity, most of the children drew freely according to the theme given by the teacher. In the implementation of free drawing, the children were very enthusiastic and active, and most of the children had begun to focus on drawing; even the children started to dare to ask questions, express opinions, and draw without assistance, but there were still children who imitated their friends' work.

During the activity, the children freely drew using coconut pulp and tried to complete it. One by one, the children can complete the task with joy. The teacher gave the chance to

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the children and was invited by the team to tell the story of the picture of whom and why they used those colors. This allows the child to express themselves freely based on their experiences or the reality they observe (Alghufali, 2024).

At the end of the activity, the teacher invites and provides an opportunity to ask questions about what had been done in that day's lesson. The teacher asks several children to narrate or explain their free drawing works to their classmates. According to Garnika (2020), in his book, this helps children build independence and self-confidence in creating or expressing themselves through their work. The researcher observed that when it was time to recount the results of his work, there were still shy children; besides that, it was the teacher who told about the child's work, but most of the children were already brave telling their work themselves in front of their friends and not forgetting to praise the children for their work.

2) Collage Activity with Coconut Pulp

In the second activity of this research namely the coconut collage activity. This activity improves children's fine motor skills, imagination, and creative expression (Laelliah et al., 2025). It was conducted under the theme of Animals with the sub-theme of land animals. The researcher collaborated with the teacher to provide the introductory activity as outlined in the daily lesson plan that had been designed. The teacher begins the introductory activities by greeting all the children, singing, praying before studying, and doing ice breaking in collaboration with the researcher. This activity provides children a safe, comfortable, and enjoyable atmosphere during their learning process (Kasni & Dewi, 2022).

The activity began with informing the children about the learning activities that would be conducted today. Then, the researcher explained the children's activities and invited them to discuss the theme of various animals living on land. The researcher posed several questions to the children to stimulate their imagination and thinking related to the collage activity that would be conducted. After discussing, the researcher and the teacher showed examples of completed collages and explained the steps to make them. Next, the children were guided to work on them independently with the support of the teacher and the researcher.

In the core learning activity, the children are crafting with coconut pulp for their projects. The children are directed to color the coconut pulp first, which will be attached to the provided pattern according to their desired colors. Children creatively color the Coconut Pulp his imagination and needs. Then, stick it onto the provided pattern. The teacher accompanies and reinforces the child regarding the activities being carried out. The teacher and researcher allow the children to ask questions or seek inspiration to expand their ideas in coloring coconut pulp or in the activity of sticking the colored coconut pulp onto the picture patterns provided by the teacher. According to Yuandana (2023), in his book, the children can express their imagination, participate actively, interact positively with friends regarding the chosen colors, respect each other, and help one another. This stimulates children's creativity, curiosity, and self-confidence during learning. Imron et al. (2025) stated that collage is one of the activities that effectively enhances creativity in early childhood because, in this activity, children can stimulate their ideas and imagination and arrange or organize materials into a work of art.

The final activity is the finishing touches on the collage. Children can add pictures to the collage they have made with other embellishments. Children can also color their collages'

empty parts before presenting them to friends. The children looked excited to tell stories and show their collage works—various color variations in the children's artwork. The final or closing activity before ending the learning process in the children's class is directed towards tidying up the tools and materials used in making the collage, as well as reviewing the artworks created during playtime and inviting them to describe the materials they used to create their artworks. The usual activities follow it before going home, washing hands first and reciting a prayer, after which the researcher concludes this learning activity.

3) Playing color experiments with Coconut Pulp

Playing color experiments with coconut pulp is conducted under the theme of plants with the sub-theme of ornamental plants. Playing color experiments with coconut pulp can stimulate children's creativity. Color mixing experiments in children's learning greatly influence their creativity in performing activities (Maulida et al., 2024). Activity Playing color experiments with coconut pulp aims to produce interesting art products for children.

The activity "Playing color experiments with coconut pulp" begins with an introductory session usually conducted by the teacher, which includes sharing children's experiences, praying, and singing. Next, the teacher opens the lesson and informs about the theme that will be taught, followed by providing a thorough ask-and-question session related to the sub-theme that will be trained to explore the children's prior knowledge, and the teacher conveys the learning objectives.

The teacher collaborates with the researcher to introduce the tools and materials and the various colors that have been prepared. The teacher also provides instructions to the children about the activities they will be doing. The children are encouraged to ask questions about the colors, tools, and materials introduced before the main lesson is conducted. The teacher explains the types of primary and secondary colors and shows examples of these types of colors. Next, the teacher and researcher collaborated to design the classroom into several groups to facilitate the children in interacting and imagining through their peers. The teacher provided inspirational images and interesting ideas about the colorful Coconut Pulp that had been colorfully combined before the children started the experimental activities.

Mixing colors with coconut pulp begins with the teacher demonstrating the activity so that the children are not confused when carrying out the planned experiment. The children carefully observed the color experiment conducted by the teacher with coconut pulp. The children also observe the color changes from the example of the experiment. After the teacher demonstrated the activity, the children were directed to complete it in their respective groups.

After being allowed by the teacher to start the experimental activity, the children appeared enthusiastic and eager to interact with their peers while conducting the coconut pulp color mixing experiment. This activity is exciting and enjoyable for the children. The children are actively involved and motivated to participate in this Coconut Pulp color mixing experiment game. Children creatively combine their favorite colors in their play activities. From the results of their color mixing experiments, the children can gather information about the color changes produced from those experiments.

The next activity after the coconut pulp color mixing experiment is conducted, the teacher directs the children in one group to create a piece of art using the coconut pulp from the experiment as the output of this play activity. The children discuss the products produced within their group in small groups. The teacher accompanies and helps the children complete the experiments and finish the products made by the children. The children carried out this activity; happily, they were able to help each other, they created

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according to their imagination, they could also play with their favorite colors, and they enjoyed observing the process of color changes in the colors they played with. At the end of the activity, the children presented the products they created using colored coconut pulp. Some made paper balls with added coconut pulp, created flower collages, and some made donut cake toppings from paper with coconut pulp. The children enthusiastically introduced their creations to their friends with great joy.

The teacher concluded the lesson with a routine activity, asking the children about their experiences during the learning process and stimulating them to share what they liked and didn't like. The teacher also invites the children to sing a few children's songs, followed by a prayer to conclude the activities.

4) Free Writing Game on Coconut Pulp

The activity of free writing games conducted by young children can stimulate the development of fine motor skills and creativity in early childhood, especially in kindergarten. Activities that stimulate writing skills for early childhood are essential for teachers to implement in their teaching. A study by Papadopoulos et al. (2025) explains that in free writing activities, children can express themselves, create letters and shapes according to their ideas, and communicate through written works. Writing activities can stimulate the motor development of early childhood.

The free writing game on coconut pulp is conducted with the teacher to stimulate the children's creativity. The children's learning activities begin with an introduction, which includes singing several songs related to the day's theme, doing ice-breaking activities with the children, and the morning journal activities usually conducted by the teacher. This activity stimulates children's enjoyment as they enter the daily core learning.

The teacher started the core activity by explaining that day's learning theme, "my needs," with the sub-theme of favorite foods. The teacher also introduced coconut pulp as a learning medium in this game and invited the children to discuss the theme presented. Next, the researcher collaborated with the teacher to explain the rules of the free writing game using coconut pulp and design the class into several groups to provide flexibility for the children to interact, discuss, imagine, create, and actively participate in their groups.

In the main activity, the teacher instructs the children to freely write letters or symbols on coconut pulp related to their favorite food or drink, and then their friends in the group guess the letters or symbols shown. During the free writing activity, the teacher and researcher accompany the children to find their ideas and imagination. The children are enthusiastic about interacting and thinking related to this play activity. Some children wrote while others drew symbols of their favorite foods and drinks freely according to their ideas and concepts. All the children actively participated, communicated, and interacted positively within their respective groups. The study conducted by Rowe et al. (2024) shows that to build basic literacy skills such as the alphabet, early writing experiences are needed in the context of early childhood education.

This game encourages children to explore letters, pretend to write, and build their motivation through the freedom of play. The experience of feeling coconut pulp with their fingers becomes an enjoyable activity, making the child's learning process more meaningful. Coconut pulp media helps educators to motivate children and prevent boredom experienced during learning, stimulating their fine motor skills. Coconut husk is effective for early childhood because this medium is safe, easily accessible, and available near children. In addition, coconut husk can be dyed in various colors to provide cheerful variations and attract children's attention to learning (Triyana, 2021).

The activity concluded with an evaluation of today's activities and asking the children about their feelings regarding the play activities conducted by the teacher. The children were allowed to ask questions and share their experiences during playtime. The children are also given verbal rewards to stimulate their feelings and mental state before the activity ends. The teacher invites the children to sing and pray after the activity. The teacher carried out this routine activity after concluding the lesson.

c. Observation

Observations conducted during the implementation of activities using coconut husk as a learning medium revealed significant findings in four main activities: Free Drawing, Making Collages, Color Experiments, and Free Writing. In the Free Drawing Activity, the children enthusiastically drew animals using coconut husk, demonstrating creativity by incorporating its texture into their artwork. While some initially imitated their friends, encouragement from the teacher helped them develop unique ideas, highlighting the importance of guided autonomy in fostering originality. Fine motor skills are also enhanced as children manipulate pulp to form shapes, which aligns with research by Azhari (2023), highlighting how free drawing stimulates creativity and motor development in childhood.

Collage activities strengthen collaborative learning, as children discuss color choices and share materials while creating land animal designs. This activity enhances fine motor coordination (e.g., gluing and arranging pulp) and encourages creative problem-solving. However, some children require additional guidance to maintain focus, indicating that different instructions may be needed to accommodate varying attention spans. These findings align with Laelliah et al. (2025), who found that making collages with natural materials enhances cognitive and artistic expression in young learners.

In the Color Experiment with Coconut Fiber, children showed curiosity and excitement while mixing primary colors to create secondary colors. This activity encourages teamwork, as children share observations about color changes and collaborate on art projects such as flower collages and paper balls. This aligns with Maulida et al. (2024), who emphasize that exploratory play with colors encourages scientific thinking and creative expression. Sensory engagement in this activity—touching, mixing, and shaping pulp—also increases motivation, reinforcing that hands-on learning and experiences are crucial in early childhood education.

Free Writing Games on Coconut Fiber provide insights into early literacy development. Children experiment with writing letters and symbols related to their favorite foods, enhancing their fine motor control and letter recognition. The tactile nature of the media makes this activity more engaging, as children enjoy the sensory experience of pressing their fingers into the pulp. Peer interaction is another prominent outcome, as children guess each other's symbols, which encourages social learning. Rowe et al. (2024) support this observation, noting that early writing experiences in a play context strengthen basic literacy skills while maintaining children's natural curiosity.

These findings highlight the effectiveness of coconut coir as an accessible and versatile learning medium. Its natural texture and adaptability make it an excellent tool for stimulating creativity, fine motor skills, and collaborative learning. Theoretically, this study aligns with Vygotsky's social constructivism, which emphasizes the role of peer interaction and scaffolding in cognitive development. The role of teachers in guiding children from imitation to independent creation further supports Bruner's discovery learning theory, where structured yet open activities enhance problem-solving skills.

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Practically, this research highlights the need for teacher training in facilitating open-ended game-based learning. Although the activities were largely successful, some children required additional support, indicating that educators must be equipped with strategies to differentiate instruction. Additionally, this study encourages the integration of natural and locally available materials into the early childhood education curriculum, as these materials are cost-effective, sustainable, and highly engaging.

Although the results were positive, some challenges were observed. Some children struggle to transition from imitation to original creation, indicating that the development of creativity may require longer and more varied exposure to open-ended activities. Classroom management during collaborative tasks (e.g., color experiments) must also be carefully structured to ensure all children remain engaged. Future research can explore the long-term effects of such interventions on literacy and STEM skills and the impact of teacher professional development in effectively implementing similar activities.

d. Reflection

At the reflection stage, it is revealed that some children require individual support. The observation that some children require individual support to transition from imitation to original creation underscores the critical role of scaffolding in early childhood education (Bjorklund, 2022). Although many children initially imitate their peers' work, targeted teacher interventions—such as open-ended questions, personalized encouragement, and gradual withdrawal of support—help them develop independent creative expression. This aligns with Vygotsky's zone of proximal development concept, emphasizing that children's learning potential is maximized when adults provide guidance tailored to their developmental needs (Vygotsky, 1978). The findings indicate that the development of creativity is not spontaneous but benefits from structured yet flexible instructional strategies that balance freedom with support.

Additionally, this study emphasizes the importance of specialized teacher training in facilitating open activities, as highlighted by Suryana et al. (2022b). Many educators use directive teaching methods due to a lack of exposure to game-based pedagogy, which can stifle creativity. Professional development programs should equip teachers with the skills to design and implement activities encouraging exploration while providing gentle support. Recent research by Yu & Park (2023) supports this, showing that teachers trained in open questioning techniques and observational assessment foster greater creative autonomy in children.

Therefore, teacher training activities are interdependent factors in fostering creativity. Future interventions should combine practical workshops with mentoring programs to help educators improve their ability to guide children from imitation to innovation effectively, transitioning from imitation to original creation, emphasizing the importance of scaffolding in early childhood education (Bjorklund, 2022). The results of this study indicate that although peer modeling can initiate engagement, targeted teacher guidance is crucial for fostering independent creative thinking. This observation aligns with Vygotsky's proximal development zone, emphasizing how adult facilitation bridges the gap between current and potential abilities.

Additionally, this study highlights the critical need for teacher training in facilitating open-ended activities, as emphasized by Suryana et al. (2022b). Educators equipped with strategies for diverse instruction and creative stimulation can better encourage independent exploration while maintaining structured learning objectives. This insight promotes professional development programs that balance freedom and guidance in game-based pedagogy.

4. Conclusion

This study shows that coconut meat effectively stimulates creativity, fine motor development, and collaborative learning in early childhood. Activities—free drawing, collage-making, color experiments, and free writing—uniquely contribute to children's cognitive and artistic growth. Educators can create engaging and developmentally appropriate learning experiences that align with contemporary educational theories by incorporating natural materials into pedagogical practices. Future studies should expand on these findings by examining scalability and sustainability in various educational settings.

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