



Developing Young Children's Activities and Fine Motor Skills Using Project-Based Learning, Direct Instruction, and Natural Materials Media



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ABSTRACT

The problem addressed in this study was the low fine motor skills of children. This study aimed to describe teacher activities, children's activities, and to analyze the development outcomes of children's fine motor skills through cutting and pasting activities. The research method used was a qualitative approach. The research setting was Group B children at TK Islam Bakti 1 Banjarmasin, involving 16 children. Data collection techniques included observation, documentation, interviews, and assessment of cutting and pasting activities. Data analysis in this study used cross-tabulation and trend analysis based on the qualitative and quantitative data obtained. The results showed that teacher activities in the first meeting obtained a score of 32 in the "Good" category and continued to increase until the fourth meeting, reaching a score of 37 in the "Very Good" category. Children's activities in the first meeting achieved a percentage of 25% in the "Less Active" category and gradually increased until the fourth meeting, reaching 94% in the "Very Active" category. The results of fine motor skill development in the first meeting showed a percentage of 25% and continued to increase until the fourth meeting, reaching 94% of children who successfully developed in the "Very Well Developed" category. It can be concluded that the use of the Project-Based Learning model, Direct Instruction, and Natural Materials Media was able to improve teacher activities, children's activities, and fine motor skill development outcomes.

Permasalahan penelitian ini yaitu rendahnya kemampuan motorik halus anak. Penelitian ini bertujuan untuk mendeskripsikan aktivitas guru, aktivitas anak dan menganalisis hasil perkembangan motorik halus anak dalam kegiatan menggunting dan menempel. Metode penelitian yang digunakan yaitu pendekatan kualitatif. setting penelitian pada anak kelompok B TK Islam Bakti 1 Banjarmasin yang berjumlah 16 anak. Teknik pengumpulan data menggunakan observasi, dokumentasi, wawancara dan penilaian pada kegiatan menggunting dan menempel. Analisis data dalam penelitian ini menggunakan cross tab dan train analisis berdasarkan data-data kualitatif dan kuantitatif yang diperoleh. Hasil penelitian menunjukkan bahwa aktivitas guru pada pertemuan 1 mendapatkan skor 32 kategori "Baik" dan terus meningkat hingga pertemuan 4 mendapatkan skor 37 kategori "Sangat Baik". Aktivitas anak pada pertemuan 1 mendapat persentase 25% kategori "Kurang Aktif" dan terus meningkat hingga pertemuan 4 mencapai 94% kategori "Sangat Aktif". Hasil perkembangan motorik halus pada pertemuan 1 mendapat persentase 25% dan terus meningkat hingga pertemuan 4 mencapai 94% anak berhasil berkembang kategori "Berkembang Sangat Baik". hasil penelitian dapat disimpulkan bahwa penggunaan model Project Based Learning, Direct Instruction dan Media Bahan Alam dapat mengembangkan aktivitas guru, aktivitas anak dan hasil perkembangan motorik halus.

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1. Introduction

Early childhood education (ECE) provides the primary foundation for developing children's character, personality, and intelligence as a whole. Early childhood (0–6 years) is often described as the golden age, a critical period of development that determines children's future quality of life (Purwanti, 2019). During this phase, children experience rapid physical, cognitive, social-emotional, and motor development. One important aspect to develop is fine motor skills, which involve coordinating small muscles, such as those in the fingers and wrists, to perform activities such as cutting, pasting, writing, and threading beads (Fatimah, M., Aslamiah, A., & Purwanti, 2021).

However, preliminary observations at TK Islam Bakti 1 Banjarmasin revealed that many children in Group B (aged 5–6 years) still experienced difficulties developing fine motor skills, particularly in cutting and pasting activities. Of the 16 children, 7 were classified as Not Yet Developed (BB), 1 as Beginning to Develop (MB), and only 4 as Very Well Developed (BSB). Thus, many children were still unable to perform learning activities involving extensive finger and wrist movements.

These problems arose from the limited variety of teaching methods used by the teacher. Children tend to become bored quickly and lose interest when learning activities are not presented in an engaging and meaningful way. Therefore, teachers need to select approaches and learning media that stimulate children's interest and abilities through active, creative, and enjoyable experiences.

One relevant approach is the Project-Based Learning (PJBL) model. PJBL places children at the center of learning by involving them in meaningful, contextual projects. Through these projects, children can develop critical thinking and collaboration skills while enhancing their motivation and creativity (Priantika et al., 2024). Meanwhile, Direct Instruction (DI) is also needed as a complementary model, particularly to provide systematic, structured guidance during the initial mastery of basic skills such as cutting and pasting (Sidik NH., Moch Ilham, 2016).

Using natural materials such as leaves, twigs, or seeds as learning media also offers considerable potential for increasing children's engagement. These materials are contextual and readily available, and they enable children to learn through direct exploration of their surroundings. Interaction with tangible materials can stimulate fine motor skills and develop ecological awareness from an early age (Nurhayati et al., 2021).

Under Minister of Education and Culture Regulation No. 137 of 2014 concerning National Standards for Early Childhood Education, fine motor development is to be supported through flexible and enjoyable activities. Combining PJBL, DI, and natural materials media is therefore considered a learning strategy capable of addressing children's low fine motor skills. This study aims to describe teacher activities, children's activities, and fine motor development outcomes among Group B children at TK Islam Bakti 1 Banjarmasin following the implementation of PJBL and DI supported by natural materials media. Through classroom action research, this strategy is expected to have a significant impact on improving children's fine motor development overall.

2. Methods

This study employed a qualitative approach using Classroom Action Research (CAR). This design was selected because it suited research questions focused on improving children's activities and fine motor skills through specific learning models. The study was

conducted in several stages—planning, action implementation, observation, and reflection—across four meetings. The primary objective of the intervention was to improve children's learning outcomes progressively through reflection on previous actions.

The participants were Group B children at TK Islam Bakti 1 Banjarmasin in the 2024/2026 academic year. The group comprised 16 children, consisting of 9 boys and 7 girls aged 5–6 years. Participants were selected based on preliminary observations and discussions with the classroom teacher.

Data were collected through observation, interviews, documentation, and assessments of children's performance. Observations examined teacher and child activities throughout the learning process. Observation instruments were designed around predetermined activity indicators and organized into observation sheets using a qualitative scale. Interviews with the classroom teacher provided supporting information about children's learning habits, teaching strategies, and previous instructional challenges. Documentation recorded activities during the study through photographs, videos, and children's work. Fine motor development was assessed using a rubric referring to the child development indicators in Minister of Education and Culture Regulation No. 137 of 2014.

The learning activities integrated Project-Based Learning and *Direct Instruction with natural materials media* in the form of leaves. The learning process included opening activities (communicating objectives and providing motivation), core activities (skill demonstrations, project work, and guidance), and closing activities (reflection and evaluation with the children). The entire intervention was designed to encourage children's active engagement and facilitate fine motor development.

Data were analyzed using descriptive analysis and cross-tabulation. Observation and assessment data were examined using percentage analysis and cross-tabulation to identify developmental trends across cycles. The analysis began with data reduction, followed by presentation in tables and graphs, and interpretation against predetermined success indicators. These indicators included higher teacher and child activity scores and an increase in the number of children reaching the Developing as Expected and Very Well Developed categories in fine motor skills.

3. Results and Discussion

This study sought to improve teacher activities, children's activities, and children's fine motor skills in cutting and pasting through a combination of Project-Based Learning, *Direct Instruction*, and *natural materials media* (banana leaves). The study involved four meetings serving as action cycles. The findings are presented according to three main indicators: (1) teacher activities, (2) children's activities, and (3) children's fine motor development outcomes. Teacher activities across the four meetings are shown in Figure 1.



Figure 1. Class-Wide Trends in Teacher Activities

Figure 1 shows an increase in teacher activities from meetings 1 to 4. Children's activity results are presented in Figure 2. In Figure 2, class-wide child activity in meeting 1 reached 25%, classified as Less Active. This increased to 44% in meeting 2, classified as Moderately Active, then to 69% in meeting 3, classified as Active, and to 94% in meeting 4, classified as Very Active. Thus, children's activities were considered successful because they met the success indicator.



Figure 2. Trends in Children's Activities

Children's fine motor development outcomes are presented in Figure 3.

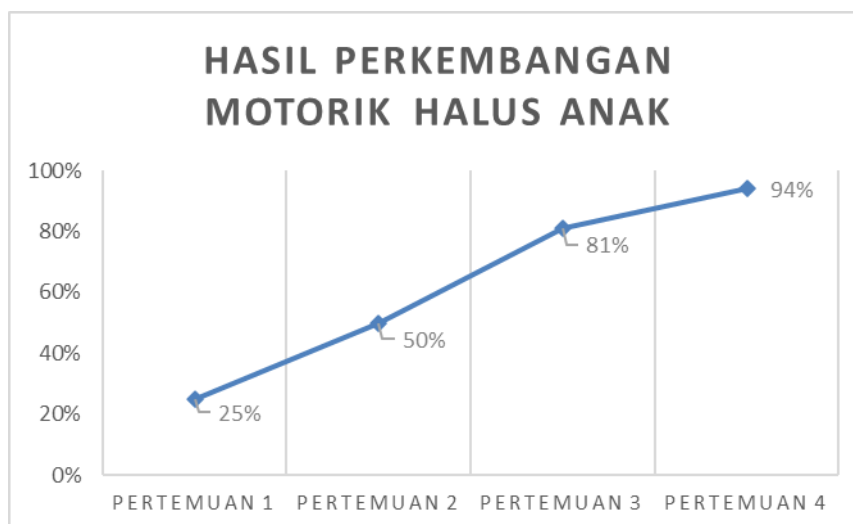


Figure 3. Trends in Children's Fine Motor Development

Based on Figure 3, class-wide fine motor development reached 25% in meeting 1, classified as Not Yet Developed; 50% in meeting 2, classified as Beginning to Develop; 81% in meeting 3, classified as Developing as Expected; and 94% in meeting 4, classified as Very Well Developed. Children's fine motor development outcomes using Project-Based Learning, *Direct Instruction*, and *natural materials media* improved at every meeting until the success indicator was achieved.

Trends in the three factors examined—teacher activities, children's activities, and children's fine motor development outcomes—are shown in Figure 4. All three factors improved at each meeting. Teacher activities improved because the teacher reflected effectively on instruction and refined the learning process in subsequent meetings. These improvements substantially influenced children's learning activities and fine motor development outcomes.

Children's activities improved at every meeting. This occurred because the teacher's instruction encouraged children to participate actively and made them enthusiastic and cheerful. The teacher also reflected after each learning session and reviewed every indicator implemented that day. In addition, children became familiar with learning through Project-Based Learning, *Direct Instruction*, and *natural materials media*. Teacher activities can therefore be said to influence children's activities.

Children's fine motor development outcomes also improved at every meeting. This was because all teacher activities encouraged children to be enthusiastic and active during learning. Children also became able to adapt to learning activities using Project-Based Learning, *Direct Instruction*, and *natural materials media*. Teacher activities improved at each meeting as the teacher refined instruction while maintaining the scores achieved previously. Children's activities and fine motor development outcomes improved successfully. This indicates that teacher activities and children's activities influence children's learning outcomes.

These findings show that the three aspects are interconnected. The graph above indicates that the better the teacher's activities, the more actively children participate in learning. Improvements in teacher and child activities are accompanied by improved fine motor development outcomes at each meeting.

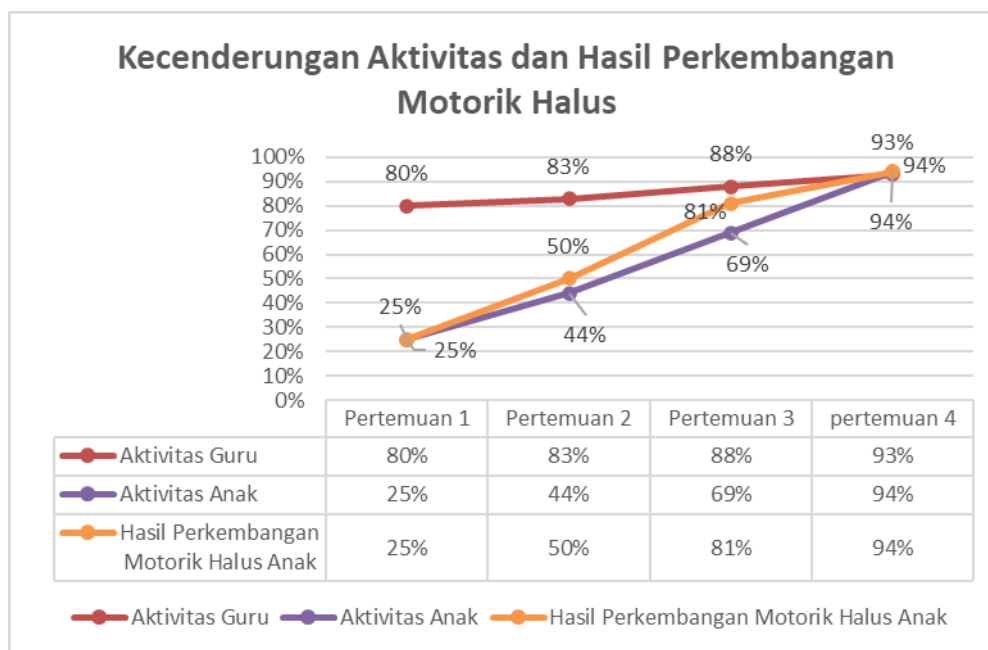


Figure 4. Trends Across Meetings 1, 2, 3, and 4

The combined implementation of *Project-Based Learning (PjBL)* and *Direct Instruction (DI)* was shown to significantly improve the quality of teacher activities. The data indicate that teacher activity scores rose from Good to Very Good over four meetings. This aligns with the principles of DI, in which the teacher, as the primary facilitator, is required to provide systematic direct instruction. PjBL, meanwhile, encourages teachers to design meaningful, contextual projects. Teachers need a range of teaching methods or strategies to ensure effective and varied learning. Appropriate strategies help children understand learning activities, enhance their enthusiasm, and optimize the achievement of learning objectives (Purwanti, R., [Suriansyah, A., Bachri, A. A., 2024](#); [Purwanti, Suriansyah, et al., 2024](#)).

This combination enables teachers to provide clear guidance while giving children opportunities to explore their creativity through real projects. Teachers have multiple roles, including serving as positive role models, and play a crucial part in learning. Learning activities should encourage active participation, nurture creativity, and inspire independence. Engaging instruction creates an enjoyable learning atmosphere, stimulates enthusiasm, and develops positive attitudes in children (Purwanti, Aslamiah, [et al., 2024](#); [Purwanti, Suriansyah, et al., 2024](#)).

Teacher performance refers to the behavior demonstrated during classroom instruction, including interactions with students, strategies for presenting material, classroom management, and the provision of motivation and support. Good teacher performance can therefore foster positive character and encourage students' active participation in learning activities (Purwanti, Aslamiah, [et al., 2024](#); [Purwanti, Suriansyah, et al., 2024](#)).

Project-Based Learning can support children's overall development in thinking, attitudes, and skills. In this model, children learn through projects related to real problems in their surroundings. They are taught to think critically, cooperate with peers, manage time, and develop creative ideas during learning. The model also gives children opportunities to explore their interests and potential independently, increasing their confidence and

responsibility for their own learning. It thus helps children become independent and creative individuals (Febrina, N., Suriansyah, A., & Purwanti, 2023; Hayati et al., 2024; Olfah, K., Purwanti, R., & Suriansyah, 2024; Purwanti, R., Rizkiewa, R., & Mujiyat, 2024).

This is supported by previous studies showing that Project-Based Learning can enhance effectiveness and improve fine motor skills among Group B children (Fardhinah, Z., & Cinantya, 2024; Fazira, Y. E., Rachmayani, I., & Aprianti, 2023; Junita, N. P., Ilyas, S. N., & Alriani, 2021; Ramli, A. F., & Jayanti, 2023).

The discussion above indicates that teachers need appropriate learning strategies and effective models and media to stimulate children's growth and development. One option is to combine *Project-Based Learning*, *Direct Instruction*, and natural materials media. These models and media encourage active participation, help children understand the teacher's instruction, develop creativity, and improve teacher activities during learning.

The substantial increase in children's activities from 25% (Less Active) to 94% (Very Active) indicates that children respond positively to learning involving collaborative projects and direct demonstrations. PjBL encourages children to work in groups, exchange ideas, and produce tangible work, aligning with young children's enjoyment of play and exploration. Meanwhile, DI supports their understanding of technical steps, such as holding scissors and pasting correctly, through direct guidance and supervised practice. Integrating these models meets children's need for active, concrete, and structured learning experiences. Previous studies support this finding, showing continued improvement in *children's learning activities* when Project-Based Learning, Direct Instruction, and natural materials media are used. Natural materials also enhance children's creativity in producing work (Rizkita, 2024; Lestia, 2024; Trina, 2024, Nurmasipah, 2024; Rabi'ah, 2024; Mutiara, 2024).

The results show that children's fine motor development improved from 25% to 94%, reaching the Very Well Developed category. Repeated activities such as cutting and pasting leaves allowed children to practice hand-eye coordination and strengthen their finger muscles. Natural materials such as leaves also attracted children's interest and increased their engagement. These materials stimulate sensory awareness, enrich exploratory experiences, and strengthen connections between learning and the surrounding environment. These results support the findings of (Arini, Ira, 2020) that natural materials media effectively improve children's creativity and motor skills.

This is reinforced by previous research on using Project-Based Learning and Direct Instruction to develop fine motor skills (Ariana, L., & Novitawati, 2023; Niqo, H., & Wahyudi, 2024; Nurhayati, N., Sari, R. P., & Haryono, 2023; Nurhayati, 2023; Rezky, J., & Faqihatuddiniyah, 2024). It can therefore be concluded that teachers need appropriate instructional strategies supported by effective models and media to stimulate children's growth and development. *Combining Project-Based Learning*, *Direct Instruction*, and natural materials media can improve children's fine motor development at each meeting.

4. Conclusion

This study focused on developing young children's fine motor skills through Project-Based Learning, Direct Instruction, and natural materials media in Group B at TK Islam Bakti 1 Banjarmasin. The intervention achieved success and showed improvement at every meeting. All aspects improved: teacher activities reached the Very Good category, children's activities reached the Very Active category, and fine motor development outcomes met the success indicator in the Very Well Developed (BSB) category.

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