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THE EFFECT OF LOCAL WISDOM-BASED BATIK STAMPING ACTIVITIES USING BANANA STEMS ON FINE MOTOR SKILLS OF EARLY CHILDHOOD LEARNERS

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Abstract

Fine motor skills are essential for early childhood development and require appropriate learning activities that provide meaningful and contextual experiences. However, limited variation in learning media often reduces opportunities for children to develop these skills optimally. This study aimed to investigate the effect of local wisdom-based batik stamping activities using banana stems on the fine motor skills of early childhood learners at TK Al-Barokah 1. A quantitative pre-experimental approach with a One Group Pretest–Posttest Design was employed. The participants consisted of 20 children selected through total sampling. Data were collected using structured observation based on fine motor skill indicators, including eye–hand coordination, hand control, stamping accuracy, object manipulation, and independence. The data were analyzed using the Wilcoxon Signed Rank Test. The findings showed that the mean fine motor skill score increased from 11.3 in the pretest to 18.8 in the posttest. Statistical analysis revealed a significance value of 0.000 ($p < 0.05$), indicating that the intervention had a significant positive effect on children's fine motor development. The improvement was associated with repetitive hand movements, visual–motor coordination, and sensory-rich learning experiences provided by banana stem stamping activities. Therefore, local wisdom-based batik stamping using banana stems is an effective and contextual learning strategy for enhancing fine motor skills in early childhood education.

Keywords: banana stem, batik stamping, early childhood education, local wisdom

Abstrak Penelitian ini bertujuan untuk mengetahui pengaruh kegiatan cetak menggunakan pelepah pisang terhadap kemampuan motorik halus anak usia dini. Penelitian menggunakan pendekatan kuantitatif dengan desain *One Group Pretest–Posttest Design*. Subjek penelitian terdiri dari 20 anak usia dini. Data diperoleh melalui observasi menggunakan lembar penilaian yang mengacu pada indikator motorik halus, meliputi koordinasi mata dan tangan, kontrol gerakan, ketepatan hasil cetakan, serta kemandirian anak dalam mengikuti kegiatan pembelajaran. Hasil penelitian menunjukkan adanya peningkatan kemampuan motorik halus setelah diberikan perlakuan. Hal ini dibuktikan dengan peningkatan rata-rata skor pretest sebesar 11,3 menjadi 18,8 pada posttest. Hasil uji *Wilcoxon Signed Rank Test* menunjukkan nilai signifikansi $0,000 < 0,05$ yang berarti terdapat pengaruh yang signifikan antara kegiatan cetak pelepah pisang terhadap kemampuan motorik halus anak usia dini. Peningkatan kemampuan tersebut terjadi karena kegiatan cetak memberikan pengalaman belajar langsung yang melibatkan aktivitas koordinasi gerak tangan secara berulang, serta memberikan stimulasi sensorik melalui penggunaan media berbahan alam. Selain itu, kegiatan yang bersifat eksploratif membuat anak lebih aktif, mandiri, dan terlibat secara emosional dalam proses pembelajaran. Dengan demikian, kegiatan cetak menggunakan pelepah pisang dapat digunakan sebagai salah satu alternatif media pembelajaran yang efektif dalam mengembangkan kemampuan motorik halus anak usia dini.

Kata kunci: motorik halus, anak usia dini, pelepah pisang, kegiatan cetak, pembelajaran berbasis aktivitas.

Background

Fine motor skills are fundamental to early childhood development because they support children's readiness for academic tasks such as writing, drawing, cutting, and manipulating objects. These skills also contribute to children's independence in performing daily activities and influence their cognitive, social, and creative development. Recent studies have emphasized that insufficient stimulation of fine motor skills during early childhood may negatively affect children's school readiness and later academic achievement (Santrock, 2019; Nurhayati & Pratama, 2023). Therefore, providing developmentally appropriate learning experiences that actively engage children's hand–eye coordination is an important responsibility of early childhood educators.

Recent literature has highlighted that play-based and exploratory learning activities are among the most effective approaches to improving fine motor development. Learning experiences involving natural materials, artistic activities, and sensory exploration enable children to strengthen finger muscles, improve movement control, and enhance visual–motor coordination (Lestari, 2022; Wahyuni, 2022). Furthermore, environment-based learning integrated with local wisdom has received increasing attention because it promotes contextual learning while encouraging children to appreciate their surrounding environment and cultural heritage (Hidayat, 2022; Rohmad, 2021). Such approaches are considered more meaningful because children interact directly with familiar objects from their daily lives.

One learning activity that has strong potential to stimulate fine motor skills is batik stamping. During stamping activities, children are required to grasp tools properly, regulate hand pressure, coordinate visual perception with movement, and repeatedly perform controlled manipulative actions. These activities naturally stimulate the development of eye–hand

coordination, movement precision, finger flexibility, and hand muscle strength. The use of natural materials as stamping media further enriches children's sensory experiences while simultaneously introducing environmentally friendly learning resources.

However, despite these potential benefits, preliminary observations conducted in Group B at TK Al-Barokah 1 revealed that children's fine motor skills were still below the expected developmental level. Of the 20 children observed, 11 were categorized as "Emerging" or "Not Yet Developing as Expected." The children demonstrated unstable grasping ability, limited hand movement control, difficulty following patterns, and low accuracy in completing manipulative tasks. Interviews with classroom teachers further indicated that many children quickly lost interest during activities requiring prolonged concentration and coordinated hand movements.

These conditions are closely related to the limited variety of instructional media used in classroom learning. Most learning activities relied on worksheets, colored pencils, paper folding, and cutting exercises, resulting in repetitive learning experiences that provided insufficient opportunities for rich sensory and manipulative exploration. Meanwhile, the surrounding school environment offers abundant natural resources, particularly banana stems, which are inexpensive, environmentally friendly, readily available, and culturally familiar, yet remain underutilized as instructional media.

Recent studies have investigated stamping activities using artificial stamps, sponges, leaves, and other natural materials to enhance children's creativity and artistic expression (Fitriani, 2021; Utami & Rahmawati, 2021; Lestari, 2022). Other studies have demonstrated the positive contribution of local wisdom-based learning toward children's character development and contextual learning experiences (Hidayat, 2022; Nurhayati & Pratama, 2023). Nevertheless, several important research gaps remain. First, empirical studies examining the effectiveness of banana stems as a stamping medium for improving fine motor skills are still very limited. Second, previous studies have predominantly emphasized creativity and art outcomes rather than measurable indicators of fine motor development. Third, only a few studies have integrated local wisdom with natural learning media while simultaneously evaluating children's fine motor development through specific indicators such as grasping ability, hand pressure control, eye–hand coordination, stamping accuracy, and independence. Addressing these gaps is important because early childhood education requires innovative, contextual, and sustainable learning media that are easily implemented by teachers without imposing additional financial burdens. Utilizing banana stems as a local wisdom-based learning medium not only promotes environmental awareness and cultural appreciation but also provides children with authentic sensory experiences that may effectively stimulate fine motor development.

Therefore, this study aims to examine the effect of local wisdom-based batik stamping activities using banana stems on the fine motor skills of children at TK Al-Barokah 1. This study contributes to the existing literature in three important ways. First, it introduces banana stems as an alternative natural stamping medium that has received little attention in previous research. Second, it integrates local wisdom into fine motor learning through the utilization of locally available natural resources. Third, it provides empirical evidence using measurable fine motor indicators, including grasping ability, hand pressure control, eye–hand coordination, stamping accuracy, neatness of work, and children's independence. Accordingly, this study is expected to enrich research on contextual early childhood learning while offering practical recommendations for teachers seeking affordable, environmentally friendly, and culturally relevant learning media. Based on the background described above, the research question is formulated as follows: Does local wisdom-based batik stamping using banana stems significantly affect the fine motor skills of children at TK Al-Barokah 1?

Method

This study employed a quantitative approach using a pre-experimental design with a One-Group Pretest–Posttest Design. This design was selected because the study aimed to examine the effect of a single instructional intervention on children's fine motor skills within a natural classroom setting. A control group was not included because the participants belonged to one intact class, and random assignment was not feasible due to ethical and administrative considerations commonly encountered in early childhood education research. The design enabled the researcher to compare children's fine motor skill performance before and after the intervention, allowing changes to be attributed to the implemented learning activities.

The research was conducted at TK Al-Barokah 1 during the second semester of the 2024/2025 academic year. The study population consisted of all children enrolled in Group B at the school. Since the population was relatively small, total sampling was employed, resulting in a sample of 20 children aged 5–6 years. Total sampling was chosen to ensure that all eligible participants were included, thereby minimizing sampling bias and providing a comprehensive representation of the target population.

The independent variable in this study was local wisdom-based batik stamping activities using banana stems, while the dependent variable was children's fine motor skills. The intervention utilized banana stems as natural stamping tools because they are inexpensive, readily available in the local environment, environmentally friendly, and culturally relevant. The activity required children to grasp the banana stem, dip it into paint, regulate hand pressure, and stamp patterns on drawing paper. These activities were designed to

stimulate eye–hand coordination, finger muscle strength, movement precision, and children's independence through repeated manipulative practice.

Data were collected using structured observation, which is considered an appropriate technique for assessing young children's motor performance in authentic classroom situations. The observation instrument consisted of a fine motor skills assessment sheet developed based on indicators of early childhood fine motor development. The observed indicators included (1) eye–hand coordination, (2) grasping ability, (3) hand pressure control during stamping, (4) movement accuracy, (5) neatness of stamping results, and (6) independence in completing the activity. Each indicator was assessed using a four-point developmental rating scale, ranging from 1 (Not Yet Developed) to 4 (Very Well Developed). To ensure content validity, the observation instrument was reviewed by experts in early childhood education prior to implementation, and standardized scoring criteria were used throughout the study to maintain consistency.

The research procedure consisted of four stages. First, the preparation stage included obtaining permission from the school, preparing the observation instrument, and producing the banana stem stamping media. Second, a pretest was administered to determine children's initial fine motor skill levels through direct classroom observation. Third, the treatment was implemented over four learning sessions, during which children participated in structured batik stamping activities using banana stems. Each session included teacher demonstrations, guided practice, and independent stamping activities aligned with the ongoing learning themes. Finally, a posttest was conducted using the same observation instrument to assess changes in children's fine motor skills following the intervention.

The collected data were analyzed using both descriptive and inferential statistics. Descriptive statistics were used to summarize children's pretest and posttest scores by calculating the mean scores and describing changes in each observed indicator. Inferential analysis was performed using the Wilcoxon Signed Rank Test with IBM SPSS Statistics version 26. This non-parametric statistical test was selected because the study compared two related measurements obtained from the same participants before and after the intervention, while the sample size was relatively small and the data did not require the assumption of normal distribution. Statistical significance was determined at $\alpha = 0.05$. A significance value below 0.05 indicated that the local wisdom-based batik stamping activities using banana stems had a statistically significant effect on children's fine motor skills.

Result and Discussion

Result

Initial Condition of Children's Fine Motor Skills (Pretest)

The initial observation indicated that the fine motor skills of Group B children at TK Al-Barokah 1 were still in need of further stimulation. Out of 20 children observed, 11 were categorized as "Emerging" and "Not Yet Developed," while the remaining children were classified as "Developing as Expected."

During the initial activities, several behaviors reflected the underdeveloped fine motor abilities of the children. Some children still held tools with unstable grip, showed inconsistent hand pressure during manipulative tasks, and experienced difficulties in following simple patterns. In addition, a number of children were easily distracted when activities lasted more than 10–15 minutes.

Interviews with the classroom teacher revealed that previous fine motor activities mainly involved worksheets, colored pencils, and simple folding tasks, resulting in limited variation in children's manipulative experiences.

Implementation of Banana Stem Stamping Activities

The stamping activities were conducted over four sessions, consisting of stages such as media introduction, shape exploration, guided stamping, and simple art creation. In the initial session, several children required assistance in holding the banana stem and controlling hand pressure. However, improvements were observed in subsequent sessions as children became more capable of using the media independently.

The children appeared more engaged during the activity, as the banana stem provided a different learning experience compared to their usual classroom activities. The variation in texture and natural form of the material encouraged children to experiment with different stamping patterns.

Posttest Results of Children's Fine Motor Skills

The post-intervention observation indicated an improvement in children's fine motor skill scores. The improvement was evident in several indicators, including eye–hand coordination, hand pressure control, stamping accuracy, and children's independence during the learning process.

Overall, children who were previously categorized as "Emerging" began to show progress toward the "Developing as Expected" category. The most noticeable improvement was in their ability to grasp the stamping tool properly and produce more structured and controlled patterns.

Results of the Wilcoxon Signed Rank Test

Data analysis was conducted using the Wilcoxon Signed Rank Test with the assistance of SPSS version 26. This statistical test was employed to determine the effect of banana stem stamping activities on children's fine motor skills.

Table 1. Results of the Wilcoxon Signed Rank Test

Aspect	Value
Z-value	-3.927
Asymp. Sig. (2-tailed)	0.000
Significance Level	0.05

The results of the Wilcoxon Signed Rank Test showed a significance value of **0.000**, which is lower than the predetermined significance level of **0.05**. Therefore, the alternative hypothesis (H_a) was accepted and the null hypothesis (H_0) was rejected.

These findings indicate that banana stem stamping activities had a statistically significant effect on improving children's fine motor skills. The difference between pretest and posttest scores suggests that the intervention contributed positively to children's motor development after participating in the stamping activities.

Discussion

The findings of this study indicate that banana stem stamping activities positively influenced the fine motor development of early childhood learners. This improvement is reflected not only in the difference between pretest and posttest scores, which increased from 11.3 to 18.8, but also in observable behavioral changes during the learning process.



Figure 1. Banana Stem Stamping Activity

These results suggest that the improvement did not occur randomly but rather as a direct outcome of children's active involvement in activities that repeatedly required eye-hand coordination. Children who initially struggled with controlling hand pressure and stamping placement gradually demonstrated more stable motor control after several sessions. This

indicates that repeated motor practice contributes significantly to the strengthening of children's fine motor control.

In addition, classroom observations showed a clear shift in children's learning attitudes. At the beginning of the activity, some children were hesitant and frequently asked for teacher assistance. However, in later sessions, they became more independent in selecting colors, dipping the stamping material, and placing their prints according to their own preferences. This shift suggests that hands-on learning activities not only improve motor skills but also enhance children's confidence and autonomy in learning.

From the perspective of learning media, banana stems as natural materials provide a different learning experience compared to conventional stamping tools. Their uneven texture and natural shape require children to adjust hand pressure and movement direction, thereby indirectly training more varied fine motor control compared to repetitive or monotonous activities.

The findings also support the view that exploratory learning approaches are particularly effective in early childhood education, as children learn best through direct experience. However, the observed improvement is not solely influenced by the learning media, but also by the intensity of practice across four sessions, which allowed children repeated opportunities to refine their skills.

Thus, it can be interpreted that banana stem stamping activities function not only as an art activity but also as an effective fine motor stimulation medium, as they integrate coordination skills, motor control, independence, and sensory learning experiences simultaneously.

Conclusion

This study demonstrates that local wisdom-based batik stamping activities using banana stems are an effective learning strategy for enhancing fine motor skills among early childhood learners. Through repeated manipulative and sensory experiences, the activities supported the development of eye-hand coordination, hand movement control, movement accuracy, and children's independence during the learning process. These findings indicate that integrating natural materials into classroom activities provides meaningful learning experiences that promote children's motor development while increasing their engagement and active participation.

The scientific contribution of this study lies in providing empirical evidence that banana stems, as a locally available natural resource, can serve as an effective instructional medium for fine motor development in early childhood education. Unlike previous studies that primarily emphasized creativity or artistic outcomes, this study demonstrates the educational value of

integrating local wisdom with measurable fine motor skill development, thereby extending the literature on contextual and culturally responsive learning.

Practically, the findings suggest that early childhood educators can utilize banana stems as an affordable, environmentally friendly, and culturally relevant learning medium to enrich classroom activities. The use of locally available natural materials not only supports children's motor development but also encourages sustainable learning practices and strengthens children's appreciation of their local environment and cultural heritage. Future research is recommended to employ larger samples, include control groups, and investigate the long-term effectiveness of local wisdom-based learning media across different early childhood education settings.

References

- Fitriani. (2021). *Pengaruh kegiatan mengecap terhadap perkembangan motorik halus anak usia dini*. *Jurnal Pendidikan Anak Usia Dini*, 5(2), 115–123.
- Hidayat, A. (2021). *Pembelajaran anak usia dini berbasis kearifan lokal*. Bandung: Alfabeta.
- Hidayat, A. (2022). Integrasi kearifan lokal dalam pembelajaran PAUD untuk meningkatkan pengalaman belajar bermakna. *Jurnal Pendidikan Usia Dini*, 16(1), 45–56.
- Lestari, S. (2022). Pemanfaatan bahan alam dalam kegiatan seni untuk mengembangkan motorik halus anak usia dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(3), 1854–1863.
- Lestari, S., & Purnamasari, D. (2020). Aktivitas eksploratif berbasis lingkungan dalam pengembangan motorik halus anak usia dini. *Jurnal PAUD Indonesia*, 9(2), 98–108.
- Lestari, S., & Purnamasari, D. (2022). Pembelajaran berbasis budaya lokal untuk meningkatkan kreativitas dan kemampuan psikomotor anak usia dini. *Jurnal Pendidikan Anak*, 11(1), 23–34.
- Mulyasa, E. (2017). *Manajemen PAUD*. Bandung: Remaja Rosdakarya.
- Nugraha, A. (2018). *Pengembangan pembelajaran seni pada anak usia dini*. Jakarta: Universitas Terbuka.
- Nurhayati, S., & Pratama, R. (2023). Pengaruh media pembelajaran berbasis kearifan lokal terhadap perkembangan anak usia dini. *Jurnal Pendidikan Anak Usia Dini Holistik*, 7(1), 66–75.
- Rohmad. (2020). Pendidikan berbasis kearifan lokal sebagai penguatan karakter anak usia dini. *Jurnal Pendidikan Karakter*, 10(2), 187–198.
- Rohmad. (2021). Kearifan lokal sebagai sumber belajar kontekstual pada pendidikan anak usia dini. *Jurnal Pendidikan Dasar dan Anak Usia Dini*, 4(1), 12–21.
- Santrock, J. W. (2019). *Life-span development* (17th ed.). New York: McGraw-Hill Education.
- Sujiono, Y. N. (2017). *Konsep dasar pendidikan anak usia dini*. Jakarta: Indeks.
- Sujiono, Y. N. (2021). Pembelajaran berkelanjutan berbasis lingkungan pada PAUD. *Jurnal*

Ilmu Pendidikan Anak, 8(2), 101–110.

Suryana, D. (2020). *Pendidikan anak usia dini: Teori dan praktik pembelajaran*. Jakarta: Kencana.

Utami, R., & Rahmawati, D. (2021). Penggunaan media cap bahan alam dalam pembelajaran seni anak usia dini. *Jurnal Pendidikan Anak Usia Dini*, 5(1), 77–86.

Wahyuni, S. (2022). Efektivitas aktivitas seni mengecap dalam meningkatkan kemampuan psikomotor anak usia dini. *Jurnal Pendidikan Anak*, 11(2), 145–154.