JURNAL INDRIA
Jurnal Ilmiah Pendidikan PraSekolah dan Sekolah Awal
Vol. 9 No. 2 September 2024
https://journal.umpo.ac.id/index.php/indria/index

The Influence of Using Coffee Plants as a Learning Medium on the Fine Motor Development of Children at Sumberjaya State Kindergarten

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Article Information

Article Hsitory
Received: June 12, 2024
Revised: Sept 2, 2024
Accepted: Sept 11, 2024

Keywords:
Coffee Plant Media;
Fine Motor Skills;
Early Childhood ;

Abstrak

Penelitian ini bertujuan untuk memperoleh data pengaruh pemanfaatan media tanaman kopi terhadap keterampilan motorik halus pada anak di TK Negeri Sumberjaya. Jenis penelitian yang digunakan adalah penelitian eksperimen (pra-eksperimen). Adapun sampel yang diambil yaitu siswa TK Negeri Sumberjaya yang berjumlah 30 siswa, yang mana sebagai kelompok eksperimen. Metode pengumpulan data pada penelitian ini menggunakan lembar observasi anak yang berjumlah 15 item. Sedangkan metode analisis datanya adalah deskriptif dan pengujian hipotesis dilakukan dengan menggunakan uji Paired Sample T Test. Berdasarkan hasil perhitungan Paired Sample T Test didapat bahwa nilai Pre Test dan Post Test. Untuk nilai Pre Test diperoleh rata-rata kemampuan motorik halus anak atau Mean sebesar 27.03. Sedangkan untuk nilai Post Test diperolah nilai rata-rata kemampuan motorik halus anak sebesar 51.23. Karena nilai rata-rata kemampuan motorik halus anak pada Pre Test 27.03 < Post Test 51.23, maka itu artinya secara deskriptif ada perbedaan rata-rata kemampuan motorik halus anak antara Pre Test dengan hasil Pos Test. Diketahui nilai Sig. (2-tailed) adalah sebesar 0,000 < 0,05, maka H0 ditolak dan Ha diterima. Sehingga dapat disimpulkan bahwa ada perbedaan rata-rata antara kemampuan motorik halus anak saat Pre Test dengan Post Test yang artinya ada pengaruh penggunaan media tanaman kopi dalam meningkatkan motoric halus anak di TK Negeri Sumberjaya.

This study aims to gather data on the effect of utilizing coffee plants as a learning medium on the fine motor skills of children at TK Negeri Sumberjaya. The research employed is experimental (pre-experimental). The sample consisted of 30 students from TK Negeri Sumberjaya, serving as the experimental group. Data collection in this study was carried out using child observation sheets totaling 15 items, the data analysis method used is descriptive, with hypothesis testing conducted using the Paired Sample T-Test. Based on the results of the Paired Sample T-Test calculation, the Pre-Test and Post-Test values were found. The average Pre-Test value for children's fine motor skills, or the Mean, is 27.03. For the Post-Test, the average value of children's fine motor skills is 51.23. Since the average Pre-Test score of 27.03 is lower than the Post-Test score of 51.23, it indicates that, descriptively, there is a significant difference in children's fine motor skills between the Pre-Test and Post-Test results. With a Sig. (2-

	tailed) value of 0.000 < 0.05, H0 is rejected and Ha is accepted. Thus, it can be concluded that there is a significant difference in children's fine motor skills between the Pre-Test and Post-Test, meaning that the use of coffee plant media has a positive effect on improving children's fine motor skills at Sumberjaya State Kindergarten.

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ISSN 2579-7255 (Print)
ISSN 2524-004X (Online)

INTRODUCTION

Early childhood education is focused on early childhood development and provides children with opportunities to enhance every aspect of their development. Every individual possesses unique skills and even creativity (Dabis et al., 2022). Early childhood education institutions are places where children aged 0-6 years can play and learn through play. Their development influences values related to religion, morality, socio-emotional skills, independence, language abilities, cognition, personality, and forms the foundation for further education (Sulharsimi, 2009). It is important for early childhood education institutions to provide basic skills that are beneficial for subsequent stages of education. Early childhood development begins at birth and continues until the age of six. Stimulating various aspects of development is expected to have a positive impact on children, preparing them for further education (Sugiartiningsih et al., 2022).

In early childhood education institutions, every aspect of a child's development is nurtured by providing basic skills. This includes the development of religious and moral values, physical motor skills, language, cognitive abilities, socio-emotional skills, and art. All of these developmental aspects are tailored to the needs of the child, as each child is unique (Sugiartiningsih et al., 2022). Early childhood education is a well-planned educational process aimed at ensuring that teachers are guided and learning objectives are achieved effectively. This allows children to learn new things well and gain experiences that can be used in the future (Khoiri, 2021).

According to Singh & Hashim (2020), media is defined by experts as people, materials, technology, means, tools, channels, or activities designed to facilitate the learning process. Additionally, some experts limit the definition of media to the messages or information conveyed through hardware. Thirdly, they define media as the messages or information delivered via hardware. Fourth, they regard the message carried as a catalyst for the learning process. Learning media significantly affects the success of the learning process because media functions as tools and materials that substitute an object. Without learning media, the learning process would not be fully successful. The process of conveying information about objects can be done effectively and directly. According to (Mellianingsih, 2018), learning media is an essential part of the learning system. It includes materials, tools, and people as components of the instructional system that function as channels of information to students, stimulating their thoughts, feelings, and

attention to acquire knowledge, skills, or attitudes during the teaching-learning process. Researchers can conclude from the aforementioned definitions that media supports both teaching and learning processes. Media also clarifies lessons and can be used to deliver messages, thus optimizing learning. In this study, the media used will be coffee plants found around the kindergarten institution.

Learning with nature-based media is expected to capture children's attention and enhance the primary lesson plans for educational goals. Furthermore, learning with nature-based media can motivate children to learn. Educational media assists in delivering information in ways that are easily understood by children. Some examples of learning materials that can be used in teaching include natural objects found in the environment (Temiz & Karaarslan Semiz, 2018). The use of nature-based materials offers several advantages, such as being cost-effective since natural materials can be found in the surrounding environment. The use of natural media is also expected to boost children's motivation to learn, increase their imagination, help them develop memory skills, and enhance their confidence in interacting with others (Dabis et al., 2022). One of the natural materials that can be utilized is the coffee plant.

Coffee plants typically grow in highlands and are commonly used for their beans to make beverages. The coffee genus, *Coffea*, belongs to the *Rubiaceae* family and has more than a hundred plant species. In Indonesia, the most commonly found coffee types are robusta and arabica (Saputra, 2008).

The use of coffee plant media is not only beneficial for daily needs but can also be used as a method to learn about the different parts of the coffee plant. Realia includes up to forty real objects that can be used to support the learning process in the classroom. This is applied when the object or material being discussed can be brought in and presented in the classroom. One way to learn about realia related to coffee plants is by showing or presenting the different parts of the coffee plant directly. Students can see and touch the parts of the plant directly instead of merely imagining them. The parts of the coffee plant include the roots, stems, leaves, and beans. Students can collect materials from the coffee plant themselves. They can pick and gather these materials on their own from their garden, home, or the surroundings of the kindergarten institution.

This procedure uses parts of the coffee plant to improve children's fine motor skills in the age range of 5-6 years old. Activities that can enhance fine motor skills using the parts of the coffee plant include cutting, collages, mosaics, weaving, and crafting.

In this research, the researcher will utilize every part of the coffee plant. The components of the coffee plant are the roots, stems, leaves, and fruit, so the use of these parts will be maximized to improve children's fine motor skills. In addition to enhancing fine motor skills, this approach also introduces children to local knowledge by familiarizing them with natural resources in their surroundings, such as the coffee plant.

METHODS

The type of research conducted in this study is experimental, which is aimed at examining the effect of specific treatments on other variables under controlled conditions with the presence of controls. Controlled conditions refer to the conversion of research outcomes

into numerical data for analysis using statistical methods (Sugiyono, 2011). This research employs a quantitative method with a pre-experimental design using the Pretest-Posttest model (ASRIN, 2022).

To assess the validity of a construct, expert judgment is utilized, which involves three experts. Expert Judgment is an approach used to gather knowledge about a particular issue (Azwar, 2004).

Descriptive data analysis and qualitative data analysis were applied during the practice phase. Qualitative data was gathered from written feedback by practitioners, while quantitative data was obtained from percentage-based calculations of success rates. The final conclusion was based on a range of scores achieved, categorized according to the criteria (Sulharsimi, 2009), where product percentage scoring served as the criteria for interpretation as follows.

Table 1. Decision Criteria for Expert Judgment Results

Criteria	Validity Level	Description
81 - 100	Very High	Can be used without revision
61 - 80	High	Can be used with minor revisions
41 - 60	Sufficient	Can be used with many revisions
21 - 40	Low	Major revisions required and revalidation
0 - 20	Very Low	Cannot be used and requires revalidation

RESULT AND DISCUSSION

Research Results

Before conducting the research, the researcher first carried out an assessment of the content validity of the statements within the questionnaire. The validity of the instruments used was verified through expert judgment. Two experts in the field of early childhood education and one expert in assessment were consulted to validate the fine motor skills instruments for children.

Table 2. Reliability Test Intraclass Correlation Coefficient Expert Validation

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	*95% Confidence Interval*		*F Test with True Value 0*			
		Lower Bound	*Upper Bound*	*Value*	*df 1*	*df 2*	*Sig*
Single Measures	.289[a]	-.071	.687	2.222	10	20	.062
Average Measures	.550[c]	-.248	.868	2.222	10	20	.062

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

The evaluation results from the three experts regarding the questionnaire instruments are summarized in Table 1. The results obtained from the ICC analysis using SPSS v.22 show an average agreement coefficient of 0.289, while the consistency coefficient is 0.550, indicating a moderate level of stability (Streiner & Norman, 2008; Yudha, 2020).

The experimental activities in this study aim to assess children's fine motor skills through the use of coffee plant media, explained through Pretest, Treatment, and Posttest phases.

1. **Pretest**

   The initial step carried out by the researcher was to conduct a pretest to assess the children's initial fine motor skills, which would be evaluated before the posttest. The pretest was conducted once to observe the children's fine motor skills. From various research indicators, many children were assessed as "underdeveloped" and "still developing" based on several resulting indicators. This was due to the weakness in the children's motor skills.

2. **Treatment**

   The treatment involved teaching children using coffee plant media. This treatment was carried out by the researcher in the learning process by preparing coffee plant media beforehand as part of the treatment activities. The treatment included teaching children with collage and mosaic activities conducted three times. During the treatment, the researcher used collage and mosaic activities that were easy for children to follow, while also demonstrating how to use their fingers.

   Initially, children were given the freedom to explore pieces of coffee leaves with their fingers. The researcher patiently demonstrated how to place the leaf pieces on a canvas, stimulating the development of fine motor skills through careful and accurate hand movements.

   Subsequently, children began selecting coffee beans to place with concentration. The careful hand movements required to place the beans in the desired location not only created attractive patterns but also honed their hand-eye coordination. The mosaic part became a crucial step in this activity. Children were provided with colored mosaic pieces to be placed precisely around their coffee tree images. This process developed precision and concentration, helping improve their attention and fine motor skills.

   As time went on, the classroom was filled with beautiful artwork. Each collage and mosaic became evidence of the development of the children's fine motor skills. The children not only created impressive artwork but also refined their hand skills in an impressive manner. This activity not only provided knowledge about coffee plants but also offered children a natural way to develop their fine motor skills. With skilled hand movements and sensory experiences, they engaged in this creative process as a valuable experience that enriched and stimulated their fine motor development.

3. **Posttest**

   During the posttest phase, the researcher repeated the material provided to the children regarding the mosaic and collage activities. The final stage of the research involved conducting a posttest to assess the children's fine motor skills. This final

assessment was conducted once after the treatment was administered three times. The results of the research data can be more easily seen in the graph below:

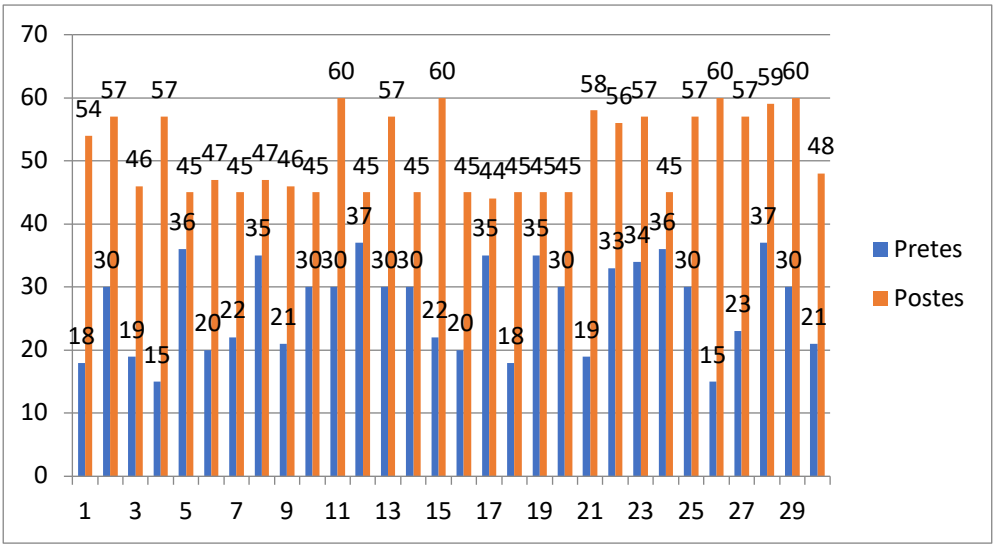

Figure 1. Graph of Children's Listening Skills: Pretest and Posttest

After conducting the research, the results of the observations carried out by the researcher regarding the fine motor skills of children at TK Negeri.

Normality testing is used to determine whether the data collected from the research follows a normal distribution or not. Data is said to be normally distributed if the significance level is ≥ 0.05. Conversely, if the significance level is < 0.05, the data is considered not normally distributed. Normality testing can be performed in various ways. If the data is normally distributed, it will be analyzed using parametric statistical tests. If the data is not normally distributed, it will be analyzed using non-parametric statistical tests. This normality test utilized SPSS 20.0 for Windows with the Kolmogorov-Smirnov-Z technique (Priyatno, 2014)

Table 3. Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		30
Normal Parameters[a,b]	*Mean*	.0000000
	Std. Deviation	11.217291 3
Most Extreme Differences	*Absolute*	.248
	Positive	. 248
	Negative	-.248
Test Statistic		. 248
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Based on the results of the normality test conducted for the experimental class, the obtained Asymp.Sign value is 0.200. Since the Asymp.Sign value is ≥ 0.05, it can be concluded that the data from the experimental class is normally distributed. Therefore, it can be concluded from the normality test that the data distribution in the experimental class is normal.

Tabel 4. *Paired Samples Statistics*

Paired Samples Statistics

		Mean	***N***	***Std. Deviation***	***Std. Error Mean***
Pair 1	Pretes	27.03	30	7.252	1.324
	Postes	51.23	30	6.393	1.167

In the output above, we are presented with a summary of the descriptive statistics from the experimental sample, specifically the Pretest and Posttest scores. For the Pretest, the average score for motor skill development is 27.03. In contrast, the Posttest average score for motor skill development is 51.23. The total number of respondents or students used as the sample for the study is 30. The Standard Deviation (Std. Deviation) for the Pretest is 7.252, while for the Posttest it is 6.393. Finally, the Standard Error of the Mean for the Pretest is 1.324, and for the Posttest it is 1.167.

Since the average motor skill development score for the Pretest (27.03) is less than that of the Posttest (51.23), this indicates a descriptive difference in motor skill development between the Pretest and Posttest results. To determine if this difference is statistically significant, we need to interpret the results of the paired sample t-test, which can be found in the output table titled "Paired Samples Test."

Tabel 5. *Paired Samples Test*

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Diff Lower	Upper			
Pair 1	Pretes - Postes	-24.200	10.317	1.884	-28.052	-20.348	-12.848	29	.000

Based on the output table titled "Paired Samples Test" above, the Sig. (2-tailed) value is 0.000, which is less than 0.05. Therefore, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. This indicates that there is a significant difference in the average motor skill development between the Pretest and Posttest scores, meaning that the use of coffee plant media has had an impact on improving the motor skills of children at TK Negeri Sumbeljaya.

Discussion

This study aims to analyze the effect of using coffee plant media on the development of motor skills in early childhood. Based on the research findings, it was concluded that the use of coffee plant media has a significant effect on the enhancement of motor skills in children. This finding is consistent with the study conducted by Atika et al., (2018) regarding the benefits of utilizing the surrounding environment as a learning tool for motor stimulation in early childhood. In their study, Atika et al., (2018) explained that exploration of natural materials such as leaves, stones, seeds, etc., can improve the motor skills of children's hand and finger movements (Atika et al., 2018).

Thus, it can be concluded that the use of coffee plant media is beneficial for training and enhancing motor skill development in early childhood. This is important for encouraging children to perform more complex skills. In addition to benefiting motor skill stimulation, the use of coffee plant media also has the potential to enhance children's creativity. This is because coffee plants have unique characteristics, and their parts—such as beans, leaves, flowers, and branches—can be used to create various craft activities.

On the other hand, using plants as a teaching medium also has the potential to instill environmental awareness in children. Through activities such as planting and caring for coffee plants, children are taught values of love for nature and responsibility. This is important as a foundation for character development and ecological awareness from an early age.

The use of plants, such as coffee, as a stimulation medium has a positive impact on the development of motor skills in early childhood. Direct interaction with plants trains the small muscles, coordination, flexibility, and movement control of children. Activities such as planting, sorting, and handling coffee beans are very beneficial for developing children's motor skills. Considering the various benefits observed, coffee plant media is

highly suitable and valuable for use in early childhood education, particularly for stimulating aspects of motor skill development and creativity.

CONCLUSION

Based on the results of the research conducted on implementing coffee plant media to enhance fine motor skills as a local wisdom at TK Sumberjaya, the following conclusions can be drawn: (1) There was a significant improvement in the fine motor skills of young children after engaging in motor activities using coffee plant media. This indicates that the use of coffee plant media is effective in enhancing the fine motor skills of young children at TK Sulmbelrjaya. The improvement in fine motor skills was observed following the motor activities involving coffee plant media. The importance of developing fine motor skills in early childhood cannot be overlooked, and this research provides evidence that utilizing coffee plant media can be a beneficial approach. By integrating sensory experiences from nature and artistic creativity, these activities offer a holistic development opportunity for children. This conclusion is supported by the hypothesis test results showing a significance value (2-tailed) of 0.000 < 0.05. Therefore, it can be stated that there is an effect of using coffee plant media on improving fine motor skills in children at TK Negeri Sumberjaya. (2) The fine motor activities utilized coffee plants available around the TK Negeri Sumberjaya facility. There were four types of fine motor activities, including collage and mosaic. The collage activities made use of coffee plant parts such as beans, leaves, and other materials. The results of the collage activities included images of animals, flowers, and traditional clothing. In contrast, the mosaic activities used parts like stems, branches, leaves, and beans of the coffee plant. The mosaic results included images of coffee trees, leaves, traditional hats, and frogs. The outcomes of the fine motor activities were based on the conditions within the classroom. Additionally, by using coffee plant media, children learned about the types of coffee trees, their parts, and the benefits of coffee trees as local wisdom in the surrounding area. This approach can be used as a real learning medium to enhance fine motor skills.

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