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# THE EFFECTIVENESS OF LOOSE PARTS MEDIA ON EARLY CHILDHOOD COLLABORATION SKILLS

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**Abstrak**
Permasalahan dalam penelitian yang dilakukan ini yaitu anak cenderung menyelesaikan tugas secara individu tanpa melibatkan teman-temannya, komunikasi dalam menyelesaikan tugas bersama masih kurang, dan anak tidak terlibat secara konsisten dalam kegiatan kelompok. Selain itu, anak belum dapat berbagi media. Penelitian bertujuan menguji pengaruh penggunaan media loose parts terhadap peningkatan kemampuan kolaborasi anak di usia dini, penelitian ini menerapkan pendekatan kuantitatif. Desain penelitian yang dipakai adalah pre-experimental design tipe one-group pretest-posttest design. Penelitian ini melibatkan seluruh anak kelompok B terdiri atas 26 anak pada rentang usia 5 hingga 6 tahun. Proses analisis data menggunakan beberapa uji statistik, termasuk uji normalitas shapiro-wilk serta uji paired sample t-test. Dari pengolahan data terlihat adanya peningkatan pada rata-rata skor pretest yang awalnya 25,1 menjadi 42,9 pada posttest. Nilai Sig. (2-tailed) yang diperoleh dari hasil uji paired sample t-test sebesar 0,000 < 0,05, yang mengindikasi adanya peningkatan yang signifikan. Hasil penelitian menunjukkan peningkatan kemampuan kolaborasi yang signifikan setelah penggunaan loose parts. Loose parts dapat dimanfaatkan sebagai alternatif media pembelajaran yang mendukung keterampilan kolaborasi serta interaksi sosial anak.
**Kata kunci:** Kolaborasi, Loose Parts, Anak Usia Dini.

***Abstract***
*The issues identified in this study are that children tend to complete tasks individually without involving their peers, communication in completing joint tasks is still lacking, and children do not consistently participate in group activities. Additionally, children are not yet able to share materials. The study aims to examine the effect of using loose parts on improving collaboration skills in early childhood; this study employs a quantitative approach. The research design used is a pre-experimental one-group pretest-posttest design. This study involved all children in Group B, consisting of 26 children aged 5 to 6 years. Data analysis utilized several statistical tests, including the Shapiro-Wilk normality test and the paired-sample t-test. Data processing revealed an increase in the mean pretest score, which rose from 25.1 to 42.9 on the posttest. The Sig. (2-tailed) value obtained from the paired-sample t-test was 0.000 < 0.05, indicating a significant increase. The results of the study show a significant improvement in collaboration skills following the use of loose parts. Loose parts can be utilized as an alternative learning medium that supports children's collaboration skills and social interaction.*
***Keywords:*** *Collaboration, Loose Parts, Early Childhood.*

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## A. INTRODUCTION

Early childhood spans from birth to six years of age. Within the age range of 5 to 6 years, children are in a crucial period for social development, during which they begin to recognize their roles within the social environment. As children reach the age of 5 to 6 years, they experience rapid social development. At this stage, they begin to interact with their peers and engage in collaborative activities[1].

Collaboration skills are among the essential foundational skills that must be developed from an early age, particularly in children aged 5 to 6 years. During this early developmental period, children's growth can be observed through their increasing ability to communicate with peers, understand basic rules, and regulate emotions. These social skills can be shaped through various experiences and opportunities to interact with individuals in their surrounding environment[2].

Social interaction is important for young children in creating new understandings through direct experience. Based on the theory proposed by Jean Piaget, children can develop understanding through interaction with their surrounding environment. When children communicate with their surrounding environment, this can form the mental structures that underlie their way of thinking[3].

Learning processes that provide opportunities for children to interact and collaborate with their peers can

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[1] Ririn Tjahyaningsih and others, 'Kolaborasi Pengasuhan Orangtua Dan Guru Dalam Membantu Perkembangan Sosial Emosional Pada Anak Usia 5 - 6 Tahun', *Jurnal Ilmiah Hospitality 345*, 13.2 (2024), 345–50 <https://doi.org/https://doi.org/10.47492/jih.v13i2.3734>.

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[3] Putri Salsabila and Ahmad Syukri Sitorus, 'Pengaruh Media Busy Book Terhadap Kemampuan Pemecahan Masalah Anak Usia Dini', *Bunayya : Jurnal Pendidikan Anak*, 11.2 (2025), 311–22 <https://doi.org/http://dx.doi.org/10.22373/bunayya.v11i2.31592>.

support the development of various aspects of children's abilities. According to Lev Vygotsky's theory, children's development and learning processes can be acquired through social interaction with their environment. By engaging in communication, collaboration, and sharing experiences with both teachers and peers, children can develop knowledge and enhance their various skills[4].

This collaboration also plays an important role in children's cognitive development, because in the collaboration process, they are involved in exchanging ideas and solving problems together. Through collaborative activities, children learn to build positive social relationships and sharpen their critical thinking skills when facing differences of opinion. Ultimately, collaboration also forms an open character and encourages children to be more creative and active in analyzing various things[5].

Collaboration skills are operationalized as purposeful interactions designed to foster cooperation toward a shared objective. This collaborative competence is demonstrated through several key indicators, including mutual respect, task distribution, active participation, shared responsibility, effective communication, and sharing behaviors. When children successfully collaborate with their peers within a group setting, their social-developmental milestones become explicitly manifested[6].

Based on preliminary observations conducted in March 2025 at KB TK Bahrul Khair Zeetgee among Group B children, empirical evidence indicated that the children's collaborative competence required

[4] Hilyah Ashoumi and Moh Asror Yusuf, 'Pendidikan Inklusi : Integrasi Konsep Konstruktivistik Vygotsky Dan Landasan Al-Qur ' an Untuk Mendukung SDGs 4', *Intelektual: Jurnal Pendidikan Dan Studi Keislaman*, 14.3 (2024), 321–44 <https://doi.org/10.33367/ji.v14i3.6308>.

[5] Ruqoyyah Fitri and Miftakhul Jannah, 'Pengaruh STEAM-PjBL Terhadap Kemampuan Kerja Sama Pada Anak Usia 5-6 Tahun', *Murhum : Jurnal Pendidikan Anak Usia Dini*, 5.2 (2024), 150–59 <https://doi.org/10.37985/murhum.v5i2.765>.

[6] Sudarti Sudarti and Diana Diana, 'Penerapan STEAM Untuk Mengembangkan Kemampuan Kolaborasi Anak Usia Dini', *Jurnal Usia Dini*, 9.2 (2023), 293 <https://doi.org/10.24114/jud.v9i2.52533>.

significant improvement. The observation data revealed that approximately 15 children struggled to demonstrate active engagement and responsibility in completing designated tasks. Furthermore, around 8 children were passive in expressing ideas and seldom exhibited mutual assistance. Additionally, roughly 3 children frequently engaged in resource disputes over the learning media and failed to demonstrate sharing behaviors during group activities.

The low level of collaborative competence among young children can be attributed to several factors, including pedagogical methods that heavily favor individualistic activities. Furthermore, a lack of diversity in instructional media restricts children's exposure to social interaction, collaborative task completion, and collective problem-solving. Consequently, this limitation negatively impacts children's capacity to share, communicate, and engage proactively within group dynamics.

Various instructional media can be deployed to address these collaborative challenges, most notably loose parts. Engaging in collaborative tasks with loose parts prompts children to share materials, co-construct ideas, explore possibilities, negotiate designs, and accomplish collective projects. Mechanistically, loose parts constitute open-ended materials that can be easily moved, transported, combined, modified, arranged, sorted, and disassembled[7].

By using materials that can be combined, young children can see, touch, and use their imagination to create artwork from various materials. Engaging in activities using loose parts materials helps children develop social, emotional, and creativity skills to their maximum potential. Loose parts serve as a means for children to express their social behaviors[8].

[7] Ariska Yuliani, Dian Kristiana, and Muhammad Muttaqin, 'Penerapan Media Loose Parts Untuk Mengembangkan Kreativitas Anak Usia Dini', *PAUD Lectura: Jurnal Pendidikan Anak Usia Dini*, 7.2 (2024), 11–23 <https://doi.org/10.31849/paud-lectura.v7i2.18362>.

[8] Wahju Dyah Laksmi Wardhani and others, 'Stimulasi Perilaku Sosial Anak Usia Dini Melalui Media Loose Parts (Bahan Lepasan)', *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 5.2 (2021), 1894–1904 <https://doi.org/10.31004/obsesi.v5i2.694>.

Numerous studies on loose parts have been widely conducted. Among others, research by Utamimah et al. (2024) indicates that children's social-emotional development emerges when utilizing loose parts media[9]. Similarly, a study by Nafisah (2023) indicated that the utilization of loose parts enhances children's social skills and peer interactions, thereby fostering developmental progress through cooperative play[10].

Various previous studies indicate that the utilization of loose parts provides a positive impact, particularly in enhancing social, emotional, and interactional development. However, no research has examined the effectiveness of loose parts on the collaboration skills of children aged 5 to 6 years at KB TK Bahrul Khair Zeetgee. Accordingly, this study was conducted to examine the effectiveness of using loose parts media in improving the collaboration skills of Group B children aged 5 to 6 years at KB TK Bahrul Khair Zeetgee.

## B. METHOD

This study was conducted at TK Bahrul Khair Zeetgee in April 2026. The criteria for this study included all boys and girls in Group B, consisting of 26 children within the age range of 5 to 6 years. This study applied a total sampling technique, where all individuals in the population were used as samples[11].

The research instrument used was a structured observation sheet, which was based on collaboration skill aspects from several articles. The assessment was conducted using a four-level developmental scale for early childhood, namely: BB obtaining a

[9] Sri Utamimah and others, 'Pemanfaatan Media Loose Part Dalam Pembelajaran Literasi Dan Sosial Emosional Anak Usia Dini', *Murhum : Jurnal Pendidikan Anak Usia Dini*, 5.1 (2024), 702–11 <https://doi.org/10.37985/murhum.v5i1.641>.

[10] Shafa Oktavia Nafisah and Dwi Wardhani, 'Pengembangan Media Loose Part Untuk Mengembangan Motorik Halus Anak Usia Dini', *Murhum : Jurnal Pendidikan Anak Usia Dini*, 6.1 (2025), 423–31 <https://doi.org/10.37985/murhum.v6i1.1185>.

[11] Nidia Suriani, Risnita, and M. Syahran Jailani, 'Konsep Populasi Dan Sampling Serta Pemilihan Partisipan Ditinjau Dari Penelitian Ilmiah Pendidikan', *Jurnal IHSAN : Jurnal Pendidikan Islam*, 1.2 (2023), 24–36 <https://doi.org/10.61104/ihsan.v1i2.55>.

score of 1, MB a score of 2, BSH with a score of 3, and BSB a score of 4. This study applied a quantitative method with a pre-experimental design, specifically the one-group pretest-posttest type.

The measurement of collaboration skills was carried out by referring to aspects that represent collaborative activities. These aspects were utilized to gain an understanding of the overview of collaboration skill development. The aspects of collaboration skills included expressing and respecting ideas as well as task distribution, fulfilling responsibilities according to designated tasks, providing assistance, being active and consistent in activities, communicating, and sharing media with one another[12].

This study was conducted in 12 meetings held over 3 weeks, using loose parts media as a treatment for collaboration skills. The variety of loose parts used included natural materials, wood, plastic, metal, glass, fabric, and recycled packaging that are safe for children. Activities carried out in collaboration included creating a flower shop, a mini garden, decorating flower pots, making flowers, and painting with abstract techniques.

The study was conducted through several stages: testing before the treatment was applied ($O_1$), then conducting the treatment using loose parts, and testing after the treatment was given ($O_2$). In this way $O_1$ and $O_2$ can be compared to assess how effective a particular treatment is. Below is the layout of the research design.

**Table 1.** ***One-Group Pretest-Posttest Design***

| **Pre-test** | **Treatment (Intervention)** | **Post-test** |
|---|---|---|
| $O_1$ | X | $O_2$ |

Note:

$O_1$ = Pre-test (measurement of collaborative competence prior to the intervention).

X = Treatment (the implementation of instructional activities utilizing loose parts)

$O_2$ = Post-test (measurement of collaborative competence following the intervention).

[12] annisa Putri Anggraini, Agnita Siska Pramasdyahsari, And Agnes Lita, 'Tingkat Sd Dalam Implementasi Project Based Learning', *Jurnal Penelitian Bidang Pendidikan*, 30.2 (2024), 139–54.

The validity test was conducted using Pearson correlation analysis to test the validity of the items on the questionnaire. Reliability testing was also performed to ensure the measurement tool was stable, with a Cronbach's Alpha value > 0.70[13].

In analyzing the data, a normality test was performed using the Shapiro-Wilk test, with the condition that the Sig. value > 0.05 due to the small sample size. Then, hypothesis testing was examined through a paired sample t-test with the criteria that if $t_{calc} > t_{table.}$ a significant difference exists, and $H_a$ is accepted. Conversely, if $t_{calc} > t_{table,}$ there is no significant difference, and $H_0$ is accepted.

## B. RESULTS AND DISCUSSION

The research data were initially subjected to normality testing using the Shapiro-Wilk formal procedure. The analysis indicated that both pre-test and post-test datasets obtained significance values (p-values) greater than 0.05, thereby confirming that the data were normally distributed. The statistical outputs of the normality test are summarized in Table 2.

**Table 2.** ***Shapiro-Wilk Normality Test Results***

| | Shaprio-Wilk | | |
|---|---|---|---|
| | **Statistic** | **df** | **Sig** |
| ***Pretest*** | 975 | 26 | 750 |
| ***Posttest*** | 908 | 26 | 017 |

The internal consistency reliability test revealed that the instrument achieved a Cronbach's Alpha coefficient of .717. Because this value exceeds the standard psychometric threshold of .70, the instrument utilized in this study is deemed highly reliable and statistically stable. The detailed reliability metric is presented in Table 3.

**Table 3. Reliability Test Results**

| **Cronbach's Alpha** | **N of Items** |
|---|---|
| 717 | 26 |

Prior to the intervention, a pre-test was administered to the students to establish their baseline collaborative competence. The primary objective of this assessment was to determine the children's foundational skills before any treatment was introduced. The

[13] wawan Sundawan Suherman And Duwi Kurnianto, 'Validity And Reliability Of Football School Management Assessment Instruments Based On', 21.1 (2022), 61–70 <https://doi.org/https://doi.org/10.21831/medikora.v21i1.48829>.

comparative data capturing the children's performance across both the pre-test and post-test phases are detailed in Table 4.

**Table 4. Descriptive Statistics of Pre-test and Post-test Scores (N = 26)**

| *Descriptive Statistics* | *Pretest* | *Posttest* |
|---|---|---|
| **Mean** | 25.1538 | 42.9231 |
| **Std. Deviation** | 5.13570 | 6.42447 |
| **Variance Statistic** | 26.375 | 41.274 |
| **Minimum Statistic** | 16.00 | 35.00 |
| **Maximum Statistic** | 23.00 | 51.00 |

The descriptive statistical data reveal a substantial increase in the mean scores, indicating a notable improvement in the collaborative skills of Group B children at KB TK Bahrul Khair Zeetgee following the intervention. Specifically, the baseline mean score at the pre-test stage was 25.15. Following the implementation of the treatment, the post-test mean score escalated markedly to 42.92.

**Hypothesis Testing**

**Tabel 5. Paired Samples T-Test Results (N = 26)**

| **Paired Samples Test** | | | | | |
|---|---|---|---|---|---|
| **difference** | | | | | |
| | **df** | **mean** | **lower** | **upper** | **Sig** |
| **Pretest-Posttest** | 26 | - | -20.03 | -15.50 | .000 |
| **Posttest** | 17.769 | | | | |

The analysis of the paired samples t-test produced a Sig. (2-tailed) value of 0.000 < 0.05. The data obtained show that $H_0$ s rejected, so the alternative hypothesis $H_a$ is accepted. This indicates a significant difference between children's collaboration skills before and after the use of loose parts media.

These findings align with previous research by Nurlia et al. (2025), which demonstrated that children's active participation in collaborative traditional games effectively enhances social skills, particularly in communication and cooperation[14]. Furthermore, a study conducted by Kurniasih (2023) highlighted that loose parts media significantly foster a sense of responsibility in children. This developmental growth is manifested through structured activities, such as

[14] Nurlia, Parwoto, and Sri Amriani, 'Pengaruh Bermain Kolaborasi Dalam Permainan Tradisional Terhadap Keterampilan Sosial Anak Speech Delay Di RA Sekolah Cendekia Berseri', *Jurnal Caksana : Pendidikan Anak Usia Dini*, 8.2 (2025), 643–53 <https://doi.org/https://doi.org/10.31326/jcpaud.v8i2.2382>.

tidying up, returning materials to their proper storage after use, maintaining cleanliness upon task completion, and sharing resources with peers[15].

Early childhood collaborative competence demonstrates a substantial improvement following the integration of loose parts, primarily because these open-ended materials foster active participation in group dynamics. Throughout the instructional process, children engage in continuous communication, exchange diverse ideas, execute individual and shared responsibilities, and cooperate in problem-solving. Consequently, these interactive activities generate meaningful social experiences that progressively facilitate and scaffold the children's collaborative skills over time.

These empirical findings strongly resonate with Lev Vygotsky's sociocultural theory, which posits that cognitive and social development primarily emerges through structured social interactions with both educators and peers. According to Vygotsky's social constructivist paradigm, knowledge is co-constructed through collaborative efforts, active communication, and shared experiences. Through pedagogical activities utilizing loose parts, children are granted optimal opportunities to enhance their higher-order thinking skills, engage in collaborative problem-solving, and progressively cultivate their cooperative competence through active participation within a shared learning environment[16].

The increase in collaboration skills in early childhood was seen in all indicators observed such as respecting friends, task division, communication, responsibility, active participation, and sharing. Children experienced an increase in respecting friends by showing skills in receiving ideas, acknowledging their friends' contributions, and paying attention to

[15] Retno Kurniasih and Novi Mulyani, 'Penerapan Media Loose Parts Untuk Mengembangkan Kreativitas Pada Anak Usia Dini Di TK Diponegoro 173 Purwokerto Selatan', *Jurnal Tumbuh Kembang Anak Usia Dini*, 5.2 (2025), 56–64 <https://doi.org/https://doi.org/10.60623/jtkau d.v3i1.505>.

[16] Suci Hidayati and Ermis Suryana, 'Perkembangan Kognitif Menurut Teori Sosio-Kultural Dan Implikasinya Dalam Pembelajaran', *Jurnal Ilmiah Pendidikan*, 6.September (2023), 6706–14 <https://doi.org/https://doi.org/10.54371/jiip.v6i9.2305>.

friends when speaking. In terms of task division, children can assign roles in the group, while in the communication aspect, children are able to express their ideas during collaboration activities.

Improvement was also seen in the responsibility aspect, which was shown by the children's ability to complete tasks, protect their artwork, and tidy up the area after the activity was finished. In addition, children showed active participation in providing help to their friends and they remained involved during the learning activity. The ability to share also increased, shown by children sharing loose parts with each other and enjoying the collaborative artwork produced.

The characteristics of loose parts that can be moved, carried, assembled, modified, arranged, sorted, and put together give children the opportunity to engage in activities that require cooperation. In art-making activities, children are involved in interactions about ideas, managing the division of tasks, and coordinating the use of loose parts. Therefore, the flexible nature of loose parts becomes one of the important factors supporting the increase of collaboration in early childhood.

Based on the statistical analysis conducted, loose parts are effective in supporting the development of children's collaboration skills in early childhood. During activities, children are involved in working together. In addition, the results of the statistical analysis also show a significant difference between conditions before and after the loose parts media was applied, which indicates that loose parts contribute to the development of children's collaboration.

## D. CONCLUSION

Based on the findings obtained, it can be concluded that the collaboration ability using loose parts for group B children at KB TK Bahrul Khair Zeetgee shows an increase, which is seen in the children's ability to respect friends, task division, communication, responsibility, active participation, and sharing. This can be proven through statistical analysis showing an increase in the average pretest and posttest scores rising from 25.1 to 42.9. The results of the study show that loose parts media provide a positive influence on increasing the

collaboration skills of children in early childhood.

The results of the hypothesis test show a Sig. (2-tailed) value of 0.000 < 0.05. The results of the analysis indicate a significant difference in children's collaboration skills before and after the application of loose parts. Thus, loose parts can be recommended as an alternative learning media in ECE to develop children's collaboration abilities and social skills through play activities.

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