

# Implementation Of Loose Parts of Media In Literacy Learning in Early Childhood Education

Salma Rozana<sup>1\*</sup>, Rika Widya<sup>2</sup>, Rustam Ependi<sup>3</sup>, Nursaida Yanti<sup>4</sup>

<sup>1</sup>Prodi PIAUD, Universitas Pembangunan Panca Budi, Medan, Indonesia  
E-mail: <sup>1</sup>\*salmarozana18@dosen.pancabudi.ac.id, <sup>2</sup>rikawidya@dosen.pancabudi.ac.id,  
<sup>3</sup>rustam@dosen.pancabudi.ac.id, <sup>4</sup>salmarozana30@gmail.com  
\*E-mail Corresponding Author: salmarozana18@dosen.pancabudi.ac.id

## Abstract

*Literacy education at an early age is crucial in laying the foundation for children's reading and writing skills. However, conventional learning methods are often less attractive and do not align with the characteristics of early childhood development. Loose parts, which are open-ended materials that can be manipulated freely, offer an innovative approach that allows children to explore literacy in a creative way. This study aims to explore the effectiveness of using loose media parts in improving early childhood literacy skills, as well as identify challenges in their implementation. This study employs a qualitative approach, utilizing a case study method, which was conducted in three Pendidikan Anak Usia Dini (PAUD) that have implemented loose parts-based learning. Data were collected through participatory observation, in-depth interviews with five early childhood education teachers, and analysis of children's artefacts. Thematic analysis techniques are employed to identify the primary patterns in the utilization of loose parts in literacy learning. This study concludes that loose parts effectively enhance children's involvement and creativity in literacy learning during early childhood education, particularly in the stage of letter and word recognition. However, for the optimization of implementation, further support is needed in the aspects of planning, teacher training, and parent involvement. The primary recommendations of this study are the development of guidelines for implementing loose parts in early childhood literacy, enhancing teacher training, and strengthening the role of parents in supporting the exploration of loose parts within the home environment.*

**Keywords**— Early Childhood Education; Loose Parts; Literacy; Creativeness; Play-Based Learning.

## I. INTRODUCTION

Early childhood literacy learning is the main foundation in the development of sustainable cognitive abilities. Early Childhood Education (PAUD) aims to introduce literacy from an early age to build a basic understanding of language, reading, and writing that will support academic success at the next level of education (Nasution, 2021). However, conventional literacy learning methods are often less attractive to children because of their instructional nature and lack of flexibility. Therefore, innovations in learning approaches are urgently needed to increase children's engagement in the learning process and ensure that they have meaningful literacy experiences (Soekardjo et al., 2020).

Loose parts media is one of the innovative learning approaches that is increasingly applied in early childhood education because of its flexibility and open-ended nature, allowing children to explore freely. Loose parts are materials that can be manipulated and used in a variety of ways without strict rules, providing opportunities for children to use their creativity and imagination in learning

(Spencer et al., 2021). This concept is in line with the play-based learning approach advocated by child development theories, such as Piaget's constructivism and Vygotsky's theory of social play, which emphasizes the importance of social exploration and interaction in early childhood learning (Caldwell et al., 2020).

In the context of literacy learning, loose parts provide opportunities for children to connect concrete experiences with literacy concepts, such as recognizing letters, building words, and developing writing skills through interactive play activities. Thus, the integration of loose parts in literacy learning is believed to improve children's reading and writing skills through sensory stimulation, multisensory experiences, and creative exploration that support their cognitive and social development (Naish et al., 2019).

The urgency of this research lies in the low interest and motivation of early childhood in learning to read and write due to monotonous learning methods that are not in accordance with their developmental characteristics (Flannigan &

Dietze, 2019). Previous studies have shown that loose parts not only support the development of creativity and problem-solving but also have great potential in improving children's literacy skills (Graham et al., 2018). Therefore, this study aims to explore the effectiveness of the implementation of loose parts media in literacy learning in early childhood education to provide innovative alternatives in supporting the development of early childhood literacy. The urgency of this research lies in the low interest and motivation of early childhood in learning to read and write due to monotonous learning methods that are not by their developmental characteristics (Flannigan & Dietze, 2019). Previous studies have shown that loose parts not only support the development of creativity and problem-solving but also have great potential in improving children's literacy skills (Graham et al., 2018). Therefore, this study aims to explore the effectiveness of the implementation of loose parts media in literacy learning in early childhood education to provide innovative alternatives in supporting the development of early childhood literacy. In addition, the integration of loose parts in literacy learning can also support a more inclusive learning differentiation. This approach allows each child to learn according to their interests, abilities, and learning styles, making it more effective in improving their understanding of literacy concepts (Zhang & Quinn, 2021). With the increasing use of loose-parts methods in various aspects of early childhood education, an in-depth study is needed to understand how these methods can be optimized in literacy teaching and the challenges that may be faced in their implementation (Spencer et al., 2021).

Several previous studies have shown that loose parts can support various aspects of a child's development, including creativity, problem-solving, and social interaction (Caldwell et al., 2020). However, there are still few studies that specifically highlight the application of loose parts in literacy learning. A study from Nasution (2021) shows that children who engage in loose parts-based activities tend to understand language concepts more easily because they can interact with letters, words, and stories more flexibly and engagingly. In addition, a study by Soekardjo et al. (2020) emphasizes the importance of using varied media in literacy learning to adjust to the needs of children's development. Spencer et al. (2021) also found that loose parts can encourage natural language exploration, help children understand phonetic concepts, and strengthen fine motor skills that are important for

writing. Therefore, this study seeks to fill the gap in the literature by providing further analysis of how loose parts can be used effectively to support literacy learning in early childhood.

This study is unique in several aspects, namely: Focus on Early Childhood Literacy: Most of the previous research highlighted loose parts in the context of developing creativity and social skills, while this study is more specific in exploring its role in early literacy. Implementation-Based Analysis in Early Childhood Education: This study not only explores the theory but also makes direct observations of the application of loose parts in the classroom environment of early childhood education. The Role of Teachers and Parents: This study will also assess the role of educators and parents in supporting the effectiveness of loose parts-based learning.

This study aims to: Analyze how the implementation of loose parts media in literacy learning can improve early childhood reading and writing skills. Identify the types of loose parts that are most effective in supporting the literacy learning process. Exploring challenges and solutions in the application of loose parts media in the PAUD environment. Assessing the perception of teachers and parents towards the use of loose parts media in early childhood literacy learning.

## II. RESEARCH METHODOLOGY

### A. Research Design

This study uses a qualitative approach with a case study method, which aims to explore in depth the implementation of loose parts of media in literacy learning in Early Childhood Education (PAUD). The case study was chosen because it allows researchers to comprehensively understand how loose parts are applied in the classroom environment and their impact on children's literacy development (Caldwell et al., 2020). This research is also descriptive-exploratory, which means that the data obtained is analyzed to reveal patterns, themes, and relationships that arise in the practice of using loose parts in literacy learning. This approach is in accordance with the research objective to explore in depth the experience of teachers and children in using loose parts as a learning medium.

### B. Subject and Place of Research

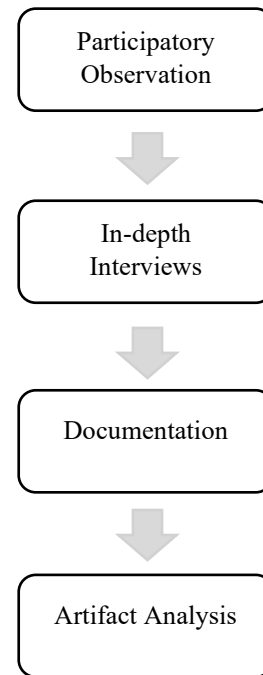
The subjects in this study are children aged 4-6 years who are registered in a PAUD institution that has applied a loose parts-based learning method. In addition, teachers and parents are also involved as

informants to get a broader perspective on the effectiveness and challenges of implementing loose parts of media in literacy learning. The location of the study was determined by purposive sampling, namely selecting early childhood education schools that have adopted loose parts in the teaching and learning process. This research was conducted in three PAUDs in urban and rural areas to see the variation in the implementation of loose parts in different environments.

### C. Research Instrument

The research instruments used in this study include:

1. Participatory Observation: The researcher directly observed the children's activities when using loose parts in literacy learning. Observation was carried out by recording children's interactions with loose parts, responses to activities, and the development of their literacy skills (Naish et al., 2019).
2. In-depth Interviews: Interviews were conducted with teachers and parents to gain further understanding of the effectiveness of loose parts in improving children's literacy, as well as the obstacles faced in their implementation (Spencer et al., 2021).
3. Documentation: Collect evidence in the form of photos, videos, and field notes about loose parts-based learning activities, as well as children's work that shows their literacy development (Flannigan & Dietze, 2019).
4. Artifact Analysis: Examining the results of children's writing, drawings, and forms of exploration produced through the use of loose parts in literacy learning (Zhang & Quinn, 2021).



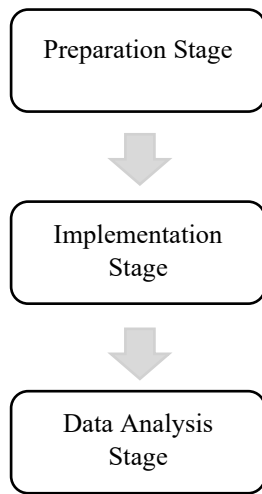
**Figure 1.** Research Instrument

### D. Research Instrument

The data collection process is carried out through the following stages:

1. Preparation Stage
  - a) Identifying early childhood education institutions that implement the loose parts method in literacy learning.
  - b) Contacting the school and obtaining research permission.
  - c) Prepare observation and interview guidelines according to the research objectives.
2. Implementation Stage
  - a) Conduct direct observations in the classroom for 4 weeks to see how children interact with loose parts in literacy learning.
  - b) Conduct interviews with at least 5 teachers and 10 parents to gain their perspectives on the effectiveness of loose parts.
  - c) Documenting the learning process using photos and videos for further analysis.
3. Data Analysis Stage
  - a) Data from observations and interviews were analyzed using thematic analysis, by identifying patterns and main themes in the use of loose parts to support children's literacy.
  - b) The results of the analysis are categorized into early literacy skills, children's creativity, social engagement, and implementation challenges.
  - c) Validation is carried out through data triangulation, which involves comparing the results

of observations, interviews, and documentation to ensure the consistency of the findings.



**Figure 2.** Data Collecting

1. Identifying early childhood education institutions that implement the loose parts method in literacy learning.
  2. Contacting the school and obtaining research permission.
  3. Prepare observation and interview guidelines according to the research objectives
  4. Conduct direct observations in the classroom for 4 weeks to see how children interact with loose parts in literacy learning.
  5. Conduct interviews with at least 5 teachers and 10 parents to gain their perspectives on the effectiveness of loose parts.
  6. Documenting the learning process using photos and videos for further analysis.
  7. Data from observations and interviews were analyzed using thematic analysis
  8. The results of the analysis are categorized
- Validation is carried out through data triangulation

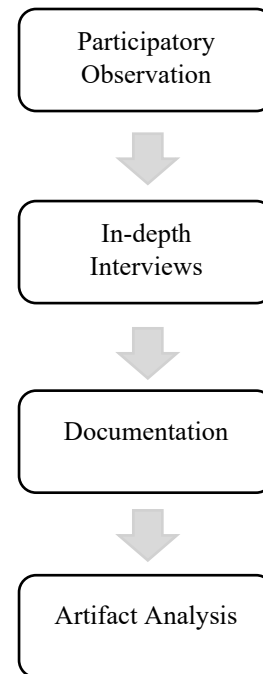
### E. Data Analysis Method

The data was analyzed using a thematic analysis approach, which identifies patterns and trends in children's interactions with loose parts. This analysis process includes:

1. Data coding: Flag and segment responses that appear in observations and interviews based on key themes.
2. Finding Patterns: Identifying the relationship between using loose parts and improving children's literacy skills.

3. Testing Consistency: Comparing data from different sources (teachers, parents, and children) to find similarities and differences in perceptions.

4. Developing a Result Narrative: Presenting the main findings in the form of information-rich descriptions based on the results of data analysis



**Figure 3.** Data Analysis Method

### III. RESULTS AND DISCUSSION

Based on the results of observations in three PAUDs that apply loose parts in literacy learning, it was found that children showed high involvement in the exploration of letters, words, and symbols using loose parts. The teacher provides loose parts in the form of objects such as stones with written letters, wooden sticks, bottle caps, and folding paper that children can use to compose words, form symbols, and write early.

The table below shows the percentage of children's activities during literacy learning using loose parts:

**Table 1.** Frequency of Children's Activities with Loose Parts in Literacy Learning

Activity Category	Frequency (%)
Getting to Know the Letters	30
Forming Words	25
Reading Symbols	20
Early Writing	15
Group Discussion	10

From the data above, it can be seen that the activity of recognizing letters (30%) and forming words (25%) is the most dominant. Meanwhile, children's involvement in early writing (15%) and group discussions (10%) was lower, which showed that the loose parts method was more effective in the early stages of literacy introduction than more complex writing skills.

Interviews with five early childhood education teachers who applied the loose parts method revealed several important findings related to the effectiveness and challenges of applying this method. Here are interview excerpts from some of the teachers:

**Table 2.** Teacher Interview Data

Teacher	Statement
G1	Loose parts increase children's creativity in recognizing letters and words
G2	Children are more active and involved in literacy learning using loose parts
G3	This method helps children with various learning styles to understand the concept of literacy
G4	The main challenge is the time it takes to prepare the loose parts
G5	Children are more confident in trying to read and write with loose parts

From the interview above, it can be concluded that the majority of teachers see the positive impact of loose parts in increasing creativity, child involvement, and confidence in learning literacy. However, there are challenges in terms of preparation and management of loose parts that require time and special strategies

#### Thematic Analysis of Interviews and Observations

To understand the main patterns that emerged in this study, a thematic analysis was carried out on interview and observation data. The five main themes found in this study are:

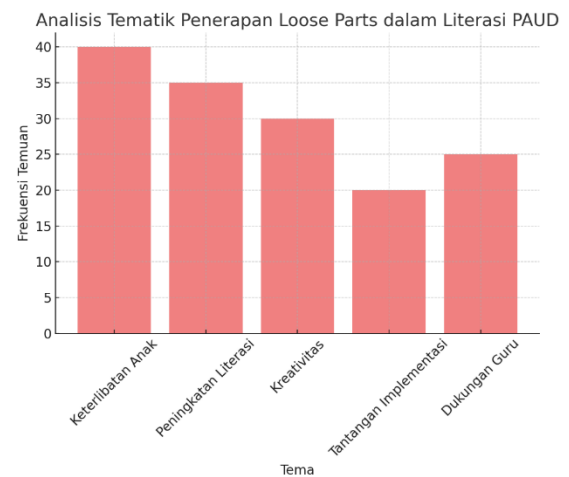
- Children's Involvement – Children show a high interest in the exploration of loose parts.
- Increased Literacy – Loose parts help children recognize letters and words faster.
- Creativity – Children show high creativity in forming symbols and words.
- Implementation Challenges – Teachers experience obstacles in the preparation and management of loose parts.

e. Teacher Support – The role of teachers is very important in facilitating the optimal use of loose parts.

**Table 3.** Frequency of Thematic Analysis of Loose Parts

Thema	Frequency of Findings
Child Engagement	40
Literacy Improvement	35
Creativeness	30
Implementation Challenges	20
Teacher Support	25

The results of this thematic analysis are visualised in Figure 4, which shows the frequency of themes that appear based on the results of observations and interviews:



**Figure 5.** Thematic Analysis of the Application of Loose Parts

From this analysis, it can be concluded that child involvement (40%) and literacy improvement (35%) are the two most prominent aspects, which indicates that loose parts contribute greatly to motivating children to learn literacy.

#### Discussion

The results of this study show that the implementation of loose parts media in literacy learning in PAUD has a significant positive impact on children's involvement and creativity in recognizing letters and forming words. These findings are in line with research by Spencer et al. (2021) which revealed that loose parts allow children to explore and develop literacy skills through free and flexible play experiences.

This study also supports the view of Caldwell et al. (2020) that the use of loose parts in literacy learning allows children to understand language concepts more deeply compared to conventional learning

methods that tend to be instructional. In other words, loose parts provide a rich multisensory experience, where children can touch, organize, and match symbols that ultimately build a stronger literacy understanding.

The finding that 30% of children's activities focused on recognizing letters and 25% on forming words confirmed that loose parts were very effective in the early stages of literacy recognition. This is in line with Piaget's (1964) theory of cognitive development which states that children learn through direct interaction with their environment, as well as Vygotsky's theory (1978) which emphasizes the importance of social roles in learning. However, the results of the study also showed that children's involvement in early writing only reached 15% and group discussion 10%, which showed that the loose parts method was not fully optimal in improving children's writing skills. This is in line with the research of Naish et al. (2019) which stated that loose parts are more effective in building phonetic and word recognition skills compared to the development of more complex writing skills.

From interviews with five PAUD teachers, the majority stated that loose parts increase children's creativity, involvement, and confidence in learning literacy. This statement supports research by Flannigan & Dietze (2019) which found that loose parts provide opportunities for children to experiment and try different learning strategies, so they are more confident in reading and writing.

However, there are challenges in implementation, such as the time needed to prepare loose parts and manage them in the classroom, as revealed by the G4 teacher. This challenge is also noted in the Zhang & Quinn (2021) study which highlights that while loose parts provide flexibility in learning, educators need specific strategies to ensure that the use of loose parts remains directed and supports learning goals.

In line with Bronfenbrenner's (1979) theory of child developmental ecology, the role of teachers as facilitators in the learning environment is very important. Therefore, training and support are needed for teachers to integrate loose parts effectively in literacy learning.

Based on thematic analysis, it was found that the main challenges in the application of loose parts in literacy learning in early childhood education include Limited time for preparation and teachers' need to compile and adjust loose parts to suit the learning objectives. The need for classroom management strategies – Loose parts allow for free exploration, but without proper guidance, children

can experience confusion or lose focus in learning. Support from schools and parents – Parents need to understand the benefits of loose parts to support their children's learning at home.

To overcome this challenge, some solutions that can be applied based on literature are: Preparation of guidelines for the use of loose parts in literacy learning, as developed by Cankaya et al. (2021). Training for teachers on how to manage loose parts effectively to support literacy goals (Graham et al., 2018). Encourage parental involvement in supporting the exploration of loose parts at home, for example through workshops or guides for parents (Spencer et al., 2021).

The results of this study have important implications for the world of education, especially in: Early Childhood Education Curriculum Design – These results show that loose parts can be integrated as an alternative method in teaching literacy, especially in the early introduction of letters and words. Teacher Learning Strategies – Educators can apply loose parts as a flexible and attractive learning medium for children, with a more structured management strategy. Education Policy – Schools and policymakers can consider the provision of loose parts as part of learning facilities that support literacy development.

#### IV. CONCLUSION

Based on the research results regarding the implementation of loose parts media in literacy learning in Early Childhood Education (ECE), it can be concluded that this method contributes positively to the development of early literacy in children. Loose parts allow children to explore, experiment, and construct literacy understanding more flexibly and creatively, according to their developmental needs. Some key findings obtained from this research are: Loose parts are effective in increasing children's engagement in literacy learning: Letter recognition activities (30%) and word formation (25%) are the most dominant activities, indicating that loose parts are very effective in introducing early literacy concepts through play-based exploration. Children's interaction with loose parts helps them build a stronger connection between symbols and meanings, supporting basic reading skills. Loose parts support creativity and independent exploration in literacy learning: Children demonstrate high creativity in arranging letters, forming words, and independently understanding literacy concepts. Loose parts-based learning allows children with various learning styles to actively participate and discover the learning

methods that suit them best: Teachers play a central role in the effectiveness of loose parts implementation. Teachers play an important role in managing, guiding, and optimizing the use of loose parts to ensure they remain focused and aligned with literacy learning objectives. Interview results show that teachers face challenges in preparing loose parts and require better classroom management strategies to optimize loose parts-based learning. The main challenges in implementing loose parts: Preparing loose parts media requires adequate time and resources. Classroom management becomes a challenge, especially in ensuring that loose parts are used purposefully without reducing children's freedom to explore. Support from schools and parents remains an important factor in ensuring the success of this method in early childhood education environments. Thus, this research shows that loose parts can be an innovative approach in literacy learning, especially in the early stages of children's literacy introduction. However, to ensure its effectiveness, support from teachers, schools, and parents, as well as more systematic implementation strategies, is needed.

## V. REFERENCES

- A Spencer, R., Joshi, N., Branje, K., Lee McIsaac, J., Cawley, J., Rehman, L., FL Kirk, S., & Stone, M. (2019). Educator perceptions on the benefits and challenges of loose parts play in the outdoor environments of childcare centres. *AIMS Public Health*, 6(4), 461–476. <https://doi.org/10.3934/publichealth.2019.4.461>
- Akarsu, R., Bumin, G., & Celik, Y. (2024). Structures of multivariables affecting literacy: Cluster analysis. *PLOS ONE*, 19(10), e0310114. <https://doi.org/10.1371/journal.pone.0310114>
- Andari, I. A. M. Y., & Meriah, E. (2023). Pelatihan Penggunaan media Loose Part Sebagai Implementasi Merdeka Belajar Pada Satuan Pendidikan Anak Usia Dini. *Dharma Sevanam: Jurnal Pengabdian Masyarakat*, 2(2), 191–200. <https://doi.org/10.53977/sjpkm.v2i2.1264>
- Annur, H., Solihatin, E., & Khaerudin, K. (2024). The Impact Of Game-Based Learning On Cognitive Development In Early Childhood: A Review Of The Literature. *Proceedings of International Conference on Education*, 2(1), 676–686. <https://doi.org/10.32672/pice.v2i1.1345>
- Armstrong-Gallegos, S., & Nicolson, R. I. (2020). Problems in Audiovisual Filtering for Children with Special Educational Needs. *I-Perception*, 11(4). <https://doi.org/10.1177/2041669520951816>
- Atlas, H., & Uzuner, Y. (2018). Examining the Emergent Literacy Experiences of a Preschool Child with Hearing Loss. *Journal of Qualitative Research in Education*, 6(1), 1–36. <https://doi.org/10.14689/issn.2148-2624.1.6c1s3m>
- Bahri, N. F., & Yunus, F. (2021). Rhythmic Technique in Preliteracy of English Language Learning in Increasing Pre-Schoolers Vocabulary. *Creative Education*, 12(01), 1–20. <https://doi.org/10.4236/ce.2021.121001>
- BAŞ, B., Gökay, N. Y., Aydoğan, Z., & Yücel, E. (2024). Do auditory brainstem implants favor the development of sensory integration and cognitive functions? *Brain and Behavior*, 14(8). <https://doi.org/10.1002/brb3.3637>
- Bergman Deitcher, D., Aram, D., & Abramovich, D. (2024). Parents' Literacy Beliefs, Home Literacy Activities, and Children's Early Literacy Skills: Stability and Progress Approaching First Grade. *Behavioral Sciences*, 14(11), 1038. <https://doi.org/10.3390/bs14111038>
- Bonacina, S., Krizman, J., White-Schwoch, T., & Kraus, N. (2018). Clapping in time parallels literacy and calls upon overlapping neural mechanisms in early readers. *Annals of the New York Academy of Sciences*, 1423(1), 338–348. <https://doi.org/10.1111/nyas.13704>
- Branje, K., Stevens, D., Hobson, H., Kirk, S., & Stone, M. (2021). Impact of an outdoor loose parts intervention on Nova Scotia preschoolers' fundamental movement skills: a multi-methods randomized controlled trial. *AIMS Public Health*, 9(1), 194–215. <https://doi.org/10.3934/publichealth.2022015>
- Caldwell, H. A. T., Spencer, R. A., Joshi, N., Branje, K., Cawley, J., Hobson, H., Kirk, S. F. L., Stevens, D., & Stone, M. R. (2023). Impact of an outdoor loose parts play

- intervention on Nova Scotian preschoolers' physical literacy: a mixed-methods randomized controlled trial. *BMC Public Health*, 23(1), 1126. <https://doi.org/10.1186/s12889-023-16030-x>
- Cankaya, O., Rohatyn-Martin, N., Leach, J., Taylor, K., & Bulut, O. (2023). Preschool Children's Loose Parts Play and the Relationship to Cognitive Development: A Review of the Literature. *Journal of Intelligence*, 11(8), 151. <https://doi.org/10.3390/jintelligence11080151>
- Dias Rodrigues, A., Marmeleira, J., Pomar, C., Lamy, E., Guerreiro, D., & Veiga, G. (2023). Body-oriented interventions to promote preschoolers' social-emotional competence: a quasi-experimental study. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1198199>
- Dr Fahd Naveed Kausar, Muhammad Anwer, Ailya R. Massey, Bushra Mussawar, Umer Javeid, & Ms. Anum Aftab. (2024). Investigating the benefits and challenges of implementing inquiry-based learning approaches in early childhood education. *Social Science Review Archives*, 2(2), 1174–1182. <https://doi.org/10.70670/sra.v2i2.168>
- ERGİN, E., & TEMEL, F. (2023). Bibliometric Analysis of Studies Focusing on Critical Thinking in Early Childhood. *Research on Education and Psychology*, 7(3), 502–526. <https://doi.org/10.54535/rep.1394228>
- Flannigan, C., & Dietze, B. (2018). Children, Outdoor Play, and Loose Parts. *Journal of Childhood Studies*, 53–60. <https://doi.org/10.18357/jcs.v42i4.18103>
- Gull, c., levenson goldstein, s., & rosenarten, t. (2022). Stem learning and loose parts in early elementary classrooms: a scoping review. *International Online Journal of Primary Education*, 279–292. <https://doi.org/10.55020/iojpe.1198160>
- Handayani, P. H., Marbun, S., & Novitri, D. M. (2023). 21st Century Learning: 4C Skills In Case Method And Team Based Project Learning. *ELEMENTARY SCHOOL JOURNAL PGSD FIP UNIMED*, 13(2), 181–193. <https://doi.org/10.24127/esj.pgsd.v13i2.44522>
- Imamah, Z., & Muqowim, M. (2020). Pengembangan kreativitas dan berpikir kritis pada anak usia dini melalui metode pembelajaran berbasis STEAM and loose part. *Yinyang: Jurnal Studi Islam Gender Dan Anak*, 263–278. <https://doi.org/10.24090/yinyang.v15i2.3917>
- Ismaniar, I., Deona, S., & Septia Landa, K. (2023). STEAM Approach With Loose Parts Learning Materials In The Early Childhood Education. *Pedagogi: Jurnal Ilmu Pendidikan*, 23(1), 11–17. <https://doi.org/10.24036/pedagogi.v23i1.1547>
- Kaenah, K., Yulia Utami, S., Muawwanah, U., & Moha, L. (2023). Implementation of Loose Part Media to Increase Creativity in Early Childhood. *Indonesian Journal of Early Childhood Educational Research (IJECER)*, 1(2), 87. <https://doi.org/10.31958/ijecer.v1i2.8157>
- KILIÇ, Ş., & ERTÜRK KARA, H. G. (2020). Ebeveynlerin Okuma Yazmaya Hazırlığa İlişkin Uygulamaları ile Çocukların Sözcük-Yazı Farkındalığı Becerileri Arasındaki İlişki. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi*, 22(1), 35–50. <https://doi.org/10.17556/erziefd.487610>
- Maghfirotul Qiromah, I., Hadi Pradana, P., & Hasanah, H. (2024). Improving Early Childhood Creative Thinking Skills Through Nature-Based Loose Parts Media. *Child Education Journal*, 5(3), 180–189. <https://doi.org/10.33086/cej.v5i3.5759>
- Muarofakh, Lestari, W., Nuraini, Najiha, N., & Suyadi. (2022). The Influence of Loosepart Media in Enhancing Early Childhood Creativity. *JOYCED: Journal of Early Childhood Education*, 2(1), 60–71. <https://doi.org/10.14421/joyced.2022.21-06>
- Naish, C., McCormack, G. R., Blackstaffe, A., Frehlich, L., & Doyle-Baker, P. K. (2023). An Observational Study on Play and Physical Activity Associated with a Recreational Facility-Led Park-Based “Loose Parts” Play Intervention during the COVID-19 Pandemic. *Children*, 10(6), 1049. <https://doi.org/10.3390/children10061049>

- Nasution, M. P., Sormin, D., Lubis, J. N., Wahyuni, S., Siregar, A. K., & Mahir, A. (2024). Harnessing Loose Part Media for Cognitive Development: Evaluating Its Effects on Early Mathematics Play Activities in Early Childhood Education. *Indonesian Journal on Learning and Advanced Education (IJOLAE)*, 6(2), 254–268. <https://doi.org/10.23917/ijolae.v6i2.23184>
- Nipriansyah, N., Sasongko, R. N., Kristiawan, M., Susanto, E., & Arinal Hasanah, P. F. (2021). Increase Creativity And Imagination Children Through Learning Science, Technologic, Engineering, Art And Mathematic With Loose Parts Media. *Al-Athfaal: Jurnal Ilmiah Pendidikan Anak Usia Dini*, 4(1), 77–89. <https://doi.org/10.24042/ajipaud.v4i1.8598>
- Oh, S., Jang, J.-S., Jeon, A.-R., Kim, G., Kwon, M., Cho, B., & Lee, N. (2024). Effectiveness of sensory integration therapy in children, focusing on Korean children: A systematic review and meta-analysis. *World Journal of Clinical Cases*, 12(7), 1260–1271. <https://doi.org/10.12998/wjcc.v12.i7.1260>
- Oktavia Lestari, M., & Karim Halim, A. (2022). Penggunaan Media Loose Part dalam Mengembangkan Kreativitas Anak Usia Dini di PAUD Tunas Harapan. *Jurnal Family Education*, 2(3), 271–279. <https://doi.org/10.24036/jfe.v2i3.69>
- Papadopoulos, I., & Bourogianni, M.-E. (2024). Delving into Word and Print Awareness in 4-Year-Old Children. *British Journal of Education*, 12(3), 41–54. <https://doi.org/10.37745/bje.2013/vol12n34154>
- Pratiwi, R., & Mayrita, H. (2023). The Influence of Reading Interest on the Ability of Writing Exposition Texts of High School Students. *Scaffolding: Jurnal Pendidikan Islam Dan Multikulturalisme*, 5(3), 420–432. <https://doi.org/10.37680/scaffolding.v5i3.3600>
- Rahayu, C., Warlizasusi, J., & Fakhruddin, F. (2022). Management Of Early Children's Learning With Steam Loading With Loose Parts at RA Ummatan Wahidah Curup. *International Journal of Educational Review*, 4(1), 111–139. <https://doi.org/10.33369/ijer.v4i1.22117>
- Rahma, R. A., Sucipto, S., & Raharjo, K. M. (2023). Increasing the Creativity of Early Childhood Education (Paud) Educators Through Steam and Loose Part Learning Training in Malang City. *International Journal of Multicultural and Multireligious Understanding*, 10(6), 83. <https://doi.org/10.18415/ijmmu.v10i6.4845>
- Rahma Valentina Dewi, E., Hibana, H., & Ali, M. (2022). Loose Part: Finding Innovation in Learning Early Childhood Education. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, 7(2), 53–66. <https://doi.org/10.14421/jga.2022.72-01>
- Role Of Sensory Integration In Rehabilitation Of Patients With Disabilities: A Review Article. (2023). *Egyptian Journal of Applied Science*, 38(5), 76–91. <https://doi.org/10.21608/ejas.2023.325262>
- Septiani, S., Retnawati, H., & Arliani, E. (2022). Designing Closed-Ended Questions into Open-Ended Questions to Support Student's Creative Thinking Skills and Mathematical Communication Skills. *JTAM (Jurnal Teori Dan Aplikasi Matematika)*, 6(3), 616. <https://doi.org/10.31764/jtam.v6i3.8517>
- Sholikah\*, M., Yufiarti, & Yetti, E. (2019). Early Childhood Literacy Skills: The Effect of Socioeconomic Status, Home Literacy Environment, and Social Skills. *International Journal of Innovative Technology and Exploring Engineering*, 9(1), 3769–3775. <https://doi.org/10.35940/ijitee.A4807.119119>
- Simpson, K., Paynter, J., Wicks, R. T., & Westerveld, M. F. (2020). Early Literacy Learning Experiences across Home and Community Libraries for Young Children Who Have Autism. *Advances in Neurodevelopmental Disorders*, 4(1), 74–84. <https://doi.org/10.1007/s41252-019-00145-7>
- Spencer, R. A., Joshi, N., Branje, K., Murray, N., Kirk, S. F., & Stone, M. R. (2021). Early childhood educator perceptions of risky play in an outdoor loose parts intervention. *AIMS Public Health*, 8(2), 213–228.

- <https://doi.org/10.3934/publichealth.2021017>
- Sukardjo, M., Nirmala, B., Ruiyat, S. A., Anuar, H., & Khasanah, U. (2023). Loose Parts: Stimulation of 21st Century Learning Skills (4C Elements). *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 7(1), 1073–1086. <https://doi.org/10.31004/obsesi.v7i1.4088>
- Sumarmi, S., & Afendi, A. R. (2022). Improving Learning Creativity in Early Childhood Through Learning Media Loose Part: Energetic, Concentrated and Creative. *EduLine: Journal of Education and Learning Innovation*, 2(3), 392–398. <https://doi.org/10.35877/454RI.eduline1262>
- Swift, S., & Barker, K. (2024). Ten Quick and Easy Ways to Enhance Early Literacy Instruction: Tips from a School Occupational Therapist. *Georgia Journal of Literacy*, 46(1), 113–123. <https://doi.org/10.56887/galiteracy.125>
- The influence of home literacy environment on children's literacy and language development: A systematic review. (2023). *Frontiers in Educational Research*, 6(23). <https://doi.org/10.25236/FER.2023.062301>
- Triyanita, T., & Mulyono, R. (2023). Increasing Children's Basic Literacy Through Storybook Media. *Gema Wiralodra*, 14(3), 1150–1156. <https://doi.org/10.31943/gw.v14i3.426>
- Veraksa, A., Bukhalenkova, D., Almazova, O., Sukhikh, V., & Colliver, Y. (2022). The Relationship Between Russian Kindergarteners' Play and Executive Functions: Validating the Play Observed Behaviors Scale. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.797531>
- Wahyuningsih, S., Pudyaningtyas, A. R., Nurjanah, N. E., Dewi, N. K., Hafidah, R., Syamsuddin, M. M., & Sholeha, V. (2020). The Utilization Of Loose Parts Media In Steam Learning For Early Childhood. *Early Childhood Education and Development Journal*, 2(2), 1. <https://doi.org/10.20961/ecedj.v2i2.46326>
- Warmansyah, J., Azizah, F., Yuningsih, R., Sari, M., Nurhasanah, N., Amalina, A., & Utami, W. T. (2023). The Use of an Open-Ended Learning Approach on The Ability To Recognize The Concept of Numbers: Its Effectiveness for Children 4-5 Years Old. *Child Education Journal*, 5(2), 110–119. <https://doi.org/10.33086/cej.v5i2.4225>
- Widat, F., Zilatul Hikmah, D. M., Hasanah, Z., & Baharun, H. (2023). Strategies to Improve Critical Thinking Skills for Children Through the Beyond Center and Circle Time (BCCT) Method. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 7(4), 5072–5083. <https://doi.org/10.31004/obsesi.v7i4.4206>
- Yasa, I. M. A., Nitiasih, P. K., & Riastini, P. N. (2023). Inclusion Issues In Ecce: Teacher Leadership From A Critical Education Point Of View. *Jurnal Syntax Transformation*, 4(7), 79–90. <https://doi.org/10.46799/jst.v4i7.762>
- Zhang, C., & Quinn, M. F. (2020). Preschool Children's Interest in Early Writing Activities and Perceptions of Writing Experience. *The Elementary School Journal*, 121(1), 52–74. <https://doi.org/10.1086/709979>