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Implementation of Differentiated Learning with Loose Part Media to Foster Critical Reasoning Skills and Literacy in 4-5 Year Old Children

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ABSTRAK. *Pentingnya fase usia dini sebagai dasar untuk perkembangan anak merupakan landasan utama dalam merancang pendekatan pembelajaran ini. Anak-anak di usia dini yang penuh rasa ingin tahu dan imajinasi membutuhkan lingkungan belajar yang merangsang kreativitas dan pemikiran kritisnya. Penelitian ini bertujuan untuk mengetahui implementasi pembelajaran berdiferensiasi dengan media bongkar pasang pada anak usia 4-5 tahun terhadap perkembangan kreativitas, kemampuan berpikir kritis, dan literasi awal anak. Penelitian ini menggunakan pendekatan kualitatif dengan desain penelitian studi kasus. Partisipan dalam penelitian ini melibatkan anak usia 4-5 tahun dan guru. Data dikumpulkan melalui observasi, wawancara, dan dokumentasi. Analisis data dilakukan dengan cara mengumpulkan data, menyajikan data, dan menarik kesimpulan. Hasil penelitian menunjukkan adanya peningkatan partisipasi aktif dan kreativitas anak selama pembelajaran dengan menggunakan looseparts. Diferensiasi secara efektif mendukung kebutuhan dan tingkat kemampuan individu anak. Anak-anak dapat terlibat dalam diskusi dan kolaborasi yang menciptakan kondisi ideal untuk pengembangan keterampilan berpikir kritisnya. Penggunaan media looseparts juga terbukti efektif dalam mengenalkan konsep literasi awal. Penelitian ini memberikan kontribusi pada pemahaman tentang pentingnya pendekatan berbasis looseparts dalam membentuk dasar pembelajaran yang bermakna bagi anak usia dini.*

Kata Kunci: *Looseparts; Berpikir Kritis; Literasi; Anak Usia Dini*

ABSTRACT. *The importance of the early childhood phase as a foundation for child development is the main basis for designing this learning approach. Children at an early age, who are full of curiosity and imagination, need a learning environment that stimulates their creativity and critical thinking. This study aims to determine the implementation of differentiated learning with loose parts media in 4-5-year-old children and its effects on their creativity, critical thinking skills, and early literacy. A qualitative approach with a case study research design was used in this study. Participants included 4-5-year-old children and their teachers. Data were collected through observations, interviews, and documentation. Data analysis involved collecting data, presenting data, and drawing conclusions. The results showed an increase in children's active participation and creativity during learning using loose parts media. Differentiation effectively supported children's individual needs and ability levels. Children engaged in discussion and collaboration, creating ideal conditions for the development of their critical thinking skills. The use of loose parts media also proved effective in introducing early literacy concepts. This research contributes to the understanding of the importance of a loose parts-based approach in forming the basis for meaningful learning in early childhood.*

Keyword : *Looseparts; Critical Thinking; Literacy; Early Childhood*

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INTRODUCTION

In the current era of educational development, learning approaches that can optimally explore children's potential is a must [1]. One method that can be further investigated is differentiated learning, which can provide space for each child to grow and develop according to their individual needs and potential [2]. The use of loose parts media as a learning tool is an interesting innovation, especially when understanding more optimally the formation of critical reasoning and literacy skills in children aged 4-5 years. The importance of the early age phase as a background for child development is the main foundation in designing this learning approach [3]. Children at an early age who are full of curiosity and imagination, need a learning environment that stimulates their creativity and critical thinking. Thus, the use of loose parts media, materials that can be processed and arranged according to children's imagination becomes an alternative towards deeper and more meaningful learning [4]. Based on the findings obtained during observation at the research site. It is known that the use of loose part media is still rarely used, the frequency of application is only one to two times. The media used to improve children's critical reasoning and literacy is also monotonous media that has been used frequently and is not interesting for children. So it is necessary to have new media that can improve critical reasoning and literacy in children. At the research site, Kindergarten A in Waru, Sidoarjo, the use of loose parts media in early childhood education is rare, with applications occurring only one to two times. The existing media used to improve children's critical reasoning and literacy are monotonous and not engaging for children. This gap presents an opportunity to explore the potential of loose parts media in a setting where it is underutilized.

The difference this research from previous studies [2], while previous research has explored the benefits of loose parts media, this study emphasizes differentiated learning, adapting teaching methods to the needs, interests, and developmental levels of each child. This personalized approach is less commonly explored in the context of loose parts media. Many studies focus on either critical thinking or literacy [5],[6]. This research examines both areas, providing a more holistic understanding of how loose parts media can support multiple facets of cognitive development. This research is supported by previous research [5] that the use of Loose Part media can improve children's early literacy. Other research suggests that the development of Loose Part-based STEAM teaching materials can improve logical and systematic thinking and sharpen critical thinking skills in children [7]. Through this approach, each child is accommodated in different ways, according to their needs and level of development. Loose parts, with their flexible and changeable nature [8], provide opportunities for children to learn by hand, touching, feeling and creating. This forms the basis of critical thinking skills while introducing the concept of literacy in the early stages of children's learning life [9].

According to Jean Piaget's theory of child development, early childhood is included in the pre-operational stage [10]. At this stage, children begin to develop the ability to imagine and think symbolically. Children have a strong imagination and are able to learn through play and direct experience. Differentiated learning matches the

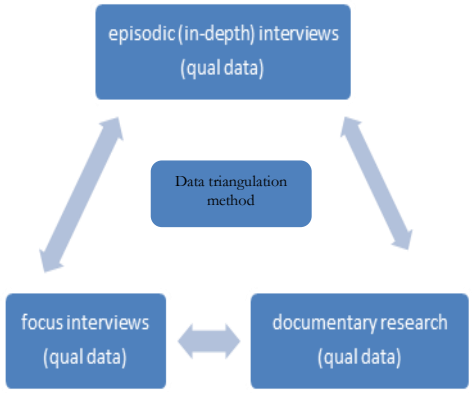
stage of cognitive development proposed by Piaget [11]. Each child is at a different level of development, and this approach takes those differences into account. Differentiated learning is an approach that adapts learning methods to the needs and developmental level of each child. Differentiated learning involves teaching that responds to children's diverse needs in terms of interests, learning styles and ability levels [7]. That through loose parts-based STEAM learning it is proven that it can increase not only creativity and critical thinking in early childhood, but also increase collaboration, communication, and children's imagination [12]. Differentiated learning can be applied to early childhood education. Differentiated learning is a teaching approach that aims to respond to the diverse needs of students in terms of interests, learning styles and ability levels. This approach involves customizing lessons to meet the needs, strengths and interests of individual children. One of the differentiated learning is loose parts.

Loose parts refer to materials that can be processed and transformed by children according to their imagination. Loose parts create an active and child-centred learning environment. Children learn more effectively when they are involved in physical actions and dare to explore on their own. The concept of loose parts was introduced by Nicholson [13] who stated that the more materials a child can manipulate, the more opportunities for creative learning. Critical thinking skills in early childhood are able to understand, analyze, and evaluate information in a reflective and logical way [4]. Although they may not reach the level of critical thinking in adults, young children can develop the basics of critical thinking skills through experience and guidance. According to Vygotsky [14], children at an early age begin to develop critical thinking skills through social interactions and play activities. Loose parts provide opportunities for children to collaborate, communicate, and solve problems, which are key elements of critical thinking [15].

Literacy learning in early childhood is not only limited to the introduction of letters and numbers, but also involves understanding basic concepts through real experiences. Loose parts provide opportunities for children to develop early literacy skills through various activities such as designing, composing and communicating children's ideas [16]. Differentiation in the use of loose parts is key to success, allowing each child to engage in activities that match the child's ability level and interests [17]. This creates an inclusive learning environment and provides challenges that suit individual needs [18]. Based on this theoretical study, the implementation of differentiated learning using loose parts media for 4-5 year old children is expected to provide a strong foundation for the development of critical thinking and literacy skills at the preschool stage. This approach not only pays attention to the uniqueness of each child, but also utilizes children's creative and imaginative potential in the learning process. Through this research, it is hoped that each child can find their own uniqueness and specialty, as well as develop critical thinking skills and literacy as an early provision in exploring the world of science. This article will discuss in more detail the implementation of differentiated learning using loose parts media to foster critical thinking and literacy skills in 4-5 year old children.

METHOD

This research uses a qualitative approach with a case study research design. Case studies allow researchers to gain an in-depth understanding of the implementation of differentiated learning with disassembled media in the realm of 4-5 year old children's education. The research location is in Kindergarten A in Waru, Sidoarjo area. The research participants consisted of 4-5 year old children and Kindergarten teachers involved in differentiated learning with loose parts media. The selection of participants was done by purposive sampling by considering variations in children's ability levels and interests. Observations were conducted during the learning process to record children's interaction with the loose parts media, children's response to the activities, and children's participation level. Interviews with Kindergarten teachers to get their views on lesson planning, implementation and evaluation. Informal interviews with some children to find out their experiences and views on the loose parts activity. Documentation in the form of photos and videos during the learning process to illustrate children's interaction with loose parts and children's work. Qualitative data analysis was conducted to identify patterns, themes and relationships in the data [19]. This analysis was used to explore the meaning of the interview and observation notes. Then data triangulation is carried out, namely the results of observations, interviews and documentation are combined to get a more comprehensive understanding.



Picture 1. Data Triangulation Method [20]

Through this research method, it is hoped that an in-depth understanding of the implementation of differentiated learning with disassembly media in developing critical thinking and literacy skills in children aged 4-5 years can be obtained. The findings of this research can be the basis for further development in the field of early childhood development education. This research was conducted on children aged 4-5 years at Al Falah Assalam Sidoarjo Kindergarten with a total of 60 children. Of these 60 children, there are 12 children or 20% who play creativity, 12 children or 20% who play literacy, the remaining 60% prefer factory-made toys. Based on the results of initial observations made by researchers, researchers want to examine the development of creative thinking and literacy of group A children at Al Falah Assalam Kindergarten Waru Sidoarjo, by looking at the results of these initial observations, it is necessary to maximize the use of looseparts which can be an alternative media in this study as a complement to previous studies. If you look at the existing looseparts material, it has advantages in stimulating

children to think creatively, problem solving and building early literacy from the age of 4-5 years. Based on this, researchers need to know the implementation of differentiated learning with "loose parts" media applied to group A children aged 4-5 years at Al Falah Assalam Kindergarten while providing opportunities for children to improve their foster critical reasoning skills and literacy skills optimally according to their interests and age stages

RESULT AND DISCUSSION

Based on qualitative data analysis, the results of this study provide an overall picture of the implementation of differentiated learning with loose parts media for 4-5 years old children. Children showed an increase in active participation in learning based on loose parts. This media stimulates children's creativity, so that children can be creative and explore new ideas. Differentiation in the organization of loose parts activities proved effective in meeting children's individual needs and ability levels. Children progressed according to their individual developmental levels. Children engage in discussion and collaboration during activities, which demonstrates the development of critical thinking skills. The process of problem solving and task completion contributes to the development of critical thinking skills. Loose parts are used to introduce early literacy concepts, such as arranging letters or numbers. Children show interest and enthusiasm in participating in literacy activities. Children were observed using loose parts in various creative ways, such as building structures, creating art, and forming letters. They demonstrated critical thinking by planning their creations, solving problems they encountered, and experimenting with different configurations. In interviews with teachers and parents conducted during this research, Teacher M said, "I noticed that children were more engaged and excited during activities involving loose parts. They showed a high level of interest and motivation to participate. Thus, I observed significant improvements in their ability to think critically. They asked more questions, made predictions, and tested their ideas during play." Parents C said "My child seems more motivated to learn and explore new things. I've noticed an increase in my child's creativity and come up with imaginative play scenarios using everyday objects around the house." In his theory of cognitive development, Jean Piaget proposed that humans progress through four developmental stages: the sensorimotor stage, preoperational stage, concrete operational stage, and formal operational stage [21].

Teachers mentioned that the use of loose parts media had increased children's learning motivation and provided opportunities for formative assessment. Parents observed positive changes in children's creativity and critical thinking skills at home. The results show that implementing differentiated learning with loose parts media in four-to-five yearold children has positive outcomes on the development of creativity, critical thinking skills and early literacy. The findings provide a strong basis for the development of learning approaches that consider the uniqueness of each child and stimulate children's holistic growth at the preschool stage. The study also highlights the

importance of teacher training and parental involvement in supporting children's learning.

The implementation of learning with loose parts media showed an increase in children's participation and creativity. The loose parts media gives children the freedom to explore and express their ideas in a more personalized and creative way. This result is in line with the theory of creativity development [22], which states that an environment that stimulates creativity can improve children's critical thinking skills. Differentiation applied in the arrangement of loose-part activities has been shown to be effective in supporting different needs and abilities among children [23]. This is in line with the principle of differentiated learning which recognizes the uniqueness of each child. Differentiation also helps to create an inclusive environment where every child can develop according to their potential. The findings showed that children engaged in discussion, collaboration and problem-solving during the disengaged section activities, which created ideal conditions for the development of critical thinking skills. The results of this study are in line with Vygotsky's theory of children's cognitive development being driven by social interaction and play experiences. The detachable parts medium also proved effective in introducing early literacy concepts. Based on this context, children not only learn about letters and numbers, but also integrate literacy into children's creative activities. This is in line with the holistic approach in early childhood education that emphasizes the development of the whole person [10]. Positive responses from teachers and parents also indicate that this learning approach is producing the desired results. Support from teachers and parents is a key factor in successful implementation and the results of this study are in line with previous research highlighting the positive role of family support in children's education [8]. The results of this study provide positive implications for preschool education practitioners, especially in designing and implementing differentiated learning.

Loose parts education can be an inspiring model for developing responsive learning approaches that consider the uniqueness of each child. This is consistent with previous research which states that the use of Loose Parts media can improve early literacy in children [5]. Additionally, Loose Parts can enhance logical and systematic thinking as well as sharpen critical thinking skills in children [7]. This study has limitations related to the sample size, which may restrict the generalizability of the findings. Moreover, environmental and contextual factors can also influence the proper implementation of learning [8]. Therefore, further research with a larger sample size and consideration of contextual variations is recommended. The implementation of differentiated learning using Loose Parts media for children aged 4-5 years makes a positive contribution to the development of creativity, critical thinking skills, and early literacy. These findings highlight the importance of a holistic approach in forming the foundation of preschool children's learning. Through collaborative efforts between teachers, parents, and researchers, it is hoped that this approach can continue to be developed and implemented to provide better learning experiences for children.

CONCLUSION

A study on the application of differentiated learning using disassembled media in 4-5 year old children had a positive impact on the development of creativity, critical thinking skills and early literacy. Loose components give children the freedom and flexibility to explore their creative potential, while differentiation helps meet individual needs and ability levels. Children showed increased active participation in loose-leaf component-based learning. This medium stimulates children's creativity, allowing them to create and explore new ideas. The results of this study suggest that a holistic approach with loose-leaf media can be a strong foundation for providing deep and meaningful learning experiences for early childhood. The novelty of this research is integration of loose parts media in early childhood education. The research explores the use of loose parts media, which are typically open-ended and versatile materials, in differentiated learning settings. This innovative application is relatively under-explored in the field of early childhood education. Moreover unlike many studies that focus on a single aspect of development, this research simultaneously examines the impact of loose parts media on both critical reasoning skills and early literacy. This dual focus offers a comprehensive view of cognitive and linguistic development in young children.This study has limitations related to the sample size, which the study involves a limited number of participants (4-5 year old children and their teachers), which may not be representative of the broader population. In this study, the research may be limited by its less than two month duration, focusing on short-term impacts rather than long-term outcomes.

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