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Enhancing Creative Imagination Ability in Early Childhood: A Study on Differential Learning Assisted with Loose Parts Media and Social Skills

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ABSTRAK

Sangat penting untuk mengembangkan kemampuan imajinasi kreatif anak usia dini dalam proses pembelajaran. Namun, saat ini belum banyak dilakukan usaha implementasi model pembelajaran yang mampu mendukung pengembangan kemampuan imajinasi kreatif siswa. Penelitian ini bertujuan untuk menganalisis pengaruh pembelajaran berdiferensiasi berbantuan media loose parts dan keterampilan sosial terhadap kemampuan imajinasi kreatif, serta ada tidaknya interaksi model pembelajaran dan keterampilan social terhadap kemampuan imajinasi kreatif. Metode yang digunakan dalam penelitian ini adalah kuasi eksperimen dengan post-test only control group design. Intrumen pengambilan data keterampilan social dan kemampuan imajinasi kreatif menggunakan lembar observasi dengan skala 1-4. Data kuantitatif yang diperoleh dianalisis dengan anava dua jalur. Hasil penelitian menunjukkan pembelajaran berdiferensiasi berbantuan media loose parts berpengaruh signifikan terhadap kemampuan imajinasi kreatif, sedangkan keterampilan social tidak berpengaruh signifikan. Ada interaksi antara model pembelajaran berdiferensiasi berbantuan media loose parts dan keterampilan sosial terhadap kemampuan imajinasi kreatif siswa. Dimana peningkatan kemampuan imajinasi kreatif pada kelompok siswa yang mengikuti pembelajaran berdiferensiasi berbantuan media loose parts dengan keterampilan sosial tinggi.

ABSTRACT

Developing early childhood creative imagination skills in the learning process is very important. However, there are not many efforts to implement learning models that can support the development of students' creative imagination abilities. This study aims to analyze the effect of differentiated learning aided by loose parts media and social skills on creative imagination ability, as well as whether learning models and social skills interact with creative imagination ability. The method used in this research is a quasi-experiment with a post-test-only control group design. The data collection instrument for social skills and creative imagination ability used observation sheets with a scale of 1-4. Quantitative data obtained were analyzed with a two-way ANOVA. The results showed that differentiated learning assisted by loose parts media significantly affected creative imagination ability, while social skills had no significant effect. There is an interaction between differentiated learning models assisted by loose parts media and social skills on students' creative imagination ability. There was an increase in creative imagination ability in the group of students who follow differentiated learning aided by loose parts of media with high social skills.

1. INTRODUCTION

Developing creative imagination in early childhood is essential for learning, problem-solving and overall development. Research has shown that creative imagination is active from an early age and is essential to children's achievement (Dere, 2019; Hashim et al. 2022). Creativity is considered fundamental in the preschool curriculum and is defined as the process of creating original things. Children's creative imagination is often assessed through tasks involving narrative and drawing skills, highlighting its importance in concept formation (Garcia & Mukhopadhyay, 2019; Keenan & Hot Mess, 2020). The Reggio Emilia philosophy emphasizes the political urgency of fostering imagination in

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children, underscoring society's importance in nurturing creativity in early childhood. The observations at several kindergarten schools in cluster 3 Payangan District showed that children's creative imagination skills were still deficient. The documentation study evidences the low level of children's creative imagination; it was found that the average value of children's creative imagination is still low, with a range of 2-star scores or a value of 2 out of a range of 4. Likewise, from the results of interviews with several kindergarten teachers in Gugus 3 Payangan District, "that children's creative imagination is only stimulated by drawing and colouring activities; there is no media to stimulate creative imagination abilities". Currently, teachers and parents are too focused on children's cognitive or academic abilities, thus neglecting other developments. And forget that a child's world is a world of play. Drawing and colouring activities are carried out by following the examples given by the teacher and done individually; this also causes less attractive learning to seem stiff and boring; in other words, the learning that the teacher carries out is still conventional.

One solution that can be used to improve students' creative imagination skills is differentiated learning with loose-part media that is collaborative. Differentiated learning encourages active participation, as students feel valued and supported in the learning process (Astuti & Afendi, 2022; Sulistianingrum et al., 2023). This can open up space for creative expression and imagination development. Previous study state in differentiated learning, teachers can customize teaching methods according to each student's needs and level of understanding (Sulistianingrum et al., 2023). This allows each student to learn in a way that is most effective for themselves. Meanwhile, loose-part media, which can include a variety of objects with different shapes, colours, and textures, can stimulate students' senses (Rahma Valentina Dewi et al., 2022; Sukardjo et al., 2023). This can open a window to their imagination and encourage creative exploration (Safitri & Lestariningrum, 2021; Sumarmi & Afendi, 2022; Valentina Dewi et al., 2023).

Differentiated learning strategies can be tailored to the needs of individual students, allowing them to explore and express their creativity in ways that suit their unique learning styles and abilities. This personalized learning approach can foster a supportive environment for children to develop and apply their creative imagination skills (Mcneal, 2014; Normadhi et al., 2019). Loose-part media can optimize cognitive development, critical thinking, problem-solving, fine motor skills, creativity, and naturalist intelligence in early childhood education. In addition, loose-part media has been identified as a solution for educators to develop children's creativity in schools (Anisabela & Rahminawati, 2022; Fikriyati et al., 2023). Because learning differentiation with loose part media is collaborative, it is necessary to consider social skills as a moderator variable. Social skills are considered a moderator variable because they are expected to produce interactions with collaborative media-assisted differentiation learning and influence students' creative imagination. Collaborative learning environments are beneficial for students with high social skills, as they can effectively engage in teamwork, communication, and knowledge sharing (Kwiatkowska & Wiśniewska-Nogaj, 2022; Laksmiwati et al., 2022). Students with high social skills show advantages such as the ability to work collaboratively, social sensitivity, self-control, and practical expression of opinions, which contribute to better application of concepts and learning outcomes. In addition, collaborative learning fosters a sense of responsibility for the success of the actions taken through a better understanding of constructive feedback and improved collaboration, relationship and communication skills within groups of students (Kwiatkowska & Wiśniewska-Nogaj, 2022; Laksmiwati et al., 2022).

The purpose of this study is to analyze (1) the difference in students' creative imagination ability between groups of students who follow differentiated learning assisted by loose part media and groups of students who follow conventional learning; (2) the difference in students' creative imagination ability who have high social skills and groups of students who have low social skills; and (3) the interaction of differentiated learning assisted by loose part media and social skills on children's imagination ability, at Kindergarten B in Gugus III Payangan District. The novelty of this study is the application of loose part media which has not been widely used and is combined in improving social skills abilities.

2. METHOD

The research method used in this study is a quasi-experiment with this research design using a post-test-only control group (Sugiyono, 2013). The place of this research is Taman Kanak Kanak Gugus III Payangan District. This research was conducted during the odd semester of the 2023/2024 academic year. The population in this study were kindergarten B children in cluster III Payangan District. The population is 200 children who are divided into 9 kindergarten B classes. After going through the equality test, sampling was carried out using the simple cluster random sampling method. In this process, six classes were randomly selected, consisting of 3 classes as experimental groups and three classes as control groups. The sample selection results are shown in Table 1.

Table 1. Research Sample

Code	School Name	Number of Students
A1	**Experiment Group**	
1	Hindu Kindergarten Mawar Class	25
2	Kindergarten Melati Class B2	20
3	Giri Kumara Kindergarten	20
A2	**Control Group**	
1	Hindu Kindergarten Cambodian Class	25
2	Kindergarten Melati Class B1	20
3	Kerta Kindergarten	20
	Total	**130 Children**

This research was conducted during the odd semester of the 2023/2024 academic year. The research data was taken with instruments in the form of social skills observation sheets and creative imagination ability observation sheets with Likert scales (1-4) that have gone through expert and empirical validation tests. In the expert validation test, one item on the creative imagination instrument was irrelevant, so it was discarded from the number of instrument items 10 to 17. Meanwhile, the social skills instrument, after revising all the instrument items, used a total of 22 items. A summary of the empirical validation test results is shown in Table 2.

Table 2. Social Skills and Creative Imagination

Statistics	Instrument	
	Social Skills	**Creative Imagination**
N (Number of Subjects)	40	40
r-table	0.257	0.257
Validity	0.331 – 0.793	0.288 – 0.806
Reliability	0.937	0.921
Number of Failed Items	0	0
Number of Items Used	22	17
Number of Items Before Testing	22	17

Quantitative data obtained from quasi-experiment activities were analyzed with descriptive statistics and a two-way ANOVA inferential test with IBM SPSS 26 for Windows computing; the independent variable produced a significant effect on the dependent variable, followed by Tukey HSD test at the 5% significance level (a=0.05).

3. RESULT AND DISCUSSION

Result

The mean value of creative imagination based on these groupings is shown in Figure 1.

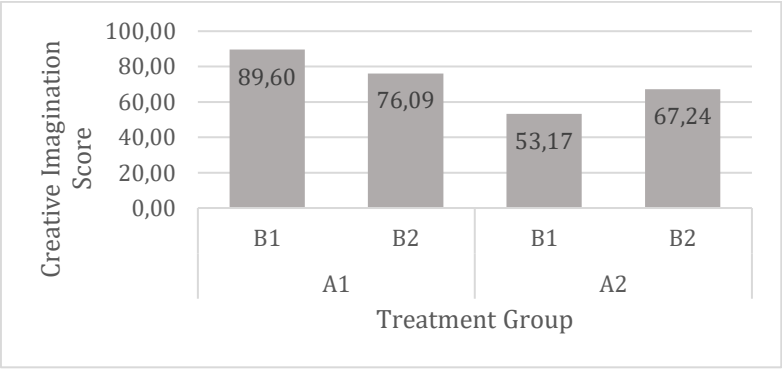

Figure 1. Mean Creative Imagination Score per Group

Figure 1 shows the creative imagination scores of kindergarten children under different learning treatments and social skills. In the Differentiated Learning treatment with loose part media (A1), students with high social skills (B1) obtained an average score of 89.60, while those with low social skills (B2)

obtained an average score of 76.09. Meanwhile, in the conventional learning group (A2), students with high social skills (B1) obtained an average score of 53.17, and those with low social skills (B2) obtained an average score of 67.24. The prerequisite test consisted of a normality test and a homogeneity test. The results of the normality test of the data distribution with the Kolmogorov-Smirnov Test at the 5% level on the value of creative imagination (Y) is 0.077 with a sig. value. 0.055 > 0.05 means that the data distribution on the value of creative imagination is normally distributed. This is reinforced by Figure 2.

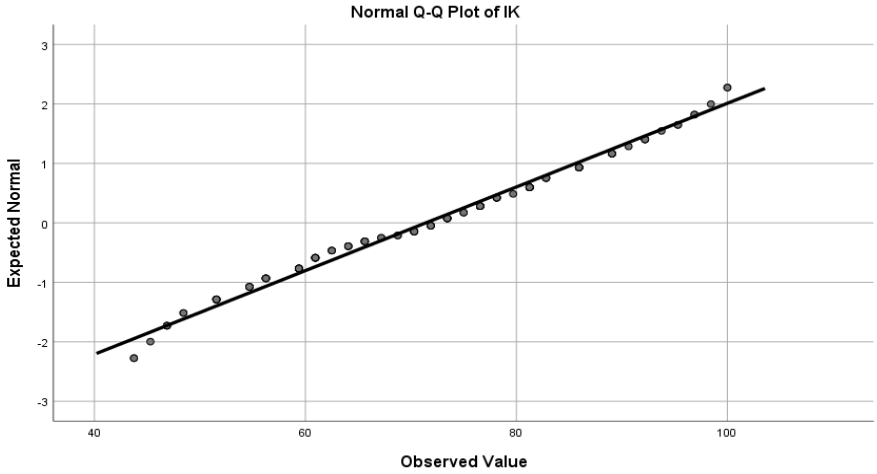

Figure 2. Normality Test Results for Creative Imagination Data (Y)

The normality test results based on Figure 2 show that the dependent variable data, namely Creative Imagination Value (Y), is normally distributed because the points on the plot are around the diagonal line, indicating that the observed value and the expected value of the normal distribution are very close. The results of the homogeneity of variance test using Levene's Test of Equality of Error Variances are shown in Table 3.

Table 3. Homogeneity Test Results

Parameters	Levene Statistic	df1	df2	Sig.
Based on Mean	1.991	3	126	0.119
Based on Median	1.243	3	126	0.297
Based on Median and with adjusted df	1.243	3	111.482	0.298
Based on trimmed mean	1.868	3	126	0.138

The results of the variance homogeneity test in Table 3 show that the data variance is homogeneous because the significance value (Sig.) is greater than 0.05. This homogeneity test shows that the variance of data on the dependent variable is homogeneous across groups. The results of the inferential test using the two-way ANOVA test and the Tukey HSD further test at the 5% significance level (a=0.05) are shown in Table 4.

Table 4. Two-way ANOVA Test Results

Source of Variance	JK	dk	RJK	F	Sig.
A	16653.740	1	16653.740	649.047	0.000
B	2.486	1	2.486	0.097	0.756
A*B	6176.125	1	6176.125	240.702	0.000
In	3233.004	126	25.659		
Total	**689170.267**	**130**			

Based on Table 4, the value of F in A is 649.047 with a sig value. 0.000 <0.05 which shows H_0 is rejected, H_1 is accepted. That is, there is a significant effect of students' creative imagination ability (Y) between the group of students who follow differentiated learning assisted by loose part media (A_1) and the group of students who follow conventional learning (A_2) in Kindergarten B in Gugus III Payangan District. Because H0 is rejected, it is continued with the Tukey HSD test.

The mean difference between groups YA_1 and YA_2 is statistically significant because the mean difference between the two groups (22.64) is greater than HSD (1.74). This means that there is a significant difference in students' creative imagination ability (Y) between the group of students who participated in differentiated learning assisted by loose part media (A_1) and the group of students who participated in conventional learning (A_2) at Kindergarten B in Gugus III Payangan District. It can be stated that differentiation learning assisted by loose part media (A_1) is better for improving creative imagination (Y) compared to conventional learning with a higher average value. The F value in B is 0.097 with a sig value. 0.097 > 0.05 which shows H_0 is accepted, H_1 is rejected. That is, there is no significant influence on students' creative imagination ability between groups of students with high social skills and those with low social skills in Kindergarten B in Gugus III Payangan District. The F value on A*B is 240.702 with a sig value. 0.000 <0.05 which shows H_0 is rejected, H_1 is accepted. That is, there is a significant interaction effect between learning (A) and social skills (B) together on students' creative imagination ability (Y).

The interaction between learning (A) and social skills (B) together on students' creative imagination ability (Y) in the form of ordinal interaction. This interaction shows that (1) the mean value of students' creative imagination (Y) in the differentiated learning group assisted by loose part media (A1) is higher in the group of students with high (B1) and low (B2) social skills, and (2) in the differentiated learning group assisted by loose part media (A1) the mean value of students with high social skills (B1) is greater than the group of low skill students (B2). Meanwhile, in the conventional learning group, the opposite occurs.

All mean differences between groups are greater than the HSD value (1.74), meaning that all groups differ significantly. Based on the results of the two-way ANOVA test and HSD, it can be stated that (1) Differentiated learning assisted by loose part media (A_1) in the group of students who have high social skills (B_1) produces the highest mean value of creative imagination compared to other groups; and (2) Students with high social skills (B_1) are better at learning differentiation assisted by loose part media (A_1) which is collaborative than conventional learning (A_2) which is individualized. Conversely, students with low social skills (B_2) performed better in conventional learning (A_2), which is individualized, compared to differentiation learning assisted by loose part media (A_1), which is collaborative.

Discussion

The Difference in Students' Creative Imagination Ability

The results of the two-way ANOVA test show that the F value in A is 649.047 with a sig value. 0.000 <0.05 which shows H_0 is rejected, H_1 is accepted. That is, there is a significant effect of students' creative imagination ability (Y) between the group of students who follow differentiated learning with the help of loose part media (A_1) and the group of students who follow conventional learning (A_2) in Kindergarten B in Gugus III Payangan District. Tukey HSD's further test (1.74) is smaller than the average difference value of Creative Imagination in A (22.64), which means it is significantly different.

Differentiated learning assisted by loose part media can improve creative and imaginative ability more than conventional learning. This happens because differentiated learning assisted by loose part media differentiates various learning resources such as videos, stories, audio, books, and pictures. Through this variety, students have access to various learning methods that can trigger their imaginative abilities. Video can provide an immersive visual experience, enriching students' understanding of the subject matter and stimulating their imagination with a more vivid picture (Fitrianingtyas et al., 2021; Nasirun et al., 2022). Stories or narratives can play an essential role in expanding the world of students' minds, letting them explore complex concepts through inspiring stories. Stories and audio resources provide an additional dimension to learning by providing an auditory experience that allows students to project their ideas more broadly (Anggraini et al., 2020; Ramdhani et al., 2019). Books as a classic learning resource remain a strong foundation in facilitating creative imagination, allowing students to explore knowledge in depth. Meanwhile, using images as learning resources can enrich students' visual perception, stimulate imagination, and provide crucial visual support in understanding complex concepts (Milana, 2021; Wahyuningsih et al., 2023). By providing access to diverse learning resources, the differentiated approach allows each student to find the best way that suits their learning style and interests. This enriches the learning process and stimulates students' creativity and imagination, helping them understand and absorb the subject matter more profoundly.

In addition, differentiation learning assisted by loose part media is designed as collaborative learning that encourages creative, imaginative abilities through group work. Collaborative learning design in differentiation learning assisted by loose part media allows students to share experiences and ideas, discuss, and work together to realize their ideas, which encourages students' creative imagination (Sari et al., 2017; Winangun, 2021). Learning that provides space for imagination will increase student creativity. Collaboration between students in using loose parts promotes active and deep social interaction. Discussing

and exchanging ideas can enrich each individual's understanding of the subject matter. Furthermore, the initiative to work together in realizing their ideas can result in collaborative work that reflects the level of understanding and skills acquired (Nurazka et al., 2022; Sarah & Witarsa, 2023).

Using loose part media develops creative imaginative abilities by giving students space to explore, create and learn in their own way and find unlimited knowledge (Sumarmi & Afendi, 2022; Valentina Dewi et al., 2023). Learning with loose parts media where it will be done in a fun way, without binding rules and giving children the freedom to choose what they want in the flexible materials used during exploration can increase children's creativity. Loose parts media can explore various students' unique mindsets that help them connect with their environment and increase student creativity (Fikriyati et al., 2023; Rahma Valentina Dewi et al., 2022). In addition to creativity, loose parts of media can be used to stimulate students' critical thinking, collaboration, and communication skills. Loose-part media can encourage cognitive development and children's concept understanding. Differentiated learning, a pedagogical approach that tailors instruction to meet students' individual needs, has become a topic of interest in educational research. When aided by loose parts media, which includes various open-ended materials that can be manipulated and combined in various ways, differentiated learning can enhance imaginative creativity compared to conventional learning methods (Anisabela & Rahminawati, 2022; Valentina Dewi et al., 2023).

Research by previous study supports the idea that loose parts of media can enhance imaginative creativity in differentiated learning (Sukardjo et al., 2023). This study emphasized the stimulation of 21st-century learning skills and collaboration through the use of loose parts media, which is in line with the idea of enhancing imaginative creativity. The incorporation of loose parts media in differentiated learning diversifies learning resources and provides opportunities for imaginative creativity. By allowing open-ended exploration, catering to diverse learning styles, and promoting imaginative play, loose parts of media can indeed enhance imaginative creativity compared to conventional learning methods. The utilization of loose parts media in learning can also reduce student boredom, allowing students to focus more on learning and developing their imagination (Fikriyati et al., 2023; Simon Harun & Rahardjo, 2022).

Differences in Creative Imagination Ability Between Students with High Social Skills

Based on the two-way ANOVA test results, the F value in B is 0.097 with a sig value. 0.097 > 0.05 which shows H_0 is accepted, H_1 is rejected. That is, there is no significant influence on students' creative imagination ability between groups of students with high social skills and those with low social skills in Kindergarten B in Gugus III Payangan District. In other words, the results of this study indicate that social skills do not affect creative imagination ability. Although social skills are essential in social interactions and everyday life, their relationship with creative imagination ability does not always show a strong connection (Baygin et al. 2016; Kochubey & Tkachuk, 2021). The research that has been conducted in this area suggests that although individuals with good social skills tend to be better able to interact and cooperate in group situations, the relationship with creative imagination ability is not always decisive (Zhu et al. 2021). This does not directly indicate higher imaginative ability. Creative imagination tends to be related to an individual's internal factors, such as the ability to imagine, creativity in thinking, and sensitivity to the surrounding environment (Hashim et al. 2022; Kusmaryono & Maharani, 2021; Šļahova et al. 2017). Research shows that students with high social skills are better at collaborative learning than individual learning (Caemmerer & Hajovsky, 2022; Hövel et al. 2022; Zhu et al., 2021). Conversely, students with low social skills find it easier to learn individually than in groups.

Creative imagination is more likely to be influenced by individual aspects, such as the level of creativity in thinking, imaginative acuity, and the ability to see things from an unconventional point of view (King & Boardman, 2006; Šļahova et al. 2017). Although social skills can support cooperation in joint creative activities, there is no solid empirical evidence showing that high social skills directly affect or significantly enhance creative imagination ability.

Interaction Between Differentiated Learning Assisted

The results of the two-way ANOVA test show the F value on A*B is 240.702 with a sig. value 0.000 <0.05 which shows H_0 is rejected, H_1 is accepted. That is, there is a significant interaction effect between learning (A) and social skills (B) together on students' creative imagination ability (Y). Other studies have shown an interaction effect between interactive learning models and social skills on students' cognitive learning outcomes (Alfianti et al. 2019). Social skills are related to the ability of students to learn in groups or learning that is designed collaboratively or cooperatively. The mean value of students' creative imagination (Y) in the group of differentiated learning assisted by loose part media (A_1) is higher in the group of students with high (B_1) and low (B_2) social skills. This shows that differentiated learning assisted by loose part media (A_1) is more influential in developing creative imagination ability than conventional learning (A_2). In the differentiated learning group assisted by loose part media (A_1), the mean value of

students with high social skills (B_1) is greater than that of the low-skill student group (B_2). Meanwhile, in the conventional learning group, the opposite occurred. This shows that differentiated learning assisted by loose part media (A_1) has the most effect on students with high social skills (B_1) in improving students' creative imagination ability (Y).

All mean differences between groups are greater than the HSD value (1.74), meaning that all groups are significantly different. The mean value of students' creative imagination ability (Y) in the group of students with high social skills with differentiated learning assisted by loose part media (A_1B_1) is greater than the group of students with high social skills in conventional learning (A_2B_1), namely 89.60 > 53.17. Likewise, the mean value of students' creative imagination ability (Y) in the group of students with low social skills with differentiation learning assisted by loose part media (A_1B_2) is still higher than the group of students with low social skills with conventional learning (A_2B_2), namely 76.09 > 67.24. This means that for students with both high (B_1) and low (B_2) social skills, differentiated learning with loose part media (A_1) is still better for improving students' creative imagination ability (Y). Differentiated learning in kindergarten significantly influences students' creativity (Mavidou & Kakana, 2019; Sulistianingrum et al. 2023). Differentiated learning in kindergarten significantly influences students' creativity (Mavidou & Kakana, 2019); this learning activity provides flexibility for students to do and produce something different in learning. Media in this learning plays a role in arousing students' thoughts, attention, feelings, and interests in the learning process (Karseno & Astawan, 2021; Peek et al. 2014). Therefore, it provides space for creativity so that students' creative imagination skills increase.

Interestingly, the highest mean value of students' creative imagination (Y) in the differentiated learning group assisted by loose part media for students with high social skills (A_1B_1) is 89.60. This means that differentiated learning assisted by loose part media (A_1) for students with high social skills (B_1) is the best interaction to improve students' creative imagination ability (Y). Students with high social skills (B_1) performed better in the collaborative learning of differentiation assisted by loose part media (A_1) compared to conventional learning (A_2), which is individualized. On the other hand, students with low social skills (B_2) did better in conventional learning (A_2), which is individualized, compared to differentiated learning assisted by loose part media (A_1), which is collaborative. Other relevant research shows that students with high social skills do better in collaborative learning than in individualized learning (Caemmerer & Hajovsky, 2022; Hövel et al., 2022). Meanwhile, students with low social skills find it easier to learn individually than in groups.

The results showed that differentiated learning assisted by loose part media can significantly improve students' creative imagination ability compared to conventional learning. Therefore, this approach can be considered an effective method to develop students' creativity at the kindergarten B level. Different types of loose-part media, such as videos, stories, audio, books and pictures, can stimulate students' imagination in different ways. Therefore, a varied selection of media can give students access to various learning methods that support the development of their imaginative abilities. Differentiated learning with loose parts media is collaborative learning that encourages creative, imaginative skills through group work. Collaboration between students using loose parts can enrich each individual's understanding of the subject matter and promote active social interaction.

Although social skills are recognized as necessary in social interaction, this study shows no significant influence between students' social skills and their creative imagination ability at the kindergarten B level. This suggests that internal factors such as creative thinking influence creative imagination more than social skills.The results showed a significant interaction effect between differentiated learning assisted by loose part media and social skills together on students' creative imagination ability. Therefore, this approach can be more effective when applied simultaneously by considering students' social skills. Teachers can consider using a differentiated learning approach with loose parts media to improve students' creative imagination skills. Curriculum developers can also include learning elements that encourage creativity and social interaction in early childhood education curriculum design. This study opens up opportunities for further research in exploring the impact of using loose parts media in differentiation learning and how the interaction between learning and social skills can be more effectively used to develop students' creative, imaginative abilities at kindergarten B level. Future research can develop differentiation models with collaborative and individualized learning activities by considering students' social skills.

4. CONCLUSION

Based on the results of this study, it can be concluded that differentiation learning assisted by loose part media significantly improves students' creative imagination skills at the kindergarten level. This can be seen from the results of the two-way ANOVA test, which shows a significant difference between the group

of students who participated in differentiation learning assisted by loose part media and the group of students who participated in conventional learning. Students who engaged in differentiation learning with loose parts media showed higher mean scores of creative imagination than those who participated in conventional learning. On the other hand, social skills alone did not significantly affect students' ability to use creative imagination. Differentiated learning assisted by loose part media also gave better results to students with high social skills, indicating a positive interaction between learning and social skills on students' creative imagination ability.

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