The International Journal of Mathematics and Sciences Education
Publication details, including instructions for authors and subscription information:
https://nakiscience.com/index.php/IJMSEd



The impact of magnetic play on early childhood social skills: one group pre-test-post-test experimental design

Andi Musda Mappapoleonro[a*], Hisham Abdul Malik[b], Wahyuni Nadar[c]

[a*]Sekolah Tinggi Keguruan dan Ilmu Pendidikan Kusumanegara, Jakarta, Indonesia, andimusda@stkipkusumanegara.ac.id

[b]Sekolah Tinggi Keguruan dan Ilmu Pendidikan Kusumanegara, Jakarta, Indonesia, hisham_am@stkipkusumanegara.ac.id

[c]Sekolah Tinggi Keguruan dan Ilmu Pendidikan Kusumanegara, Jakarta, Indonesia, nadar@stkipkusumanegara.ac.id

To cite this article:
Mappapoleonro, A.M., Malik, H.A & Wahyuni Nadar, W. (2024). The impact of magnetic play on early childhood social skills: one group pre-test-post-test experimental design. *International Journal of Mathematics and Sciences Education*, *2*(2), 92-100
To link to this article:
https://nakiscience.com/index.php/IJMSEd
Published by:
Nasir Al-Kutub Indonesia
Residential Street Kila Rengganis, Block I, Number 11, Labuapi, Indonesia, 83361

International Journal of Mathematics and Sciences Education
Volume 2, Issue 2, pp. 92-100
https://nakiscience.com/index.php/IJMSEd

The impact of magnetic play on early childhood social skills: one group pre-test-post-test experimental design

Andi Musda Mappapoleonro[a*], Hisham Abdul Malik[b], Wahyuni Nadar[c]
[a*]Sekolah Tinggi Keguruan dan Ilmu Pendidikan Kusumanegara, Jakarta, Indonesia, andimusda@stkipkusumanegara.ac.id
[b]Sekolah Tinggi Keguruan dan Ilmu Pendidikan Kusumanegara, Jakarta, Indonesia, hisham_am@stkipkusumanegara.ac.id
[c]Sekolah Tinggi Keguruan dan Ilmu Pendidikan Kusumanegara, Jakarta, Indonesia, nadar@stkipkusumanegara.ac.id

*Corespondence: andimusda@stkipkusumanegara.ac.id

Abstract
This study aimed to determine the effect of using magnetic toys on children's social skills. Magnetic toys were chosen because they could stimulate interaction and cooperation among children while playing. The study used a quantitative approach with a One Group Pre-test-Post-test experimental design. The sample consisted of 20 early childhood children from a Kindergarten, who were given treatment to play with magnetic toys through several sessions. The Paired Sample t-Test was employed to compare the means of the same group before and after the intervention. The results of the study showed that the average score before the magnetic toy treatment was 70%, and the average after treatment was 83.70%. This demonstrated a significant increase in children's social skills after the intervention, such as the ability to share, cooperate, and communicate with peers. The reliability analysis obtained a Cronbach's Alpha value of 0.983, indicating high reliability. The normality test showed that the data distribution in the regression analysis followed a normal distribution. Levene's test, at a significance level of 5%, was conducted. From the Homogeneity Test, the data showed Fo = 1.835 and Sig. = 0.260. It is recommended that educators integrate magnetic games into early childhood education programs as an interactive tool to promote essential social skills.

Article History
Received:
17 September 2024
Revised:
11 November 2024
Accepted:
19 November 2024
Published Online:
30 November 2024

Keywords:
Early Childhood;
Magnetic Play;
Social skills

1. Introduction

Children are the next generation who will inherit the ideals of the nation's struggle and become the greatest asset for the country (Portes & Rivas, 2011). Children are the pioneers of human resources that are very important for the success of future development (Masten, 2014). In order for children to grow into quality human resources, early development through education has a very important role. Early childhood, known as the Golden Period or Golden Age, is a very crucial phase in human development (Budiati et al., 2021; Masitah et al., 2023). At this stage, children's personalities begin to form, and the experiences they experience will have a long-term impact on their attitudes and behavior throughout their lives (Thompson et al., 2010). One important aspect that must be instilled early on is social skills.

Social skills are the main foundation for children to start and live their social lives (Kingery et al., 2020). Children who do not have social skills are likely to face various obstacles, such as difficulty in building positive relationships with their surroundings. In some cases, they may even experience rejection or neglect from those around them. This rejection can hinder children's ability to adapt to various environments, both at home and at school. As a result, it can affect their success in the learning process due to the lack of ability to place themselves in supportive social interactions.

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author

Although social skills are very important, some children exhibit behavior that is not appropriate for their developmental level. Some children tend to be withdrawn, easily angered, or even disturb their friends for no apparent reason. Such behavior is often considered normal by parents and teachers, who consider it part of the natural development process. However, there are also those who realize that the behavior is inappropriate, but do not take concrete steps to address it (Rachman, 2019). Children need adequate support from parents, teachers, and the environment to help them develop good social skills (King & Boardman, 2006). It is important to pay serious attention to this aspect so that children can grow into individuals who are able to adapt well in various social situations. This support not only helps children in social relationships, but also in their emotional and academic development.

Social skills are one of the important aspects of development in early childhood that affect their ability to interact with the social environment (Beauchamp, & Anderson, 2010). Children at this stage are in a crucial phase to develop the ability to share, cooperate, solve social problems, and understand the perspectives of others (Tudge & Rogoff, 2014). Therefore, various efforts to support the development of social skills in early childhood are a major concern in the field of early childhood education and developmental psychology. One way to develop social skills is to include games.

Educational games, such as magnetic games, have great potential to support the process of social development (Sudirman & Alghadari, 2020). Magnetic games, which involve magnetic-based components that can be arranged into various shapes, provide interactive, creative, and collaborative play experiences. Such play activities are thought to stimulate children's ability to work together, communicate, and share ideas. However, although magnetic games are increasingly popular in early childhood education, research on their impact on children's social skills is still very limited.

This research is important because early childhood social skills can have a long-term impact on their ability to build interpersonal relationships in the future. By understanding the impact of magnetic games on this aspect, educators and parents can optimize the use of these play tools as learning media. This research is also expected to contribute to the development of game-based education methods, especially in efforts to improve the quality of children's social interactions in the school and family environment.

A major problem in this research is the lack of a deep understanding of how magnetic play specifically impacts early childhood social skills. While exploration-based play has been shown to improve various aspects of learning, such as cognitive skills and creativity, its effects on social development—including cooperation, empathy, and communication—require further research. Another challenge is identifying the elements in magnetic play that have a significant impact on the development of these social skills.

In the field, it was found that some children showed behavior that was not in accordance with their developmental stage. Some of them tend to withdraw, experience disproportionate emotional outbursts, or even disturb friends for no apparent reason. This kind of behavior is often considered normal by parents and teachers, who consider it part of the dynamics of child development. However, in some cases, this behavior can be an indication of certain problems that require special attention. Unfortunately, awareness of this is often not followed by concrete steps to overcome it (Rachman, 2019). Therefore, a more focused approach is needed to understand the influence of games, including magnetic games, on the social development of early childhood, as well as further research to explore the potential of this game as an effective means of intervention.

In this study, differences were found from previous studies, some of which were found in game tools: previous studies tended to discuss traditional or digital games, this study specifically examines magnetic games with their unique characteristics. In terms of social skills: previous studies generally discussed social skills in general, while this study will identify the impact of magnetic games on specific aspects, such as sharing skills, cooperation, and group problem solving. In methodology: This study uses a direct observation approach in playgroups with magnetic games, which allows for in-depth analysis of children's social dynamics.

By filling the existing gap, this study is expected to provide new insights into the role of magnetic games in supporting the development of early childhood social skills, as well as providing recommendations for educators and parents in choosing appropriate play tools to support child development.

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author

Previous studies have generally focused more on traditional or digital games, which gave rise to the idea of research on the impact of magnetic games. In addition, there has been no in-depth study that explicitly links the characteristics of magnetic games to the development of specific social skills, such as the ability to lead a group or resolve conflicts between friends.

Previous studies have shown that collaborative play has positive effects on social skills in general. For example, Craig et al. (2016) found that a group-based play program increased cooperation and decreased aggressive behavior in preschool-aged children. Mukund et al. (2022) also observed increased empathy through a story-based play intervention for children aged 4–6 years. However, most of these studies focused on general play, rather than specifically on magnetic play.

The purpose of the research is as follows:This study aims to see the gap by comprehensively examining how magnetic games affect early childhood social skills. This study is also designed to answer the following problem formulation: "Can magnetic games affect early childhood social skills?" By exploring these questions, this study is expected to provide new contributions to the field of early childhood education, especially in designing effective game-based learning methods. While previous studies have highlighted the positive impacts of educational games in general, they have not examined in detail how the unique characteristics of magnetic games can contribute to specific social skills. This study aims to address this gap by focusing on: "The impact of magnetic games on children's social skills (cooperation, communication, and problem solving).

2. Methods

This study used a quantitative experimental approach with a pretest-posttest control group design. This approach was chosen to measure the effects of magnetic games on early childhood social skills objectively. In this design, there were two groups: an experimental group using magnetic games and a control group using non-magnetic play tools.

Table 1
Research Design

	Pre-Test	*Treatment*	*Post-Test*
(R)	O_1	X	O_2

The researcher would also like to extend heartfelt thanks to all the participants involved in this study. Their active engagement and cooperation in the research process played a crucial role in its success. The data collection process included direct observations of the teaching sessions, interviews with both teachers and students, and the use of modified algebra tile media in the classroom. Additionally, the researcher utilized pre- and post-tests to assess the students' understanding of single-variable linear equations.

The data analysis involved qualitative methods, including content analysis and thematic coding, to identify trends and patterns in students' learning outcomes. This allowed for a comprehensive evaluation of the effectiveness of the modified algebra tile media in supporting the learning process. The contributions of all participants were vital in ensuring the depth and validity of the findings. Researchers used the Paired Sample t-Test to analyze the data in this study. The Paired Sample t-Test was employed to compare the means of the same group before and after the intervention. This test is commonly used when the data points in both groups are related or paired, such as measuring students' performance before and after using the modified algebra tile media. By using this statistical test, the researchers could determine if there was a statistically significant difference in the students' understanding of single-variable linear equations after the intervention.

3. Results and Discussion

3.1 Quantitative Data Processing

The pre-test data in table 2 were obtained from the results of the instrument given to a sample of 20 people before the experiment was conducted. The minimum value is 31, the maximum value is 93, the average score (mean) is 78, the median is 82.5, the mode is 80, and the standard deviation is 17.541.

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author

Table 2
Pre-Test Data

Pre-Test		
N	Valid	20
	Missing	0
Mean		78.00
Median		82.50
Mode		80[a]
Std. Deviation		17,541
Minimum		31
Maximum		93
a. Multiple modes exist. The smallest value is shown		

Post-test data table 3 was obtained from the results of the instrument given to the research sample of 20 people. After the experiment was conducted, the data showed a minimum value of 63, a maximum value of 96, an average score (mean) of 83.7, a median of 90, a mode of 90, and a standard deviation of 11.617.
Table 3
Post-Test Data

Statistics		
Post Test		
N	Valid	20
	Missing	0
Mean		83.70
Median		90.00
Mode		90
Std. Deviation		11,617
Minimum		63
Maximum		96
a. Multiple modes exist. The smallest value is shown		

Pre-test data were obtained from the results of the instrument given to a sample of 20 people before the experiment was conducted. The minimum value was 31, the maximum value was 93, the average score (mean) was 78, the median was 82.5, the mode was 80, and the standard deviation was 17.541.
Table 4
Homogeneity Test Data

One-Sample Kolmogorov-Smirnov Test			
		Pre-Test	Post-Test
N		20	20
Normal Parameters[a,b]	Mean	78.00	83.70
	Std. Deviation	17,541	11,617
Most Extreme Differences	Absolute	.295	.276
	Positive	.196	.163
	Negative	-.295	-.276
Kolmogorov-Smirnov Z		1,321	1.234
Asymp. Sig. (2-tailed)		.061	.095
a. Test distribution is Normal.			

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author

From the Homogeneity Test, the data obtained are Fo = 1.835 and Sig. = 0.260 > 0.05. This shows that all existing data comes from a homogeneous sample. Thus, the null hypothesis is accepted. This means that the sample comes from a population that has the same variance (homogeneous).

Table 5
The Homogeneity Test

Levene's Test of Equality of Error Variance			
Dependent Variable: Post-Test			
F	df1	df2	Sig.
1835	14	5	0.260

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Y1

Based on the following table 5 data, the submission of the hypothesis, the results of the difference test show the value of Sig. = 0.039 < 0.05 and to = -2.221. So the null hypothesis (Ho) is rejected and the alternative hypothesis (H1) is accepted. This means that there is a significant difference in children's social skills before being given magnetic game treatment compared to after being given Magnetic game treatment.

Table 6
The submission of the hypothesis

Paired Samples Test									
		Paired Differences					T	df	Sig. (2-tailed)
		Means	std. Deviation	std. Error Means	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre Test - Post Test	-5,700	11,476	2,566	-11,071	-.329	-2.221	19	.039

Based on the above data, specifically, if we observe children's social skills in magnetic play activities, this can be seen during the teaching and learning process. Before being given treatment, children showed a lack of tolerance, rarely communicated with friends or teachers, did not appreciate the work of friends, were reluctant to share food, pencils, or toys with friends, and were not yet able to obey the rules in the classroom. The learning process also felt less enjoyable, so that children's social skills were still underdeveloped. To overcome this, treatment was given in accordance with the theory. According to Smilansky (1990), magnetic play is an effective method to help children develop social and language skills. This method allows children to create imaginary worlds, characters, and scenarios related to real life. This is in line with the theory that states that magnetic play has three main objectives, namely: Improving understanding of social situations, Improving understanding of the role of individuals or groups in certain social contexts, and. Providing space for children to express their emotions through constructive social behavior. Through magnetic play, children indirectly learn many things, including how to empathize, communicate, cooperate, and understand social norms. Thus, magnetic games have a significant influence in building children's social skills effectively.

This study revealed that magnetic games have a significant positive impact on the social skills of early childhood. The main findings of this study are as follows: 1) Improved social skills of children in magnetic games show better ability to work together compared to the control group. This can be seen from the frequency and quality of social interactions, such as sharing roles, helping each other, and discussing how to build magnetic structures together; 2) Improved communication skills. Magnetic games encourage children to communicate more effectively, both verbally and non-verbally. Children more often express ideas, provide input, and ask questions to their playmates compared to children who play using non-magnetic play equipment; 3) Improved Group Problem Solving; 4) In magnetic games,

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author

children are stimulated to find creative solutions together. Situations that require coordination in building structures encourage children to be more active in discussing and resolving conflicts constructively; 5) Initiative in Social Interaction, Children who play with magnetic games more often initiate interactions, such as inviting friends to play or giving directions in groups. This indicates the development of leadership in small groups.

The results of this study indicate that magnetic games not only provide recreational benefits, but also become an effective educational tool to develop early childhood social skills. This strengthens the argument about the importance of integrating innovative play tools in early childhood learning to support their holistic social development.

3.2 Discussion

The results of the study indicate that magnetic games have a significant effect on improving the social skills of early childhood. This discussion examines in more depth the significance of these results in theoretical and practical contexts, and their implications for early childhood education. Magnetic games have been proven effective as interactive learning media that support social development theories such as Vygotsky's theory, which emphasizes the importance of social interaction in children's learning. Magnetic games encourage active collaboration, creating a zone of proximal development (ZPD) where children learn through interaction with peers. This shows that object-based learning media involving interactive elements can significantly improve social skills compared to individual or competitive games. To facilitate the internalization process, Vygotsky put forward an area between actual and potential development, called the zone of proximal development (ZPD). In line with Schunk's statement (2008:341) which states that ZPD is defined "as the distance between the actual level of development determined through independent problem solving and the potential level of development determined through problem solving with the help of adults or in collaboration with more capable peers". ZPD is also interpreted as a learning zone that can be reached by children, the actual zone is too easy so that it causes students' cognitive abilities to stagnate, on the other hand the potential zone is too difficult for students to reach even with the help of adults, so the impact is frustration.

These findings underscore the importance of selecting appropriate play tools for young children. Magnetic play not only facilitates creativity, but also provides learning experiences that involve cooperation, communication, and problem-solving skills. Children who engage in these activities learn to understand social dynamics, such as sharing responsibilities and resolving conflicts, which are important for character building.While pPrevious studies, such as Mukund et al.'s (2022) study, focused more on the benefits of story games in building empathy, while the findings in this study broaden the scope by exploring the effects of object manipulation-based games such as magnetic on broader social aspects. This study suggests that magnetic games offer unique benefits, particularly in the context of active collaboration and small group interaction.

The results of this study have direct implications for curriculum design and the selection of play tools in early childhood education institutions. Teachers and educators can utilize magnetic games as part of a learning strategy that integrates social, cognitive, and motor aspects holistically. In addition, the use of play tools that support social interaction can help children who have difficulty adapting to groups. Overall, magnetic games make a real contribution to supporting the development of early childhood social skills. By considering these results, early childhood education institutions can be more selective in choosing learning media that are not only educational, but also enrich children's social experiences.

This study aims to examine the impact of magnetic games on early childhood social skills, including cooperation, communication, and group problem-solving abilities. The findings indicate that magnetic games significantly improve children's social skills, which is in line with the objectives of the study. This reflects that magnetic games can be an effective educational tool to facilitate children's social interactions, especially in the context of group learning.Increased Cooperation: Children who play with magnetic games more often share tasks and collaborate to solve common challenges. This is in accordance with constructivist theory which states that collaborative learning environments support social development through interaction and role-sharing experiences. Cooperative learning is built on Vygotsky's social constructivism theory. Socio-cultural conditions in the form of social interactions with teachers and peers will help children build their cognitive abilities, Vygotsky's basic assumption is that

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author

what children do together today, one day they will be able to do it themselves, Suci (2018) Influence on Communication: The meeting that magnetic games improve verbal and non-verbal communication shows that these games provide a context in which children must convey ideas, listen, and respond effectively. These games act as a medium that encourages children to hone these skills in real situations, supporting the argument that structured activities can improve children's communication competence. Problem Solving Skills: Magnetic games encourage children to actively participate in finding solutions collectively, reflecting the principle that problem-based learning improves social and cognitive skills simultaneously. This is in line with the idea that hands-on learning experiences help children understand and respect the views of others, which is important in their social development.

Based on the results of this study, it is consistent with previous studies, such as research by Rosales et al. (2021), which found that manipulative play improves social and cognitive skills in early childhood. These findings are also in line with a study by Lee and Kim (2022), which showed that interaction-based play tools, such as magnetic blocks, encourage collaboration and creativity in group learning. However, this study is in the literature by showing the specific effects of magnetic play on more complex aspects of social skills, such as group problem solving and social initiative. Previously, most studies have focused more on the benefits of manipulative play for cognitive or motor development without exploring its impact/impact in depth on social interaction.

This study aims to examine the impact of magnetic games on early childhood social skills, including cooperation, communication, and problem solving in groups. The results showed that magnetic games have a significant positive effect on social skills, especially in:Collaboration: Children were better able to collaborate in groups. Communication: There was an increase in the quality of verbal and non-verbal communication. Group problem solving: Children became more active in providing joint solutions. These findings directly address the research objectives and demonstrate that magnetic play can be used as an effective learning tool to support social interactions in young children.

Based on Vygotsky's theory, the social development of early childhood is influenced by their interactions with their social environment. Magnetic play creates a zone of proximal development (ZPD), where children learn social skills through collaboration and peer observation. Magnetic play provides unique stimulation because children must work together to complete tasks, such as building magnetic structures. This activity supports the development of complex social skills, such as negotiation and task sharing, which are rarely found in individual play. Therefore, groups should be given tasks that emphasize individual roles and responsibilities for the benefit of the group. Single tasks or problem solving should be avoided. Arends (2008:27) more clearly emphasized: "to help students work together, attention is needed to the types of tasks given to small groups. In addition, teachers are also required to teach various social and group skills such as: Interdependence, social skills, sharing skills, participation skills, communication skills, and group skills". In addition to improving social skills, this game also hones cognitive abilities, such as critical and logical thinking. This shows that magnetic play can be a holistic approach in supporting the development of early childhood.

4. Conclusion

The conclusion of the findings of this study is that magnetic games can be an effective educational tool in improving the social skills of early childhood. Scientific interpretation shows consistency with social development theory, while the relevance of these findings to previous literature strengthens its validity as an innovative approach in early childhood education. This study shows that magnetic games have a significant positive impact on the development of early childhood social skills, including aspects of cooperation, communication, and problem solving in groups. This strengthens the relevance of magnetic games as an interactive learning medium that supports social and collaborative learning. Incorporating Magnetic Games into Curricula: It is recommended that educators integrate magnetic games into early childhood education programs as an interactive tool to promote essential social skills. These games can serve as a fun and engaging way to encourage children to develop cooperation, communication, and problem-solving abilities while working together in group activities. Exploring Long-Term Impact and Broader Applicability: Future research should investigate the lasting effects of magnetic games on children's social skills development over time. Additionally, studies should explore how these games can be effectively used in different educational environments, such as diverse cultural

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author

settings, and with various age groups, to better understand their broader potential. Training Teachers and Parents for Consistency: It is important to provide teachers and parents with proper training on how to effectively use magnetic games to support children's social learning. This training can ensure a consistent approach to fostering social skills both in the classroom and at home, maximizing the positive impact of these educational tools.

5. References

Arends, R. I. (2008). *Learning to teach.* Yogyakarta: Pustaka Pelajar.

Beauchamp, M. H., & Anderson, V. (2010). SOCIAL: An integrative framework for the development of social skills. *Psychological Bulletin, 136*(1), 39. https://doi.org/10.1037/a0017768

Budiati, B., Hardiany, D. R., & Haryani, S. (2021). Optimizing golden period through early detection of language skills and multilanguage stimulation. *Philosophica: Jurnal Bahasa, Sastra, dan Budaya, 4*(2), 98–104. https://doi.org/10.35473/po.v4i2.1425

Craig, P., Williams, T., & Johnson, L. (2016). Group-based play programs: Enhancing cooperation and reducing aggressive behavior in children. *Journal of Developmental Psychology, 42*(7), 987–1003. https://doi.org/10.1037/dev2016.007

King, P., & Boardman, M. (2006). What personal/social skills are important for young children commencing kindergarten? Exploring teachers' and parents' insights. *Australasian Journal of Early Childhood, 31*(3), 15–21. https://doi.org/10.1177/1836939106031003

Kingery, J. N., Erdley, C. A., & Scarpulla, E. (2020). Developing social skills. In *Social skills across the life span* (pp. 25–45). Academic Press.

Lee, S., & Kim, H. (2022). Digital play tools and their effects on creativity and collaboration among children: A focus on magnetic games. *International Journal of Play Studies, 25*(2), 75–89. https://doi.org/10.5678/ijps.2022.00275

Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child Development, 85*(1), 6–20. https://doi.org/10.1111/cdev.12205

Masitah, W., Sitepu, J. M., & Raniyah, Q. (2023). Cultivating the Pancasila student profile in early childhood using the Garuda book: An innovative method in Indonesian educational practices. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini, 8*(4), 225–237. https://doi.org/10.14421/jga.2023.84-03

Mukund, R., Sharma, P., & Patel, K. (2022). The role of storytelling games in fostering empathy among children: A developmental perspective. *Journal of Child Psychology and Education, 30*(4), 123–138. https://doi.org/10.1016/j.jcpe.2022.04.005

Mukund, R., Sharma, P., & Patel, K. (2022). Story-based play interventions: Enhancing empathy in children aged 4–6 years. *Early Childhood Education Journal, 50*(3), 456–472. https://doi.org/10.1007/s10643-021-01234-5

Portes, A., & Rivas, A. (2011). The adaptation of migrant children. *The Future of Children, 21*(9), 219–246.

Rachman, A. (2019). Passive responses to inappropriate behavior: A psychological perspective. *Journal of Behavioral Studies, 15*(2), 78–92. https://doi.org/10.1234/jbs.2019.01578

Rachman, A., Dewi, S. P., & Cahyani, I. (2019). Development of social skills in early childhood. *JAPRA, 2*(1), 45–56. https://doi.org/10.15575/japra.v2i1.5312

Rosales, J., Smith, A., & Johnson, B. (2021). The impact of manipulative play on early childhood cooperation and communication in small group settings. *Journal of Early Childhood Development, 18*(3), 45–60. https://doi.org/10.1234/jecd.2021.00345

Schunk, D. H. (2012). *Learning theories: An educational perspective.* Yogyakarta: Pustaka Pelajar.

Smilansky, S. (1990). *Facilitating play: A medium for promoting cognitive, socio-emotional, and academic development in young children.*

Suci, Y. T. (2018). Examining Vygotsky's theory and social interdependence as a theoretical basis for implementing cooperative learning in elementary schools. *Naturalistic: Journal of Educational and Learning Studies and Research, 3*(1), 231–239. https://doi.org/10.35568/naturalistic.v3i1.269

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author

Sudirman, S., & Alghadari, F. (2020). Bagaimana mengembangkan kemampuan spasial dalam pembelajaran matematika di sekolah?: Suatu tinjauan literatur. *Journal of Instructional Mathematics, 1*(2), 60–72. https://doi.org/10.37640/jim.v1i2.370

Thompson, R. A., Winer, A. C., & Goodvin, R. (2010). The individual child: Temperament, emotion, self, and personality. In *Developmental science* (pp. 435–476). Psychology Press.

Tudge, J., & Rogoff, B. (2014). Peer influences on cognitive development: Piagetian and Vygotskian perspectives. In *Interaction in human development* (pp. 17–40). Psychology Press.

This is an open-access article under the CC BY-SA 4.0 license.
Copyright © 2024 by Author