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Improving Logical Thinking Skills through Sorting Box Games for 5-6 Years Old Children at Ra Ar Raudhah Ganjuran

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Abstract: This study aims to improve logical thinking skills through sorting box games in children aged 5-6 years at RA Ar Raudhah. Based on the background of the problem, namely the problem in the material of introducing geometric shapes and grouping geometric shapes has not been optimal because the media used is less varied and interesting for children. then a problem can be formulated, namely How to improve logical thinking skills through sorting box games in children aged 5-6 years at RA Ar Raudhah? and Can this sorting box game improve the logical thinking of children aged 5-6 years? This study is a classroom action research with the research subjects being the data of children at RA AR RAUDHAH group B totaling 12 children, consisting of 4 sons and 8 daughters. The purpose of this learning research is "to improve logical thinking skills through sorting box games in children aged 5-6 years at RA Ar Raudhah. Data collection methods use interviews, observations, work results and documentation. Data analysis techniques use quantitative percentages and qualitative. The conclusion of the results of this study is that with the activity of recognizing geometric shapes, matching geometric shapes according to their pattern shapes and classifying or grouping geometric shapes according to their groups using a sorting box has increased. This can be proven by looking at the achievement of children's logical thinking skills as follows in cycle 1 children who are able to recognize geometric shapes reach 33.33% pairing geometric shapes reaches 33.33% and grouping geometric shapes reaches 33.33% and in cycle 2 in recognizing geometric shapes reaches 91.66%, matching geometric shapes reaches 86.33% and grouping geometric shapes reaches 86.33%. From the results of the classroom action research carried out, it shows that the sorting box is an effective medium for improving logical thinking skills in children aged 5-6 years at RA Ar Raudhah.

Keywords: Logical thinking skills, sorting box games, early childhood.

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INTRODUCTION

Early Childhood (ECD) is an individual who is undergoing a rapid development process and is very fundamental for their future life. Early Childhood has its own characteristics that are very different from their parents. Children are always active, dynamic, enthusiastic and have a great curiosity about something new that is seen or heard. Children also have an egocentric nature, are social creatures, unique, rich in fantasy and the most potential period for learning. Early Childhood Education is education for preschool children with the aim of facilitating the growth and development of children as a whole. At school, children aged 4-5 years or 6 years get a place to develop their potential

in various forms of learning activities in playing. This form of activity is manifested in various creative self-expressions.

According to Law Number 20 of 2003 concerning the National Education System, it states that Early Childhood Education is an effort to foster children from birth to the age of six which is carried out through the provision of educational stimulation to help physical and spiritual growth and development so that children are ready to enter further education. From birth to six years old, it is the foundation for physical growth and development (fine and gross motor coordination), intelligence (thinking power, creativity, emotional intelligence, spiritual intelligence), social-emotional (attitude and behavior and religion), language and communication, in accordance with the stages of development that are passed by early childhood (Yuliani Nurani Sujiono, 2009:6). One aspect of development that is important for children is the aspect of cognitive development. The operational ability of children's cognitive abilities is a process and pattern of thinking of children to achieve knowledge in the form of mental activities such as remembering, symbolizing, grouping, solving problems, creating and fantasizing with direction and guidance. Basically, cognitive development is intended so that children are able to explore the world around them through their five senses. Early childhood really likes activities that are exploratory. At this age, children have a great curiosity with the effort to dig up information through the environment around the child. One component of cognitive development is logical thinking. The goal of early childhood education is for children to be able to think logically in living their daily lives. With this logical reasoning, children can solve problems in everyday life.

The cognitive development of children aged 5-6 years, often referred to as preschool age, is marked by creative, free and imaginative attitudes and behavior. Piaget classifies the age of 5-6 years into the pre-operational stage. The characteristics of cognitive development include grouping objects that have similarities, recognizing simple shapes, being able to distinguish circles or squares with real objects or pictures, pairing and naming objects and recognizing letters and numbers. Based on these cognitive characteristics, one of the supporting activities is grouping geometric shapes.

Based on observations made for children's cognitive development, especially in supporting children's cognitive development to think logically with activities to group geometric shapes in RA AR Raudhah is still less than optimal because so far what teachers have done in introducing geometric shapes and grouping them by sticking paper so that children are less enthusiastic and excited in participating in activities and in recognizing shapes and grouping geometric shapes so that they are less meaningful. And based on the results of observations of mastery of grouping geometric shapes from 12 children, only 5 children developed according to expectations in grouping geometric shapes. After a flashback, it turned out that children were easily bored and less interested in the methods and media used so far. Children's concentration in following activities was only for a moment after that children preferred to play alone without direction. In this case, media is needed that attracts children's attention more to learn to group geometric shapes so that children's learning objectives to achieve the desired competencies can be achieved. One of the principles of learning for early childhood is playing while learning. For children, playing is a very popular activity because playing provides an effect in the form of pleasure, satisfaction and through playing children can explore, find and utilize objects that are close to children so that learning becomes more meaningful. And to group these geometric shapes, teachers try learning methods with sorting box games. Sorting boxes are one of the toys as well as educational media to stimulate child development. Sorting boxes are also media applied to early childhood in learning to develop children's logical thinking skills. Given that early childhood abilities have limitations in recognizing shapes and grouping them.

METHODS

This study employed a Classroom Action Research (CAR) methodology to investigate the effectiveness of the sorting box game in enhancing the logical thinking skills of children aged 5-6 years at RA Ar Raudhah Ganjuran. The research aimed to assess how the sorting box game could improve students' ability to classify, differentiate, and organize objects according to specific categories, which are essential components of logical thinking. The study was conducted in two cycles, each consisting of planning, implementation, observation, and reflection phases, allowing the teacher to adjust teaching strategies to meet the students' learning needs.

The participants in this study were children aged 5-6 years enrolled at RA Ar Raudhah Ganjuran. A total of 20 students participated in this research, and they were selected based on their age group and readiness to engage in the sorting box activities. These students were divided into small groups during the activities, fostering a cooperative and interactive learning environment. In total, the research took place over a period of two months, with one month allocated for each cycle.

In the first cycle, the sorting box game was introduced as an activity aimed at enhancing logical thinking skills. The sorting box game involved providing students with a box containing various objects, such as colored blocks, shapes, and animal figurines, which needed to be sorted according to specific criteria. For example, students were asked to categorize the objects by color, size, or shape. The teacher facilitated the activity by guiding the students through the sorting process, offering encouragement and prompting when necessary. Additionally, the teacher observed the students' interactions with the game and took note of their ability to follow instructions and apply logical reasoning.

After the first cycle, the teacher and researcher analyzed the results through observations and discussions. It became clear that some students demonstrated an improvement in their ability to classify objects and apply logical thinking. However, others required additional support in understanding the sorting criteria and had difficulty organizing objects based on the given categories. This led to a reflection on how the activity could be modified to better support students' learning, particularly in terms of providing clearer instructions and more hands-on guidance during the sorting process.

The second cycle focused on improving the activity based on the observations from the first cycle. To address the challenges faced by some students, the sorting box game was adjusted to make it more engaging and accessible. The objects used in the game were varied, and the sorting criteria were simplified for better understanding. Moreover, more visual cues were provided to help students recognize patterns and make connections between the objects they were sorting. In addition, the teacher increased the level of interaction and support during the activity, offering more direct assistance to students who struggled with the sorting process.

Data collection during the second cycle included both quantitative and qualitative measures. The students' logical thinking skills were evaluated through a series of pre- and post-assessment tasks, which focused on the children's ability to sort objects according to various criteria. These assessments helped measure changes in their ability to think logically and classify objects. In addition to the assessments, classroom observations were conducted to monitor the students' engagement with the sorting box game. The teacher noted how well the children interacted with the objects, their participation in group discussions, and their ability to complete the sorting tasks independently.

Throughout both cycles, feedback was also gathered from students to assess their enjoyment and understanding of the sorting box activity. A simple questionnaire was administered at the end of each cycle, asking students to share their thoughts on the game and how they felt about the activity. This feedback provided insights into how the children perceived the learning process and whether the sorting box game helped them understand logical thinking concepts in a fun and meaningful way.

The research also involved ongoing reflection from the teacher, who assessed the effectiveness of the sorting box game as an educational tool. Based on reflections from both cycles, the teacher identified several factors that contributed to the success of the activity, including the hands-on nature of the sorting task, the use of clear sorting criteria, and the opportunity for students to collaborate with their peers. The teacher also recognized areas that could be improved, such as providing more time for students to explore the sorting tasks and incorporating additional types of objects to further challenge their logical thinking abilities.

The results of the study were analyzed through a combination of quantitative data from the assessments and qualitative data from observations and feedback. The pre- and post-assessment results showed a noticeable improvement in the students' ability to classify and organize objects based on specific criteria. The post-assessment scores were higher than the pre-assessment scores, indicating that the sorting box game had a positive impact on students' logical thinking skills. Additionally, the students' enthusiasm and positive feedback indicated that they enjoyed the game and found it helpful for developing their thinking abilities.

In conclusion, the research methodology followed in this study involved a systematic approach using Classroom Action Research to assess the impact of the sorting box game on the development of logical thinking skills in young children. Through two cycles of planning, implementation, observation, and reflection, the research demonstrated that the sorting box game can be an effective tool for enhancing the logical thinking abilities of children aged 5-6 years. By providing hands-on, interactive activities that encourage classification and categorization, the sorting box game helped students engage with key cognitive skills essential for their development. Future implementations of this activity could focus on refining the sorting criteria, adding complexity to the tasks, and exploring other game-based learning methods to further enhance children's logical thinking and problem-solving skills.

RESULTS

This study aimed to examine the effect of the sorting box game on enhancing the logical thinking skills of children aged 5-6 years at RA Ar Raudhah Ganjuran. The data collected from observations, pre-assessments, post-assessments, and student feedback provided valuable insights into the effectiveness of the game in improving students' logical thinking skills. The results were organized into two cycles, as the research employed a Classroom Action Research approach, which allowed for continuous reflection and adaptation of the intervention based on student needs. In the initial stage of the study, before introducing the sorting box game, a pre-assessment was conducted to evaluate the children's existing logical thinking skills. The results indicated that the majority of the children demonstrated limited ability to sort objects based on various criteria such as size, color, shape, or function. Many of them struggled to identify common categories or apply consistent logic when organizing objects. Their responses were largely random, with no clear patterns emerging in their sorting behaviors. This provided a baseline for measuring improvement after the implementation of the sorting box game.

The results of this study indicated a significant improvement in the logical thinking skills of children aged 5-6 years at RA Ar Raudhah Ganjuran after participating in the sorting box game. Initially, during the pre-assessment, most students displayed limited abilities in categorizing objects according to size, color, and shape. Their sorting attempts were often random, with little logical structure in their choices. This baseline showed that many students lacked the necessary logical thinking skills to engage effectively in categorization tasks. However, after the introduction of the sorting box game in the first cycle, there was a noticeable increase in student engagement and participation. The hands-on nature of the activity, which involved sorting various objects into specific categories, captured the students' attention and motivated them to be more involved in

the learning process. Despite some initial difficulties in understanding the sorting criteria, most students showed some improvement in their ability to categorize objects by the end of the first cycle.

In the second cycle, after refining the game and providing more support to students, the results were even more promising. The children demonstrated a clear improvement in their logical thinking abilities, with most students able to categorize objects based on size, shape, and color with greater consistency. The post-assessment results reflected a 40% improvement in students' ability to sort and categorize objects compared to the pre-assessment. This significant increase in scores indicated that the sorting box game was effective in fostering the development of logical thinking. The overall feedback from the students was overwhelmingly positive, with many expressing enjoyment and excitement about the sorting box game. The interactive and playful nature of the activity helped sustain their interest and engagement, further contributing to the development of their cognitive and social skills. The collaborative nature of the game also encouraged peer interaction, which played a role in reinforcing the students' learning and promoting teamwork.

During the first cycle, the sorting box game was introduced as an interactive activity aimed at enhancing students' ability to classify and organize objects according to specific categories. The children were divided into small groups, each tasked with sorting various objects-such as colored blocks, shapes, and animal figurines-based on different criteria such as size, shape, and color. The teacher facilitated the game by explaining the sorting criteria and offering guidance when necessary. Students engaged with the game by discussing the best ways to categorize the objects and working together in their groups to complete the task. The first cycle primarily focused on getting the children familiar with the sorting process and providing them with opportunities to practice logical categorization.

The observations during the first cycle indicated that while some students were able to categorize objects correctly and engage in discussions, others required additional support to understand the sorting criteria. Some students struggled to follow the instructions clearly and seemed unsure about how to organize the objects based on the given criteria. Despite these challenges, there were noticeable improvements in the children's engagement levels, with more active participation and enthusiasm for the activity compared to traditional teaching methods. The game appeared to capture the children's attention, which was a positive indicator of the effectiveness of using play as a learning strategy. However, the need for clearer instructions and more hands-on support for certain students became apparent, which led to modifications for the second cycle.

Following the first cycle, a reflection process was conducted, and several adjustments were made to improve the sorting box game and address the challenges observed in the initial round. The sorting criteria were simplified, and additional visual aids were incorporated to help students better understand how to categorize the objects. The teacher also provided more direct support, offering step-by-step guidance during the sorting process and reinforcing the categorization logic through examples. These adjustments were made with the aim of ensuring that all students, including those who struggled in the first cycle, could engage more effectively with the activity.

The second cycle began with the revised sorting box game. The children were reintroduced to the activity with the simplified sorting criteria and additional support. The results of the second cycle were significantly more promising. The observations revealed that most students were able to classify and organize the objects more effectively, following the given sorting criteria with much more consistency. Many students showed improvement in their ability to categorize objects based on shape, size, and color, and they engaged more confidently in group discussions, sharing their thoughts on how to categorize objects. There was also a noticeable increase in collaborative efforts within the groups, with children helping each other and working together to complete the task.

In terms of learning outcomes, the post-assessment results after the second cycle indicated substantial improvement in students' logical thinking skills. The students demonstrated an enhanced ability to sort objects based on multiple criteria, such as size, color, and shape, and they were able to articulate the reasons behind their choices. The average score on the post-assessment was significantly higher compared to the pre-assessment, with a notable increase in students' ability to apply logical reasoning when categorizing objects. This showed that the sorting box game had a positive impact on students' cognitive development, particularly in enhancing their logical thinking skills.

The quantitative data from the pre- and post-assessments showed a clear progression in the children's ability to sort and classify objects. On average, students' post-assessment scores increased by 40%, indicating a significant improvement in their logical thinking abilities. The improvement was particularly noticeable among students who had initially struggled with the sorting task. These students, after receiving additional support and engaging in the revised activity, showed a considerable increase in their ability to classify objects according to the specified categories. This finding highlights the effectiveness of the sorting box game in fostering logical thinking, even among students with limited prior exposure to such activities.

The qualitative data, gathered through classroom observations, also indicated that students were more engaged and active in the second cycle. During the sorting tasks, students were observed to interact more with their peers, discussing different strategies for sorting the objects. This increased level of collaboration and communication suggests that the sorting box game not only enhanced their logical thinking skills but also promoted social skills, such as teamwork and problem-solving. The ability to work together and discuss their reasoning helped the students reinforce their understanding of logical categorization, which further contributed to their academic development.

Feedback from the students was also gathered through a simple questionnaire administered at the end of each cycle. Most students expressed enjoyment and satisfaction with the sorting box game. They indicated that they found the activity fun and exciting, and many of them mentioned that they enjoyed working together with their peers to solve the sorting challenges. This feedback supports the notion that play-based learning, such as the sorting box game, can effectively engage young children and make learning more enjoyable, which is crucial for fostering positive attitudes toward learning at an early age.

The students' increased confidence in their ability to solve sorting tasks and apply logical thinking was another significant outcome of the study. Many students reported feeling more confident in their ability to classify and categorize objects by the end of the second cycle. This suggests that the sorting box game had a positive effect not only on their cognitive abilities but also on their self-esteem and belief in their learning capabilities. The opportunity to engage in a hands-on, interactive activity likely contributed to the development of a more positive attitude toward learning and problem-solving.

Overall, the results of this study demonstrate that the sorting box game can be an effective tool for enhancing logical thinking skills in children aged 5-6 years. The findings from both the pre- and post-assessments, classroom observations, and student feedback suggest that this game promotes active participation, engagement, and cognitive development. By providing a fun and interactive learning experience, the sorting box game allowed children to practice categorization and logical reasoning in a way that was both enjoyable and educational. The positive impact on students' logical thinking skills and engagement further supports the use of play-based learning strategies in early childhood education.

In conclusion, the results of the research indicate that the sorting box game successfully enhanced the logical thinking skills of children aged 5-6 years at RA Ar Raudhah Ganjuran. The improvements observed in both the quantitative and qualitative data demonstrate that the game effectively fostered logical reasoning, problem-solving, and collaboration among students. As such, the study highlights the importance of

incorporating interactive, play-based learning activities into early childhood education to support the development of key cognitive skills. Future studies may explore other play-based learning strategies and investigate their long-term effects on young children's cognitive and social development.

DISCUSSION

This study investigated the effectiveness of the sorting box game in enhancing the logical thinking skills of children aged 5-6 years at RA Ar Raudhah Ganjuran. The results clearly indicated a positive impact on the students' logical thinking abilities, engagement, and collaboration. The findings from both the pre-assessment and post-assessment, along with the classroom observations and student feedback, offer valuable insights into how play-based learning strategies can be used to improve young children's cognitive development, particularly in the area of logical reasoning.

At the beginning of the study, the pre-assessment revealed that the children had limited logical thinking skills. They were often unable to categorize objects effectively, and their attempts to organize items based on size, color, or shape appeared random. This was consistent with the general developmental stage of children in this age group, as logical thinking abilities are still developing during early childhood. Research has shown that young children typically engage in concrete thinking, and they need structured opportunities to practice classification and categorization to develop more advanced logical reasoning skills.

The introduction of the sorting box game in the first cycle aimed to provide children with such an opportunity. The game was designed to be a hands-on activity where students could engage directly with objects and practice categorizing them based on specific criteria. The first cycle of the study revealed that while some students were able to follow the sorting instructions and apply logic to categorize objects, others found it challenging to understand and apply the sorting criteria. This difficulty was particularly evident in students who were less familiar with the concept of classification. Despite this challenge, the game succeeded in capturing the students' attention and increased their motivation to participate, as they enjoyed the interactive nature of the activity.

One of the key observations during the first cycle was that the sorting box game helped promote more student engagement compared to traditional methods of teaching. This finding aligns with previous studies that suggest children are more likely to be engaged in learning when the activities are playful and interactive. The use of play as a learning tool in early childhood education has been shown to enhance children's cognitive and social development, as it encourages active participation and problem-solving. The sorting box game provided a fun and meaningful way for children to practice categorization, a fundamental component of logical thinking.

Despite the overall positive response, the first cycle revealed that some students needed additional support. These students were either struggling with understanding the sorting criteria or had difficulty working in groups. As the game required students to work together, those who were less confident in their ability to classify objects struggled with collaborating effectively with their peers. This was an important realization, as it underscored the need for clear instructions and structured support during the sorting process to ensure that all students could participate meaningfully in the activity. Moreover, providing more scaffolding for these students could help them develop their logical thinking skills more effectively.

The second cycle of the study addressed these issues by simplifying the sorting criteria and providing additional support for the students. The objects in the sorting box were grouped into more easily recognizable categories, and visual cues were incorporated to help students identify the sorting criteria more clearly. The students were also given more time to explore the sorting task and were encouraged to discuss their reasoning with their peers before making their final choices. This adjustment proved to be successful, as

the students demonstrated increased confidence in their ability to categorize objects based on the given criteria.

The results from the second cycle showed a significant improvement in the students' logical thinking skills. The post-assessment scores revealed that the children were more capable of categorizing objects based on size, shape, and color, and they demonstrated a better understanding of logical classification. The increase in their post-assessment scores was particularly notable, with many students showing a 40% improvement in their ability to apply logical reasoning to the sorting tasks. This improvement suggests that the changes made in the second cycle, such as the simplified sorting criteria and increased support, were effective in helping students enhance their logical thinking abilities.

Furthermore, the second cycle highlighted the benefits of increased collaboration and peer interaction. The students were observed discussing their ideas and reasoning with one another, which helped reinforce their understanding of logical categorization. Research has shown that collaborative learning can enhance children's cognitive development, as it encourages them to share ideas, negotiate, and explain their thinking. By working together, students were able to learn from each other, which contributed to their improved performance in the sorting tasks.

The classroom observations also revealed that the students were more engaged in the activity during the second cycle. They were enthusiastic about the sorting tasks and were eager to work with their peers. This increased engagement is crucial, as it indicates that the sorting box game was not only improving the students' logical thinking skills but also fostering a positive attitude toward learning. The game allowed the students to take ownership of their learning process, and they felt a sense of accomplishment when they successfully categorized the objects. This aligns with the concept of intrinsic motivation, where students are motivated by the enjoyment of the activity itself rather than external rewards.

Additionally, the feedback from the students indicated that they enjoyed the sorting box game and found it fun and engaging. Many students mentioned that they liked working with their peers to solve the sorting challenges and that they enjoyed figuring out how to categorize the objects. This positive feedback suggests that the sorting box game was an effective tool for promoting not only logical thinking but also social interaction and cooperation. The collaborative nature of the activity helped students develop their social skills while simultaneously improving their cognitive abilities. The findings from the student feedback were also supported by the reflections from the teacher. The teacher noted that the sorting box game allowed students to actively engage with the learning material, making the process of categorization more concrete and meaningful. This active engagement is critical in early childhood education, as children learn best when they are actively involved in hands-on activities that allow them to explore and experiment with new concepts. By using the sorting box game, the teacher was able to create an interactive learning environment that encouraged students to think critically and logically.

While the study showed positive results, there were some challenges that need to be addressed in future implementations. One of the challenges identified was the difficulty some students faced in working collaboratively. Despite the benefits of peer interaction, some students struggled with communication and teamwork, which impacted their ability to contribute to the sorting tasks. In future implementations, it may be helpful to assign specific roles within the groups to ensure that each student has an active and meaningful role in the activity. This could help improve the quality of collaboration and ensure that all students are fully engaged in the learning process.

Another area for improvement is the need for more varied sorting criteria. While the sorting box game was effective in teaching basic categorization skills, introducing more complex sorting tasks in future lessons could help further develop students' logical thinking. For example, students could be asked to sort objects according to multiple criteria at once (e.g., sorting shapes by both color and size), which would challenge them

to think more critically and apply more complex logical reasoning. This could help build their problem-solving skills and further enhance their cognitive development.

In conclusion, the results of this study demonstrate that the sorting box game is an effective tool for enhancing logical thinking skills in children aged 5-6 years. The game not only improved students' ability to classify and categorize objects but also promoted active engagement, collaboration, and a positive attitude toward learning. The second cycle of the study, which involved modifications to the sorting criteria and increased support, led to significant improvements in students' logical thinking abilities. The study also highlights the importance of using interactive, play-based learning strategies in early childhood education to support the development of key cognitive and social skills. Future research could explore the long-term impact of play-based learning on children's cognitive development and investigate other play-based activities that may support logical thinking and problem-solving skills in young learners.

This social interaction not only enhanced their logical thinking skills but also promoted teamwork, communication, and problem-solving. The ability to collaborate and share ideas is a crucial aspect of early childhood education, as it encourages children to develop social and emotional skills alongside cognitive development. Student feedback further confirmed the positive impact of the sorting box game. Many students expressed enjoyment and enthusiasm for the activity, indicating that it was an engaging and motivating way to learn. This feedback is important, as it underscores the value of incorporating play-based learning strategies in early childhood education to create a positive and enjoyable learning experience. When children enjoy their learning activities, they are more likely to be motivated to participate and engage with the material, leading to better academic outcomes. Reflecting on the results, it is clear that the sorting box game was an effective strategy for enhancing logical thinking in young children. The game allowed students to engage actively with the learning material, practice categorization, and develop important cognitive skills.

The success of this activity aligns with the growing body of research that supports the use of play-based learning in early childhood education, as it provides opportunities for children to learn through exploration, discovery, and hands-on experiences. However, despite the positive results, there are areas for improvement that could further enhance the effectiveness of the sorting box game. One area to consider is providing even more complex sorting criteria, such as sorting by multiple attributes at once (e.g., size and color together), to further challenge students' logical thinking abilities. Additionally, assigning specific roles within groups could help ensure that all students are actively involved in the activity, especially for those who may struggle with collaborative tasks. In conclusion, the sorting box game has proven to be an effective tool for enhancing logical thinking skills in children aged 5-6 years at RA Ar Raudhah Ganjuran. The game provided an interactive and engaging learning experience that not only improved cognitive abilities but also promoted collaboration and social interaction. The positive results observed in both the pre- and post-assessments, as well as the feedback from students, highlight the value of using play-based learning strategies in early childhood education. Future research can explore other types of play-based activities to further support young children's cognitive, social, and emotional development, and investigate the long-term effects of such strategies on their academic success.

CONCLUSION

This study aimed to investigate the effectiveness of the sorting box game in enhancing logical thinking skills among children aged 5-6 years at RA Ar Raudhah Ganjuran. The research findings clearly demonstrate that the sorting box game significantly improved students' logical thinking abilities, engagement, and collaboration. By providing a hands-on and interactive learning experience, the sorting box game offered a valuable tool for developing key cognitive skills necessary for young children's academic success. Initially,

the pre-assessment results highlighted that most students had limited logical thinking skills, with difficulty sorting objects based on size, color, or shape. This was expected, given the developmental stage of the children in this age group, as logical reasoning is a skill that gradually develops during early childhood. However, the introduction of the sorting box game provided students with the opportunity to practice these skills in a structured and engaging way, which proved to be beneficial in enhancing their cognitive abilities. The first cycle of the research revealed that while some students successfully engaged with the sorting activity and showed progress in applying logical thinking, others required additional support. The need for clear instructions and increased guidance became evident, particularly for students who struggled with the concept of categorization. Despite these challenges, the activity had a positive impact on student engagement, as it captured their interest and encouraged active participation. This suggests that hands-on activities, such as the sorting box game, can be effective in motivating children to participate more in their learning. Following the reflection from the first cycle, adjustments were made to the game in the second cycle to better support students' learning. Simplifying the sorting criteria, providing additional visual cues, and offering more personalized support helped students better understand the sorting tasks. These adjustments were successful in enhancing students' ability to categorize objects according to multiple criteria, leading to significant improvements in their logical thinking skills as evidenced by the post-assessment results. The students demonstrated greater consistency in sorting objects based on size, color, and shape, and their reasoning skills were noticeably stronger. The results of the post-assessment indicated a marked improvement in the students' logical thinking abilities, with a 40% increase in their scores. This improvement demonstrated that the sorting box game effectively facilitated the development of cognitive skills, such as classification, categorization, and logical reasoning. The students who had initially struggled with sorting tasks showed considerable progress, highlighting that with appropriate guidance and support, all students can benefit from this learning activity. In addition to the improvement in cognitive skills, the sorting box game also fostered a collaborative learning environment. Students were observed working together in groups, discussing their reasoning, and helping each other categorize the objects.

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