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Improving the Ability to Recognize Numbers through Number Flannel Board Media in Group a Children of PAUD Rois Wali 2, Sukaresmi District

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Abstract: This study aims to determine the effectiveness of using flannel boards in improving number recognition skills in children in Group A of the Rois Wali 2 Sukaresmi Early Childhood Education Center. This study uses a Classroom Action Research (CAR) approach, which was carried out in two cycles, each consisting of planning, action, observation, and reflection stages. The research subjects were children aged 4–5 years who were members of Group A of Rois Wali 2 Sukaresmi Early Childhood Education. The research instruments included observation sheets, field notes, and documentation of learning activities. The results showed that the use of flannel board media significantly improved children's ability to recognize numbers. In the first cycle, most children were able to stick numbers in sequence with the teacher's guidance, while in the second cycle, children were able to match numbers with the number of objects correctly and arrange numbers in sequence. In addition to cognitive abilities, children's learning motivation also increased, as seen from their enthusiasm, focus, and confidence during learning. Based on these findings, it can be concluded that flannel board media is effective in improving number recognition skills while holistically building the learning motivation of early childhood.

Keywords: Number Recognition Skills, Flannel Board Media, Learning Motivation

Introduction

The recognition of numbers is one of the important aspects in the cognitive development of early childhood. Children aged 4–5 years begin to recognize the concept of quantity, number sequence, and simple numerical symbols. The ability to recognize numbers is the foundation that will support mathematics learning at the next level, making it important for educators to use effective methods and media in the learning process (Santrock, 2013).

Learning media plays a strategic role in helping children understand abstract concepts such as numbers. One effective medium is the number flannel board, which allows children to learn through visual and manipulative experiences. The use of this media can increase children's interest and motivation in learning numbers because they can directly see and touch the number symbols being studied (Juandara, Riyanto, Noor, & Barat, 2025).

Initial observation at PAUD Rois Wali 2 Sukaresmi indicated that children's ability to recognize numbers was still low. Children struggled to identify numbers 1–10 sequentially and had difficulties connecting the quantity of objects with the numerical symbols. This was due to less varied teaching methods, relying heavily on lectures or simple written exercises without interactive media (Herlina, 2017).

The use of number flannel board media is expected to improve children's ability to recognize numbers through a play-based learning approach. This medium provides a concrete experience for children to place numbers in the correct position, match the number of objects with the numerical symbol, and logically sequence numbers. Thus, learning becomes more enjoyable and easier to understand (N. P. Sari & Azizah, 2023). The classroom action research conducted at PAUD Rois Wali 2 involved planning, action, observation, and reflection steps. Each action cycle focused on number recognition using the flannel board, where children were actively involved in learning while playing. This method encouraged child participation, interaction between peers, and direct teacher involvement to guide and provide feedback (Kemala, Tinggi, & Islam, 2023).

Observation results in the first cycle showed an increase in children's ability to recognize numbers, although some children still struggled to sequence numbers correctly. The flannel board media provided visual and tactile stimulation that supported children in more easily remembering number symbols and numerical sequences (Hapsari et al., 2023). In the second cycle, the application of the number flannel board media was more structured with the addition of variations in games, such as matching numbers with object images, arranging numbers sequentially, and playing number guessing games. This strategy was proven to significantly increase child participation and make it easier for them to understand the relationship between the quantity of objects and the numerical symbol (Munif, Sali, Fajri, & Farlina, 2022)

In addition to improving the ability to recognize numbers, the use of the flannel board also helped develop children's fine motor skills through the activities of sticking and moving numbers on the board. This activity trained eye-hand coordination and increased children's concentration span during learning (H. P. Sari, 2025). The implementation of the number flannel board media had a positive impact on children's learning motivation. Children became more enthusiastic and eager to participate in learning activities, showing that interactive learning can increase children's activeness and self-confidence in recognizing numbers (Sesmita, 2021). Based on the problem research, this research focus to determine the effectiveness of using flannel boards in improving number recognition skills in children in Group A of the Rois Wali 2 Sukaresmi Early Childhood Education Center.

Methodelogy

This research used the Classroom Action Research (CAR) approach, aimed at improving the ability to recognize numbers in Group A children of PAUD Rois Wali 2 Sukaresmi through the flannel board medium. CAR was chosen because this approach allows the researcher to make continuous improvements in the learning process while simultaneously solving practical problems that arise in the classroom (Sugiyono, 2013). This

approach emphasizes the active involvement of teachers and students and integrates the processes of planning, action, observation, and reflection in each learning cycle.

The research procedure was carried out through several cycles, where each cycle consisted of planning, action implementation, observation, and reflection. The planning stage included preparing the lesson plan, preparing the flannel board media, and determining success indicators. The action implementation stage was conducted by applying the flannel board media in number learning activities, while observation was carried out to record children's responses, involvement, and progress during the activity (Arikunto, 2018). Reflection was performed to evaluate the results of each cycle and plan improvements for the next cycle.

The instruments used in this study included observation sheets, field notes, and documentation. Observation sheets were used to assess children's involvement, enthusiasm, and ability to recognize numbers. Field notes recorded important events during learning, including difficulties experienced by the children and the teacher's strategies for addressing problems. Documentation in the form of photos or videos of learning activities was used as supporting evidence to analyze the effectiveness of the flannel board media use (Sujarweni, 2014)

The data obtained were analyzed using a descriptive qualitative and quantitative approach. Descriptive qualitative analysis was performed by describing the behavior, responses, and interactions of children during learning, while quantitative analysis was done by comparing the results of the number recognition ability before and after the action. The analysis results were used to evaluate the effectiveness of the flannel board media in improving number recognition ability and to formulate recommendations for improving learning in the next cycle (Zuriah, 2007).

Result and Discussion

The ability to recognize numbers in early childhood is one of the initial competencies that must be mastered in order to prepare children for mathematics learning at the next level. According to (Khotimah & Katoningsih, 2023), the ability to recognize numbers includes the child's capacity to recognize numerical symbols, understand the concept of quantity, and sequence numbers in a logical form. Children who can recognize numbers well will find it easier to understand basic mathematical operations such as addition and subtraction.

(Hertati & Al-ihsan, 2025) emphasizes that the ability to recognize numbers is not just limited to recognizing symbols, but also understanding the connection between numbers and the quantity of concrete objects in their surroundings. Early childhood needs to learn numbers through concrete experiences, such as counting objects, matching numbers with quantities, and playing educational games that stimulate the understanding of numerical concepts. This indicates that number recognition should be linked to children's daily experiences so that it is more easily accepted and understood.

Furthermore, (Annisa Mutiara Vani, Dema Yulianto, 2025) adds that the ability to recognize numbers is closely related to children's cognitive development. Children who are

accustomed to being introduced to numbers through interactive and fun media will have better memory and the ability to connect numerical symbols with the concept of quantity. This ability forms a strong foundation for the development of more complex mathematical skills in the future.

Moreover, the ability to recognize numbers in early childhood can also be interpreted as a basic skill in logical thinking and simple problem-solving. According to (Mortisari, Syukri, & Amalia, 2023), children who are proficient in recognizing numbers will be able to develop critical thinking skills and initial strategies in solving numerical problems, albeit in a simple form. Thus, number recognition becomes an important foundation in early childhood education. The cognitive development stage of children aged 4–6 years is in Piaget's preoperational phase, where children begin to understand symbols, concepts, and representations, but their thinking is still concrete (Santrock, 2013) .At this age, children start to recognize numbers as symbols that represent the quantity of objects, and they are able to differentiate one number from another. Children learn through interaction with the environment and concrete learning media.

(Nurhayati, 2016) explains that preschool-age children tend to learn more effectively through direct and manipulative experiences. For example, children can stick numbers on a flannel board, match the quantity of objects with numbers, or sequence numbers from smallest to largest. These activities help children understand the relationship between numbers, quantity, and sequence concretely.

(Herlina, 2017) adds that at this stage, children begin to be able to remember the sequence of numbers and recognize simple numerical patterns. Children learn through repetition, play, and social experiences with peers, allowing their cognitive abilities to develop gradually. Social interaction also encourages children to compare their counting results with friends, which simultaneously fosters numerical communication skills.

Learning media is everything that can be used to convey messages, facilitate the understanding of concepts, and support the achievement of learning objectives. According to (Santrock, 2013), learning media serves as a means of educational communication that helps children understand the material more concretely and enjoyably. In early childhood education, learning media becomes very important because children learn more effectively through visual, auditory, and kinesthetic experiences. (Nurhayati, 2016) asserts that learning media not only acts as an aid but also as a mediator of interaction between the teacher and the child. Appropriate media can make it easier for children to understand abstract concepts, such as numbers, colors, shapes, and letters, through direct experience. This media also functions to stimulate children's curiosity and creativity, making the learning process more enjoyable.

(Astuti, Marlina, & Suryana, 2018) adds that in the context of PAUD, learning media plays a vital role in activating all of the child's senses. By using varied media, teachers can create a holistic learning experience, allowing children to learn holistically, covering cognitive, affective, and motor aspects. This indicates that the selection of the right media greatly influences the effectiveness of learning.

(Mar'atus Sholikha, 2021) emphasizes that learning media also helps children

internalize information through manipulative and interactive activities. For example, children can learn numbers by sticking symbols on a flannel board, playing puzzles, or sequencing number cards. These activities allow children to learn in a fun way while training fine motor skills and eye-hand coordination.

(Aini, 2023) emphasizes that effective media must have clear visual elements, be interactive, and be manipulable by children. For example, flannel boards, number blocks, or number cards that can be stuck, moved, or arranged allow children to learn actively and concretely. This activity makes learning more enjoyable and facilitates the child's understanding of numerical concepts.

(Herlina, 2017) adds that good learning media must also be able to adjust the level of difficulty to the child's ability. Media that is too difficult can cause confusion and reduce learning motivation, while media that is too easy does not challenge the child to think. Therefore, teachers need to design media in stages according to the child's abilities and developmental needs. Learning media also integrates sensory and kinesthetic aspects. Children learn optimally when they can see, touch, and move during the learning process. The use of interactive media, such as the flannel board, can accommodate the principle of active learning while playing, making the learning enjoyable, creative, and memorable (Wahyuni, Dini, & Makassar, 2020).

The flannel board is a learning medium made of flannel fabric that is easy to stick and unstick, allowing it to be used for various educational activities. This medium allows teachers to display symbols, numbers, letters, or pictures in an interactive way, enabling children to learn through direct experience. The flannel board is very suitable for young children because of its flexible, safe nature, and its ability to be adapted to the material being taught (Komang Tri Widianingsih, I Nyoman Jampel, 2025).

According to (Nurhayati, 2016), the main characteristic of the flannel board is its ability to stimulate children's visual and motor senses. Children can clearly see colors, shapes, and symbols and can move, stick, or arrange elements on the board. This makes children learn more actively and be physically and mentally involved in the learning process. (Herlina, 2017) adds that the flannel board has the advantage of high flexibility and appeal for children. This media is easily modified according to the needs of the learning material, whether for the introduction of numbers, letters, or shapes. With these characteristics, the flannel board allows teachers to present the material creatively, fun, and interactively.

(Wahyuni et al., 2020) asserts that one of the important characteristics of the flannel board is its ability to support manipulative-based learning. Children can directly interact with the material through the activity of sticking, moving, or arranging flannel elements. This activity helps children develop fine motor skills, concentration, and a concrete understanding of concepts. The implementation of the flannel board in number recognition can be done through various activities that are interesting for children.

The first activity is sticking numbers on the board in the correct sequence. This activity helps children understand the number sequence from 1 to 10 concretely and trains the ability to recognize numerical symbols. The second activity is matching numbers with

the quantity of objects. For example, children are asked to stick the number "5" near an image of five apples. This activity helps children understand the relationship between numbers and quantity concretely, while also training logic and observation skills (Nurhayati, 2016).

In addition, the activity of arranging numbers can be done sequentially, from smallest to largest or vice versa. According to (Herlina, 2017), this activity trains children's cognitive ability in recognizing numerical patterns, sequencing numbers, and solving simple problems. Children learn actively, while also increasing concentration, memory, and fine motor coordination skills. (Aini, 2023) emphasizes that the implementation of the flannel board is not limited to number recognition, but can be combined with educational games such as number puzzles, quizzes, or group games. This strategy increases children's engagement, learning motivation, and social interaction (Fatima, Angkur, Efrita, & Palmin, 2025). With appropriate implementation, the flannel board becomes an effective medium for improving number recognition ability in early childhood. Interactive media, such as the flannel board, plays a key role in fostering children's interest and enthusiasm for learning.

Children learn in a fun, active, and participatory way, leading to more optimal number learning outcomes (Sehati & Pohan, 2025). Therefore, learning motivation is a crucial factor that must be considered when designing early childhood learning activities. The research findings indicate that the ability to recognize numbers in Group A children of PAUD Rois Wali 2 Sukaresmi increased significantly after the implementation of the flannel board media. In the initial observation stage, it was found that most children had difficulty recognizing numbers sequentially and matching numbers with the quantity of objects. The children tended to memorize numbers without understanding the concept of quantity represented by those numbers. This finding aligns with the theoretical review stating that children aged 4–6 years learn most effectively through concrete experience and interactive media (Sutrisno, 2021).

In Cycle I, the researcher implemented the flannel board media with the strategy of sticking numbers in sequence and matching numbers with concrete object images. The observation results showed an improvement in ability, but some children still struggled to sequence numbers precisely. Several children needed teacher guidance to place numbers corresponding to the quantity of objects available. This is consistent with the theory emphasizing that concrete experience through interactive media can help children understand number concepts, but still requires repetition and guidance to reinforce understanding (Herlina, 2017; Sesmita, 2021)

In Cycle II, learning was strengthened by adding variations to activities, such as number arranging games and group quizzes. The children appeared more active, enthusiastic, and were able to arrange numbers correctly in sequence and match the quantity of objects with the numerical symbols accurately. Observation data showed that 85% of the children could recognize numbers 1–10 correctly. This result reinforces the theory that repetition and variation of activities using interactive media enhance children's cognitive, motor, and affective skills simultaneously (Nurhayati, 2016)

In addition to the increase in cognitive ability, the children's learning motivation also

clearly increased. In the first cycle, children still showed limited focus, but in the second cycle, children were more motivated to complete tasks. The children appeared confident, enthusiastic in following instructions, and helped their classmates. This aligns with the theoretical review stating that interactive media fosters children's interest and enthusiasm for learning, thereby increasing their engagement in learning (Santrock, 2013)

Analysis of the results also showed a positive correlation between the use of the flannel board and number recognition ability. Children who used this medium found it easier to understand number concepts, sequence numbers, and match object quantities compared to before the action (Jaoza & S, 2024). This effectiveness indicates that a learning strategy based on concrete experience through interactive media can improve the understanding of numerical concepts in early childhood.

Based on the research findings, it can be concluded that the implementation of the flannel board medium through CAR successfully increased children's number recognition ability and learning motivation significantly. The flannel board as an interactive medium provides a fun learning experience, allows children to learn actively, and develops cognitive, motor, and affective skills. This finding is consistent with previous research demonstrating the effectiveness of interactive media in number learning in early childhood

Conclusion

Based on the research findings, it can be concluded that the use of the number flannel board media is effective in improving the ability to recognize numbers in Group A children of PAUD Rois Wali 2 Sukaresmi. The implementation of this media through Classroom Action Research (CAR) conducted in two cycles showed a significant increase in children's ability to recognize numbers, sequence numbers, and match the quantity of objects with numerical symbols. Children became more active, enthusiastic, and capable of learning concretely through the experience of sticking, arranging, and matching numbers on the flannel board. This finding indicates that concrete and interactive learning experiences are very influential in the mastery of number concepts in early childhood. In addition to the improvement in cognitive ability, this research also showed that the flannel board media was able to increase children's learning motivation. Children showed higher self-confidence, active involvement, and increased interest in learning throughout the process. This demonstrates that the use of interactive media not only aids the understanding of numerical concepts but also builds children's affective and social skills, such as cooperation, independence, and self-confidence. Thus, the flannel board medium is proven to be an effective, enjoyable, and holistic learning tool for early childhood.

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