

# Analysis of The Needs of Number Tree Media To Improve The Cognitive Abilities of Early Childhood in Ade Irma Mataloko Kindergarten

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## ABSTRACT

*The aim of the observation is to improve the cognitive abilities of young children through number tree media at the ADE IRMA MATALOKO Kindergarten, the time is set for October 17 2024. There are problems encountered at school, such as the unavailability of number tree media and also sufficient media that supports the cognitive abilities of early childhood. Method used were interviews, observation and documentation. The results of this observation show that the need for number tree media is very important to improve the cognitive abilities of early childhood at ADE IRMA MATALOKO Kindergarten.*

**Keywords** : Number Tree Media, Cognitive Abilities in Early Childhood, Mathematics Learning, Early Childhood Education, Interactive Learning Methods

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## 1. INTRODUCTION

Early childhood education is an important level of education in the process of child development. Law No. 20 of 2003 article 1 paragraph 14 concerning national education, early childhood education is an effort to foster children from birth to 6 years of age 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. Number tree media can create challenging visual stimuli, motivating children to actively participate in learning activities. The media acts as an intermediary that changes abstract number concepts into more concrete ones, making it easier for children to understand the material presented (Shalihah, et.al.2022). It is important to remember that early childhood learning must be holistic. Therefore, the use of number tree media must be integrated with social interactions and physical activities to ensure a balanced learning experience. The use of number tree media is expected to make a positive contribution to the development of attention and concentration in preschool children. The use of this media aims to stimulate children's ability to identify numbers and number symbols (Wahyuni & Herlina, 2023). The use of interactive media such as number trees increases children's involvement in the learning process and helps them to more easily understand the material being taught (Hartati 2020).

Number tree media that shows numbers in the form of trees that can be decorated or counted together with related objects, provides a concrete picture that makes it easier for children to understand the concept, number, and sequence of numbers. This kind of media that provides a visual-based learning experience helps children develop basic cognitive skills in mathematics, such as classification, counting, and comparing numbers (Fitriani 2018). Interactive and colorful number tree media can attract children's attention, motivate them to be active in learning, and give them a fun learning experience. Thus, this media can be used in various learning activities that involve recognizing numbers, counting, and understanding the relationships between numbers more thoroughly (Yuliana 2019). Learning media states that media that uses clear and attractive visualizations can improve

children's abilities in difficult concepts, including mathematics. Number trees serve as visual tools that not only introduce numbers but also relate numbers to real objects or things, which helps children see the relationship between numbers and the world around them (Sugiyono 2021). Through interaction with number tree media, children not only develop cognitive abilities but also their fine motor skills. Activities such as arranging numbers, sticking numbers on trees, or moving objects helps children practice hand-eye coordination which is important in their motor development (Rachmawati 2022).

Number trees are integrated into the early childhood education curriculum as a mathematics teaching aid. This media integration will enrich children's learning experiences and give them the opportunity to learn while playing. Fun and easily accessible number tree media can be used for various learning activities ranging from memorizing numbers to practicing counting and grouping (Sulaiman 2024). Number tree media makes it easier for teachers to explain the material and makes it easier for children to understand (Guslinda & Kurnia, 2018). Number tree media encourages children to recognize number symbols correctly (Noge et, al. 2019). Fun learning will be easier for children to understand and remember so that children are able to know and understand the concept of numbers and number symbols that the implementation of the number tree APE can improve the ability to recognize concepts and number symbols in children aged 4-5 years at PAUD Kumara Widya Sulangai (Rahayu et, al. 2019). Number trees are media that help play groups learn, count numbers in a way that is easier and more attractive, introduce mathematics to early childhood starting with the introduction of numbers, simple addition, and how to solve problems based on the child's age (Suniatara et, al. 2021). Media that uses images and symbols, such as number trees, can help children to remember the sequence of numbers and the relationships between numbers more easily (Arsal, 2017). The use of learning media that involves visual and interactive aspects such as number trees is very effective in improving children's cognitive abilities in learning basic mathematical concepts (Nurtanto & Colleagues, 2020).

Number tree media is effective in improving the numeracy skills of early childhood. Through the introduction of numbers accompanied by activities involving physical manipulation, children can more easily understand numerical concepts and relationships between numbers. Number tree media also helps children to be more active in the learning process, improve their memory, and develop basic mathematical skills. Fun learning will be easier for children to understand and remember so that children are able to know and understand the concept of numbers and number symbols that the implementation of the APE number tree can improve the ability to recognize concepts and number symbols in children aged 4-5 years at PAUD Kumara Widya Sulangai (Rahayu et, al. 2019). The number tree is a medium that helps play groups learn, count numbers in a way that is easier and more attractive, introduce mathematics to early childhood starting with the introduction of numbers, simple addition, and how to solve problems based on the child's age (Suniatara et, al. 2021). Media that uses images and symbols, such as number trees, can help children to remember the sequence of numbers and the relationships between numbers more easily (Arsal, 2017). The use of learning media that involves visual and interactive aspects such as number trees is very effective in improving children's cognitive abilities in learning basic mathematical concepts (Nurtanto & Colleagues, 2020).

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The problem that occurred was that the teacher had not provided number tree media because at the school they rarely used tree media so the level of number recognition was low.

## 2. METHOD

The method used is descriptive qualitative data analysis techniques using observation, interviews and documentation. Observation is the activity of systematically and directed observation of an object, phenomenon, or event with the aim of collecting data and information.

An interview is a meeting between two people to obtain information through questions and answers so that meaning can be constructed in a particular topic and questions can be asked to the teacher about the child's religious and moral value abilities.

Documentation is used to obtain data directly from the observation site. In this case, the documentation obtained is in the form of photos as a complement to the observation results.

## 3. RESULTS AND DISCUSSION

### Results

Based on the results of interviews and observations at ADE IRMA MATALOKO Kindergarten on October 17, 2024, there were 10 students, 9 of whom were able to recognize numbers and 1 student was not yet able to recognize numbers. Through the number tree media, children's cognitive abilities can be improved. This problem arises because the school has not provided a number tree media that supports children's cognitive development. Therefore, teachers need to provide various media to support the cognitive development of early childhood.

### Discussion

Based on the observation results above, the importance of number tree media to improve the cognitive abilities of early childhood in recognizing and understanding numbers. This is due to the lack of media that supports children's needs in improving cognitive abilities. Number trees are media that will help play groups learn to count numbers in an interesting way. By introducing mathematics to early childhood starting with the introduction of numbers, simple addition, and also how to solve problems based on the child's age (Suniantara et al; 2021). The use of smart number tree media helps train fine motor creativity, emotions, and the ability to count, distinguish between different numbers

and objects. Media can be used to convey certain elements of learning activities, offer reinforcement, and inspire students in addition to delivering learning as a whole.

Understanding numbers, shapes and colors of number tree media, as well as developing critical thinking skills, are some of the benefits of using number tree media (Guslida and Rita Kurnia, 2018). Number tree media is a learning aid designed to introduce numbers and number symbols to children through an interactive and fun approach (Pratama & Munafia, 2023). This media utilizes tree visualization with numbers placed on its branches, so that children can learn, recognize numbers in an interesting and easy-to-understand context. Through playing and interacting with number tree media, children can build a better understanding of the concept of numbers and numbers (Maharani & Widjayatri, 2024).

Number trees are an effective medium for introducing numbers through the process of playing and concrete activities (La-sule, Wondal, & Mahmud, 2021). This media provides a natural momentum for children to learn something that is in accordance with their general developmental stage and specific needs. The ability to recognize numbers is included in cognitive development, which is the basis for children's intellectual development. Through play, children also learn about life, train their courage, grow self-confidence, and learn to respect others (Tafonao, 2018). Numbers or numbers are symbols or symbols which are objects consisting of numbers (Safirti, Rohita, & Fitria, 2018). In addition, number trees are media that help play groups learn to count numbers in an interesting way, introducing mathematics to early childhood starting with the introduction of numbers, simple addition, and how to solve problems based on the child's age (Suniantara et al. 2021).

Number tree media is an educational toy to train children to count through educational game media (Erlina, 2018). Through number trees, children can be stimulated to remember symbols or numbers repeatedly and this is an effort to form long-term memory for children (Firmansah, 2019). The use of number tree media can improve the ability to recognize numbers in early childhood (Suriana, 2020). Number tree media has a good influence on the ability to recognize number concepts in children aged 5-6 years (Rawa, Meka, & Nai, 2019)

## CONCLUSION

Number tree media is one of the effective alternative learning media to improve the understanding of number concepts in early childhood. With proper planning and development, this media can be a valuable tool in the process of learning children's mathematics.

### Suggestion

For teachers, it is necessary to provide various media, one of which is number tree media to improve the cognitive abilities of early childhood

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