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Improving the Ability to Recognize Number Concepts In Children Aged 4-5 Years Through Natural Media

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Abstrak

Peneltian ini didorong oleh kurang optimalnya perkembangan kognitif anak. Masalah tersebut terjadi pada tahun pelajaran 2023/2024 di kelas A TK Berkah Kota Jambi. Salah satunya adalah masih ada anak yang belum memahami konsep bilangan. Untuk mengukur peningkatan pemahaman bilangan melalui pembelajaran bermain dengan menggunakan media alam yaitu batupada anak usia 4-5 tahun di kelompok A TK Berkah Kota Jambi. Penelitian ini menggunakan metode Penelitian Tindakan Kelas dengan jumlah anak sebanyak 12 orang. Informasi berasal dari observasi, wawancara, dan dokumentasi. Kegiatan ini dilaksanakan untukmeningkatkan pemahaman konsep bilangan pada anak usia 4-5 tahun di TK Berkah Kota Jambi. Hasil Penelitian setelah tindakan kelas pada siklus II telah mencapai skor rata-rata 88% pemahaman siswa terhadap konsep bilangan berada pada kategoribaik.

Kata Kunci: Konsep Bilangan, Media, Bahan Alam

Abstract

This research was driven by the less than optimal cognitive development of children. The problem occurred in the 2023/2024 academic year in class A of Blessing Kindergarten, Jambi City. One of them is that there are still children who do not understand the concept of numbers. To measure the increase in understanding of numbers through learning to play by using natural media, namely stones in children aged 4-5 years in group A of Blessing Kindergarten Jambi City. This study uses the Classroom Action Research method with a total of 12 children. Information comes from observation, interviews, and documentation. This activity was carried out to improve the understanding of the concept of number in children aged 4-5 years at Blessing Kindergarten Jambi City. Research results after class action in cycle II have reached an average score of 88% student understanding of the concept of number is in the good category.

Keywords: Number Concepts, Media, Natural Materials

INTRODUCTION

Early childhood education (PAUD) has an important role as a level of education that takes place before entering primary school. Education at this stage aims to provide learning experiences that stimulate children's development from an early age. In essence, the Early Childhood Education (ECE) program aims to lay the foundation for the development of attitudes, knowledge, skills, creativity and ingenuity needed by children to adapt to their environment and transition to the next environment.

Early childhood education (ECE) is important in teaching children the concepts of numbers and symbols. This is important because it is the foundation for understanding math concepts at the next level of education. Children's understanding of number concepts must be in accordance with the characteristics and developmental level of each child.

In order for children to achieve optimal development, the learning methods used by teachers and the ability of teaching materials or media to arouse children's interest and desire to learn are aspects that function directly in learning procedures.

In this case, the accuracy of methods, facilities and great desire will spur the process of completing and interpreting learning materials. The utilization of natural materials from the environment where children live is part of the teacher's effort to bring the environment closer. One of them is natural materials made of natural stone or have been colored to make it look more attractive to children**.** Stone is one of the natural materials closest to children. As teachers, how can we use these natural materials so that children's play activities become fun and interesting which can stimulate children's desire to learn.

In this fun activity using stones, various fun activities are carried out to recognize the creator of stones (developing religious and moral values, comparing the number of stones in a full bucket (cognitive development), arranging stones by number (language development), arranging stones in the shape of flowers (art development), using clothespins to put stones in containers (physical motor development). All aspects of development can be addressed in this recreational activity.

Development standards for children aged 4 to 5 years, especially: 1. counting objects one to ten, 2. learning number theory, 3. recognizing number symbols are contained in the Regulation of the Minister of Education and Culture (Permendikbud) Number 137 of 2014.

Piaget stated that with the active learning process children's intelligence can develop (Yuliani, 2013, p. 118). In essence, cognitive awareness will refer to a person's ability to think and record media using their sensory abilities to explore the world and solve problems that arise in their daily lives in order to participate in activities. Childhood is the age of 0 to 6 years, a golden period, a difficult time to develop all the potential that children have. (Dikmas, 2016. p. 2)

The development of quality human resources through quality education should begin at a young age. Preschool education plays a very important role because all growth and development begins at this age. The success of current development will determine future development. There are six aspects of development that must be obtained from childhood, namely: religion and morals, physical exercise, cognition, language, social values, emotions and arts.

In order to lay the foundation towards the development of attitudes, knowledge, skills and cognitive abilities, children need to be given stimulation, guidance from the closest people, especially their parents / educators (Khadijah, 2016; Purnamasari & Nurhayati, 2019). The aspect that must be improved for children aged 4-5 years in group A is cognitive progress. Teaching children to understand numbers using methods that are easy to understand should start at an early age. (Malapata and Wijayaningsih, 2019) mentioned the concept of number is a basic idea or basic information about the value of many sets of objects contained in mathematics.

The stage of cognitive progress of kindergarten children in Group A is currently at the pre-operational stage. To improve cognitive progress in kindergarten for Group A children, it

can be done through activities that include the introduction of number concepts and number symbols, counting, comparison, organization, introduction to mathematical operations, counting backwards, and so on.

Regulation of the Minister of Education and Culture of the Republic of Indonesia no. 137 of 2024 regulates the aspects that need to be developed in early childhood education, namely the National Standards for Early Childhood Education which regulates six aspects that must be developed in children, namely aspects of moral, religious, physical, motor, cognitive, language, social and emotional development (Lestari and Mulyono, 2021; Nurjanah et al., 2021; and Setiyawati et al., 2021).

To optimize children's growth and development through preschool education, then by adjusting the characteristics of children with different experiences and knowledge can be used as a program in education (Lestariningrum, 2015). Learning resources as natural materials for learning are very important for learning outcomes,

METHOD

This research is a class action research. This study is designed in two cycles, if the research objectives are not achieved then it is possible to continue in the next cycle. Each cycle includes four stages: action planning, action implementation, observation/evaluation and reflection. The main purpose of descriptive analysis is to provide a clear description of the characteristics of the data without making inferences or broader generalizations. In descriptive statistical analysis, various measures of data centering and dispersion are used to provide information about general patterns in the data.

The implementation of classroom action research will be carried out by researchers at Berkah Kindergarten in group A aged 4-5 years in October-Novermber 2023 and carried out with II cycles. This research will be conducted with 2 data collection techniques, namely observation and documentation.

This study aims to describe the use of natural media used by teachers in the learning process. In this study, researchers conducted learning activities that aimed to obtain accurate data and facilitate the work of researchers.

Pict1. Action Research

When using the Chemise model or the Mc. Tanggart model consists of four elements for each cycle, namely 1. In the planning stage, it is expected that the lesson plan has been carefully prepared. The implementation stage involves cooperation between research partners and teachers in carrying out educational activities using stone media.

Prepare the learning structure and guidance to children become the main focus during the learning process, 3. Observation is carried out carefully. The researcher records important elements related to the activities of introducing the concept of number using stone media. This observation is the basis for gaining a better understanding of the dynamics of learning 4. The reflection results from the previous cycle become the basis for improvement or evaluation for the next cycle. This reflection process is expected to improve the overall quality of learning activities.

The reflection results from cycle I become the basis for improvement for cycle two, and similarly the results of cycle two reflection can be used as evaluation or improvement material for subsequent cycles. The continuous reflection process aims to ensure continuous improvement

in the learning approach using stone media for number concept recognition.

In general, in research, data analysis techniques can be divided into two broad types, namely qualitative and quantitative data analysis techniques. In this study, qualitative data analysis is used, namely data analysis derived from data netted from the data collection process, namely recording & recording, literature review, interviews, and participation (Rohmadi & Nasucha, 2015: 34). with the aim of knowing the improvement in the ability to understand the concept of number 1 to number 20 in children aged 4 to 5 years at Berkah Kindergarten. The information obtained will be analyzed with the following formula:

$$X = \frac{a}{b} X\ 100$$

Penjelasan :

X : Presentase yang dicari
a : frekuensi
b : responden
100 : Nilai Konstanta

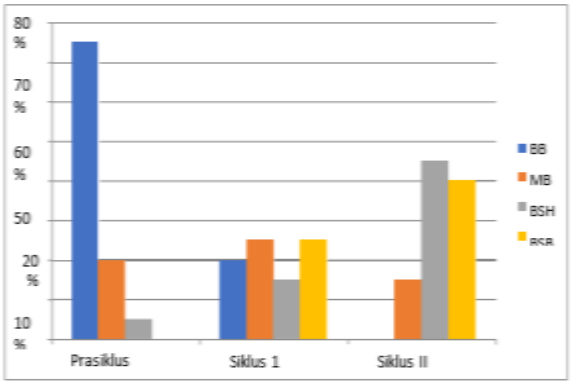
Based on observation data in children's activities to improve the ability to recognize the concept of numbers 1-20 for students aged 4-5 years. To obtain the results of observations of activities in the learning process, success indicator criteria are used which are taken from the views of Zainal and Khotimah (2005, p. 41).

RESULTS

The results of observations of the assessment of educators' competence when designing the Daily Learning Implementation Plan (RPPH) in the first cycle showed an achievement level of 66%, which is still below the established standards. The weaknesses in the aspects of activity planning and assessment are the main focus to be improved in the next cycle. To overcome these shortcomings, in the second cycle improvements were made by determining simpler evaluation methods. As a result, in the second cycle the teacher's ability to develop lesson plans increased to 77%, reaching a good condition.

In the implementation of the first cycle of improvement in the activity of introducing the concept of numbers 1-20 in Berkah Kindergarten, it has not been successful because children can only recognize numbers 1-20 about 5 children out of 12 children analyzed. Experts are preparing daily work plans as a guide in carrying out the learning process and also assessment sheets used to measure student abilities. The results from cycle I showed that there were 5 out of 12 students who met the expected standard of understanding, while the other 7 students had not reached the expected standard. Based on Sudjono's opinion, the percentage of results from cycle I was 66%. The evaluation results show that the teacher's ability to utilize learning media is still assessed at the sufficient criteria level. The shortcomings identified in the first cycle were successfully improved in the second cycle by adopting the approach of using other supporting tools. This action was taken with the aim of improving the quality of the use of learning media in the learning process. Through these adjustments, it is expected that the use of learning media can become more effective and meet the desired standards. The improvements reflect a positive response to the first cycle evaluation, and the corrective actions taken aim to improve the learning experience for students and strengthen teachers' competence in utilizing learning media optimally.

In the implementation of cycle II, children followed the increase in the introduction of number concepts in group A children who could attract children's interest, the props used were natural stone materials so that in cycle II there was an increase from 12 children in group A at Berkahyang Kindergarten who could understand up to 10 children who did not meet the expected standards of only 2 children. Referring to the opinion of Arikunto Expert (1998, p.86), the percentage result incycle II is 88%.



Graph I. Data Graph of Cycle II results

DISCUSSION

The data in the figure shows that the ability to recognize the concept of numbers for students has changed after using learning activities using natural stone materials. Learning activities through stone media can improve children's counting ability for numbers 1-20 and cycle III shows a significant increase. The use of this learning media is expected to increase children's interest in learning and motivate them to try using the media. This can be seen from the curiosity and great enthusiasm shown by children when the teacher introduces new media. As stated by Cucu Eliyawati (2005, p.4), children's interest in new things will be more focused when teachers use media that are interesting and new to them. Thus, children will be more enthusiastic in asking questions and have higher motivation to learn. In addition, from cycle I to cycle III, there was a significant improvement in teacher performance and children's overall speaking ability. Thus, the conclusion is that activities using stones can improve the ability to recognize the concept of numbers 1- 20 for students in Group A of Berkah Kindergarten.

Children aged 4 to 5 years need to have the skills to understand number concepts. This is in line with the Standards for Child Development (STPPA) stipulated in the Ministry of Education and Culture Regulation No. 137 of 2014. The characteristics of children aged 4 to 5 years or preschool age group A who understand the concept of numbers are: 1) children learn to recognize and count numbers up to ten as a basis for number sense, 2) children are taught to name sequences of numbers in order, helping them understand the concept of order and relationships between numbers, 3) this activity involves using physical objects to form appropriate rows up to the number 10, 4) children learn to recognize number symbols or symbols and associate them with physical objects that correspond to the number 10, 5) children are taught the concept of similarities and differences between numbers. This can involve separating objects into two groups based on number, as well as identifying differences between numbers.

Engaging children in these activities in an interactive and creative way can help build their understanding of number concepts in a fun way, Games, math manipulatives, and group activities can be effective ways to introduce and reinforce these skills in preschoolers. Learning to use stone materials is very helpful for students' cognitive development. Stone media is a medium for conveying information to children. This media design is used as a learning tool so that learning becomes more effective, then with learning using natural stone materials provides opportunities for students to actively learn.

Based on the results of the study, it is known that there is an increase after using natural materials as a learning resource for the development of the ability to recognize the concept of number in children, because learning learning with the use of natural materials can increase the achievement of the development of mathematical abilities in children including sorting objects into groups according to shape, color, or size, recognizing patterns, arranging items according to size or color series, understanding both many and few, understanding the meaning of numbers and number symbols.

Learning resources as natural materials for learning are very important for learning outcomes, but also actively involved in the development of human resources, such as

interest can be seen, heard, and so on. Natural learning media is also very influential for effective learning because natural materials are easily available. Before learning activities the teacher makes a learning plan by utilizing the surrounding nature, before the activity takes place the teacher invites children to come directly in the surrounding environment or outside the classroom. (Cholifah, 2019). Namely, the teacher explains and guides the learning steps according to the theme. At this stage the author sees that the teacher invites learning directly on concrete media.

When learning based on natural materials as learning resources used are rocks, seeds, leaves, banana and papaya fronds and wooden ice cream sticks. During learning the teacher gives examples of how to make shapes using natural materials. Natural components can be found all around the child, as well as in animal and plant parts. Natural materials can also be found right outside our doors or near where we live (Fauziah, 2013).

This is also in line with research by Febiola (2020) which explains the use of number tree media can improve the mathematical abilities of young children. Ardiyah (2022) found that the numeracy skills of young children become better after using media block learning. And Puji Lestari (2021) tries to improve math skills by using natural materials as media in this learning. Based on the results previous research, making pebble learning media in this research can Helping young children learn to count more quickly.

Designing natural media for learning that aims to improve cognitive abilities of early childhood. This stone natural material can be obtained in learning materials with the school environment. If in cycle I the learning applied to students with *paper and pencil* accompanied by lecture methods that make students bored.

Furthermore, in cycle II researchers and teachers have worked together to apply the learning model to 12 students in class A. Based on this, the application of using natural stone materials can improve students' understanding of the concept of number. The results obtained in cycle II have reached an average score of 88% student understanding is in the good category. Comparison of data obtained from pre-action, cycle I and cycle II can be concluded that the understanding of class A students at Berkah Kindergarten in activities to recognize the concept of number using stone materials has increased.

CLOSING

The ability of Berkah Kindergarten students to recognize the concept of numbers 1-20 by using natural materials in group A research results, the ability of students to recognize the concept of numbers seen from cycle I is 66% and in cycle II it is 88%. The ability to recognize the concept of numbers 1-20 in children in class A of Berkah Kindergarten is developing well in each cycle. Based on the results of this study, it is hoped that educational institutions have the ability to provide adequate facilities and infrastructure to support the development of children's abilities, especially in terms of cognitive development related to the introduction of number concepts.

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