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Development Of Smart Board Media to Introduce The Concept Of Measurement To Group B Children In Anggrek Pre-School, Rambang District

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A B S T R A C T

This research was conducted to innovate smart board media to introduce the concept of measurement that is valid, practical, and effective for group B children in Anggrek Pre-School, Rambang District. The research used the Research and Development (R&D) method with the ADDIE research model (Analysis, Design, Development, Implementation, Evaluation). The population of this study was Anggrek preschool students in Rambang District. The small group trial sample was 6 children and the large group trial was 12 children with data collecting techniques using interviews, observations, documentation, and questionnaires. Validity, practicality, and effectiveness analysis techniques were carried out in this study. The results showed that the smart board media on the concept of introducing measurement was developed based on the results of the material expert assessment of 89.7%, which is very valid, the results of the media expert assessment of 93.1%, which is very valid, the results of the teacher practitioner assessment of 96.6% are very practical and based on the results of the instrument questionnaire on children conducted in the form of interviews and observations, namely the results of the small group trial of 88.1%, and the large group trial obtained 92% at the second trial stage, which was declared very good. It is concluded that the development of smart board media on the concept of introducing measurement is suitable for learning and effective.

Key Word:
Smart Board, Measurement Concept, Math

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Introduction

Parents need to understand the stages in each aspect of early childhood development including children's cognitive development. Children's cognitive abilities increase gradually as they get older. Children's cognitive development has been stimulated since the child in the womb, at birth, and during the child's growth process. The cognitive abilities of children aged 5-6 years have entered the stage of logical thinking based on (Regulation, 2014). then it is expected that cognitive development develops well if it continues to be trained with tools that are appropriate to the age stage including smart board media. Many studies have proven that with stimulation, children's cognitive development follows the standards set out in the regulations of the Minister of Education for Child Development. One of them is Maulana's research and Handayani's title 'Efforts to Improve the Ability of Early Childhood in Recognizing the Concept of Size through the Outdoor Learning Method at TK Negeri Pagar Merbau Group B 2021/2022 school year' Qualitative descriptive analysis technique which results in the conclusion that children's ability to recognize concepts is in a low category, namely not yet developing (BB) in cycle I by 58.3% and increased in cycle II to 88.3% with very good developing criteria (BSB).

Observations that have been made at Anggrek Pre-School, Rambang District, are children aged 5-6 years who are still lacking in the ability to recognise the concept of measurement. It can be seen from the achievement indicators, that 1) children still have difficulty classifying objects based on shape, and size, and 2) children still have difficulty in recognizing differences in the size of long and short, light weight, large and small. In line with the research of Amalina et al. entitled 'Application of the Realistic Mathematics Approach to the Ability to Understand Measurement Concepts in Children 5-6 Years (2022)' researchers used experimental methods, data collection using checklists and observations through t-test testing resulted in the conclusion that the understanding of the concept of measurement of experimental class children was higher than the control class seen from the results of statistical test analysis using a different test (t-test) at a significant stage of 5% obtained t count 2.73 more than t table which is 1.75.

Based on previous research and data from the distribution of questionnaire analysis to the Headmaster and five teachers there, teachers only use books and worksheets for learning at school. Through observation, it appears that children are less eager to fill in the worksheets given by the researcher. There was 1 child who did not want to do the worksheet at all, and 3 children who wanted to do the worksheet but did not finish. In the teaching and learning process, it is necessary to encourage children to be able to think, focus, and pay attention, so in learning there is a need for learning media to support children's desire to learn so that learning can be effective (Guslinda dan Rita Kurnia, 2018).

According to Bahfen et al., smart boards are learning media used to make it easier for early childhood to understand and early counting skills can increase. Smartboard media is designed to make it easier for teachers to deliver the material (Munifah Bahfen dkk, 2020). According to Chentiya and Zulminiati, a smart board helps the learning process so children can easily receive messages. This media can also designed according to children's needs (Chentiya dan Zulminiati, 2021).

The advantages of smartboard media. Namely: a) This media will make children more interested in the learning process because children see something unique. b) More concrete and realistic because it uses media in the forms of shapes and colors, and can be felt by children whether it is heavy or not. c) This media can also overcome time problems because in one media children can receive material about more than one measurement. d) Make it easier for teachers to explain the material to be conveyed to children. e) Smartboard media is simple. f) The materials used are also safe for children (Ulfah Nabilla Maghfi, 2020). Furthermore, Walle. J.A.V.D states that measurement is a number that indicates the ratio between the object being measured and the nature of the unit of measure (Ulfah Nabilla Maghfi, 2020).

Based on the opinions that have been described, the observer will conduct research entitled 'Development of Smart Board Media on the Introduction of Measurement Concepts for Group B Children at Anggrek Pre-School, Rambang District'.

Method

The place that the researcher chose for the implementation of this research is Anggrek Pre-School, Rambang District, which is located in Pagar Agung Village, Rambang Kecamata, Muara Enim Regency. The reason researchers chose this preschool is because during the learning process, children's motivation is quite high but the media used is not interesting or boring enough for children (Martono, 2010).

This research uses validity test subjects by material experts and media experts. Small group test subjects took 6 early childhood, and large group trials took 12 early childhood in Anggrek Pre-School, Rambang District. This research methodology is a type of Research And development (R&D) based on the ADDIE model development procedure. According to Gay et al, the main purpose of research is to develop products that can be utilized in the world (Emzir, 2017).

Results and Discussion

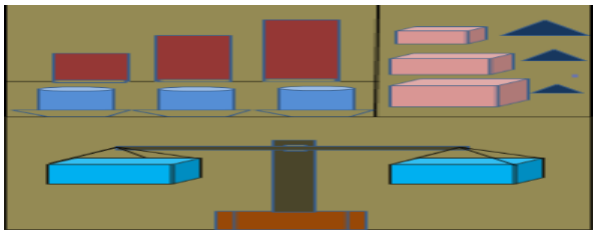
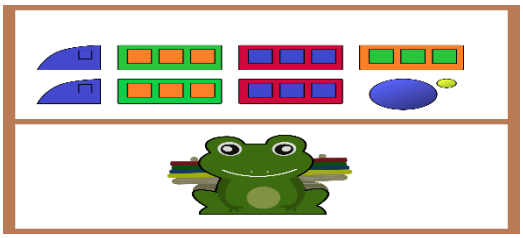
The following is an explanation of each stage of the research in detail as follows:

Analysis. The analysis was conducted through needs analysis and curriculum analysis. In the needs analysis, information was obtained through observations and interviews with principals and teachers by filling out an initial needs questionnaire. It can be seen from the media that it does not support learning activities for the introduction of measurement there are only media such as blocks, and puzzles that are also not used during learning activities for the introduction of measurement concepts there the teacher only provides worksheets so that children are not interested in participating in learning. Curriculum analysis is carried out by reviewing KD to formulate indicators of learning achievement. This is very important to identify the main points of the material presented and fulfil the achievement of the standard level of child development achievement (STPPA).

Design. Based on needs analysis, and curriculum analysis, the researcher then designs and prepares activities through: an introduction to the concept of measurement (short length with children invited to pay attention to the media, large small children invited to see the media, light, and weight children invited to pay attention to the scales), comparing seen from smart board media (for children

comparing short length sizes, for children comparing small large sizes, for children comparing lightweight sizes), sorting (children are invited to sort objects that are weighed from the lightest to the heaviest) which can improve children's cognitive development abilities.

Table 1. Preliminary Planning in Making Product Design

<table>
<tr><td>(Preliminary Design)
 
Description: Preliminary design before validation with media experts.</td><td>(New Design)
 
Description: New design after validation with media experts.</td></tr>
<tr><td colspan="2">New Smart Board Media
 
Description: Based on the needs of smart board media developed to stimulate children's measurement skills, after being validated with media experts, and material experts, the materials used in this media are safe for children.</td></tr>
</table>

Development. The smart board media validation process was carried out by 2 validators, namely: the media validator, and the material validator. The smart board media that has been developed is assessed for its feasibility by both validators. Material validation, *t*he stage that was carried out after the design was the validation stage by the validator, Mrs Indah Dwi Sartika, M.Pd. The suggestions given by the validator are as follows: *1) r*esearchers improved the grand theory synthesis instrument by criticisms and messages from experts after discussion; 2) researchers improved the instrument with the input provided by the expert; and 3) the researcher improved according to the direction and discussion with the expert or material expert

and was ready to continue the research. After making revisions according to the material expert validator's suggestions, the concept of introducing measurement for group B children has a validity level of 89, 7% which is in the 'Very Valid' criteria. *Media Validation, s*tages of media validation by the validator, namely Mrs. Elsa Cindrya, M.Pd with suggestions below: 1) based on the suggestions from the validator, the design should be redesigned, and the researcher should improve according to the suggestions from the expert after discussion; 2) the media is good but the proportions are still not neat / pay attention to the elements of beauty. The researcher improved according to the expert's suggestions after discussion and continued to conduct research. The results of media validation on smart boards on the concept of introducing measurement for group B children have a validity level of 93.1% which is in the 'Very Valid' criteria.

*Implementation, R*esearchers conducted trials at this stage for classes B1 and B2 aged 5-6 years at PAUD Anggrek, Rambang District. 1) Small Scale Test, Small-scale trials in class B1 with 6 children and large-scale trials in class B2 with 12 children on the use of smart board media in children's measurement skills can be concluded that the child's response is 88.1% with very practical criteria, indicating that the smart board media developed can be used in PAUD units; and 2) Large Scale Test, furthermore, a large-scale test was conducted in class B2 on 12 children studied. This large-scale trial aims to strengthen the results of the analysis of the practicality of the smart board media on the concept of introducing the developed measurements. The results of the large-scale trial results in class B2 in the form of research instruments on children for the overall percentage obtained 92%, which is very practical.

Evaluation. At this stage, researchers improve the product to the maximum based on suggestions and input aimed at the final product to get the expected quality, one of which is to improve the measurement skills of early childhood.

Based on the results of Wahyuni's research entitled 'Media Smart Board Numbers Based on Animation for Early Childhood Cognitive Stimulus (2022)' researchers using the development method (R&D) produced feasibility tests by experts with good qualifications including material experts 90.3%, design experts 90.6%, and media experts 90%. The 83% individual trial and 86.7% small group trial

explained that it was well qualified. It can be concluded that this media can be used so that cognitive abilities are following the minimum standards of development. In line with the research of Indah Sukma et al, entitled 'Development of Smart Board Media in the Introduction of Alphabet Letters in Early Childhood (2022)' researchers use the development method (R&D) data collection through literature study, the conclusion is that the smart board that has been developed can introduce alphabet letters for early childhood.

Research by Ockti Syafitri et al, with the title 'Improving the Ability to Recognise the Concept of Numbers 1-10 Through Counting Tree Games for 4-5 Years Old Children at BKB PAUD Harapan Bangsa (2018)' researchers used descriptive qualitative research methods with the conclusion that in introducing the ability of numbers 1-10 there was an increase in children aged 4-5. As well as research by Revi Lisdiani et al, with the title 'Development of Arm Balance Media to Facilitate the Logical Thinking Ability of Early Childhood (2021)' from this study it can be concluded that media that can stimulate aspects of the cognitive development of children aged 5-6 years, especially the arm balance. Devi and Subhan, entitled 'Improving Measurement Skills through the Problem Solving Method with Concrete Media in Group B Children of Madhani Kindergarten (2020)' obtained information that the problem-solving method with concrete media children's measurement skills can increase from cycle I data to cycle II the average score has increased by 24.58 points. In cycle I, the child's score was 17.58 in the MB category, and in cycle II was 27.52 in the BSB category.

In line with some of the research above, this research produces a product in the form of smart board media on the concept of introducing measurement for group B children at Anggrek Pre-School, Rambang District. The results of material validation have 18 assessment indicators, namely the presentation aspect of the material has a percentage result with a total of 89.7% in the 'very valid' category. Media validation has 11 assessment indicators, namely aspects of media attractiveness, durability, and physical media, has a percentage of results with a total of 93.1% in the 'very valid' category.

This smart board media has been checked and validated by material and media experts. On the validation sheet, all validators provided some input for improvement. The practicality of developing smart boards on the concept of introducing measurement in children aged 5-6 years can be known based on small-scale trials to class B1 and large-scale trials to class B2 in children at school as well as data analysis through observation sheets assessing children's indicators of children's achievement using smart board media data analysis through child observation sheets of children's achievement using smart boards with the results of teacher practitioners with a percentage of 96.6% with the category 'very practical'.

To determine the effectiveness of smart board media in a learning process, it is necessary to observe the results of initial observations made and obtain information about the lack of media availability to support the learning process. Based on the results of the study, it can be seen that group B children who have filled out the measurement ability questionnaire of small-scale trials of class B1 to 6 children and large-scale trials of class B2 to 12 children with an assessment of the effectiveness of smart board media for the results of the child's measurement ability questionnaire reached a percentage level for small-scale trials of class B1 88.1% and a percentage level of large-scale trial results of class B2 92%. It can be concluded that the smart board media is valid, practical, and effective to use in learning activities for the introduction of measurement. Using smart board media in children's learning is higher than not using smart board media.

Conclusion

Based on the results of research on the development of smart board media on the concept of introducing measurement for group B children in Anggrek PAUD, Rambang District, it can be concluded that: 1) Smartboard media is made of a board that has a rectangular shape and several pieces of coloured geometric shapes designed to introduce measurements to children including small size, short length, and light weight. Smartboard media was developed for the introduction of measurement in children aged 5-6 years at Anggrek Pre-School Rambang District by achieving a level of validity from material experts 89.7%, and the level of validity obtained from media

experts of 93.1% meets the assessment criteria in the 'Very Valid' category, it can be concluded that smart board media products on the concept of introducing measurements that have been developed by researchers are feasible to use and tested in the field; 2) The results of smart board media practitioners on the concept of introducing measurement given to principals and teachers of Anggrek Pre-School in Rambang District are 96.6% in the very practical criteria, and the practicality of small-scale trials of class B1 obtained a value of 88.1% with a very practical category. While the large-scale trial of class B2 obtained 92% with a very practical category; and 3) The effectiveness of this smart board media is seen from the results of the small-scale trial of class B1 getting 88.1% with a very practical category, and the large-scale trial of class B2 getting 92% with a very practical category so that the smart board media on the concept of measurement recognition for group B children is effective for use in the field.

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