



DEVELOPMENT VIDEO MODEL OF SCIENCE LEARNING THROUGH NATURAL MATERIALS CENTER IN ISLAM AL MADINAH KINDERGARTEN KKMB GROUP B

Anna Navita Syairoh¹, Sholeh Hidayat², Luluk Asmawati³

^{1,2,3}Universitas Sultan Ageng Tirtayasa, Indonesia

Email : ¹anna.navita.9@gmail.com, ²shol_hidayat@yahoo.com, ³nialuluk@yahoo.com

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Abstract

This study has purpose to create teaching materials for science learning videos through natural materials centers which can improve science abilities of group children B. Based on preliminary observations, it was found that low science ability of group children B in Islam Al-Madinah Kindergarten KKMB South Tangerang. This is caused by several factors including (1) the child only observes what teacher doing and the experimenter is teacher too. (2) children are also not given the opportunity to ask questions so they are not given freedom to explore their environment. (3) learning materials which used make children's activities low. Therefore, learning activities are designed using video models of science learning through natural materials centers to solve the problems founded during preliminary observation. Method type of research is Research and Development (R&D) using the ADDIE model. Subjects in the study were 18 children in group B. The results of this study showed that the learning video model was feasible to use with a value of 80% obtained from material experts and a value of 93.33% obtained from media experts. Science learning video through natural materials center can also effectively improve children's scientific abilities.

Keywords: *Science Learning Videos, Natural Materials Centers, Group B*



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INTRODUCTION

Education for early childhood is the provision of efforts to stimulate, guide, nurture, and provide learning activities that will produce children's abilities and skills.

Based on Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System Chapter 1, Article 1, Point 14 it is stated that Early Childhood Education is a coaching effort aimed at children from birth to age 6 years which is carried out through the provision of educational stimuli to help physical and spiritual growth and development so that children have readiness to enter further education.

Aspects of development that can be developed include aspects of moral development and religious values, aspects of social and emotional development, aspects of language development, aspects of cognitive development, and aspects of physical motor development. Aspects of cognitive development are fundamental to a child's ability to think. This aspect of cognitive development aims to develop children's thinking skills to process their learning gains, be able to find various alternative problem solving, and help children to develop their mathematical logic skills and knowledge of space and time as well as the ability to sort and group which ones are heavier and which are lighter and prepare for the development of careful thinking skills.

One way of developing cognitive aspects is through science learning. "*In general terms, science is the process of observing, thinking, and reflecting on actions and events*". (Killer and Hoffman, 1995: 386). Understanding science is the process of seeing and paying attention carefully and then thinking or considering deeply the natural events around it.

Through science learning, children can have a wide variety of basic skills. The skills of science are as follows: observation, classifying, comparing, measuring, communicating, experimenting, associating, inferring, and applying. Developing these skills is very important because children will understand that science is problem solving, not just facts and facts. Just memorize. Science learning on Early childhood encourages children to explore their environment and observe and reflect on their new discoveries.

The reality that occurs around one of them in Al Madinah Islamic Kindergarten, not all children understand the science learning provided by the teacher. The child only observes what the teacher does and the one who conducts the experiment is the teacher. Children are also not given the opportunity to ask questions so they are not given freedom in exploring with their environment. In addition, with the emergence of the dangerous Covid 19 virus in 2020 which affected the learning system to be online or *online*, science learning could not be

fully stimulated properly. For this reason, it is necessary to develop a science learning video model for early childhood, namely by providing various strategies as a reference for learning provided so as to get various concepts and experiences of science so that the goals of science learning are achieved with an online or online learning system.

Related to learning strategies, learning strategies are a comprehensive approach to learning in a learning system, in the form of general guidelines and framework activities to achieve the general objectives of learning, which are described from a philosophical and / or theoretical view. (Miarso, 2011: 455).

However, to see the strategies used in science learning, researchers limit only five components that are seen according to the early childhood science learning process, namely: science learning objectives, science learning density, science learning methods, science learning media, evaluation or science learning assessment tools. In response to this, there have been many kindergartens that facilitate science learning so that it becomes an interesting activity for children. One of them is by using the central learning model.

(Asmawati, 2008: 38) stated that the center is the best integrated learning. Centers can help children develop all their abilities simultaneously. In the center children learn when they actively participate, observe, and interact with other children.

Isabell as quoted (Asmawati, 2008: 8.11) suggests that traditionally dividing the center into household centers, beam centers, art centers, sand and water centers, library centers, music and song centers, writing centers, science and nature centers.

The center of natural materials is a place for children to carry out activities with various appropriate tools according to children's needs consisting of tools or dry materials and tools or materials that use water (Sujiono, 2010: 85). From the description that has been described in the background section above, to facilitate the research process to avoid too broad a discussion is needed to formulate a problem. Departing from the statement above, the formulation of the problem that will be tried to be discussed in the study entitled "Development of Science Learning Video Models Through Natural Material Centers in Al Madinah Islamic Kindergarten KKMB Group B", namely:

1. How to design the Development of Science Learning Video Model through Natural Material Center at Al Madinah Islamic Kindergarten KKMB Group B?
2. How to implement the Science Learning Video Model Product through the Natural Material Center at Al Madinah Islamic Kindergarten KKMB Group B?
3. How are the science process activities at the natural materials center of Al Madinah Islamic Kindergarten KKMB Group B?

4. How is the science ability of group B children in Al Madinah Islamic Kindergarten KKMB Group B?
5. How is the Product Development of Science Learning Video Model through Natural Material Center at Al Madinah Islamic Kindergarten KKMB Group B?

The purpose of this study is to describe in depth about:

1. Development of a science learning video model through the center of natural materials at Al Madinah Islamic Kindergarten KKMB group B.
2. Implementation of the development of science learning video models through natural material centers at Al Madinah Islamic Kindergarten KKMB group B.
3. Science process activities at the natural materials center of Al Madinah Islamic Kindergarten KKMB.
4. Science skills of group B children at Al Madinah Islamic Kindergarten KKMB.
5. Product development of science learning video models through natural material centers at Al Madinah Islamic Kindergarten KKMB Group B.

METHOD

This research was conducted at TK Islam Al Madinah KKMB which is located at Jalan Puspita Raya Block L.1 Number 1A BSD City, South Tangerang. The population of this study was conducted on group B children in the 2019-2020 learning year. The sample in this study was children aged 5-6 years (group B) totaling 18 children. The study time started from May 2020 to June 2020

Research on the development of teaching materials is carried out using the Borg and Gall research model. Looking at the inadequate conditions and situations, the researcher limits by simplifying the research steps into six steps, namely the pre-development stage (potential and problem), data collection stage, product design stage, product validation stage, product revision stage, and product trial stage.

The data needed in this study is data from the development of science learning video model products through natural material centers. This data will be collected through observation. The data needed was sourced from 18 group B students at Al Madinah Islamic Kindergarten KKMB.

Data collection techniques, namely survey methods, observation techniques, and trials are limited to the results of draft development. The survey was conducted to obtain opinions from resource persons regarding the problems faced. Assessment techniques by experts and observations are carried out to obtain assessments and input from experts on the design of science learning video models through natural material centers designed by researchers. While trials are limited to the results of product development that has been carried out

with the aim of obtaining information whether the developed model is more effective and efficient in learning science.

In accordance with this research and development, the data used in this study are qualitative data and quantitative data.

1. Qualitative Data

Qualitative data in the form of quality category values of teaching materials for science learning video models through natural material centers based on assessment sheets that have been filled out by material experts and media experts.

Table 1
Quality Categories

Category	Information
SB	Excellent
B	Good
CB	Good enough
K	Less

2 Quantitative Data

Quantitative data in the form of assessment scores for each point of assessment criteria on the quality assessment sheet of teaching materials for science learning video models through natural material centers filled by material experts and media experts. The scoring of each point is converted into a score with a Likert scale.

Tabel 2
Kriteria Skala Likert

Category	Information
5	Excellent
4	Good
3	Good enough
2	Not Good

1	Very Lacking
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Research Data Analysis Procedure

In this development research, three data analysis techniques were carried out, namely 1) qualitative descriptive analysis, which is a way of analyzing or processing data by systematically compiling in the form of sentences or words about an object. 2) Quantitative descriptive analysis, this analytical technique is used to process data obtained through assessment sheets and observations in bentuk deskriptif Percentage. In calculating the results of validation of material experts and media experts, the results of student observations, practicality in stimulating student learning activities using the formula according to Suharsimi Arikunto (2006: 244) as follows:

$$p = \frac{\text{Raw Score} \times 100\%}{\text{Score Ideal}}$$

Information:

- p = Percentage of each item
- Raw score = Number of scores obtained
- Ideal Score = Overall number of correct answers

The limitations for this due diligence are as follows.

- 60% = Very Less
- 60-69% = Less
- 70-79% = Sufficient
- 80-89% = Good
- 90-100% = Excellent


















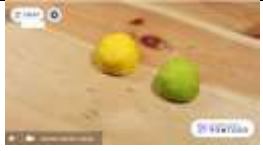






According to Suharsimi Arikunto (2006: 244) data analysis includes all activities of clarifying, analyzing, using, and drawing conclusions from all data collected in action.

























RESULTS AND DISCUSSION









Product Design Process












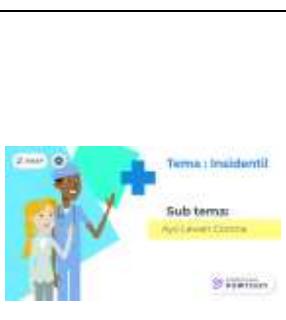












This process is carried out by first determining the KI, KD, themes, sub-themes and sub-sub-themes and activities selected in accordance with the analysis of the needs of the problem and the child's immediate environment. Then create a Media Content Outline (GBIM). The next step, compile a storyboard, script and start producing learning videos to completion.










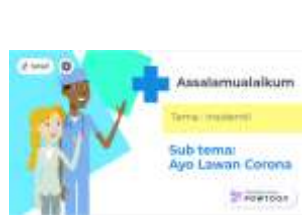




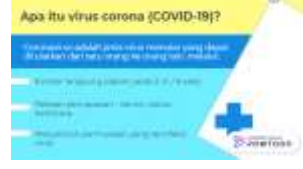
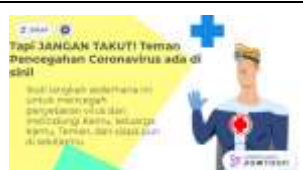








Table 3
The Development of Learning Video Display

No	Material	Display Development Learning Videos		
		Draft 1	Draft 2	Draft 3 / Final
1.	Playdough Making Activities Slide 1			
2.	Slide 2			
3.	Slide 3			
4.	Slide 4			
5.	Slide 5			
6.	Slide 6-9			
7.	Slide 10			
8.	Slide 11			

8.	Activities Making watercolor s from natural materials Slide 1			
9.	Slide 2			
10.	Slide 3			
11.	Slide 4			
12.	Slide 5			
13.	Slide 6			
14.	Slide 7-11			
15.	Slide 12			

16.	Activities Making Ginger Water Slide 1			
17.	Slide 2			
18.	Slide 3			
19.	Slide 4-8			
20.	Slide 9			
21.	Activities Brushing and Washing Clothes Slide 1			
22.	Slide 2			
23.	Slide 3			

24.	Slide 4			
25.	Slide 5-7			
26.	Slide 8			
27.	Simple Science Experiment Activities Using Ground Pepper and Soap Slide 1			
28.	Slide 2			
29.	Slide 3			
30.	Slide 4			
31.	Slide 5			

32.	Slide 6-10			
33.	Slide 11			
34.	Slide 12			
35.	Good and Correct Handwashing Activities Slide 1			
36.	Slide 2			
37.	Slide 3			
38.	Slide 4			
39.	Slide 5-9			

40.	Slode 10			
41.	Fruit Soup Making Activities Slide 1			
42.	Slide 2			
43.	Slide 3			
44.	Slide 4			
45.	Slide 5-6			
46.	Slide 7			
47.	Color Mixing Activities Slide 1			

48.	Slide 2			
49.	Slide 3			
50.	Slide 4			
51.	Slide 5			
52.	Slide 6			
53.	Slide 7			
54.	Slide 8-11			
55.	Slide 12			

1. Qualification of Teaching Materials

Researchers have conducted feasibility tests by asking material experts and media experts as validators in assessing or testing learning video products that researchers have made. Material expert validation is needed to determine the assessment of aspects of the format and content or activity material in learning videos. Media experts are needed to assess the display aspects of learning and programming videos. Each validation instrument has a score from one to five with a description; 1) Not Good, 2) Less Good, 3) Good enough; 4) Good, and 5) Very Good.

The results of material expert validation conducted by Mrs. Dr. Hj. Sholatul Hayati, M.Pd showed a total score of 36 with a percentage of 72% and an average score of 3.6 The results of material expert validation showed a total score of 40 with a percentage of 80% and an average score of 4 with the category "Good" on the feasibility of learning videos. While the assessment results from media experts, namely from Mr. Dr. Lukman Nulhakim, M.Pd have a total number of assessments from media experts have a total number of 112 with a percentage of 93.3% and an average of 4.67 in the category of "Very Good".

a. The Effectiveness of Teaching Materials

Researchers saw the effectiveness of using science learning video products through natural material centers by piloting these learning video products to 18 group B children at Al Madinah Islamic Kindergarten KKMB. Product trial assessment is carried out with science ability instruments that have been made to see the development of children's science abilities through natural material centers. This aims to see the value of children's ability development before using the product so that the cause of problems is found that shows the low value of children's scientific ability development through natural material centers. This developmental value is also needed to be used as a comparison from before and after the use of the product, whether there is an increase in child development value or not so that it makes it easier for researchers to see the effectiveness of science learning video products through the center of natural materials that researchers have made.

The value of the initial observation results or before the use of the product shows that the overall value of children's science abilities through natural material centers is still low, which is at a value of 333 with a percentage of 46.11%. The smallest values were found in subjects 8,9 and 13 with a value of 15. The largest score was found in subject 4 with a value of 23. However, the average score of 18 children was 18.5. In this initial observation, researchers saw that children's ability to learn about science is just an activity related to

animals and plants. Children do not yet know many simple experimental activities and daily activities related to science.

After knowing the low value of children's science skills through natural material centers (before product use), researchers began to pilot science learning video products through natural material centers that had been validated by material experts and media experts and had been revised by researchers to the 18 children. Researchers conducting trials of this product intend to see the effectiveness of using science learning video products through natural material centers. The value of product trial results (after product use) obtained by 18 children. Looking at the overall value of product test results (after product use), the largest value was obtained by subjects 17 and 18 with a value of 39. The lowest scores were obtained by subjects 1, 12 and 13 with a value of 28. The test results of this product showed a total of 592 with an average value of 32.9 and reached 82.22%. This shows that children's science skills through natural material centers have increased from the results of initial observation values or before product use and after product trials or after product use.

The teacher's response also gave a very good value to the learning video product. Mrs. Syafira Dwi Puspa as a teacher of the natural material center gave a very good score, namely the total number of 45 with a percentage of 90%. This shows the satisfaction of natural material center teachers with science learning video products through natural material centers which are not only to improve children's science skills through natural material centers but also greatly help facilitate teacher performance.

The good response from the teacher of this natural material center shows that the teacher is very happy with the use of this learning video. For teachers, science learning videos through natural material centers can be used as one of the teaching materials to make it easier for teachers to provide explanations about the activities that will be carried out by children. Teachers also feel happy because the materials in each activity are easily available because they use natural materials or those around children. In addition, the activities in the learning video are also fun for children to do together with parents.

CONCLUSION

The design of the science learning video model through the center of natural materials is used to improve the science skills of group B children starting with determining the KI and KD used, then researchers formulate several themes and content that are developed into sub-themes. After the sub-theme is developed, indicators are made to be more specific, then material is made by considering

activities and media to be used as a learning process and adjusted to the needs or characteristics of the child's learning age. After the idea is completed, the researcher designs from the initial slide to the final slide. Then validation is carried out by material experts and media experts. From the results of expert validation, there are several revisions, namely adding developmental aspects to each activity, improving music, sound, letters and background images in the video. The results of material expert validation show a value of 40, which is a percentage of 80% with the category "Good". The results of media expert validation showed a total score of 112, which is a percentage of 93.33% with the category "Very Good". The value results from both experts show that science learning video products through natural material centers are suitable for use or trial.

Product Implementation of Science Learning Video Model Development through the Natural Material Center at Al Madinah Islamic Kindergarten KKMB Group B with the conditions of the Covid-19 pandemic, the implementation of this product is carried out by researchers by means of homeroom teachers being given learning videos to be sent to the class whatsapp group they teach. Parents and children view learning videos that Shared by the homeroom teacher, then children learn online at their respective homes and children do activities given online accompanied by parents. After that, the results of the activity assignment are sent to the homeroom teacher then the homeroom teacher assesses the child's development according to the child's science ability instrument.

Science process activities at the natural material center of Al Madinah Islamic Kindergarten KKMB Group B The use of learning video products is said to improve children's science skills through natural material centers. After product trials were carried out on 18 children, children's science skills and knowledge through natural material centers increased. Children's science process activities that were tested included 1) activities to make and form *playdough* with indicators that children are able to recognize the colors, shapes, and textures of the objects they make; 2) children's activities to make watercolors from natural materials with indicators that children are able to recognize colors from natural dyes using simple technology; 3) children's activities to make ginger water with indicators that children are able to recognize the natural environment and present their work in the form of healthy food or drinks; 4) children carry out brushing and washing activities with indicators that children are able to know how to live healthy using simple technology; 5) children carry out simple science experiment activities using pepper powder and soap with indicators children are able to conduct experiments and know simple science concepts in everyday life; 6) children carry out good and correct hand washing practice

activities with indicators that children are able to know how to live healthy and recognize cause and effect (water can cause something to get wet); 7) Children do activities to make fruit soup with indicators that children are able to express the results and procedures of their work related to nature completely and intact and 8) Children do color mixing activities with indicators that children are able to recognize colors and causes and effects (red and blue colors if mixed cause the colors to turn purple). The percentage value of 82.22% in the product trial shows that the effectiveness of science learning video products through natural material centers is very strong.

The science ability of group B children in Al Madinah Islamic Kindergarten KKMB Group B The value of initial observations or before the use of products shows that the overall value of children's science abilities through natural material centers is still low, which is at a value of 333 with a percentage of 46.11%. The smallest values were found in subjects 8,9 and 13 with a value of 15. The largest score was found in subject 4 with a value of 23. However, the average score of 18 children was 18.5. In this initial observation, researchers saw that children's ability to learn about science is just an activity related to animals and plants. Children do not yet know many simple experimental activities and daily activities related to science.

After knowing the low value of children's science skills through natural material centers (before product use) in table 4.3, researchers began to pilot science learning video products through natural material centers that had been validated by material experts and media experts and had been revised by researchers to the 18 children. Researchers conducting trials of this product intend to see the effectiveness of using science learning video products through natural material centers.

Looking overall at the table of product test results (after product use), the largest scores were obtained by subjects 17 and 18 with a value of 39. The lowest scores were obtained by subjects 1, 12 and 13 with a value of 28. This product test results table shows a total of 592 with an average value of 32.9 and reached 82.22%. It can also be seen in the graph below, that children's science skills through natural material centers show an increase from the results of initial observation values or before product use and after product trials or after product use.

Science Learning Video Model Development Products through Natural Material Centers at Al Madinah Islamic Kindergarten KKMB Group B based on data from the results of learning video product testing by material experts are said to be valid and can be tested to assess feasibility in the learning process. This learning video model is said to be valid because of the test results, the percentage

results of 80% on aspects of the format and content of the material from a maximum value of 100%. The material expert assessment received an 80% rating in the good category. This means that the program made is in accordance with the goals achieved.

Through the data obtained, it can be interpreted that media experts say that from the aspect of appearance and programming it has a very good category with a percentage of 93.33%. These results are based on a reference range of feasible and adequate categories to be able to conduct feasibility tests in the learning process.

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