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Development of Multimedia-Based Vibel Media to Increase Kindergarten Children's Cognitive Learning Interest

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Abstract: This study aims to 1) analyze the need for multimedia-based learning media to increase interest in cognitive learning of group A children in Gugus Ki Hajar Dewantoro Kindergarten, and 2) formulate a design for developing multimedia-based learning video media (vibel) to increase interest in cognitive learning of children in Group A in Ki Hajar Dewantoro's Gugus Kindergarten, 3) Analyzing the feasibility level of multimedia-based learning video media (vibel) to increase children's interest in cognitive learning in Group A in Ki Hajar Dewantoro's Gugus Kindergarten, 4) analyzing the effectiveness of multimedia-based learning video media (vibel) to increase children's cognitive learning interest in Group A at Gugus Ki Kindergarten beat Dewantoro. The type of research is R&D. The development model used in this study is the borg and gall development model with ten development steps. First, the feasibility level of multimedia-based learning media is based on expert validation tests and small-scale trials and then applied to the sample class. Data collection using observation, interviews, questionnaires and documentation. Data analysis techniques include product data analysis, initial data analysis with normality test, and final data analysis with N-gain and t-test. The results of the study are 1) based on needs analysis, learning media is needed that can increase children's cognitive learning interest, and 2) the media developed is a learning video. Learning video media in the form of exposure to images and sounds that contain cognitive material, 3) instructional video media was declared feasible for kindergarten children's learning in the Rembang district based on material expert validation of 90 with appropriate categories. Media expert validation of 88 with appropriate categories, 4) effective learning video media is used to increase the cognitive learning interest of kindergarten children in Rembang. The effectiveness of the learning video is based on a limited product trial and a broad product trial with t-count > t-table and n gain test in a limited test in the effective category.

Keywords: Learning media, learning video, multimedia, interest in learning, cognitive development

1. Introduction

Education is essential to be instilled from an early age because education is a determinant of future success. Early childhood learning is holistic and integrated, developing all aspects of development, including morals and religious values, cognitive, physical, motoric, language, and social-emotional. Integrated means that learning does not teach separate fields of study. There is continuity between aspects of child development. Although education is closely related to learning, the success of learning and teaching and learning activities is influenced by several factors. In addition to the teacher factor, the student factor also affects the success of teaching and learning activities. Students' interest in learning is often referred to as interest. Interest in learning, illustrated by student learning motivation, is a condition in students who can encourage and direct their behaviour to achieve the goals they want to complete in school. Six aspects of development must be stimulated in early childhood, including elements of the development of Religious and Moral Norms (NAM), Cognitive, Language, Physical, Motor, Social, Emotional and Art.

One aspect that must be developed is the cognitive aspect. Cognitive is a thinking process, namely the individual's ability to connect, assess and consider an event (Susanto, 2011). Cognitive relates to children's intelligence in solving problems, and numeracy skills also recognize numbers. Children aged 2-7 years are in the preoperational stage of cognitive abilities. Age 4-6 years is a sensitive period for children. The sensitive period is a period of maturation of

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physical and psychological functions that are ready to respond to stimulation provided by the environment (Martinis & Jamilah, 2013).

Based on observations made by researchers at Gugus Ki Hajar Dewantoro Kindergarten at the time of learning, children seem less interested in learning, primarily in cognitive aspects. Only a small number of children are still enthusiastic about learning. As a result, children's learning outcomes. From the data, the assessment results showed that of the 20 children who participated in the teaching, only five children got the BSH score (Developing according to expectations), and 15 got the MB score. Less interest in children participating in learning. Teaching media materials that come from books is a contributing factor. By looking at and considering the conditions in the field, the researcher as a teacher looks for ways to grow children's interest in learning in the cognitive aspect, namely by changing the learning media, which was originally from a book or magazine, into a video or image-based multimedia.

Research that can be used as a reference is the development of interactive multimedia learning counting materials for grade A children at the Teruna Bangsa Kindergarten by Henny Maryani Ambarita (Ambarita, 2015). The second research by Dian Nazelliana (2015) is researching the development of multimedia-based learning media that can increase children's interest in learning. This research has been tested in several early childhood schools and obtained the results that multimedia learning media increased children's interest in learning.

Based on the explanation of the problems and references above, researchers need to develop multimedia-based vibel media to increase children's interest in cognitive learning. This learning media has undoubtedly been adapted to the characteristics of children's development.

1.1 Framework of thinking

This study begins with the discovery of a problem that occurs in several educational institutions in the Ki Hajar Dewantoro cluster, namely, children are less interested in learning. This is due to the limitations or lack of media teachers use in learning, so children are less interested in learning from teachers. No learning media can help teachers increase children's cognitive learning interest, where the characteristics of AUD tend to be easily bored in learning.

The solution to this problem was found, namely learning media that made it easier for teachers to provide material, and the media did not make AUD bored. It takes a multimedia-based learning media tool. Supporting theories are needed in making the learning media, including the definition of cognitive learning interest, learning media, learning videos and multimedia. And supported by the development used by Borg and Gall, it is hoped that this research will produce multimedia learning media to increase children's learning interests.

Researchers want to develop exciting learning media according to the characteristics of children. Researchers make multimedia-based vibel media products and then analyze these products to suit the characteristics and needs of children. After that just tested on children aged 4-5 years. For more details described in the chart below:

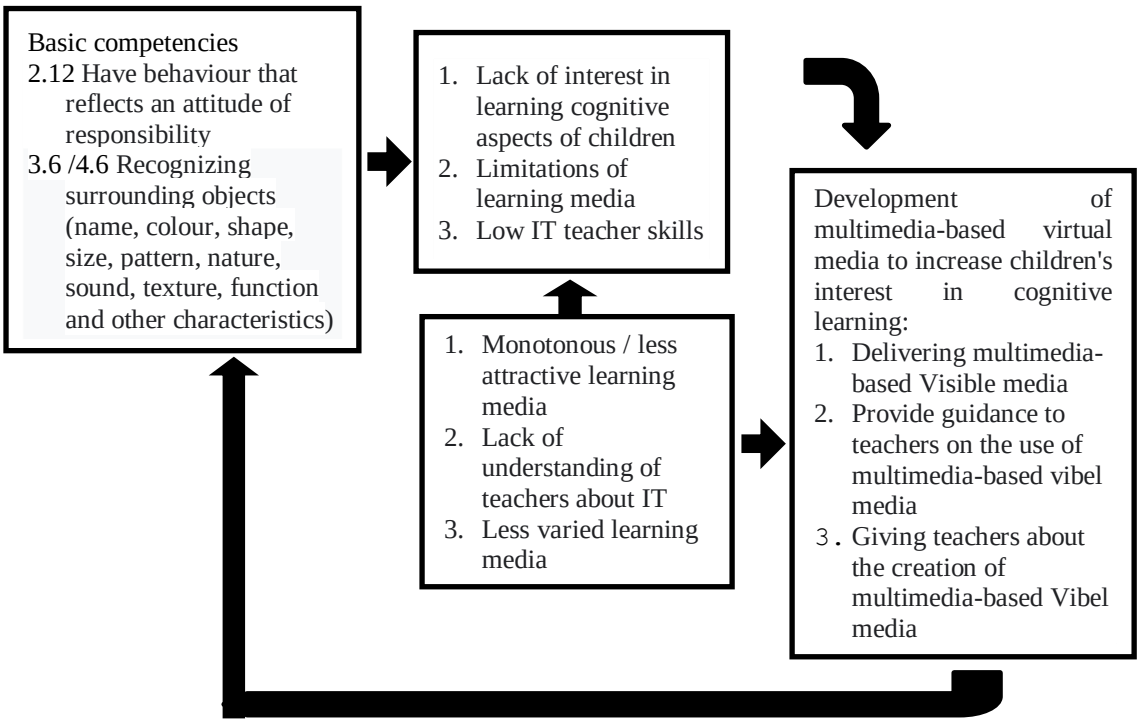

Figure 1. Thinking framework

1.2 Hypothesis

Based on the problems and discussion of theory, the hypotheses of this research are:

a) Development of learning media for children aged 4-5 years in the Ki Hajar Dewantoro cluster, Sulang District, Rembang Regency in the form of multimedia-based vibel media is feasible to use to increase children's cognitive learning interest.
b) The development of multimedia-based vibel media is effectively used as a learning medium in increasing interest in cognitive learning of children aged 4-5 years.

1.3 Research Objectives

This study was conducted to analyze the effectiveness of the vibel media in increasing the interest in cognitive learning of children aged 4-5 years.

2. Literature Review

Early childhood education plays a crucial strategic role in enhancing the calibre of human resources and national efforts to realise the aspirations of the Indonesian people in achieving social welfare and the intellectual life of the country. Education is a deliberate goal that seeks to develop human attributes. Because it is an activity with this awareness, it is implemented continuously at every level and form of education, which are all interconnected as part of a comprehensive educational system. Education experts have acknowledged that boosting the quality of learning is essential to raising the standard of education nationally since it is directly related to the calibre of teachers and their teaching methods.

In essence, education is an effort to improve the interactions between teachers and pupils. Interest is a quality that most people retain throughout time. A person's activities are greatly influenced by their level of interest since they will engage in activities they find interesting. On the other hand, it is impossible to take action without interest. Learning interest will increase when receiving outside stimulation. Additionally, the propensity to be interested in an area is constant and enjoyable while one is actively engaged in it. This enjoyment is brought on by the surroundings or a fascinating object.

Aspects of early childhood development include those related to moral development, language development, socio-emotional development, cognitive development, and aspects of motor growth and development. One factor influencing early childhood growth and development is cognitive development. Early childhood cognitive development is the process of connecting, evaluating, and considering information. It can also be seen as having the capacity to solve issues or produce things that are respected in a society. The need to do something that will make one happy and interested comes from a desire to learn.

3. Methodology

The researcher used a research and development (R&D) design in this study. Borg and Gall in Sugiyono (2015) state that Educational R&D is based on an industrial development research model, where research results are used to design new products and procedures and then systematically field tested, evaluated and refined until they meet specific criteria, namely effectiveness, quality and meet standards. According to Sugiyono (2019), research and development (R&D) is a basic research activity to obtain information on user needs (need assessment) and then proceed with development activities to produce products and assess the effectiveness of these products.

Based on this understanding, development research is product-oriented research. The products developed are in the form of media, teaching materials, strategies or learning methods. This research develops learning video products. The learning procedure used in this study adapts the development procedure developed by Borg and Gall.

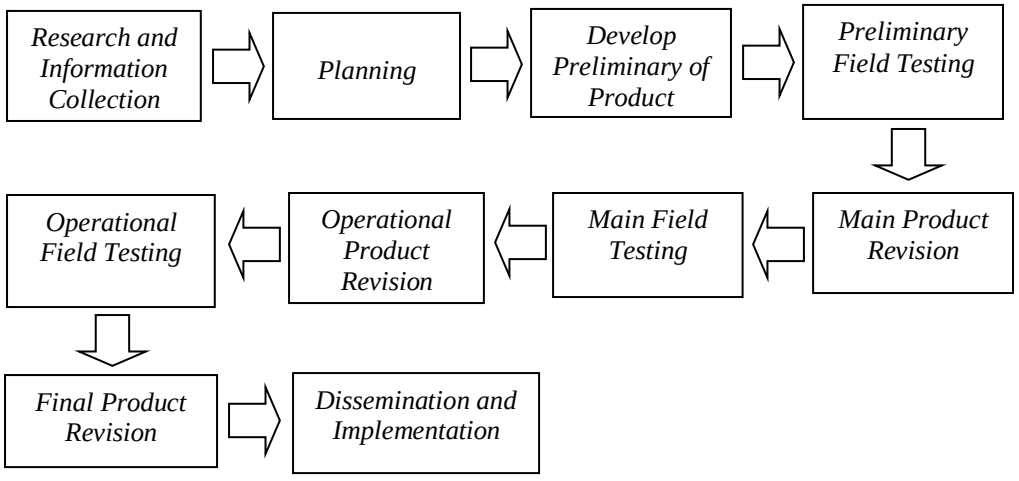

Figure 1. Research and development procedure

The research subjects consisted of 3 kindergartens with sixty children. This research has obtained permission from the head of Kartini Kunir Kindergarten, Sentana 1 Kindergarten and Sentana 2 Kindergarten.

4. Results and Discussion

Limited trial is a simulation conducted to determine the effectiveness of the product before being used in a wide field. The limited trial was carried out on 20 samples consisting of 10 TK Kartini as the Control class and 10 TK Sentana 01 as the Experiment class. The small group test was previously carried out with initial observations which were then used as pretest scores. Then, learning is carried out with the control class without using multimedia-based vible media and the Experimental class using multimedia-based vibel media. After learning is done, a second observation is made, then the results of the observations are used as posttest scores. The following are the pretest and posttest values for the two classes.

Table 1. Recapitulation of assessment of limited test activities

	Pre-test		**Post-test**	
	Control Class	**Experiment Class**	**Control Class**	**Experiment Class**
Average	46.10	45.90	65.30	91.70
Median	45.50	46.50	64.50	92.00
Modus	44[a]	40[a]	61[a]	88[a]
Standar Deviation	2.961	4.932	3.561	4.373
Min. Value	41	39	61	84
Max. Value	51	52	71	98

Based on Table 1, the results obtained pretest scores in the control class average 46.10 and in the experimental class 45.90 and posttest scores in the control class obtained results of 65.30 and in the experimental class of 91.70. There was an increase in the results of both classes, but in the experimental class there was a significant increase due to the application of multimedia-based vibel media.

4.1 T-test

The next data test is the Independent Hypothesis Test t test. Data processing is done by using SPSS statistics. The following hypotheses are proposed are:

Ho = Multimedia-based Vibel Media Development can't increase kindergarten children's cognitive learning requests
Ha = Multimedia-based Vible Media Development can increase kindergarten children's cognitive learning interest

Table 2. Independent sample t-test results limited test

		Levene's Test for Equality of Variances		**t-test for Equality of Means**		
		F	**Sig.**	**T**	**df**	**Sig. (2-tailed)**
Observation Results	Equal variances assumed	.037	.849	28.967	18	.000
	Equal variances not assumed			28.967	17.839	.000

Calculation results Table 2 shows t-count is 28.967 while the value of t-table with df 9 is 2.1009, so 28.967 >2.1009. Because t count > t table then Ho is rejected and Ha is accepted. It can be interpreted that the development of multimedia-based vibel media can increase the cognitive learning interest of kindergarten children.

4.2 N- gain Test

According to Hake (in Sundayana 2014), N-gain test is a test that can provide an overview of increasing learning outcomes scores between before and after the application of a treatment. The results of the N-gain test for the control class and the experimental class in the limited trial are:

Table 3. Test results N-limited test gain

No.	Value	Control Class	Experiment Class
1	N-gain	0.351	0.844
2	Criteria	Low	High
3	N-gain %	35.1	84.4
4	Interpretation	Not Effective	Effective

Calculation results of N-gain are control class value of N-gain is 0.351 in the low category, meaning that the increase in cognitive interest in learning is low. The value of N-gain % is 35.1 in the ineffective category. In other words, learning without using multimedia-based vibel media is not effective in increasing the cognitive learning interest of kindergarten children.

The N-gain value is 0.844 in the high category in experiment class. The value of N – gain % is 84.4 which is categorized as effective. In other words, learning using multimedia-based vibel media is effectively used to increase the interest in cognitive learning of kindergarten children.

5. Conclusions and Suggestions

Vibel media based on multimedia is effectively used to increase the interest in cognitive learning of kindergarten children. The effectiveness of the media based on limited trials and extensive field tests with the results of t-count > t-table. The results of t-table 28.96 > 2.10 while N-gain 8.4 is categorized as effective.

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Conflict of Interest

The authors declare no conflicts of interest.

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