THE EFFECTIVENESS OF USING ANIMATED VIDEOS ON THE COGNITIVE DEVELOPMENT OF CHILDREN AGED 5-6 YEARS AT TKIT IQRA, SERANG CITY

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Abstract

This study aims to determine whether there is an Effectiveness of Using Video Animation on the Cognitive Development of Children Aged 5-6 Years at TKIT IQRA Serang City, this research was conducted in class TK B Ismail. In this study the method used was Pre-Experiment with the One Group Pretest-Posttest Design research design. The population or research object is TKIT IQRA students in Serang City. In this study, all students in TK B Ismail class, even semester of the 2022-2023 academic year , were taken as a sample. The data analysis technique used is to determine the average, standard deviation, normality test (Lileefors test), homogeneity test (Levene test) and t test (paired sample t test). The research results obtained a significance value or probability value of 0.000 which is smaller than 0.05. So it is interpreted that Ho is rejected and Ha where there is an effectiveness of using animated videos on the cognitive development of children aged 5-6 years.

Keywords: animation video; cognitive development; children aged 5-6 years

Introduction

Technological developments are the fruit of the development of human knowledge to help and facilitate the survival of modern humans and create new living habits. Until now, developing technology has entered the digital stage. Including in Indonesia, every field has started to utilize technology to make work easier, including in the education sector (Palupi, 2020) . In order to improve science and technology so that it becomes effective and efficient in learning, various creative and innovative learning models and media need to be developed.

Along with advances in technology, the development of learning media is very fast. According to Nursamsu in Fifit Firmadai (2020) , Learning Media is a tool used to demonstrate certain facts, concepts, principles or procedures so that they appear more real/concrete. These tools are intended to provide more concrete experiences, motivate and improve students' absorption and memory in learning. Media can foster students' positive attitudes towards the material and learning process. The learning process becomes more interesting if the right media is used so that students are motivated to love the science they are studying. A teacher can be effective and efficient in presenting lesson material if he can use the media well and appropriately .

Cognitive abilities are needed by children to develop their knowledge about what they see, hear, feel, touch, smell through their five senses. Cognitive development shows the development of a child's way of thinking (logical and symbolic thinking), how a child solves a problem and can find a way out. (Haryani & Sari, 2021) . A child's ability to coordinate ways of thinking to solve various problems can be used as a measure of intelligence growth .

According to Susanto (2011) , cognitive is a thinking process, namely an individual's ability to connect, assess and consider an incident or events. According to Woolfolk, quoted by Susanto, cognitive is one or more abilities to acquire and use knowledge in order to solve problems and adapt to the environment . According to Witherington, cognitive is the mind, through which the mind can be used quickly and appropriately to overcome a situation to solve a problem. Cognitive development is the development of the mind. Thoughts are part of the brain's thinking process, thoughts that are used to recognize, know and understand (Sulastri, 2021) . From the understanding of the experts above, cognitive understanding is a child's ability to think and manage, understand, know, recognize information in solving problems in everyday life.

The phases of cognitive development of kindergarten age children are in the preoperational phase which includes three aspects, namely (Suryana, 2016) : Symbolic thinking, namely the ability to think about objects and events even though these objects and events are not physically present (real) in front of the child. Egocentric thinking, namely a way of thinking about right or wrong, agreeing or disagreeing based on one's own point of view. Therefore, children cannot yet put their perspective on other people's points of view. Intuitive thinking, namely the ability to create something, such as drawing or arranging blocks, but not knowing the exact reason for doing so. These three aspects of children's thinking development are still within children's simple understanding and scope.

According to Heidy Ayu Rosita (2020) , cognitive development itself means an individual's ability to process information, or in everyday language we usually call it the development of thinking. Cognitive development is one aspect that must be stimulated from an early age. This ability can be developed by playing or activities that are exciting, interesting and enjoyable. One example of this activity is learning to use certain media, such as animated videos of daily prayers. Through observing and watching videos, it is easier for students to recite daily prayers and practice them at home. Apart from that, developing learning using video media also improves students' ability to use language . Using animated videos can not only help children's cognitive development, but the development of other children is also stimulated.

An animated video is a collection of images arranged sequentially and recorded using a camera to make the images come alive and can be used as learning media (Rosita et al., 2020) . Swari (2022) revealed that this animation media can help and make it easier for teachers in the teaching and learning process of introducing letters and numbers. Interactive learning can attract children's attention. Animated videos consist of images and sound, giving rise to moving illustrations that are certainly interesting. Animated video media can be used as communication to explain or convey material .

The use of interactive multimedia has great potential for dealing with problems in learning. Interactive multimedia provides an easy way to visualize objects that are large and difficult to obtain. In order to realize more innovative and interactive learning, teachers are expected to be more innovative in finding breakthroughs to combine text,

images, sound, music, animated images or videos, in a unit that supports each other in achieving learning goals. (Fikri & Madona, 2018) .

The advantages of using animated videos in learning according to Arsyad are quoted in Novelia (2020) are: (1) Animated videos can improve children's basic experiences when reading, thinking, discussing and practicing. Animated videos can also be a substitute for real life which can be changed so that it looks as if the object is real. (2) Animated videos can describe a process accurately and can be presented repeatedly. (3) Encourage and increase children's learning motivation. (4) Animated videos can be addressed to large, small groups or individuals.

The use of animated videos in learning for early childhood at school can present learning material with attractive visuals and supporting sounds, which will make children pay more attention and listen to the material presented by the teacher through animated video media. Sri Haryani and Veronica Meliana Sari (2021) stated the effectiveness of using learning videos in improving the cognitive abilities of children aged 4-5 years during the distance learning period. It can be concluded that learning to improve cognitive learning at Al Kautsar Kindergarten using learning video media is quite effective. The use of learning video media is more effective. Because the learning video media helps teachers to provide material, and helps children understand and follow the activity material provided easily. Video media can also motivate children to study at home.

Based on the results of observations in group B aged 5-6 years at TKIT IQRA Serang City, it shows that in the learning process of children in Kindergarten B there is still a lack of children's cognitive development, especially in the scope of logical thinking abilities. Children's lack of logical thinking ability is in understanding in detail the related causes and effects that exist and occur in themselves and their environment, such as the causes and effects of flood disasters, the causes and effects of littering. As well as children's lack of understanding of classifying objects according to their groups, such as grouping organic waste and inorganic waste, children's lack of distinguishing objects based on shape and color.

The basis of the results of initial field observations carried out by researchers on group B children at TKIT IQRA Serang City in the children's learning process in development aspects of cognitive development , found formulation problem as as follows : 1) How are children's cognitive abilities before using animated videos at TKIT IQRA Serang City? 2) How are children's cognitive abilities when given animated videos at TKIT IQRA Serang City? 3) How effective is the use of animated videos on the cognitive development of early childhood children at TKIT IQRA Serang City?

From the results of the observations above, the researchers are interested in carrying out learning activities using animated videos about the causes and effects of natural flood disasters. It is hoped that group B children will be able to understand the causes of flood disasters and their consequences well and can group waste according to its type (organic and inorganic).) so that knowledge, understanding and application at the child's cognitive level are expected to increase.

Method

This research method is quantitative research . Quantitative research is a process of finding knowledge that uses data in the form of numbers as a tool to analyze information about what you want to know (Noor, 2017) . Experimental research is systematic, logical and thorough research to control conditions. This type of research is a type of Pre-Experimental research, pre-experimental research is research that aims to

test the causal relationship between the independent variable and the dependent variable. (Yuwanto, 2019) . This research design uses *one group pretest and posttest design* , where this research is pre-experimental research that uses one group but there is *a pretest* and *posttest* (Yusuf, 2019) .

Technique in-depth data collection study This is form observation see condition problems at school , interviews No structured , documentation And tests in the form of *pretest* And *posttest* . Initial Test or *Pre-test* , This test is used when the animation video is being delivered with the aim of finding out to what extent the animation video that will be taught can be mastered by students. The test material given must relate to the animated video that will be taught. Final Test or *Post-test* . This test is carried out at the end of the learning process of a material with the aim of finding out the extent of students' understanding of the animated video and the important points studied. (Magdalena et al., 2021) .

Results And Discussion

This research was carried out at TKIT IQRA Serang City using Ismail's Kindergarten B class as the research sample. The research uses *pretest* and *posttest results* as research data. On the learning test results between *the pretest* and *posttest* , after carrying out *the pretest* , they were given *treatment* with the same material to explore information about the flood disaster. *Posttest* results were given *treatment* using animated videos, while *pretest results* were not given animated video *treatment* .

In carrying out the research, four meetings were held. At the first meeting, *a pretest* was conducted to determine the students' initial knowledge without any *treatment* . Meanwhile, at the next meeting, treatment was provided in the learning process using animated videos. At the last learning meeting, *a posttest was carried out* . The main topics taught in this research are the causes and effects of natural flood disasters and the introduction of types of waste. This research was carried out to determine the cognitive development of children aged 5-6 years.

According to Sukarnyana in Kurniawan, research instruments are tools used to systematically obtain or collect data in finding solutions to research problems or to test hypotheses that can support research. (Kurniawan, 2018) . The measuring instrument in this research is a research instrument in the form of a test. The research instrument grid used is in accordance with the Developmental Achievement Level Standards for Children aged 5 to 6 years regarding the scope of children's cognitive development. The aspects studied include critical thinking and symbolic thinking.

Table 1
Grille _ instrument test

Aspect	Indicator	Items
Critical Thinking	Get to know cause and effect	Children know the causes of floods
		Children know the bad effects of flooding
		Children know how to prevent flooding
	Group objects by type	Children can group organic and non-organic waste
		Children can group

		objects according to color
Think symbolically	Use number symbols to calculate	Children can count the number of objects
	Representing objects in written form	Children can write the word 'Flood'

The table above is the score of participants who took *the pretest* And *posttest* , with the following calculations:

$$Xi = \frac{\sum x}{n} \times 100\%$$

The treatment was carried out in 2 (two) meetings, where each meeting discussed the same material, namely animated videos about flood disasters. The first and second meetings together watched an animated video about flood disasters, the discussion of this animated flood disaster video explained what a flood disaster is, how floods can occur, how to overcome and prevent flood disasters, and distinguish between types of organic and inorganic waste. After researchers conducted research in Ismail's Kindergarten B class, they found an increase in courage and curiosity. Increasing cognitive development is carried out by comparing *pretest* and *posttest scores* which will be discussed in the discussion of research results.

Data on the *Pre-Test results* in this research were obtained by giving a Question and Answer Test and Worksheet (LK) consisting of 4 activities regarding natural disasters. The results of the *pretest* data aim to measure abilities before carrying out *treatment* . The average score for children's cognitive development was 56.58, with a minimum or lowest score of 42, a maximum or highest score of 67, and a standard deviation of 6.506. Whereas For results *posttest* The average score for children's cognitive development was 82.06 , with a minimum or lowest score of 71, a maximum or highest score of 96, and a standard deviation of 7.125 . The following is a graphic image of the results of score data analysis or pre-test and post-test values obtained from the research this :

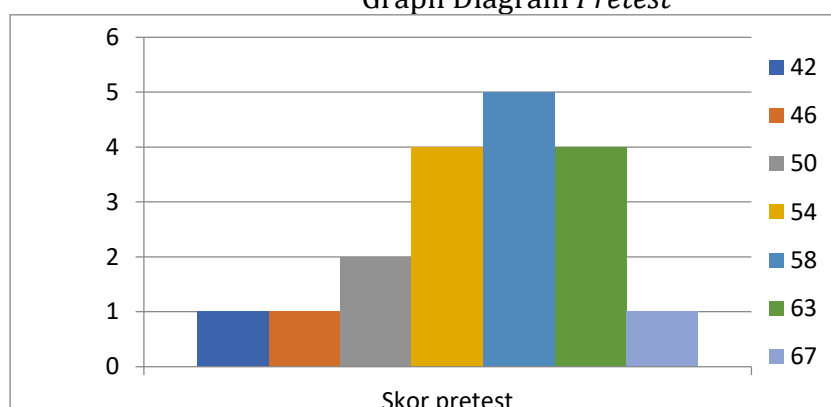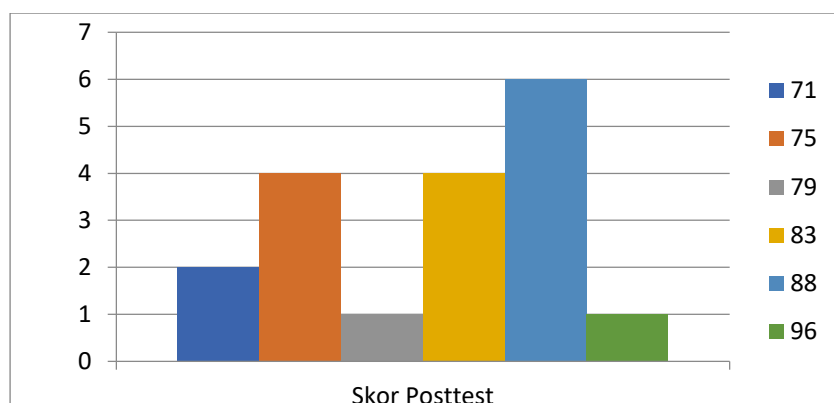Figure 1
Graph Diagram *Pretest*

Figure 2
Graph Diagram *Posttest*

The prerequisite test for analysis is to test the data that has been obtained, so that hypotheses can be tested. The normality test for the data results that will be used is *Liliefors* using *IBM SPSS Statistics* 26 software. Test the homogeneity of the two variances on the results of the *pretest* and *posttest data* using the *Levene test* . This pre-experimental research used a paired sample *t test* . The paired sample test was used because this study had the same subjects, namely children aged 5-6 years (18 children) but experienced two treatments, namely the condition before being given the animated video (*pretest*) and the condition after being given the animated video (*posttest*) , with a significance level of 0, 05.

From the results test normality with use test *liliefors* in SPSS, found The significance value for *Pre-Test* data is 0.200. With the decision criteria if the significance value is > 0.05, the data is normally distributed, the *liliefros test value Pre-Test* is 0.200 > 0.05, so It can be concluded that the *Pre-Test* data on children's cognitive development is normally distributed. For the normality test in *the Post-Test,* the significance value for the *Post-Test data was found* to be 0.097. With the decision criteria if the significance value is > 0.05, the data is normally distributed, the *liliefros test value Post-Test* is 0.097 > 0.05, so It can be concluded that the *Post-Test* data on children's cognitive development is normally distributed.

The homogeneity test in this study used the *Levene test of homogeneity* in *IBM SPSS Statistics* 26 software, so it was found that the significance value was > 0.05, the data had a homogeneous distribution, the *Levene test value* was 0.527 which was greater (>) than significance = 0.05. In this way, it can be proven that the two samples used are of the same type, meaning that the two samples are said to be homogeneous .

Hypothesis testing uses the "t" *Paired sample t test* in *IBM SPSS Statistics* 26 software.

Table 2
Results Paired Sample t *test*

		Paired Differences						
				95% Confidence Interval of the Difference				
		Std. Deviation	Std. Error Mean					Sig. (2-tailed)
Mean				Lower	Upper	t	df	

Pair 1	Pre-test Cognitive Development - Post-test Cognitive Development	-25,778	5,140	1,211	-28,334	-23,222	-21,278	17	,000

The table above shows that the probability (Sig. 2 tailed) is 0.000. Probability (Sig. 2 tailed) has a value smaller than 0.05. This means that Ho $_{is}$ rejected, or that there is real effectiveness of using animated videos on the cognitive development of children aged 5-6 years. This proves that the use of animated videos is significantly effective in children's cognitive development.

Discussion

Based on hypothesis test calculations using *the paired sample t test* in SPSS, a significance value of 0.000 was found. With the criterion that if the significance value or probability value is smaller than 0.05 then Ho $_{is}$ rejected and Ha $_{is}$ accepted. The significance value is 0.000, which is smaller than 0.05, so it can be concluded that there is effectiveness in using animated videos on the cognitive development of children aged 5-6 years. Based on the final test that was carried out, the average *pretest result* was 56.28. Meanwhile, *the posttest* was 82.06, which means that the average *posttest result* was higher than the average *pretest result* . This is because the *pretest* did not use animated videos and only used conventional or conventional learning, whereas the *posttest* used animated videos which focused on introducing flood disasters, the causes and effects of flood disasters, preventing and how to overcome flood disasters, as well as recognizing and differentiating waste according to type (organic waste and inorganic waste). The difference in treatment in *the pretest* and *posttest* causes students' understanding to vary when participating in learning activities.

In the *posttest* , students looked more enthusiastic about learning, students were very enthusiastic about watching animated videos that were interesting and fun to watch together. By watching animated videos that can visualize moving images using cute characters, it becomes easier for children to understand the content in animated videos. This can also foster children's curiosity to become greater, which shows that children are interested in the material from animated videos. This reality is different from the pretest, students' observations are limited so that the answers discussed are the same as each other.

The results of this research are also in line with research conducted by Hapsinah Siregar (2017) where in research, animation media can create a pleasant learning atmosphere for children, and through animation media it can develop children's knowledge. The use of animation media in learning is able to provide stimulus to young children to be more enthusiastic about learning and their attention is focused on the material. Animation has its own role in the field of education, especially in gaining knowledge of early childhood pattern concepts and can improve the quality of the teaching and learning process.

Based on the discussion above, the researchers concluded that there is effectiveness of animated videos on the cognitive development of children aged 5 - 6 years at TKIT IQRA Serang City.

Conclusion

The cognitive ability of children before using animated videos was found to be the average result of the cognitive ability test before being given treatment, *namely* pretest *56.28* . This is because the *pretest* did not use animated videos and only used conventional or usual learning. Children's understanding of the introduction of flood disasters, the causes and effects of flood disasters, prevention and ways to deal with flood disasters, and recognizing waste according to its type is still very limited. Children's cognitive abilities when they are given animated videos make students look more enthusiastic about learning, children are very enthusiastic about watching animated videos that are interesting and fun to watch together. The Effectiveness of Animation Videos on the Cognitive Development of Children Aged 5 – 6 Years in the Ismail B Kindergarten class on the theme of learning about the universe with the sub-theme of flood natural disasters. Testing the hypothesis using the *paired sample t test* obtained a significance value = 0.000 < 0.05. So it can be interpreted that H_0 is rejected and H_a is accepted, which is the effectiveness of animated videos on the cognitive development of children aged 5 - 6 years.

Based on the research results obtained, we can provide the following suggestions: For teachers in schools, it is hoped that they will be more creative in learning, using interesting, active and innovative approaches so that learning becomes more interesting and the learning process becomes more effective. Students must be more motivated and actively participate in learning activities. Listening to the teacher's explanation is an obligation for students to participate in learning so that it can be achieved according to expectations.

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