

## Research article

# The Effect of Using Animation Videos for Teaching Science in Elementary Schools During the COVID-19 Pandemic

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This study describes the effect of using animated videos on the science learning outcomes of students of SDN Kedondong 2 reinforcement during the COVID-19 pandemic. The study employed a quantitative approach using a pre- and post-test design. A sample of 28 fifth-grade students of SD Negeri Kedondong 2 reinforcement was used. Data were collected via a learning outcome test, where a pretest (initial test) and a posttest (final test) were conducted. The data obtained from the *t*-count was 14.386; to interpret the *t*-result, *df* was calculated:  $df = N - 1 = 28 - 1 = 27$ . The *df* was then consulted on the table for the value of "*t*" at a 5% significance level; therefore, with a *df* of 27, the value of the *t*-table was 2.033. The *t*-count was greater than the *t*-table, that is,  $14,386 > 2033$ . Based on these results,  $H_0$  was rejected and  $H_1$  was accepted, that is, there was a positive effect of animated video on the science learning outcomes of Kedondong 2 Tulangan Elementary School students during the pandemic.

**Keywords:** animated videos, *t*-test, *eta square*

## 1. Introduction

In this increasingly advanced era, the use of technology in learning is very helpful for teachers to convey information to students. One of the subjects that can take advantage of technological assistance is science subjects. IPA (Natural Science) is a different material from other subjects at the elementary level because it is a science that seeks to explain how to study the natural surroundings in a systematic way. Science learning is certainly very interesting because it is basically related to the natural environment and its surroundings, because science learning is a study of natural phenomena or events that occur in the universe. Science learning in elementary schools includes material that is often encountered in students' daily lives, so that meaningful science learning is learning that is associated with everyday life. The importance of learning science

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in elementary schools requires teachers to be more creative in using technology to support learning [1]

Currently learning is done online due to the Covid-19 situation, therefore, teachers need to develop a learning media that can help deliver material to students. Teaching during a pandemic when

This is not easy, because the role of the teacher is needed to package learning in an interesting way. Teachers also need learning media that can facilitate students in learning. In fact, there are still many teachers who are not optimal in utilizing learning media as learning support because not all teachers understand how to use technology. The lack of learning media that can facilitate student learning, causes learning objectives cannot be achieved by good. Besides that, many students feel bored and cannot understand the material optimally [2]. For this reason, teachers need to make new innovations in learning so that students can still understand the material well.

Teachers are educators who play an important role in educational activities because teachers are directly involved in the teaching and learning process so that the teacher's role is very decisive in improving the quality of education. Therefore, in the teaching and learning process the ability to utilize and use appropriate learning methods and strategies in improving student activities and learning outcomes. In an effort to improve the quality of education, many things have been done by the government such as improving the curriculum; provision of educational facilities and infrastructure, improving the quality and standards of effective and efficient learning, learning with various approaches, models and methods as well as other matters. However, in reality the quality of education is still not satisfactory. The quality is still not up to what was expected.

The low quality of education can be assumed through the ineffectiveness of the learning process carried out by a teacher as an educator to [3]. This happens because of various causative factors including students, teachers, and existing facilities and infrastructure, low interest and motivation, low teacher performance will cause learning to be less effective. Like the problems that occur in science subjects include internal and external factors. One of the internal factors experienced by students is the lack of student interest in science subjects, this factor will be a problem as long as students act as learning acts that produce good learning outcomes.

Based on the results of observations made on October 28, 2020 and based on the results of an interview with Mr. Ryan Handoko as the fourth homeroom teacher, that learning outcomes in 2020 decreased compared to 2019. The decline from 2019 to 2020 ranged from 30-40%. Judging from the UTS scores for science subjects at SD

Kedondong 2 Tulangan, of the 28 students who completed the minimum completeness criteria (KKM) only 8 students and there were 20 students whose scores were below the minimum completeness criteria (KKM) determined by the school, which was 78 in the subjects science lessons. It can be concluded that the cause of student learning outcomes in grades IV-A at SD Kedondong 2 Tulangan is still relatively low in science subjects.

The selection of appropriate and appropriate learning media will make students not bored and motivated to learn. Learning media is very useful for students because it increases knowledge and can foster a spirit of learning for students. The use of learning media used by researchers properly can generate motivation and stimulation for student learning and improve understanding of learning materials, namely animated video media. Making videos with animations is the right way out to raise students' enthusiasm for learning. However, the inspiration in social behavior that can be seen in videos needs to be packaged with interactive animations that really show the real world, "Instructional media also make use of the power of pictures, words, and sounds to complete attention, to help an audience understand ideas and acquire information too complex for verbal explanation alone, and to help overcome the limitations of time, size and space". This explains that the learning media that using elements of images, writing and sound can improve attention, bringing students to understand ideas and get information that is very complex and requires separate explanation, and can overcome the limitations of time, size and place[4]

There have been many researches on Animation Videos, such as some claiming that the use of animated learning videos focuses on a Powtoon-based learning model for Elementary Schools. Then in another study , animated videos focus on learning models that use the ADDIE method (analysis, design, development, implementation, evaluation). The research findings state that animated videos focus on student learning outcomes on the matter of force and motion affecting an object. Meanwhile, the animated video from my research focuses on student learning outcomes carried out during the pandemic, namely online learning.

Based on the description above, the researcher is interested in raising this issue in a study entitled "The Effect of Using Video Animation on Science Learning Outcomes of Kedondong 2 Reinforcement Elementary School Students during the Pandemic".

## 2. METHOD

## 2.1. Approach and Type of Research

This study uses a quantitative approach with experimental methods. Experimental research is research that is used to find the effect of certain treatments on other conditions [5]. The design in this study used the One-Group Pretest-Posttest Design (one group pretest posttest). In this design, there is one class using a saturated sample, then one class is given a pretest to determine the initial state, is there a difference between before and after being given a pretest.

The type of data in this study is primary data, which is taken from research subjects who come from fourth grade students of SDN Kedondong 2 Tulangan, which includes tests of students' cognitive learning outcomes.

## 2.2. Researcher Presence

In study this , researcher is as a key instrument in study this where researcher can collect data that will obtained in \_ study

## 2.3. Research Location

This research was conducted in This study was conducted in children grade 4 SD Kedondong 2 Reinforcement , Sidoarjo year 2020/2021 teaching

## 2.4. Research Subject

The subjects of this study were all fourth grade students of SDN Kedondong 2 Tulangan which was held for 3 x meetings on Tuesday 04 April – 06 April 2021 with science learning materials. The study was conducted independently because Indonesia is currently experiencing the Covid-19 pandemic, so the learning process is carried out at students' homes with a maximum limit of 1 hour.

This research took place from 8.30 to 9.30 WIB. However, before carrying out the research and pretest activities, the researcher explained in advance to the parents regarding the implementation of the learning activities which would last for 1 hour. At the initial meeting students were given a pretest with a duration of 40 minutes so that students working on the pretest were supervised directly by the researcher to avoid cheating between students in the pretest process.

Furthermore, the researchers conducted the second meeting, the researchers gave treatment in the form of Application of Animation Video Media with natural science material with a duration of 8.30 – 09.30 WIB. On the third day the researchers measured the posttest with IPA and the time duration was the same as the pretest and treatment.

## 2.5. Data Source

The source of the data in this study was obtained from the cognitive learning outcomes of fourth grade students at SDN Kedondong 2 Tulangan, namely the pretest value before being treated and the posttest value after being treated [6]

## 2.6. Data Collection Techniques

Data collection techniques in this study are as follows:

### 1. Test

Student test results were obtained from students' scores in the pretest and posttest. The pretest is used to determine the assignment of the material to be taught before the application of animated video learning media is applied. While the posttest is used to determine the final result of the assignment of material after being given learning achievement objectives that have been tested for validity and reliability .[7]

### 2. Documentation

The documentation used in this study is in the form of photos during the learning process to support the results of observations, tests and interviews so that they can be trusted.

## 3. Research Results

The presentation of the data referred to by the researcher is data obtained from the results of research conducted in Kedondong 2 online. The sample in this study were all fourth grade students at SDN Kedondong 2. Research on "animated videos on student learning outcomes during the pandemic". This was done at SD Negeri Kedondong 2I Tulangan. The sample used was 28 students after the treatment was given a posttest. In this research i using the title "The Effect of Using Animated Video on Science Learning Outcomes of Kedondong 2 Reinforcement Elementary School Students during the Pandemic". The implementation time was carried out for 3 days, namely on Tuesday, April 4, 2021 to Thursday, April 6, 2021. Researchers used posttest data collection

techniques. Pretests are given before the treatment is given and aims to determine the students' initial abilities [8], while the treatment is given with the aim of helping students to make it easier for students to understand the material Force with motion on events in the subjects of theme 8 sub-theme 1 with KD 3.4 Connecting force with motion on events in the surrounding environment [9]. Then the posttest is given when the treatment has been completed. Before the written test is given to students, the posttest questions are validated first to expert lecturers.

The subjects of this study were all fourth grade students of SDN Kedondong 2 Tulangan which was held for 3 x meetings on Tuesday, April 04, 2021 with science learning materials. The study was carried out independently at each individual's home because Indonesia is currently experiencing the Covid-19 pandemic, so the learning process is carried out at students' homes with a maximum limit of 1 hour.

This research took place from 8.30 to 9.30 WIB. However, before conducting the research and pretest activities, the researcher explained in advance to the parents regarding the implementation of the learning activities which would last for 1 hour. At the initial meeting students were given a pretest with a duration of 40 minutes so that students working on the pretest were supervised directly by the researcher to avoid cheating between students in the pretest process.

Furthermore, the researchers conducted the second meeting, the researchers gave treatment in the form of Application of Animation Video Media with natural science material by identifying the relationship between force and motion correctly with a duration of 8.30 - 09.30 WIB. Furthermore, on the third day the researchers measured the posttest with IPA and the duration of time was the same as the implementation of the pretest and treatment.

TABLE 1: Paired sample test.

		Paired Differences					T	df	Sig. (2-tailed)
		mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest - posttest	-29.25000	10.75872	2.03321	-33.42180	-25.07820	-14,386	27	.000

Based on table 4. 1 using the help of SPSS 23, the tcount result is 14,386 to interpret the t result first taking into account the df,  $df = N-1 = 28-1=27$  . with a df of 27, then converted to the table the value of "t" at a significant level of 5%, with a df of 27, the table value is 2.033, it can be seen that tcount is greater than ttable, namely  $14.386 > 2.033$ . Based on these results,  $H_0$  stated that there was no effect of animated videos

on science learning outcomes for Kedondong 2 Tulangan Elementary School students during the pandemic, while H1 stated that there was an effect of animated videos on science learning outcomes for Kedondong 2 Reinforcement Elementary School students during the pandemic [10]. the effect of animated videos on science learning outcomes for Kedondong 2 Tulangan Elementary School students during the pandemic.

TABLE 2: Value Pretest students and Posttest.

No	Student Name	Test Score	
		Preset	Posttest
1	Achmad Faisal Rosadey	75	92
2	Ahmad Rafif Ramadhan	60	92
3	Amelia Nafisha Rahmah	70	100
4	Annas Grace Natural	55	94
5	Ardian Revelation Primary	50	88
6	Cindy Aulia Rahman	60	88
7	Della Marsya trust	60	92
8	Devina Aprilita Princess	55	90
9	Dwi Alivia Firdaus	75	94
10	Bi Sinta Lestari	50	94
11	El Fahmi Alfatoni Ainur Rofiq	55	92
12	Farah Nairah Wardana	70	88
13	Faricatus Sholihah	65	80
14	Fitri Pudji Grace	75	90
15	Fitria Nur Rachmah	70	92
16	Gabriel Aurora Nayla Princess	55	92
17	Ica Anggraeni	60	92
18	Kusuma Ayu Wardani	75	94
19	M. Randy Revelation Hidayat	50	90
20	Moh . Sofwan Al Habsi	60	80
21	Muhammad Farel Aprileo	75	88
22	Muhammad Zidane Syarifudin	60	86
23	Muhammad Bahrul Ulum	65	80
24	Muhammad Ilham Nabawi S.	75	92
25	Muhammad Irzam Azizi	65	92
26	Muhammad Zulham Fadilillah	60	100
27	Naufal Haniy Ahmad	75	80
28	Okky Tri Wibowo	65	92
Total Score :		1,785	2,524
mean :		63.75	90.15

Based on table 4. 3 Eta squared value is 0.52, which means that it belongs to the 0.14 group or has a large influence. Based on the results of the Eta Squared test, the sig value was 0.000 or less than 0.05 so it was proven that there was a difference

TABLE 3: Results Eta Test - Square

Test Statistics		
	Pretest	Posttest
Chi-Square	11,500 <sup>a</sup>	12,500 <sup>a</sup>
df	6	6
asymp . Sig.	.074	.052

a. 7 cells (100.0%) have expected frequencies less than 5. The minimum expected cell frequency is 4.0.

between the pretest and posttest. Thus, it means that there is an influence of 99% while 1% is influenced by other variables not examined. Thus, it can be concluded that the results of the Eta Squared calculation show that there is an effect of the application of animated video media that has an effect of 99% on students' science learning outcomes by understanding force and motion material on events in the surrounding environment correctly in class IV SDN Kedondong 2 Reinforcement.

#### 4. CONCLUSION

Based on data exposure, research findings and research discussions regarding the Animation Video media on the Science Learning Outcomes of students during the Pandemic Period at SD Negeri Kedondong 2 Tulangan, it was concluded that the Video Animation media on the Science Learning Outcomes of Grade V students during the Pandemic Period at SD Negeri Kedondong 2 Reinforce well. Students have been able to understand the concept of Science Assisted with Video Animation media by direct practice. Students use concrete objects around them to learn science material that has been shown by the teacher. This can be seen from the learning outcomes of students who have medium and high abilities in the application of the use of animated video media, which shows a good and significant response. Students feel happy because the learning is carried out by means of variations in the atmosphere of class discussion patterns. Such learning makes students not bored and bored. Students feel given the opportunity to develop their abilities in exploring the surrounding classroom environment[11]. And as for the calculation results show that there is a very large influence from the animated video media on students' science learning outcomes during the pandemic period at SD Negeri Kedondong 2 Tulangan, namely 0.520 in table 4.8 using the eta square test.

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