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The Effectiveness of WhatsApp Online Learning Using Media Animation Power Point on Student Learning Outcomes at SDN Genuksari 02 Semarang

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Abstract

The covid pandemic has caused changes online learning from home to prevent the spread of Covid 19. Teachers use the WhatsApp for learning. Learning by using online applications such as WhatsApp Messenger can increase collaboration in learning, share knowledge and useful information in the learning process, and maintain the joy of learning based on the ages. The purpose of this study was to analyze the effectiveness of student learning outcomes with WhatsApp online learning using audio-visual animation media in class IV theme 9 "Sub-Theme of Preserving Natural Resources Wealth in Indonesia" *SDN Genuksari 02 Semarang*. This type of research is quantitative with a quasi-experimental design. This study uses a pre-test-post-test non-equivalent control group design with two classes of research objects consisting of a control class. Learning in the experimental class uses whatsapp group with video animation media, and control class learning uses whatsapp group. The data analysis technique used pre-requisite test, the average similarity test, learning completeness test and t-test. The results of the study indicate that there is an effectiveness of WhatsApp groups with media animations on the learning outcomes of class IV students in the Sub-theme of Preserving Natural Resources Wealth in Indonesia at *SDN Genuksari 02 Semarang*. By conducting this research, it is expected to increase students' interests in education by providing a comfortable, interesting, and fun learning environment in creative learning models and learning media.

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INTRODUCTION

The Covid-19 pandemic has made many changes and it has had a serious impact on the people of Indonesia, including in the world of education. The letter number 15 of 2020 regarding guidelines for organizing learning from home in an emergency period of the spread of the corona virus disease (COVID-19). To fulfill the rights of students to obtain educational services during the emergency spread of Corona Virus Disease (COVID-19) through learning from home as stated in Letter Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period of the Spread of (COVID-19).

Based on the letter of the Minister of Education and Culture Number 36962/MPK.A/HK/2020 regarding online learning and working from home in the context of preventing the Corona virus, it states the internet address for online learning at home (Hasanah, 2020). Presentation of web-based e-learning can be more interactive. Information can be provided uptodate and realtime. Likewise, learning is not limited by place and time, and has no access restrictions (Prajana, 2017).

In fact, some schools are not ready to face the changes in this pandemic. Based on the results of observations of fourth grade students at SDN Genuksari 02 Semarang on September 20, 2020, it was found that in online learning, during this pandemic there were still many students who had not reached the Minimum Completeness Criteria (KKM) in learning. There aea 17 of 40 people or 42.5% of students who did not complete or 57.5% of students who experienced complete learning. During the process of implementing online learning, student scores have decreased. This is because so far learning requires face-to-face meetings. In contrast to the current online situation, students must study online. In online learning, students are still lazy to open online materials when doing assignments online, in addition to internet network problems, lack of facilities (devices, data packets, signals) for online learning, lack of understanding between students and parents about the use of information technology using the internet network. This is in line with the research of Bhagaskara, Nur, & Maulana (2021) that to assist the implementation of a learning without direct face to face, it should be replaced with online learning that utilizes media that can be used in online learning. In addition to problems from devices and networks, there are still students who feel less interested in learning. This obstacle is not only faced by students, but teachers too. There are the other obstacles that arise in online learning such as the online system used, the material presented (Atsani, 2020). A variety of learning activities, fun learning activities and not forcing children through a gradual learning process with the child's abilities and preferences, with this the child will easily understand the material provided. Children must be the subject of learning, with that the needs, desires and character of children must be considered (Asmawadi, 2021).

Teachers in choosing the right learning media to improve students learning outcomes. The use of WhatsApp groups as a medium of learning occurs a lot at the elementary school level (Daheri et al., 2020). In increasing interest and learning outcomes, an application of learning media that is in accordance with today's technology is held. This is reinforced by previous research by Sartika (2018), that advances in the field of technology facilitate the use and utilization of technology. The application of information and communication technology that has the potential to be used as a learning medium is the internet, there are quite several schools that have computers. This internet-based learning method is called e-learning (electronic learning).

E-learning or electronic learning was first introduced by the University of Illinois at Urbana-Champaign by using a computer-assisted instruction system. Google because it is a product created to assist teachers and students in carrying out teaching and learning activities. As written on the official website, Google for Education has several services that are very helpful in the teaching and learning process at schools, such as Google Classroom, Google Mail, Google Calendar, Google Drive, and

Google Docs. WhatsApp Google Classroom is a service that deserves to be implemented in Indonesia, because WhatsApp is widely used in everyday life at this time. This is in accordance with Agustini's research (2020), the impact of WhatsApp being a good learning media and to motivate learning for its users, especially for students. Whatsapp groups can provide online classes through the group chat feature. This feature allows several or many WhatsApp users in a room. Whatsapp also has features that can be used in online support and applications that are familiar to parents or students themselves (Mu'minah & Sugandi, 2021).

One form of e-learning that is easy to use for lower-level students in rural areas is to use WhatsApp-based e-learning, considering that almost all rural people have this application, and this application is very easy to operate and very effective. This is reinforced by Shodiq & Zainiyati (2020) that in learning media in the covid 19 pandemic like this it is very appropriate, considering this application is very simple when compared to other online applications, easy to operate and of course has many features.

The WhatsApp application in the world of education has an important role; a person can send data in the form of a school assignment document or lecture to the density of his friends through the features in WhatsApp (Wahyuni, 2018). Information and knowledge can be easily created and disseminated through various features of WhatsApp Messenger Group (Jumiatmoko, 2016). The advantages of whatsapp groups have various group chat features. This feature allows several or many WhatsApp users in a room (Abidah, 2020). The benefits of using the WhatsApp application are strengthened by research by Mu'minah & Sugandi (2021) making students more expressive by making statuses, uploading photos with sometimes-strange captions, and even motivating and sharing videos. Students also try to use Whatsapp social media to remind each other to do the assignments given by the teacher. There are also those who encourage each other through Whatsapp statuses in terms of learning so that motivation for learning is formed. The WhatsApp's feature is also used by educators as a document feature. Educators use this feature by sending useful readings or subject matter to be studied or those that have been studied in the WhatsApp group to be read and studied by students.

Learning in the network used by teachers is less attractive to students. In addition, learning only contains tasks that continuously make students less interested in learning. Thus, teachers can take advantage of learning media.

The audio-visual video animation media is used with the intention that in the teaching and learning process, students are not only passive and only as learning objects, but as learning subjects who take an active role in the learning process. Improvements in learning can be manifested in the selection of effective learning models and the use of interesting learning media in the learning process (Dian, 2020). Media that can present learning materials in an attractive and easy to understand way include graphic media, three-dimensional media, projection media, and environmental media, each media has its own advantages and disadvantages. Video as one of the technological advances has a lot of positive influences and progress for humans and culture (Busyaeri, 2016).

The results of Saragih & Ansi's (2020) research show that learning using instructional video media makes student activity and learning outcomes increase compared to not using learning video media. The results of the same study by Muharia (2016) showed the effect of the application of short film media on student learning outcomes in history subjects at SMA 13 Palembang. The video as one of the technological advances has a lot of positive influences and progress for humans and their culture (Busyaeri, 2016).

Agustini's research results (2020) on video as an alternative learning media to support the successful implementation of the 2013 curriculum in elementary schools. The results showed that learning using video media can improve student learning outcomes in grade IV SD Ajung 3 Jember. The results of Anshor's research (2015) are the use of video-based

learning media on geography learning activities and outcomes. The results showed that there was a significant effect of the use of video-based learning media on student learning activities and there was a significant effect of the use of video-based learning media on the geography learning outcomes of students in class XI IPS 1. Another study that strengthens this research is Busyaeri (2016) that the use of learning videos in general is in great demand by all students of MIN Kroya, as the results of the research obtained. Learning videos are very appropriate, especially if they are used in science learning, because the teacher may not be able to clearly describe the learning process. Therefore, teachers need media or tools to be able to describe to students, so that students can easily understand the science learning process.

Previously, there had been no research on WhatsApp online learning using animated audio-visual media. Therefore, this study aims to determine the effectiveness of whatsapp online learning using audio-visual media animation video for elementary school students.

METHOD

This type of research is quantitative with a quasi-experimental This study uses a pre-test-post-test non-equivalent control group design with two classes of research objects consisting of a control class (grade IV A SDN Genuksari 02) and an experimental class (grade IV B SDN Genuksari 02). Learning in the experimental class uses whatsapp group with video animation media, and control class learning uses whatsapp group Each class consists of 40 students. The sample is 80 students. The sampling technique is purposive sampling. The instrument used is a multiple-choice test with a score start from 1 if the value is correct, and 0 if the value is incorrect. The data analysis technique used prerequisite test, average similarity test, learning completeness test and f test and t test.

The F statistical test is used to test whether the regression model used is suitable or not (Ghozali, 2011). The basis for making the decision is:

1. If F-count < F-table, then the regression model does not fit (the hypothesis is rejected).
2. If F - count > F - table, then the regression model is suitable (the hypothesis is accepted).

The t-test was used to determine the effect of each independent variable on the dependent variable. Proof is done by comparing the value of t count with t table. The test criteria used are:

1. If t count < t table, then the null hypothesis(H0) is accepted
2. If t count > t table, then the null hypothesis (H0) is rejected

In addition, the t-test can also be seen from the magnitude of the probability compared to 0.05 (significance level = 5%). The test criteria used are:

1. If probability < 0.05 then H_0 is rejected
2. If the probability > 0.05 then H_0 is accepted

RESULTS AND DISCUSSION

This research was conducted at SDN Genuksari 02 as an experimental class. The material used in this study is the Sub-theme material "Preservation of Natural Resource Wealth in Indonesia". In the experimental class, they were given online learning treatment with whatsapp groups using animated media. This research was conducted at SDN Genuk Sari 02 Semarang which was taken by students of class IV A (as the control class) and IV B (as the experimental class The following is the initial data before being treated.

1. Results of Pre-Test

Based on the pre-test that has been carried out in the experimental class and control class, it can be seen in Table 1. The results of the Pre-Test Experiment Class and Control Class are as follows:

Table 1. Results of Pre-Test Experiment Class and Control Class

Score	Eksperiment	Control
Mean	78.35	78.28
Median	80	80
Maximum score	62.85	62.85
Minimun score	91.42	91.42

Based on Table 1. The results of the Pre-Test Experiment Class and Control Class show that:

1) The results of the experimental class pre-test obtained a mean of 78,35, a minimum value of 60, a maximum value of 95, and a median value of 80.

The control class learning outcomes obtained a mean of 78.28, a minimum score of 62.85, a maximum value of 91,42, and a median value of 80.35.

Before implementing learning with Wa Group using animation media, students were given a pre-test to determine the initial analysis. The results of the pretest calculated using the Kolmogrof Smirnov test analysis can be seen in Table 2.

Table 2. Uji Normalitas Awal

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Experiment	.175	40	.003	.949	40	.069
Control	.155	40	.017	.954	40	.105

Based on Table 2. the normality test is known to have a significant value for the experimental class of 0.069 and a significant value for the control group of 0.105. Because the significant value for the two groups is > 0.05, then as the basis for decision making in the Shapiro Wilk normality test above, it can be concluded that the student learning outcomes data for the experimental class and control class are normally distributed.

Table 3. Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Based on Median	.005	1	78	.944
Based on Median and with adjusted df	.005	1	78.000	.944
Based on trimmed mean	.008	1	78	.930

The next stage is the homogeneity test. The homogeneity test aims to determine whether the variation of some data from the population has the same variance or not. Homogeneity test is used as a reference material to determine the decision of the next statistical test. Homogeneity test with SPSS descriptive statistics. The results of the initial homogeneity test can be seen in Table 3. Pre-homogeneity is as follows:

Based on the output of Table 3. Sample homogeneity, know the value of Sig. Based on Mean for student outcome variables is 0.930 > 0.05, so it can be concluded that the variance of the experimental class and the control class is the same or homogeneous. Thus, one of the requirements (not absolute) of the independent sample t test can be fulfilled.The next initial analysis calculation is ANOVA. One-way ANOVA analysis or one-factor ANOVA test basically aims to compare the average value

contained in the dependent variable to compare the average value contained in the dependent variable in all groups being compared. The value of each group is seen based on the independent variables on a categorical scale. The function of the independent variable here is free here actually is to represent the groups to be studied. The independent variables in the one-factor ANOVA analysis are also referred to as factor variables, while the groups being compared are referred to as factor level variables. The one-way Anova analysis is to compare the average value of the experimental class and the control class. For more details can be seen in Table 4. Anova asfollows:

Table 4. Anova

Results					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.102	1	.102	.002	.961
Within Groups	3243.878	78	41.588		
Total	3243.980	79			

Based on Table 4. ANOVA is known to have a sig value of 0.961 > 0.05 so it can be concluded that in the initial conditions (before treatment) the two sample groups had balanced learning outcomes.

The next step after the sample is normally distributed and homogeneous, the ANOVA calculation is known that the sample has balanced learning outcomes, then the treatment is using whatsapp group media with media animation media.

The description of the data in this study includes student learning outcomes (in the form of test scores). Description of the data obtained from the results of the distribution of test questions to 40 students of class IV B at SD Negeri Genuksari 02 Semarang (as the experimental class) and IV A at SD Negeri Genuksari 02 Semarang (as the control class). Each data in this study is described based on the respondent's score on the student's test results. For more details can be seen in Table 5. Analysis of Data Description as follows:

2. Results of Post-Test

Table 5. Analysis of Data Description

Score	Eksperiment	Control
Mean	82.64	78.92
Median	82.85	80
Maximum Score	68.57	62.85
Minimum Score	91.42	91.42

Based on Table 5. Analysis of Data Description shows that:

1) The experimental class learning outcomes obtained a mean of 82.64, a minimum score of 68.57, a maximum value of 91.42, and a median value of 82.85.

2) The control class study results obtained a mean of 78.92, a minimum score of 62.85, a maximum value of 91,42, and a median value of 80.

Descriptive analysis data then made a frequency distribution to determine the tendency of respondents' answers to each research variable. The results of the frequency distribution of each variable are:

Meanwhile, the results of the data processing of experimental class students' learning outcomes can be seen in Table 6. Distribution of the Frequency Distribution of Experimental Class Students' Learning Outcomes is as follows:

Table 6. Frequency Distribution of Results
Experimental Class Student Study

No	Interval	Absolute frequency	Relative frequency	Category
1	85 – 100	13	32.5	Passed
2	75 – 84	24	60	Passed
3	65 – 74	3	7.5	Failed
4	≤ 64			Failed
	-	40	-	

Based on the results in Table 6. Frequency distribution of Experimental Class Student Learning Outcomes shows that the frequency distribution of students who scored 85-100 were 13 students or 32.5%, students who scored 75-84 were obtained by 24 students or 60%, students who scored scores in the interval 65 – 74 there are 3 students or 7.5%. There are 37 students in the complete category and 3 students in the incomplete category. The average student learning outcomes obtained 82,643. Frequency distribution of control class students' learning outcomes is as follows:

Table 7. Frequency Distribution of Control Class Students' Learning Outcomes

No	Interval	Absolute frequency	Relative frequency	Category
1	85 – 100	7	17.5	Passed
2	75 – 84	24	60	Passed
3	65 – 74	9	22.5	Failed
4	≤ 64			Failed
		40	100%	

Based on the results of the data in Table 7. Frequency distribution of student learning outcomes in the control class shows that the frequency distribution of students who scored 85-100 were 7 students or 17.5%, students who scored 75-84 were obtained by 24 students or 60%, students who got scores of 75-84 were obtained. scores in the interval 65 – 74 there are 9 students or 22.5%. The average student learning outcomes obtained 78.92.

The t-test is used to determine the effect of the independent variable partially or independently on the dependent variable with a constant of 0.05, the results of the t-test for each variable are:

Ho: 0: There is no effectiveness of Whatsapp Group with animated media on the learning outcomes of grade IV students in Theme 9 SD N Genuksari 02 Semarang

Ha: 0: There is an effectiveness of Whatsapp Group with animated media on the learning outcomes of grade IV students. Theme 9 "Sub-Theme of Preserving Natural Resources in Indonesia" SDN Genuksari 02 Semarang.

The results of the t-test for hypothesis 1 can be seen in Table 8. The t-test is as follows:

Tabel 8. t-test
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference
results	Equal variances assumed	.658	.420	2.954	78	.004	3.714250

Equal variances not assumed		2.954	76.617	.004	3.714250

Based on Table 8. The t test in the "Equal variances assumed" section is known to be the Sig. (2-tailed) of 0.004 < 0.05, so as the basis for decision making in the independent sample t test, it can be concluded that Ho is rejected, and Ha is accepted. Thus, it can be concluded that there is a significant (significant) difference between the average student learning outcomes before and after learning with WhatsApp groups with animated media. This means that there is an effectiveness of WhatsApp group with media animation on the learning outcomes of class IV Theme 9 SDN Genuksari 02 Semarang.

The analysis of Table 4. ANOVA and Table 9 uses one way ANOVA or one-factor ANOVA test basically aims to compare the average values contained in the dependent variable to compare the average values contained in the dependent variable in all groups being compared. The value of each group is seen based on the independent variables on a categorical scale. The function of the independent variable here is free here actually is to represent the groups to be studied. The independent variables in the one-factor ANOVA analysis are also referred to as factor variables, while the groups being compared are referred to as factor level variables.

The analysis is in Table 9. This ANOVA is to compare the average value of the experimental class and the control class

Tabel 9. Anova

ANOVA Results

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	275.913	1	275.913	8.725	.004
Within Groups	2466.504	78	31.622		
Total	2742.417	79			

Basic decision making in Anova analysis:

1. If the significance value (Sig) > 0.05 then the average is the same

2. If the significance value (Sig) < 0.05, then the average is different.

Based on the Anova output in Table 9, it is known that the sig value is 0.004 <0.05 so it can be concluded that the average student learning outcomes are significantly different. This means that there is a difference in the average student learning outcomes between the experimental class (using the whatsapp group with animation media and the control class (whatsapp group).

Before the research was conducted, first observations about the learning process, especially the material "Sub-Theme of Preservation of Natural Resources Wealth in Indonesia". Based on the results of initial observations, the learning of the Sub-theme "Preservation of Natural Resource Wealth in Indonesia" was obtained, the learning activities were teacher-centered. In class, students only record what the teacher explains and write on the blackboard, work on thematic books or worksheets, develop ideas in their minds in adjusting the questions, this results in poor student learning outcomes. In addition, there are still students who tend to be silent in class, and only a few students are active in learning.

In learning by using wa groups, at the initial stage, before the research was carried out, first observations about the learning process, especially the material "Sub-Theme of Preservation of Natural Resource Wealth in Indonesia". Based on the results of initial observations, it was found that the "Theme 9 Rich Country" learning was teacher-centered learning activities. In class, students only record what the teacher explains and write them on the blackboard, work on the teamtic book or worksheets, develop ideas in their minds in adjusting the questions, this results in poor student learning outcomes. In addition, there are still students who tend to be silent in class, and only a few students are active in learning.

At the time of online learning, the teacher gives assignments through wa groups. Wa group is one type of application of electronic learning,

or it can also be said a learning experience by utilizing the internet network to communicate and convey learning information. The teacher prepares the material and assignments given to parents through the wa group. Here students only do assignments from the teacher, without any interaction. While assignments are given through the wa group. Students can open assignments from thematic textbooks or worksheets or from assignments given through groups. The use of group wa is effective, this is reinforced by previous research by Saprun & Mappanyompa (2021) that learning media is a tool or form of stimulus that serves to convey learning messages.

At the time of online learning, initially students found it difficult before learning to use Whatsapp groups with animated media. This is because students are still not familiar with online learning. Students feel that in learning, especially the material "Theme 9 Rich in My Country" requires a more thorough explanation. Students not only hear the teacher's explanation, but face-to-face activities are needed for practical activities.

In the early learning activities with whatsapp groups with animated media, students felt confused in following the learning process. This is because students more often study in class with the lecture method. However, at the next meeting there was a change for the better. In the experimental class students look more active by using the lecture method. However, at the next meeting there was a change for the better. In the experimental class students were seen to be more active in the discussion process and when concluding the material. This happens because the experimental class that uses whatsap group with animated media emphasizes students expressing ideas, expressing opinions, exploring material in animated media to answer questions during the discussion process.

After the learning process is complete, then a final test is carried out in the form of a posttest to determine students' knowledge after receiving different treatment. Student learning outcomes in Theme 9 material "Sub-theme Preservation of Natural Resources Wealth in Indonesia" obtained the frequency of students who scored 85-100 there were 13 students or 32.5%, students who scored 75-84 obtained 24 students or 60%, there are 3 students who get marks in the interval of 65 – 74 or 7.5%. There are 37 students in the complete category and 3 students in the incomplete category.

Based on the post-test results in Table 6, it shows that there is an increase in test results in the experimental class. At the time of the pre-test in Table 1, the average value was 78.357 and the post-test results in Table 5 were obtained by 82.643. In Whatsapp group learning, this media animation can help group members learn so that they can build their own understanding together. This is reinforced by Iskandar's research (2020) that learning with group wa as a learning medium can help learning activities. Wa group can help tutors and students in facilitating the delivery of learning materials.

Based on Table 8. The T test in the "Equal variances assumed" section is known to be the Sig. (2-tailed) of 0.004 < 0.05, so as the basis for decision making in the independent sample t test, it can be concluded that Ho is rejected and Ha is accepted. Thus, it can be concluded that there is an effectiveness of online learning whatsapp using audio visual video animation media on the learning outcomes of class IV students in the Sub-theme of Preserving Natural Resources Wealth in Indonesia at SDN Genuksari 02 Semarang.

The use of WAG is also effective in online learning. This is reinforced by Zahroh's previous research (2021) apart from being a medium for asking teachers about material that they do not understand, but it can also be used as a place to collect assignments from students given by the teacher. Because of these advantages, Whatsapp media remains a favorite choice as a learning medium during this covid pandemic. (Atsani, 2020). Muhammad (2019) argues that it is undeniable that this new media or digital media is more familiar than other online media.

This is reinforced by previous research by Kamil (2018) that learning with the WA Group media can have a positive influence on student learning outcomes. Asmawadi (2021) also stated that using the fun learning method through the

WA Group media with various creativity of teachers and students so that learning becomes fun.

The use of WhatsApp groups in learning affects the level of learning outcomes, this is reinforced by previous research by Lutfi (2021) the use of WhatsApp with its supporting features if applied properly and correctly it will be more effective. Another study by Mustami & Utami (2021) that through whatsapp groups can affect mathematical problem solving abilities. Another research that supports is Hikmat, et al (2020) it was found that WhatsApp was able to increase the interaction between teachers and students as well as easier understanding of the material.

Based on the results of the study, it can be concluded that the implementation of online learning at SDN Genuksari 02 Semarang is in accordance with the theory above. The teacher has carried out the planning in advance before the online learning begins. The planning stages carried out include:

(1) The principal shall issue a circular to the teacher regarding the implementation of online learning during the covid-19 pandemic.

(2) Each class teacher creates a WA group as a place to carry out online learning.

(3) Class teachers provide information to parents regarding the implementation of online learning during the COVID-19 pandemic.

(4) Each teacher prepares a special schedule for online learning that is delivered to students and parents through the WA group that has been created.

This is reinforced by research by Sulistyaning Kartikawati, overall students can think independently and critically so that students are interested and motivated in participating in learning with whatsapp groups. This is reinforced by another study by Busyaeri, Udin & Zaenudin (2016) that video as a technological advancement has had a lot of positive influence and progress on humans and their culture. Another study that strengthens whatsapp-based combination online learning by Sofyana & Rozaq (2019) that there is an effective application of whatsapp group combination online learning in the class of employees of the Informatics Engineering study program, PGRI Madiun University. Another study by Sahidillah, et al (2011) that the use of whatsapp as a medium for digital literacy students makes it very easy for students to share messages in the form of videos. This has an impact on the development of language skills for students. Another study that supports the effectiveness of using WAG is Putra et al. (2020), Hasanah Spf & Grujugan (2021), Farhani (2021), Magdalena, et al (2021), Amal (2019), Andiani & Fitria (2021), and Andiani & Fitria (2021) that are about WApps media in the pandemic period as an effective learning media.

CONCLUSION

Based on the results of the study, it can be concluded that there is a significant difference between the average student learning outcomes before and after learning with WhatsApp groups with animated media. This means that there is an effectiveness of whatsapp groups with media animations on the learning outcomes *of class IV students*, Sub-Theme of Preserving Natural Resources Wealth in Indonesia, *SDN Genuksari 02 Semarang*.

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