Artikel Upincess 2022

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Submission date: 02-Jun-2022 01:29PM (UTC+0700)
Submission ID: 1848946701
File name: Siti_Maisaroh-UPY-UPINCESS_2022.docx (111.54K)
Word count: 3567
Character count: 20734

The Effectiveness of Multimedia Animation-Based Integrative Learning Model During Covid-19 Pandemic at Primary School

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ABSTRACT

Problems arise on learning process during pandemic covid-19, those are feeling bored of children, no communication and interaction between teacher and students, the inadequate learning tools and facilities, and the low motivation of students' motivation. A way to overcome the problems is done with various learning resources such as multimedia animation. The purpose of this study is to determine the effectiveness of the multimedia animation-based integrative learning model during the pandemic covid-19 in primary schools. The research was conducted at Bantul Warung primary school. It is an experimental quantitative research, with the design used is one-group pre0test-postest design. The study used fifth graders of SD Bantul Warung totaling 32 students. Data was collected through tests and documents. It was analyzed by using paired sample T-Test. The results showed that by using tis integrative learning model based on multimedia animation, the average student learning achievement increases. It showed 73.44 before treatment categorized in medium. While the average student achievement after the treatment reaches 86.66 in the high category. From the results of the Paired Sample Test, the t-value is -9.262 with a Sig. (2-tailed) value of 0.000. the value of Sig. 0.000<0.05 indicates that there is a difference betwee the values before and after treatment, so it can be stated that multimedia animation-based integrative learning model is effective in improving students' achievement.

Keywords: *integrative learning, animation, multimedia, and pandemic covid-19.*

1. INTRODUCTION

The existence of technological developments affected the education system in Indonesia. Starting from primary to universities they have been using technology to support learning process as well in class and outside activities. The role of technology as to facilitate learning process needs to be addressed widely, especially during current covid-19 pandemic. As an educator or teacher, you must be able to respond and follow the development of technology as a learning model that could be applied in the classroom.

Educational technology will provide benefits for learning, as regarding information on learning process and material will be given more quickly to students. The existence of learning models developing due to technological developments, such as e-learning or virtual classes. Those platforms make students easier to manage their learning time more flexible but still achieve their learning goals.

Covid-19 pandemic forced government to implement education system policies to help minimize the spread of covid-19 virus. Since the beginning of January 2022, the government has declared the policy of the enforcement of community activity restrictions (PPKM). This effects the implementation of learning and school system. Schools were closed so that the mobilization and interaction could be minimized. Online learning system became the best choice that all school stakeholders must obey. One of the points stated in the emergency PPKM

regulations is point number 4, namely compulsory online or online teaching and learning activities. Mona (2020) mentions online learning can be done using various media as print media in the form of modules, and non-print media in the form of audio, video, internet, radio and television. We also can other various learning media as multimedia (Wulandari, 2010).

In primary schools in the province of the Special Region of Yogyakarta (DIY), the implementation of the online learning system is implemented, although with various obstacles and problems. Some of the obstacles are as follows; 1) students and parents received poor knowledge about information technology, 2) learning becomes boring, 3) learning assessment is hampered, 4) learning becomes less effective so that student achievement results decreased. (Prawanti and Sumarni, 2020). These obstacles can be reduced by providing learning assistance. Learning mentoring is a business that can be done by accompanying, providing assistance, motivating, providing facilities and supervising during the learning process (Handayani, Khasanah & Yosintha, 2020)

Observation on teaching and learning process was taken to students at SD Bantul Warung. Online learning activities make students bored. The limitations of communicating and interacting with fellow classmates in class and with the teacher resulted in students not being enthusiastic in learning. Learning that requires students to communicate and interact directly with classmates and teachers is also significantly affected. The availability of supporting facilities such as laptops and mobile phones is also a problem for students. In general, students in the primary schools cannot use mobile phones sharing with their parents. Those with mobile phone facilities also still find it difficult to provide internet data even though the government has assisted them. However, there are still students who do not receive internet quota assistance even though they have been registered as beneficiaries.

The efforts of teachers to teach by applying variations of various online learning methods are less than optimal in increasing students' motivation to learn. When participating in online learning, students look passive, less communicative and interactive. This condition causes learning motivation to decrease. Low learning motivation can have a negative impact on students, namely in the form of decreased learning achievement (Rimbarizki, 2017). Student learning motivation is different for each child, there are students who have high learning motivation but some have low learning motivation (Wulandari & Surjono, 2013).

To improve student learning achievement during the covid pandemic, one way that can be done is by utilizing information technology to support increased learning success in schools. Teachers may use information technology as one of the more interesting learning models for students. In this study, an integrative learning model based on multimedia animation would be applied as a way to improve learning achievement which has decreased during this pandemic. By using this model abstract subject matter can be better explained to students. Therefore, the purpose of this study is to determine the effectiveness of multimedia animation-based integrative learning media to improve student learning achievement during covid-19 pandemic at Bantul Warung Primary School.

2. LITERATURE STUDY

The learning model is a pattern that is used as a guide in planning learning in groups and tutorials (Agus Suprijono, 2011). The function of the learning model is as a guide for teachers and educators in carrying out learning (Trianto, 2010). So the learning model is a conceptual framework that is used as a learning guide to achieve goals.

Integrative learning model is a learning model that is not teacher-centered so that students will be actively involved in process. In the learning model there will be interactions between teachers and students designed to assist students in achieving learning goals, namely helping understanding related to systematic knowledge and improving critical thinking skills (Eggen & Kauchak, 2012). The integrative learning model is a synergistic learning activity between several disciplines in an integrated manner and based on the same theme and in a similar learning context with the aim of mastering the same graduate competency. Integrative is reflected in the determination of certain graduate competencies that are used as themes for learning several related subjects by going through certain steps, namely: (1) determining themes according to the competencies of selected graduates, (b) organizing themes using topic networks, namely making integration with other subjects that can support the mastery of this competency, (c) collecting materials and resources, (d) designing activities and projects. The results showed that applying the integrative learning model could improve student learning outcomes (Akbar & Sebayang, 2015). Likewise, the application of the integrative learning model in Indonesian language learning can improve student learning achievement (Gigit Mujianto, 2019).

Learning that uses information and communication technology or multimedia is called interactive multimedia-based learning media. The use of learning

media is intended to assist teachers in delivering material and in understanding the material being taught. In addition, the content of the subject matter can be modified to be more interesting and easier to understand, the objectives of difficult material will be easy, the stressful learning atmosphere becomes fun.

Interactive multimedia is the use of computers to combine text, graphics, audio, moving images (video and animation) into a single unit with the right links and tools so as to enable multimedia users to navigate, interact, create, and communicate (Hofstetter, 2001). Furthermore, multimedia is also defined as a computer system consisting of hardware and software that makes it easy to combine images, video, photography, graphics and animation with sound, text and voice data interactively controlled by computer programs (Azhar Arsyad, 2010). While animation is a sequence of frames which, when played in order with sufficient speed, can present moving images smoothly like a film or video. With the change from visual media in the form of still images into animated multimedia that moves, students are easier to understand the material presented by the teacher (Suheri, 2006). The advantages of applying animated multimedia in the learning process can clarify the presentation of learning material so that it can be effective and efficient (Nugroho, 2011). The results of the study also showed that the use of animated multimedia was more effective in improving student learning outcomes than using still image visual media (Hery Maknai, Ono Wiharna, Dedi Rohendi, 2016). Based on theoretical studies and research studies that have been carried out previously, a hypothesis can be formulated that the multimedia animation-based integrative learning model is effective in improving student achievement.

3. MATERIAL AND METHOD RESEARCH

This research was carried out at the Bantul Warung Primary School, which is located at Jalan Jendral A. Yani, Bantul. The population in this study were all students of SD Bantul Warung, with a sample of 32 students in class V. This research took one independent variable and one dependent variable, the independent variable was an interactive learning model based on multimedia animation and the dependent variable was student achievement. Data was collected through tests and documents. Quantitative experimental method with a one-group pre-test-post-test design was used. The design can be described as follows:

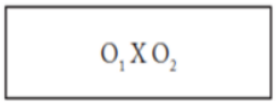

Figure 1. Design of Quantitative Experimental Method

O1 = pre-test value (before given treatment)
O2 = post-test value (after given treatment)
X = treatment

Before testing the hypothesis, the analysis requirements test was carried out, namely the normality test using the One-Sample Kolmogorov-Smirnov Test, then to determine the effectiveness of the multimedia animation-based integrative learning model using the Paired Sample T-Test. The pre-test and post-test assessments were analysed using the Paired Sample t-Test. Paired Sample t-Test is a two-sample difference test in pairs. Paired samples are the same subject, but experience different treatments. Paired Sample t-Test was conducted on the pre-test and post-test scores for the before-after class, namely before and after using an integrative learning model based on multimedia animation. The data analysis method in the Paired Sample T-test uses the T-Test (Pre-test – Post-test) formula for the Two-Mean Paired Data Difference Test, as follows (Edi Riadi, 2016: 246):

$$t = \frac{\sum di}{\sqrt{\frac{N\sum di^2 - (\sum di)^2}{N-1}}}$$

Figure 2. Formula of Two –Mean Paired Data Difference Test

Description:
t = t value
d = difference of pre-test and post-test value
N = number of samples

4. DATA ANALYSIS

A. Students Learning Achievement

Analysis of student achievement in learning is shown from the pre-test and post-test scores. The pre-test score was obtained from the students' scores before using the multimedia animation-based integrative learning model, and the post-test scores were obtained from the students' scores after using the multimedia animation-based integrative learning model. In this research, the calculation of the value of student achievement in learning is done to determine whether the multimedia

animation-based integrative learning model is effective in improving student achievement in learning.

Based on the average value obtained before and after treatment using an integrative learning model based on multimedia animation has increased. The average value before treatment was 73.44 and the average value after treatment was 86.66. The value of student achievement before using the multimedia animation-based integrative learning model is categorized in table 1 below:

Table 1. The value of student learning achievement before treatment

Criteria	Frequency	Percentage	Category
X > 75	14	43,75%	High
25 ≤X≤75	18	56,25%	Medium
X <25	0	0,00%	Low
Total	32	100%	

Based on table 1 above, 43.75% of student achievement is in the high category, and 56.25% is in the medium category. Based on the average value before treatment of 73.44, it is on the criteria of 25 X≤75 so it can be concluded that the average student achievement before receiving treatment with an integrative learning model based on multimedia animation is in the medium category.

The value of student achievement after using the multimedia animation-based integrative learning model is categorized in table 2 below:

Table 2. The value of student learning achievement after treatment

Criteria	Frequency	Percentage	Category
X > 75	30	93,75%	High
25 ≤X≤75	2	6,25%	Medium
X <25	0	0,00%	Low
Total	32	100%	

Based on the table above, 93.75% of student achievement is in the high category, and 6.25% is in the medium category. Based on the average value after treatment of 86.66, it is on criteria X>75 so it can be concluded that the average student achievement after receiving treatment with an integrative learning model based on multimedia animation is in the high category.

B. Normality Test

Normality test is used to determine whether the research data that have been obtained are normally distributed or not. Calculation of normality test from student achievement data before and after treatment calculated using the Kolmogorov-Smirnov test can be seen in table 3 below.

Table 3. Value of Normality test before and after treatment

One-Sample Kolmogorov-Smirnov Test			
		Pre-	Post-
N		32	32
Normal Parameters[a,b]	Mean	73.44	86.66
	Std. Deviation	9.708	5.807
Most Extreme Differences	Absolute	.143	.138
	Positive	.138	.096
	Negative	-.143	-.138
Test Statistic		.143	.138
Asymp. Sig. (2-tailed)		.095[c]	.128[c]
a. Test distribution is Normal.			
b. Calculated from data.			

Based on the results of the Kolmogorov-Smirnov normality test in table 3 above, the Asymp.Sig (2-tailed) value before treatment was 0.095 and the post-treatment value was 0.128 which was greater than 0.05. It means that the values before and after treatment are normally distributed.

C. Paired Sample T-Test

After knowing the values before and after treatment are normally distributed through the Kolmogorov-Smirnov normality test, the next step is to find out whether student learning achievement has increased significantly or not, then data analysis is carried out using the Paired-sample T-Test with the criteria for the value of Sig(2-tailed). 0.05. The results of the Paired Sample T-Test can be seen in the following table.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	73.44	32	9.708	1.716
	Post	86.66	32	5.807	1.026

Table 4. Paired Samples Statistics Test Result

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre- and Post-	32	.557	.001

Table 5. Paired Samples Test Result Correlations

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre – & Post -	-13.219	8.071	1.427	-16.129	-10.309	-9.265	31	.000

Table 6. Paired Samples Test Result

The effectiveness of the multimedia animation-based integrative learning model in this research can be seen through increasing student achievement in learning. It can be seen from the value before and after treatment. This assessment of learning achievement improvement was carried out before using an integrative learning model based on multimedia animation. Researchers conducted a pretest before learning on 32 students with an average pretest score of 73.44. Then the researchers conducted learning activities using an integrative learning model based on multimedia animation and conducted a posttest. After the data was analyzed, the posttest average value after learning was 86.66. This shows an increase in student achievement in learning after using an integrative learning model based on multimedia animation. It can be concluded that the multimedia animation-based integrative learning model is effective in improving student achievement.

Based on the results of the t test using a significance level of 5%, the Paired Samples Test table obtained a t value of -9.265 with a Sig. (2-tailed) value of 0.000. Because the value of Sig. 0.000 <0.05 indicates that there is a difference between the values before and after treatment. So it can be underlined that the multimedia animation-based integrative learning model can improve student achievement in learning. The results of this research are in accordance with the conclusions of Haris Budiman's research (2017), that in the current era of globalization, the rapid development of information technology has an influence on the world of education. The world of education needs to constantly adapt to technological developments to improve the quality of education, especially in the learning process. The same thing was also expressed by Idris (2015), the use of ICT in education is very useful, especially in the learning process. The results of this study are also in accordance with the results of research conducted by Treesly Y. N. Adoe & Herlin Glorina Manane (2022) that interactive learning media Lectora inspire is effectively used to increase student achievement motivation. Martinus Tekege (2017) also concludes in his research that in education the need for technology is not something new, utilizing technology will make learning more conducive and innovative, and has been shown to have a major influence on the smooth teaching and learning process. By utilizing technology as one of the learning media in the learning process, it will make it easier for teachers to teach and interact both in the classroom and outside the classroom. Sunarti, Selly Rahmawati and Setia Wardani (2017), also concluded in their research that animation-based media is very easy for teachers and interesting for students. A well-designed and professional learning process will facilitate the achievement of educational goals. In every learning activity there will be interaction between teacher and student. The teacher designs the lesson, while the students will carry out the lesson designed by the teacher. During the current covid-19 pandemic, the teacher's role in designing learning, especially with interactive multimedia animation-based learning models, will greatly assist students in understanding the subject matter, because it has been designed in an attractive manner and has proven to be effective in improving student achievement.

5. CONCLUSION AND SUGGESTION

a. Conclusion

The effectiveness of the multimedia animation-based integrative learning model in this study can be seen through increasing student achievement in learning. The increase in student achievement can be seen from the pretest and posttest scores carried out on 32 students. The average pretest score before treatment was 73.44 in the medium category and the posttest average score after treatment was 86.66 in the high category. Based on the results of the t test with a significance level of 5%, the Paired Samples Test table obtained a t value of -9.265 with a Sig. (2-tailed) value of 0.000. The value of Sig. 0.000 <0.05 indicates that there is a difference between the values before and after treatment. So it can be drawn a conclusion that the multimedia animation-based integrative learning model is effective in improving student achievement.

b. Suggestion

Teachers should be able to make innovations in learning, one of which is by utilizing technology. The learning model that is made should pay attention to the needs of students, the characteristics of the lesson, and the conditions of the school.

6. ACKNOWLEDGMENT

This work would not have been possible without the support of LPPM PGRI University of Yogyakarta. Authors especially indebted to the head of LPPM UPY, head of Research Development of LPPM UPY. They also are thankful to the Rector of UPY, and students of PBI UPY for their kind participation.

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