



ISSN 0852-601X
e-ISSN 2549-838X

Available online at
<http://www.pancaranpendidikan.or.id>

Pancaran Pendidikan

Pancaran Pendidikan FKIP Universitas Jember
Vol. 8, No. 4, Page 55-66, November 2019

DOI:
10.25037/pancaran.v8i4.255

The Effect of Video Media with Google Form on Student Learning Results in Learning Solar System in Junior High School

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ARTICLE INFO

Article History:

Received Date: 1th Oct 2019

*Received in Revised Form Date:
10th Oct 2019*

Accepted Date: 15th Oct 2019

*Published online Date: 01st Nov
2019*

Key Words:

Technology, Solar system, Video

ABSTRACT

Current technological developments have influenced the field of education in both individuals and groups. Technological advances alone can support science thought processes in students. Likewise the teacher, it is recommended to be more innovative in the application of technology in learning science. The purpose of this study is the influence of the use of google form assisted video media on improving junior high school student learning outcomes. This type of research is experimental research with Post-test Only Design design. The selection of samples from 9 classes is done by drawing homogeneity tests. Data analysis techniques used in this study are statistical analysis techniques in the form of normality tests and hypothesis testing (t-test). Based on the results of the t-test analysis conducted where Asymp. Sig. (2-tailed) learning outcomes are 0.027 and Asymp. Sig. (2-tailed) retention of learning outcomes is 0.012 so it produces a value of less than 0.05 where it answers the hypothesis if there is a significant effect on learning outcomes and retention of student learning outcomes in Solar System learning using video forms assisted by Google forms. This study concludes that the Google form-assisted video media has a significant influence on student learning outcomes and retention of student learning outcomes, while also increasing student activity in learning science.

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INTRODUCTION

The era of globalization has increased in the use of digital equipment both with PCs or gadgets. These tools can also affect the field of education of both individuals and groups. The development in the field of science and technology also affects the development of education in Indonesia education (Layona et al., 2017). At present, the use of technology and communication can transform traditional learning into more

interactive and innovative learning (Setiawan et al., 2019). Therefore, the use of technology and communication has influenced the changes in education in Indonesia.

The development in the field of education makes a rapid change for the community as well as teachers and students (Ulaş et al., 2012). So now education has a role in advancing the development of science and technology or science and technology in improving the quality of one's individual (Wang et al., 2020). So that behavior in education must also be changed following modern society that allows learning to be centered on students and place students as active individuals and think around the problems.

Science is one of the subjects that support the current process of science and technology development. Where science has a role in advancing education in the field of science and technology that can be applied in education (Nurdyansyah and Riananda, 2016). By its nature, science is intended to help train students in applying scientific thoughts into their daily lives, so students will build and practice to apply the effects of the development of science and technology under scientific principles (Muna et al., 2017). Science has a reference in improving science and technology, which is the process of increasing scientific, independent, and creative thinking. So that it can reach the level of observation in the science learning process. The character building of education can be supported by conveying education about science on a problem-based basis and helps with the use of science and technology (Suhendri, 2015). Thus, science and technology will develop the quality of thinking of individuals by following the current learning process.

Technology transformation in education has influenced the learning of science at this time. Technological developments also affect the way of learning by bringing up many innovations with functions to make learning more active and time-efficient (Muh. Syaiful Romadhon et al., 2019). Thus, a teacher is recommended to be able to make the latest innovations in the learning process in the classroom. The latest innovation that can be developed by teachers is through the use of tools in learning that can be in the form of learning media. Based on this, learning is needed as one of the tools in the form of technology, which will help in the learning process to not only dwell on the book and make learning not boring (Nugroho et al., 2017). Therefore, the media is one of the factors that support the success of the learning process.

The utilization of science and technology that has entered almost all fields causes linkages in education to convey a concept, phenomenon, and theory that is by utilizing technology. One promising development to support successful learning is to apply a simulation medium that draws attention in teaching the class (Meyer et al., 2019). Learning by utilizing audio, image, and visual simulations helps students in concluding, understanding, and connecting between facts and concepts. Thus, learning by using simulation will help gain experience and new understanding which will then support the success and motivation of students to be higher (Zainati, 2017).

Student learning outcomes tend to be low due to the strategies used by teachers are still not appropriate, where learning is still centered on the teacher and the use of technology has not been maximized so that class learning seems monotonous and students are less enthusiastic in the learning process

(Elisa et al., 2019). Therefore, the development of technology should be able to change the traditional learning process into a modern one that is student-centered so that students can master the science and technology that includes related subjects.

Utilization of technology that is very helpful in the form of audiovisual based ICT media. Video media will assist teachers in delivering learning material and can create conducive learning situations (Kurniawan et al., 2018). If more and more sensory devices are used as recipients and process information, the greater the information provided is received by many students. Audiovisual media using a computer as one of the learning centers by presenting a material that is a moving picture and sound, where the media presented are not haphazardly but that has been specifically designed according to the material to be taught and certainly by existing concepts (Alfayanti et al., 2017). Technology includes subjects related to daily life, one of which is using video media assisted by worksheets which can be one of the methods in shaping the behavior expected for students (Sulfemi, 2019). Therefore, the use of technology as a learning medium will help students achieve their learning goals by mastering the right concepts.

In addition to utilization as a learning medium, one of the uses of technological developments that can be used for the current era is the existence of competency tests conducted online. One of them is that there is a Google platform that is very widely used by almost all circles. A platform that is widely used for free, one of which is Google forms. Google Forms is a web system that is used to get information from users which will then be stored in Google Drive (Rasdiana et al., 2016). Google forms are usually used to easily create a form to plan an event, send surveys, give quizzes or gather information quickly and efficiently (Nadia et al., 2018). The requirement to use it only has a Google account for processors or form creators (Rahardja et al., 2018). Therefore, this platform can be used as a tool to hone students' technological abilities that are used for evaluation before and after learning. In this study, the use of google forms is one of the media for student competency testing. Based on the description above, where the use of technological developments as a medium in the teaching process so we conducted a study entitled "The Effect Of Video Media With Google Form On Student Learning Results In Learning Solar System in SMP" to find out how the feasibility of google form assisted video media to be applied in the learning process.

METHODOLOGY

This type of research is classified in experimental research and the design of this study refers to the Posttest Only design. The variables studied in this study consisted of independent and dependent variables, where the independent variables in this study were learning by using audiovisual media and the dependent variable was the effect of audiovisual media on learning outcomes and retention of student learning outcomes in solar system learning in junior high.

The population of this research is all students of class VII at SMPN 1 Pagu. Sample selection is done by using a random technique that is taking randomly. At Pagu 1 Middle School class VII consists of 9 classes and the sample as an experimental class, namely class VII B. Before drawing to determine the sample used, the homogeneity of data was tested using SPSS 25.

Data obtained from the results of the posttest and retention of learning outcomes are then analyzed using quantitative statistical techniques namely the normality test that is by using the Shapiro-Wilk test if the data is normally distributed then it will be continued with the hypothesis test using the Independent T-test. If the data are not normally distributed, then the t-test will be carried out using a nonparametric test using the Mann Whitney U test.

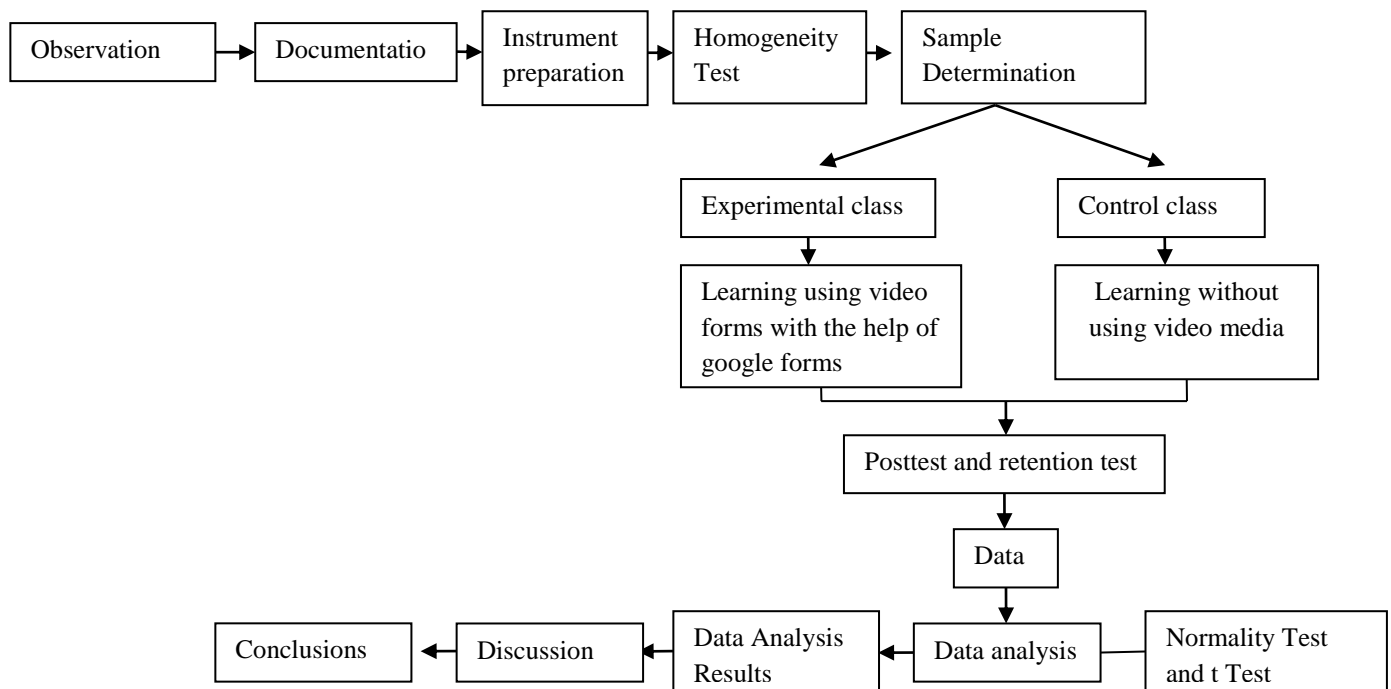


Figure 1. Methodology Diagram

TASKS

The solar system has a group of celestial bodies, namely the sun and planets consisting of Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune and 165 planetary satellites that have been known to date, as well as solar system objects. others such as asteroids, dwarf planets, meteoroids, planetoids, comets, and interplanetary dust that move according to Newton's dynamics laws. Planet orbit has an elliptical shape that causes the distance of the planet to the sun is always changing (Rahayu Basuki, 2010). One time, a planet can reach its closest point to the sun, called the perihelion point and then this planet can also reach its farthest point called the aphelion point. By looking at the planet's orbit from the earth, planets are divided into two kinds namely inferior planets and superior planets. Inferior planets are planets whose orbits are located in the earth's orbit, namely mercury and Venus. Whereas the superior planet is a planet whose orbits are located outside the orbit of the earth, namely Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. The planets in the solar system are divided into two types, namely terrestrial planets or earth planets and jovian planets. Terrestrial planets are planets that have the composition of the constituents of a group of planets with the ingredients of the earth, for example, Mercury, Venus, and Earth. Planet Jovian is the composition of its constituent materials similar to Jupiter, for example, Jupiter, Saturn, Uranus, and Neptune. Also, the solar system has dwarf planets or dwarf planets namely Ceres, Pluto, and Eris (Gunawan Admiranto, 2000).

Natural phenomena that occur due to rotation and revolution both earth and moon are lunar eclipses and solar eclipses. The lunar eclipse is caused by the movement of the moon that enters the shadow of the earth's core, so that moonlight which is reflected sunlight can not be seen from our earth (Mujab, 2014). Whereas the solar eclipse occurs when the earth is around the sun, the moon can circulate the earth and the moon can move right between the earth and the sun so that the sun is closed. Whereas a

solar eclipse occurs when the position of the moon lies between the earth and the sun so that it closes some or all of the sun's light. Although the moon is smaller, the Moon's shadow can protect the full sunlight because the moon is an average distance of 384,400 kilometers from Earth closer than the Sun which has an average distance of 149,680,000 kilometers (Wardana, 2018).

RESULTS AND DISCUSSION

Before the research was carried out a homogeneity test was carried out from 9 classes in SMP Negeri 1 Pagu. Homogeneity results based on the average value of the previous test shows a number that is 0.145. Based on the reference hypothesis that has been adjusted where if $p > 0.05$ then the data have the same variation (homogeneous), and vice versa. So it can be concluded if the entire class VII in SMP Negeri 1 Pagu is homogeneous or has a similar level of knowledge. Next to draw the selection for the experimental class and the control class, which is obtained is the experimental class in class VII B while the control class in class VII C.

After learning by using video media, then do a posttest and get data of learning outcomes, namely the posttest. The learning outcomes (pretest and posttest) of Class VII B students in the experimental class by using the Google form video media. Look at the graph below.

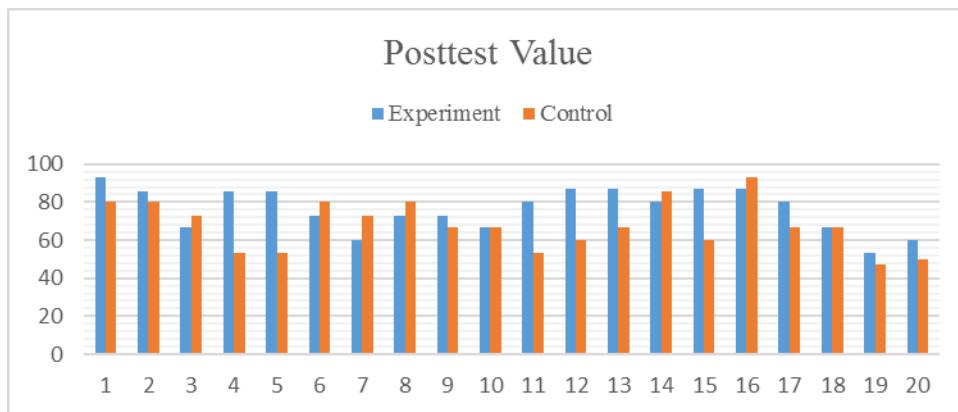


Figure 2. Comparison of learning outcomes

Based on the graph 1.1 that the learning outcomes (posttest) in the experimental class has the highest value of 93 and the lowest value of 53 when compared with the learning outcomes (posttest) in the control class with the highest value of 93 and the lowest value of 50. Then the data analysis, while the results of the analysis obtained are as follows.

a. Data Normality Test (Shapiro-Wilk)

The normality of posttest learning outcomes data that was returned was tested for normality using the Shapiro-Wilk test. The results of the analysis of the posttest value of the experimental class get some 0.085. Based on the reference hypotheses where if $p > 0.05$ then the data values are normally distributed. Furthermore, for the results of the posttest score the control class gets a number that is 0.470 so it can be concluded that both the learning outcomes data or the posttest are normally distributed.

b. Hypothesis Test (Independent sample T-test)

After knowing the two learning outcomes data or posttests from the experimental class and the control class are normally distributed. Furthermore, the hypothesis test is performed t-test using the Independent Sample T-test.

Table 1. Results of the Independent Sample T-test analysis of student learning outcomes

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Post-test Value	Equal variances assumed	,091	,765	2,298	38	,027
	Equal variances not assumed			2,298	37,32	,027

If observed from the results of the analysis in table 1.1 above that the results of Sig. (2-tailed) got a result of 0.027. Based on the reference t-test hypothesis where H₀ there is no significant effect on student learning outcomes after learning with the Google form assisted video media, for H₁ there is a significant influence on student learning outcomes after learning with the Google form assisted video media. Where if Sig. (2-tailed) <0.05 then H₀ is rejected and H₁ is accepted, and vice versa. Based on the analysis results above, the Sig. (2-tailed) 0.027, which is interpreted as having a value of less than 0.05, it can be concluded that if H₀ is rejected and H₁ is accepted, there is a significant influence on student learning outcomes in learning with google form-assisted video media.

After three weeks the next posttest is to do a delay test or retention conducted online using a platform from Google Form. So it does not require time to meet in person. Look at the graph below.

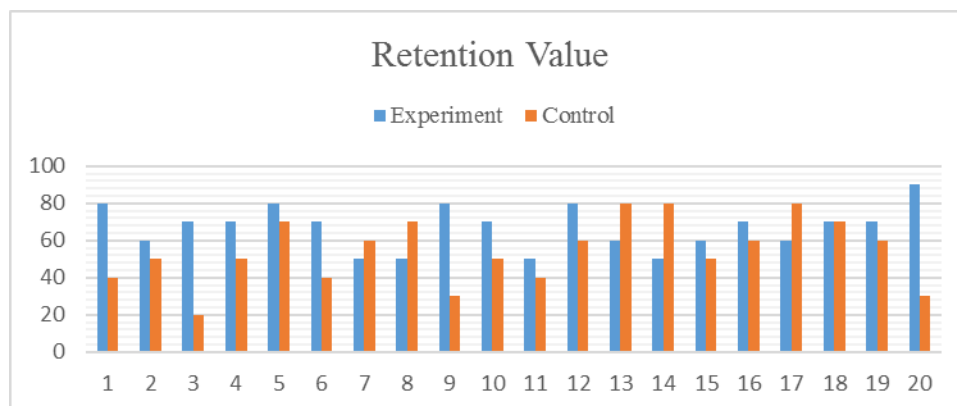


Figure 3. Comparison of the value of retention of learning outcomes

Based on graph 3.2 that the retention of learning outcomes in the experimental class has the highest value of 90 and the lowest value of 50 when compared to the

retention of learning outcomes in the control class that is with the highest value of 80 and the lowest value of 20.

The analysis used is the same as the test carried out in the posttest data analysis namely normality test and t-test can be considered as follows.

a. Data Normality Test (Shapiro-Wilk)

The normality of posttest learning outcomes data that was returned was tested for normality using the Shapiro-Wilk test. The results of the analysis of the posttest value of the experimental class get many 0.077. Based on the reference hypotheses where if $p > 0.05$ then the data values are normally distributed. Furthermore, for the results of the posttest score the control class gets a score of 0.385 so that it can be concluded that both the learning outcomes data or the posttest are normally distributed.

b. Uji t (Independent Sample T-test)

After knowing the two learning outcomes data or posttests from the experimental class and the control class are normally distributed. Furthermore, the hypothesis test is performed t-test using the Independent Sample T-test. The results of the analysis can be seen in Table 2 below.

Table 2. Table analysis results of Independent Sample T-test retention of student learning outcomes

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Nilai Posttest	Equal variances assumed	3,699	,062	2,64 1	38	,012
	Equal variances not assumed			2,64 1	33,10 3	,013

If observed from the results of the analysis in table 1.2 above that the results of Sig. (2-tailed) got a result of 0.013. Based on the reference t-test hypothesis is the same as the analysis of learning outcomes (posttest) where H_0 there is no significant effect on student learning outcomes after learning with the Google form video-assisted media, for H_1 there is a significant influence on student learning outcomes after learning with the Google form assisted video media. Where if Sig. (2-tailed) < 0.05 then H_0 is rejected and H_1 is accepted, and vice versa. Based on the analysis results above, the Sig. (2-tailed) 0.013 which is interpreted as having a value of less than 0.05, it can be concluded that if H_0 is rejected and H_1 is accepted, there is a significant influence on student retention of learning outcomes in learning with google form-assisted video media.

Based on the results of the analysis of research data if the video media has a significant effect on learning outcomes and retention of student learning outcomes that have been proven based on the results of the t-test. The reason for doing this research as one of the trials of the application of video media to student science learning outcomes. The use of video media helps a lot in facilitating students' understanding of ideas or theories by the concept. The media is used as an intermediary or introduction to the source of messages by receiving messages (Fatmawati et al., 2018). Video media is media that will not be listed in student books and teacher books, so this media is quite interesting and effective if used as an additional medium for student-centered learning and fostering student activity (Agustiningsih, 2015). The problem of science learning

outcomes is very low due to lecture and assignment methods which tend to cause students to feel bored while learning. So that it can be one of the learning solutions by using video media to attract students' attention in the learning process and can increase student interest in learning (Pramana and Suarjana, 2019). The use of video media in the learning process can build students to be more active in their role and can be proven from the activities of students who are very focused and silent when watching video playback (Masykur et al., 2017).

In addition to video media, learning outcomes can affect the retention of student learning outcomes. Video media can also be absorbed and remember the material more optimally because the student's absorption and memory significantly increase if the process of acquiring information is greater through the senses of hearing and vision. The retention or memory of students for the amount of information that has been given depends on how the information was obtained (Nisak et al., 2017). Thus it can be concluded that video media can influence the retention of learning outcomes as well.

Based on research, students feel very enthusiastic and have a high enthusiasm for learning and observing. Activities are undertaken by students namely filling out and working on Student Worksheets in the discussion, so students do not have time to play and talk alone except discussing some of the questions that have been given (Delftana et al., 2016). Student worksheets help guide students to carry out learning activities more actively, besides worksheets can also provide direction for developing ideas for solving problems (Kolomuc et al., 2012). Activities are shown to affect student learning outcomes. There is a significant influence on learning outcomes and retention of student learning outcomes also affect student activities using the Google form assisted video media.

So that learning by using media can be an alternative in the learning process so that it is not monotonous and boring, it only takes a few of the latest innovations to be used as better media. However, it is not only learning media that influence the teacher's role in compiling learning scenarios also very influential on the learning process that occurs to achieve learning objectives.

CONCLUSION

Learning media is one of the tools used to assist in the learning process in class. Science learning will be easier for students to understand, especially for junior high school students if in the learning process is assisted by the media, one of them is video media that helps google forms in the learning process that can be proven on the results of the t-test that there is a significant influence on student learning outcomes and retention. Besides, science learning with video media can also increase student activity and skills in computer science from students. This can help students apply the concepts learned in their daily lives.

Acknowledgment

Suggestions that can be given in this study are for schools to provide adequate learning media both electronic and non-electronic so that the media will further assist teachers in delivering learning. For further researchers, it would be better to develop media that have been studied to become better media

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