

Comparison Of Students' Science Learning Achievement Using Virtual Tour And Powerpoint Media

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Abstract

The purpose of this study was to determine the comparison of learning achievement in terms of grades or science learning outcomes by using teaching media in the form of virtual tours, especially fifth grade students at SDIT Al Fatih Depok. The study used a research design with a quasi experimental design. Samples were taken as many as two classes, namely the experimental class and the control class which were given different treatments. The experimental class applied learning media in the form of virtual tours, while the control group applied learning media in the form of powerpoint. Based on the results and discussion of the research and data analysis that has been carried out, it can be concluded that there are differences in learning achievement in terms of the value of student learning outcomes using teaching media in the form of virtual tours with those using teaching media in the form of powerpoint in science subjects, especially the material of respiratory organs, digestive organs, and organs of motion. It was found that there was a difference and an increase in learning achievement in terms of grades or student learning outcomes in science subjects, especially the material on respiratory organs, digestive organs, and locomotion in fifth grade students of SDIT AL Fatih in 2021/2022 by using teaching media in the form of virtual tours. Learning with virtual tour media can be more interesting and make students more enthusiastic.

Keywords: science learning, virtual tour, learning media.

1 INTRODUCTION

A good learning process will result in high learning achievement. Faturrahman and Sulistyorini (2012) revealed that learning achievement is a combination of two words, namely "achievement" and "learning". Each of these words has its own meaning. In the Big Indonesian Dictionary, achievement is the result that has been achieved (from what has been done, done, and so on). Achievement can be interpreted as the results obtained because of the learning activities that have been carried out. According to Hamdani (2010), the factors that influence in determining learning outcomes are internal factors and external factors. In line with that, Iskandar (2009) says that learning motivation greatly affects the activity and achievement of student learning outcomes. Also reinforced by Sardiman (2011), that motivation is the overall driving force that leads to learning activities in students.

The emergence of the Covid-19 case in early 2020 which was designated as a pandemic, the system in education must keep up with the growing technological developments. But it remains that even in the conditions of the Covid 19 pandemic, educators must strive to develop the potential that exists in students, both in the cognitive aspects of informative, moral, spiritual, cultural and social reasoning and affection (Huzaefah, 2017). Currently, technology is the main weapon for carrying out activities in various aspects of life because

it has a high role, including in the educational aspect. The 21st century is a challenge for educators to become creative educators or teachers. Sondang, et al (2020) mentioned that creative teachers are the key to successful learning in the 21st century. With a mature concept, learning media is not only used as a teacher's tool in teaching, but brings information that is suitable for the needs of students. Educators or teachers are required not to stutter in technology if they want their students to excel in learning achievement. The application of technology by educators is harmonized in the use of media during the learning process, including virtual tour and powerpoint.

The learning process can take place when several elements are met. Rifa'i and Ani (2012) mentioned that there are several elements to implement learning, among others: (1) learners which include students, learners and learning citizens; (2) stimulus, things that stimulate the senses of learners to be able to learn optimally; (3) memory, containing various abilities in the form of knowledge, skills, and attitudes resulting from previous learning activities; and (4) response, the result of actions from the actualization of memory observed at the end of the learning process so that it can produce behavioral changes. Currently, various learning topics have used various and interesting learning media, one of which is learning natural science (IPA). Suendarti (2019) mentions natural science with foreign language science and the Latin word *scientia* means "I know". Science consists of physical sciences including chemistry, physics, astronomy and geophysics, as well as biological sciences.

For children, especially at the elementary school level, it is not uncommon to be an obstacle when entering teaching material that uses quite unfamiliar terms in science learning, for example the names of human organs. A common problem that often occurs in elementary schools is the low student learning outcomes in learning activities (Widiyono, 2021). One of the successes of students in the learning process is learning outcomes that increase optimally along with good teacher teaching techniques.

In this case, the right learning media is needed so that learning achievement in terms of the average student learning outcomes is good. The purpose of this study was to determine the comparison of the use of learning media in the form of virtual tours with learning media in the form of powerpoint on learning achievement in terms of science learning scores or results and to determine the increase in learning achievement in terms of science learning scores or results by using teaching media in the form of virtual tours, especially fifth grade students at SDIT Al Fatih Depok.

2 RESEARCH METHODS

This research uses quantitative research. According to Tanzeh (2009), quantitative research is a process of finding knowledge that uses data in the form of numbers as information about what is known. The study used a research design with a quasi experimental research design, conducted to compare the science learning outcomes of fifth grade students who were taught with virtual tour media and students who were taught with powerpoint media. This research design uses two classes, each class is an experimental class and a control class. Students were given a post-test as a measure of learning success.

In this study, the population used was fifth grade students at SDIT Al Fatih Depok in the 2021/2022 academic year. Samples were taken as many as two classes, namely the experimental class and the control class which were given different treatments. The experimental class applied learning media in the form of virtual tours, while the control group applied learning media in the form of powerpoint. Sampling in this study used cluster random sampling technique. Determination of the research location because this school has equality, the condition of students, infrastructure facilities, curriculum used, school accreditation, and education of educators. The cluster random sampling technique is a technique of taking random samples by paying attention to groups, namely groups of fifth grade elementary school students in the population.

The subject given in this study is science with material on the respiratory system, digestive system and organs of motion. Then, a multiple choice test was given. According to Arikunto (2010) to determine the level of reliability, level of validity, level of difficulty and distinguishing power, a test device was prepared, then tested.

The data analysis method used is 2-way Analysis of Variance. Before conducting hypothesis testing, normality, and homogeneity tests were carried out on students' learning outcomes. This research has been conducted on fifth grade students of SDIT Al Fatih Depok. The research data were obtained from the questionnaire instrument of students' learning motivation and the test scores of students' mathematics learning outcomes on the comparison of two different quantities, the debit material which was carried out after carrying out the learning. In this study, two stages were carried out to analyze the data. The first stage is testing normality, testing homogeneity, and testing the similarity of means which is useful for proving that the experimental class and control class are normally distributed and also have the same ability. And, in the second stage the normality test, homogeneity test, and ends with a hypothesis test.

Research tools (instruments) are tools used to measure observed natural and social phenomena (Sugiyono, 2011). The instruments in this study include: interview guidelines, observation guidelines, questionnaires, tests or test questions, and documentation.

3 RESULT AND DISCUSSION

Based on the treatment carried out in both classes, the average pre-test in the experimental class was 63.63 higher than the control class which only had an average of 55.90. The average pre-test in both the experimental and control classes was still below the KKM. Overall, it can be concluded that the learning outcomes of pre-test in both classes tend to be the same. The following table shows the average pre-test in the experimental class and control class.

Tabel 1. Nilai rata-rata *pre-test*

Kelas Eksperimen	Kelas Kontrol
63,63	55,90

To test the normality and equality between the two classes, the normality test and homogeneity test were carried out on the available pre-test data.

Normality testing in this study used the shapiro-wilk test because the sample was less than 50 respondents. The output display on SPSS shows that the sig. value in the experimental class is 0.120 and 0.328 for the control class. With these two values, it can be concluded that the pre-test data is normally distributed because it is greater than the level of significant ($\alpha = 0.05$). After the normality test, the pre-test data was followed by homogeneity testing using independent sample t-test (levene's test). The output display on SPSS shows a sig. value of 0.507 which means that the data on the pre-test–experimental and control class values are the same (homogeneous) because it is greater than the level of significance ($\alpha = 0.05$).

Based on the output results on SPSS regarding the shapiro-wilk test, it can be seen that the sig. value is greater than the level of significant ($\alpha = 0.05$), which is 0.075 in the experimental class and 0.068 in the control class. So from this value it can be concluded that the post test data in the two different classes is normally distributed. Meanwhile, the results of the homogeneity test output using the independent sample t-test show a sig value of 0.256. Because this value is greater than the level of significance ($\alpha = 0.05$), it can be concluded that the post test data in both classes are similar (homogeneous).

In the first hypothesis test, there are differences in the learning outcomes of fifth grade students in science subjects, especially the material of respiratory organs, digestive

organs, and organs of motion in experimental classes that use teaching media in the form of virtual tours with control classes that use teaching media in the form of powerpoints. In this hypothesis test using the independent sample t-test on SPSS. According to the test results, the sig. (2-tailed) value of 0.000 is smaller than the level of significance ($\alpha = 0.05$) which means there is a significant difference in learning outcomes between the two classes. Furthermore, the results of the second hypothesis test in this study are the learning process using teaching media in the form of virtual tours can improve the learning outcomes of fifth grade students in science subjects, especially the material of respiratory organs, sensory organs, and also the means of movement. This is evidenced by the use of the paired sample t-test where the sig. (2-tailed) value of 0.000 is smaller than the level of significance ($\alpha = 0.05$), so it can be concluded that there is a significant difference between student learning outcomes before the use of teaching media in the form of virtual tours with student learning outcomes after applying teaching media in the form of virtual tours.

Teaching and learning activities in this study were carried out for three meetings with the subject matter of respiratory organs, digestive organs, and organs of motion in science class V at SDIT Al Fatih Depok. The study used teaching media in the form of virtual tours for experimental classes and used teaching media in the form of powerpoints for control classes. The use of different teaching media produces data in the form of learning achievement in the form of learning outcomes in the pre-test and post-test. The data that has been obtained is continued with analysis and tested to prove the hypothesis which ends with a connection with theory and previous research so that conclusions can be drawn as a result of the research.

Hypothesis testing in experimental classes uses data in the form of initial and final scores. The initial value is obtained from the pre-test results and the final value is obtained from the post-test results. It is known that the sig. (2-tailed) value of 0.000 is smaller than the level of significant ($\alpha = 0.05$) which means H_2 is accepted. The results of this study indicate that learning achievement in the form of learning outcomes in science subjects can increase because of using teaching media in the form of virtual tours, especially the material of respiratory organs, digestive organs, and organs of motion. The increase in learning achievement in the form of student learning outcomes in experimental classes using teaching media in the form of virtual tours is also evidenced by an increase in the class average when before being treated with after being treated. The initial average value of grade V students in science subjects, especially the material of respiratory organs, digestive organs, and organs of motion of 63.63 increased by 15.91 so that the final class average was 79.54. The following is a table of averages in the experimental class.

Tabel 2. Nilai rata-rata sebelum dan sesudah perlakuan

Rata-rata	
Sebelum Perlakuan	Sesudah Perlakuan
63,63	79,54

Virtual tour is one of the interesting online teaching media developments, not only images are displayed but explanatory videos that are presented in detail about something (material) which also functions as a stimulus or encouragement for the center of attention of students both at the primary and secondary levels. The process of teaching and learning activities that use online teaching media in the form of virtual tours during a pandemic can improve learning achievement in the form of student learning outcomes, especially fifth grade students in science subjects on respiratory organs, digestive organs, and locomotion. The value of student learning outcomes increases because there is more attention to the teaching material presented by the teacher using this teaching media.

This was also revealed by Tasbihah and Suprijono (2021) in their research that online learning using teaching media in the form of virtual tours has an impact on student learning motivation. The use of this teaching media makes students seem to see directly the subject being studied and also students gain new experiences from learning that are not only

sourced from books or powerpoints. With the existence of learning media in the form of virtual tours, students respond well so that they are more motivated to learn. The higher the motivation, the center of attention of students also increases so that it affects learning achievement in terms of student learning outcomes.

The use of teaching media in the form of virtual tours and teaching media in the form of powerpoints in the learning process provides different student learning outcomes in grade V science subjects, especially the material of respiratory organs, digestive organs, and organs of motion. Hypothesis testing was carried out using post-test value data for each class, namely the experimental class and control class. The results of the hypothesis test show that the sig. (2-tailed) value of 0.000 is smaller than the level of significance ($\alpha = 0.05$) or it can be concluded that H1 is accepted. This is evidenced by the researchers' findings that there is a difference in the average learning outcomes in the experimental class using teaching media in the form of a virtual tour with a value of 79.54 and the average learning outcomes in the control class using teaching media in the form of powerpoint with a value of 71.81 so that there is a difference in the average value of both by 7.73. The following table shows the average learning outcomes in experimental and control classes.

Tabel 2. Nilai rata-rata kelas

Rata-Rata	
Kelas Kontrol	Kelas Eksperimen
71,81	79,54

Virtual tour is a media that was originally designed for online introduction to tourist attractions. The media is used to make it easier for someone who wants to travel when pandemic cases increase. With the virtual tour, tourists can stay at home and not crowded so that they are not at risk to their health. The use of virtual tours that are increasingly widespread and becoming a trend has an influence on the realm of education, namely in the learning process. An educator or teacher can design teaching materials on virtual tour media according to their respective creativity. The use of virtual tour media is utilized by educators or teachers as a learning support tool during the co-19 pandemic. The atmosphere in the online learning process using this media will feel different when compared to the learning process that only uses source books or powerpoint slides. The virtual tour display in the form of audiovisual can increase student learning motivation which will affect the higher center of attention and increase student learning outcomes.

The results of this study are reinforced by research that has been done before. Taufiqurrohman (2020) conducted a study entitled "Application of Virtual Tour Media with Google Expedition in Project Based Learning at SMK Negeri 10 Surabaya" stating that the use of media in the form of virtual tours is very feasible to use in the learning process of Tour Guide simulation. This is because there is a high learning motivation in students who use teaching media in the form of virtual tours which affects the average learning outcome of 85.54. In contrast to the average learning outcomes of students who use teaching media in the form of google expedition which produces a value of 83.1. In addition, Darmayanti (2016) also conducted a study entitled "The Use of Interactive Virtual Media to Improve Student Learning Outcomes on the Concept of Pressure in Class X SMK Negeri Telkom Banda Aceh" concluded that the use of interactive virtual media can improve student learning outcomes on pressure material at SMK 5 Telkom Banda Aceh. This is evidenced by the average student learning outcomes in the experimental class of 80.64 and the average student learning outcomes in the control class of 72.38.

4 CONCLUSION

Based on the results and discussion of the research and data analysis that has been carried out, it can be concluded that there are differences in learning achievement in terms of the value of student learning outcomes using teaching media in the form of virtual tours with those using teaching media in the form of powerpoints in science subjects, especially the material of respiratory organs, digestive organs, and locomotion in grade V students of SDIT Al Fatih Depok in 2021/2022 and an increase in learning achievement in terms of grades or student learning outcomes in science subjects, especially the material of respiratory organs, digestive organs, and locomotion in grade V students of SDIT AL Fatih in 2021/2022 by using teaching media in the form of virtual tours.

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