THE IMPACT OF AN ANIMATED VIDEO INQUIRY TRAINING MODEL ON JUNIOR HIGH SCHOOL SCIENCE STUDENTS' LEARNING OUTCOMES

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ABSTRACT

The purpose of this study was to determine how the use of the questioning learning model with animated videos at Dr. Wahidin Sudirohusodo Private Junior High School in Medan, North Sumatra, impacts student learning outcomes on science materials. This study used question training, with two groups used for pretest and posttest. The study involved all students of Dr. Wahidin Sudirohusodo Private Junior High School in Medan, North Sumatra. The study involved grade VIII students spread across several parallel classes. The sample was randomly selected. There were 66 students in class VIII-1 and VIII-3. Class VIII-1 was the experimental class with 34 students, and class VIII-3 was the control class with 32 students. The results of the research show that the Inquiry Training Learning Model using animated video media on the science learning outcomes of students in the experimental class shows a good attitude compared to the control class, as seen from the increase in scores as evidenced by the experimental class's mean score which is higher compared to the control class with the mean score for the post-test for the experimental class was 65.7647 and for the control class 42.6250.

Keywords: Learning Outcomes, Inquiry Training, Animated Video.

INTRODUCTION

Education in the modern era is a primary need for every individual. Its existence is not only a tool for significantly improving the quality of human resources, but also has a significant role role in building national civilization and is the spearhead in preserving the values of community life [1]. One of the important subjects in junior high school is science. The aim of science learning in the 2013 curriculum according to Minister of Education and Culture Regulation number 58 (2014) is for students to have various abilities, one of which is mastering the concepts and principles of science and having the skills to develop knowledge and a confident attitude [2]. Assessment in the 2013 curriculum covers all aspects of learning, namely attitudes, skills and knowledge. This assessment is based on student learning outcomes and aims to determine the level of competency achievement that has been determined [3]. Students' ability to think is part of skill competency. For

example, knowledge competency includes students' abilities to remember, understand, apply, analyze, synthesize, and evaluate, as well as practical activities, products, and projects [4].

Conventional learning is a traditional teacher-centered learning model. The teacher acts as a fount of information and coveys the material, while students are the recipients of information. In this model, the teacher talks more and explains the material, while students are passive and only receive information. This may result in the teaching and learning process being less dynamic and interactive. [5]. Learning is the process by which students interact with subject matter. There are many things that influence how important the learning pocess is [6]. However, science education at Dr. Wahidin Junior High School still has some challenges. First, science learning still tends to be teacher-centered [7]. So that critical thinking skills are not taught to students and creatively. Secondly, the learning culture is still passive, where students only record and remember information, without exploring and investigating [8]. To overcome these problems, science learning is needed that can prepare students to be science and technology literate, critical, creative, and able to think logically. Science learning must be students-oriented, where students no longer play a passive role, but are active in the learning process through direct experience [9].

A learning model is a plan or pattern used as a guide in designing the learning process in the classroom or tutorial, as well as to determine various learning tools such as books, films, computers, curriculum, and so on [10]. Researchers and educators who wish to take use of animation's potential have focused their emphasis on using it as a technology-based learning medium in the classroom [11]. Since animation may convey difficult or abstract material in a way that students can understand more readily, it has a great visual appeal [12]. Animation uses moving pictures to visualize ideas that are hard to convey through speech or still images alone. Students may also engage with the learning material through the interactive nature of the animations by clicking, highlighting, and choosing alternatives that allow for individual investigation [13]. One way to overcome these challenges is to use animated video media. Animated videos can help students understand complex science concepts in a more interesting and understandable way. In addition, animated videos can motivate students to learn and improve their learning outcomes [14]. The use of the Inquiry Training learning approach is possible [15].

Students' development of intellectual abilities as well as other skills, such asking questions and looking for solutions, is the goal of applying the Inquiry Training learning approach

[16]. This learning model allows students to learn to utilize various sources of information and process it themselves [17]. The advantage of using the Inquiry Training learning model is that it can help teachers relate the lessons taught to students' actual circumstances and motivate them to connect what they with finding solutions to problems. Inquiry Training also stimulates students to apply critical, analytical, and methodical thinking to solve a variety of challenges [18].

METHODS

A. Research Method

The type of research used is a Quasi-Experimental design with Linear Regression Method on a t-independent sample-test with the research flow carts as follows:

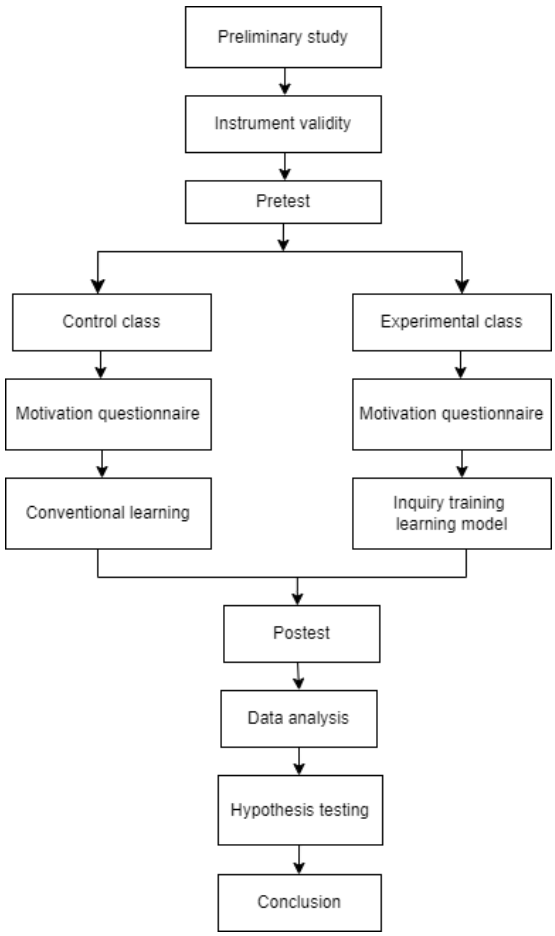

Figure 1. Research flow diagram

B. Some common mistakes

This research uses quantitative methods. With the data used is certain or valid. The objects used are students of Wahidin Sudiruhusodo Private Junior High School. The method used to calculate student data is SPSS and the method used is Inquiry Training based on animated videos which aims to increase junior high school students's interest in learning

C. Research design

This observation employed a pretest and posttest design that's the handiest design to expose causal relationships. This study involved two groups, namely the experimental class and the control class. The experimental class received treatment in the form in Inquiry Training Learning model with animated video, while the control class received conventional learning. This research design is categorized as a group pretest-posttest design.

Table 1. Research Design

Class	Pretest	Treatment	Posttest
Experiment	T1	X	T2
Control	T1	Y	T2

Information:
T1 = Pretest

T2 = Posttest

X = Learning using the Inquiry Training learning model assisted by animated video

Y = Learning using conventional learning

D. Research Populations

Students in Dr. Wahidin Sudiruhusodo Medan's VIII class made up the study's population. Private junior high school in the 2013 curriculum learning year, totaling 66 students who had been distributed in 2 classes and had the same characteristics.

E. Research Sample

Random sampling was used as the sampling approach in this study. Two class taught using the Inquiry Training approach, and one control group class taught using the conventional method.

RESULTS

This study aims to determine the effectiveness of using animated videos in learning at SMP Swasta Dr. Wahidin Sudirohusodo Medan. Data were collected through pretest and posttest given to 66 students of class VIII divided into two parallel classes, namely class VIII-1 (experimental class) and class VIII-3 (control class). Before conducting data analysis, researchers conducted prerequisite tests using the SPSS program to ensure that the data satisfied the normality assumptions, homogeneity, and hypotheses. Using the Kolmogrov-Smirnov method, the normality test was performed to see if the data in each group had a normal distribution or not. Table 2 displays the results of the normalcy test.

Table 2. Normality Test

	Kolmogorov- Smirnov [a]		
Learning Outcomes	Statistics	df	Sig.
Experimental Class Pretest	.126	34	,192
Control Class	.103	32	,200 *
Experimental Class Posttest	.132	34	,142
Control Class	.116	32	,200 *

Based on the results of the normality test, it is found that the significance value for pretest data in the experimental class is 0.192 > 0.05 so the data in this study is normally distributed, while the significance value in the control class is 0.200 > 0.05 so the data in this variable is normally distributed. The same thing also happened to the post-test data, the significance value for the post-test data in the experimental group was 0.142 > 0.05 so the data followed a normal distribution, while in the control class, it was 0.200 > 0.05 so the data on these variables was normal.

Table 3. Homogeneity Test

	Levene Statistics	df1	df2	Sig.
Pretest	,051	1	64	,822
Posttest	2,797	1	64	,099

Based on the analysis of homogeneity test data using the Levene statistic test, a significance value of 0,822 > 0,005 was acquired so that the null hypothesis (Ho) which states that there is no significant difference in variance between the two experimental and control classrooms can be accepted. This shows that the variance between the two classes can be considered the same. Furthermore, the post-test analysis shows a significant level value of 0,099 > 0,005 to determine that all activeness data and learning outcomes have a homogeneous variance

	Learning outcomes	N	Mean	Std. Deviation	Std. Error Mean
Pretest	Experimental Class	34	39.0882	10.98585	1.88406
	Control Class	32	33.9375	10.44784	1.84693
Posttest	Experimental Class	34	65.7647	16.30590	2.79644
	Control Class	32	42.6250	13.55455	2.39613

Table 4. Hypothesis Testing

Based on the Independent Sample T-Test results data processing, the average value of the pretest results of the experimental class and the control class is 39.09 and 33.94 while the average value for the postest of the experimental class and the control class is 65.76 and 42.63 there is evidence to suggest that the learning outcomes of the group process skills aspects are superior to those in the control class in the experimental class. And for The following table displays the independent t-test findings.

Table 5. Independent Sampel Test

		F	Sig.	t	df	Sig. (2-tailed)
Posttest	Equal variances assumed	2,797	,099	6,248	64	,000
	Equal variances not assumed			6,284	63,060	,000

Based on Table 5, the two-tailed significance value of 0,000 indicates that the significance value of student learning motivation is less than 0.05 (0.000 < 0.05). following the decision-making rules, the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. This means that there is a significant difference between the results of student learning motivation following their administration of care in the experimental and control groups. As a result of the experimental group's higher average score than that of the control group, it can be said that the grade VIII students at Dr. Wahidin Sudirohusodo Private Junior High School Medan are much more motivated to learn about vibrations, waves, and sound when the inquiry training model is applied

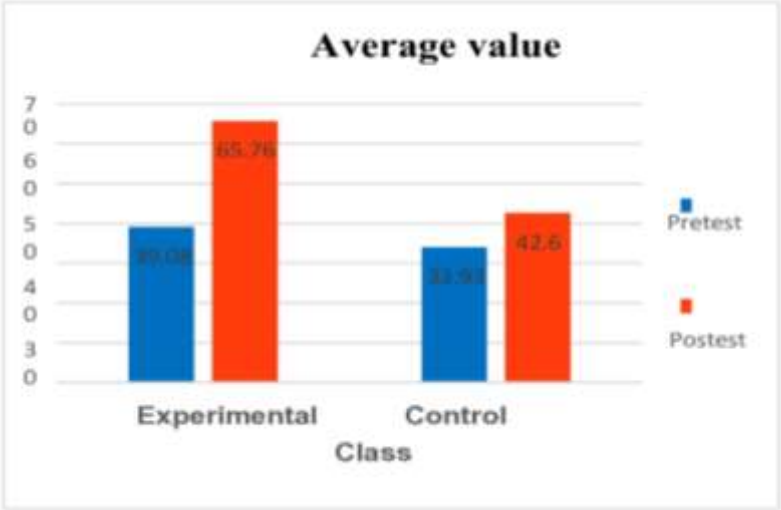

Figure 2. Graph of mean scores of experimental and control classes

The average pretest score for the process skills aspect of the experimental group was 39.08, while the control group reached 33.93. in the posttest, the average of the experimental value group jumped significantly to reach 65.76 with a good category, far exceeding the posttest value of the control group which only reached 42.62 with a good category as well. The difference in learning outcomes between the pretest and post-test of the experimental group

and the control group (39.08 > 33.93) and between the post-test of the experimental group and the control group (65.76 > 42.62) showed that the learning outcomes of the process skills aspects in the experimental group were significantly better that the control group. In conclusion, It was found that using the experimental method helped students process skills

CONCLUSION

This study is the effect of Inquiry Training learning with animated videos on junior high school students' science learning outcomes. The results showed that Inquiry Training learning with animated videos proved effective in improving junior high school students' science learning outcomes. Initially, the ability of students in the experimental class and the control class did not have a significant difference, with the same pre-test average value of 33.94. However, after the application of Inquiry Training learning with animated videos, there was a significant increase in the final ability of students in the experimental class. This is demonstrated by the experimental class post-test's average value of 65.76, which is much higher than the control class post-test's average of 42.63.

The effectiveness of Inquiry Training learning with animated videos is also supported by the positive perceptions shown by experimental class students. Students in this class showed a better attitude towards the application of animated videos in learning compared to students in the control class.

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