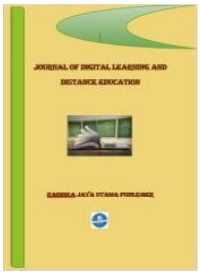

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The Effect of Media Video Practicum Based on Scientific Ability Students' Critical Thinking in Class VII Junior High School

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Abstract

This study seeks to determine how a media video practicum based on science affects students' capacity for critical thought in class VII Junior High School 4 Satu Atap Barusjahe. Quasi-experimental research using a research design is the method used. the non-equivalent control group design for the pretest and posttest. This research's subject is Junior High-class VII-A (Control Class/ 32 students), and class VII-B (Eksperimen Class/ 32 students). The data collection technique used a pretest and posttest. The data analysis used inferential statistics and parametric descriptive and used IBM SPSS Statistic 26.

Results of posttest ability students' critical thinking are $t_{count}(2{,}659) > t_{table}(1{,}677)$, showing that there are differences in the ability of students' critical thinking. When comparing the ability of students' critical thinking in the experiment class to the control class, it can be said that the media video practicum's impact on the ability of students
critical thinking was much greater.

Keywords: Students critical thinking, media video, scientific

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Introduction

One of the objectives of education today is to develop high-order thinking skills. This aimsto understand a person in higher thinking. Higher-order thinking ability is a thinking ability that applies

to processes in terms of remembering, restating something, or referring to something. This high-order thinking ability can solve a problem by thinking critically with creativity and providing arguments in making a decision. Researchers in Indonesia have extensively researched this capacity for advanced thinking. One of the studies related to higher-order thinking is research from (Suherman et al., 2020), whose research focuses on higher-order thinking skills using YouTube in learning. In his research, utilizing YouTube media significantly increased students' high-level thinking skills. And many more studies discuss higher-order thinking.

Ability critical thinking is a higher-order thinking skill that is currently being developed. Based on the Year 2000 educational objectives, which called for developing communication, problem-solving, and critical thinking abilities (Spector & Ma, 2019); (Syarifah et al., 2019). These skills are interrelated with one another and both are the focus of education today. Critical thinking ability is a person's ability to be able to think more reflectively and have reasons, to decide what to believe or whatto do (Ennis, 1985). Someone who can think critically can analyze all existing phenomena, and make a better decision in dealing with every problem. Additionally, critical thinking is a process that has been discovered and is a process of learning from different assumptions, having concerns about other people's beliefs, consistently seeking fresh alternatives, and being prepared to debate with specific and well-reasoned arguments, (Sellars et al., 2018). The goal of learning activities in schools is to develop students' critical thinking skills so that they appear more self-assured and always be able to comeup with the best answer for any issue they encounter.

To accomplish educational objectives, numerous methodologies, learning models, and learning media have been used to enhance students' critical thinking abilities. Media is a form of the channel that is used to convey messages to recipients that can stimulate students' thoughts and attention so that the learning process occurs, (Walter, 2024), Various learning media are used to convey the contents of learning materials in the form of books, tapes, videos, films, pictures, television, computers, and so on.

Applying video media to learn is highly recommended, as evidenced by facts or the findings of recent research. Students' ability to think critically and develop contextual awareness can be increased by using scientifically grounded practical video material in the classroom. Claimed that video learning is a teaching tool that can help students analyze problems that have been given to them by their teachers, find various concepts through a scientific procedure, and think about those problems (Higgins et al., 2018). A proper learning process can help students improve their critical thinking abilities. In addition to fostering students' intellectual development, learning can help students improve their critical thinking through the use ofscientifically grounded practicum videos.

Methodology

This research was implemented at Junior High School 4 Satu Atap Barusjahe, with subjects from class VII-A totaling 32 people as the control class and class VII-B totaling 32 people as the experiment class. Implementation of this research using a quantitative approach. Comparatively, quantitative research focuses on the examination of tangible phenomena that can be quantified. (Kilonzo & Ojebode, 2023) This quantitative approach is usually used as a tester of a theory, presenting data, or describing statistics. Quantitative research is divided into several methods, namely experimental research, correlational descriptive, evaluation, and so on. This study employed a non-equivalent control group design for the pretest and posttest in aquasi-experimental study. This approach is based on a research strategy that employs the experimental class and the control class as two sample classes These classes are chosen based onclasses that are thought to share similar circumstances and conditions. In general, the purpose of this study is to examine the impact of science practicum video media on students' critical thinking abilities. Data from research results were analyzed using descriptive statistical analysis techniques and parametric inferential used IBM SPSS Statistics 26. The t-test will be used for the test if the results of the prior test indicate that the resultant data are normally distributed, but non-parametric statistics will be used if the results of the

precursor test indicate that the resulting dataare not normally distributed.

Results

Students in the control class and the experimental class take a pretest as part of the research project. Multiple-choice questions were used as the pretest's only format, and nopractice tests were administered beforehand. In this instance, students in the control and experimental classrooms were focusing on the questions without receiving any materials. The outcomes of this pretest are used to gauge students' starting competencies in both the experimental class and the control class. The results of the pretest in the control class with an average of 44,53 and the experimental class with an average of 45,31, the pretest results for the control class and the experimental class had almost the same results.

In the control class, learning is not altered or conventionalized once the pretest is administered. While using scientifically based practical video media for instruction, the experimental class was delivered. The purpose of this is to give students a fresh learningopportunity. Utilizing scientifically-based practicum video media, we can assess students' capacity for critical thought as it relates to their learning experiences.

A posttest was administered to both the experimental class and the control class following the administration of the therapy. According to the posttest results, the control class had an average score of 53,28, whereas the experimental class had a score of 60,31 (Table 1). The average pre-test score for the control class was 44,53, whereas the average pre-test score for the experimental class was 45,31. These results are based on the outcomes of the pretest and post-test analyses of students' critical thinking abilities. Comparatively, the experimental class's average post-test score was 60,31 while the control class's average was 53,28. From the control class, the increase between the pretest and posttest scores was 8.75. The experimental class saw a 15,5% gain in scores between the pretest and posttest. This indicates that compared to the control class, the experimental class saw a greater average growth in the level of students.

Table 1. The Results of Pretest and Posttest Analysis of Ability Student's Critical Thinking

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest control	32	20	70	44.53	11.170
Posttest control	32	35	70	53.28	11.751
Pretest Exserimen	32	20	70	45.31	11.067
Posttest Exsperimen	32	35	80	60.31	10.772
Valid N (listwise)	32				

Testing for normalcy comes next. The goal of this test is to determine whether or not the dispersed data yields regularly distributed data. IBM SPSS Statistics 26 was also used to conductthis test. The following table displays the results of a test of student's capacity for critical thought:

Table 2. Results analysis of control class and experiment class normality test

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Result of ability critical	Pretest Control	.188	32	.006	.941	32	.080
	Posttest Control	.140	32	.113	.909	32	.011

thinking	Pretest Experiment	.184	32	.007	.936	32	.056
	Posttest Experiment	.191	32	.006	.934	32	.049

a. Lilliefors Significance Correction

The critical thinking abilities of students in the control class are 0,113, which translates toa significance > 0,05, according to the results of the normalcy test from Table 2 above. The experimental class's normality test yielded a significance value of 0,06, which is greater than 0,05 in terms of significance. The analysis of the data demonstrates that the distribution of the students' thinking abilities in the control and experimental classes is typical. The results of the posttests for the control class and the experimental class were used to conduct a t-test on the databecause they were normally distributed.

The hypothesis is next tested using the outcomes of this posttest as a guide. The t-test, also known as an independent sample t-test, is used with hypothesis testing. In this study, IBM SPSS Statistics 26 was used for the t-test analysis. After the normality test revealed that the data were normally distributed, this test was conducted. This t-test is carried out as a test of the hypothesis that has been proposed in the study as a basis for making a decision, namely the comparison of t_{count} with t_{tabel} with an error level of 5% as follows.

1) If t_{count} is greater or equal to t t_{tabel} $t_{count} \geq t_{tabel}$), then the alternative hypothesis (Ha) is accepted and the proposed null hypothesis (H0) is rejected.

Table 3. Analysis of the T-test of ability student's critical thinking

Independent Samples Test										
		Levene's Test ɪr Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference e	Std. Error Difference e	Lower	Upper
Result of ability critical thinking	Equal variances assumed	.799	.375	2.659	62	.010	7.344	2.762	1.822	12.865
	Equal variancesnot assumed			2.659	60.951	.010	7.344	2.762	1.821	12.867

2) If t_{count} is less than or equal to t_{tabel} ($t_{count} \leq t_{tabel}$), then the alternative hypothesis (Ha) is disproved and the proposed null hypothesis (H0) is accepted.

The hypothesis proposed is as follows.

1) Ho: There is no correlation between the usage of scientifically based practicum video

material and students' ability to think critically.

2) Ha: There is a relationship between the usage of scientifically based practical audiovisualmaterial and students' growth in critical thinking abilities.

From this hypothesis, we can compare the value of the t-test. Consider the results of the following t-test calculations:

Thisstudy was carried out to determine the impact of using practical video media with a scientific foundation. Using video materials to educate A student must be able to complete a practicum independently if it is based on a scientific methodology. A teacher's role in this situation is limited to that of a facilitator, giving instructions on what the students should do so they can complete learning activities or practicums on their own. Media Video for Education The ability to complete practicum autonomously is a requirement for learning that is based on a scientific method. Here, a teacher's role is limited to that of a facilitator or a guide who directs what the pupils should do so they can engage in independent learning or practice.

Discussion

According to the study's findings, SMP Negeri 4 Satu Atap Barusjahe pupils' increased use of critical thinking was a result of learning through video media practicum based on a scientific method. Students can benefit from direct learning through the use of video lab media that is based on a scientific methodology. Students can also perform practica by the practica in the video using the practicum media based on this methodology, making the learning environment more productive and enabling the achievement of learning objectives (Chaaban & Sawalhi, 2023). Dale's cone states that direct experience will provide pupils with the mostthorough and significant impression in absorbing the information contained in the event itself, directly involving the senses of sight, hearing, touch, and taste.

Media in the form of video is one form of media that can be used in the learning process (Sudarsana et al., 2019); (Kristiani & Pradnyadewi, 2021). Avideo is a technological tool for capturing, recording, processing, storing, moving, and reconstructing still image sequences and presenting scenes in motion electronically (Blinder et al., 2019); (Abdulrahaman et al., 2020); (Haleem et al., 2022), By viewing video recordings, it will be easier for students to understand something. To improve one's critical thinking skills, one can also use learning media such as video media. This can be seen from the results of Siti's research, that natural knowledge of audiovisual media can help pupils develop their critical thinking abilities. This is also in linewith the results of the research (Fardani et al., 2019); (Yusuf et al., 2022); (Marpanaji et al., 2018); (Lampropoulos et al., 2021); (Singh et al., 2021), stating that using video media improves students' critical thinking skills, and provides a positive response to learning. Likewise, (Meyers et al., 2013); (Anggito et al., 2021), Students' critical thinking abilities can be improved by employing movies in science instruction.

Conclusion

Based on the study's findings, it can be said that students' critical thinking abilities in the experimental class are influenced by the use of practical video media based on a scientific approach. The average post-test scores used to evaluate students' learning activities make this clear. Following treatment with practical video material based on a scientific approach, the average value of the capacity to think critically in the experimental class grew by 15 or 25,6%. According to the t-test analysis, the findings are t_{count}(2,659) > t_{table}(1,677) with a significant difference (0,375).

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