

The Video Learning Based On Local Wisdom And Students Critical Thinking

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Abstract :Video learning of science is a useful tool to give the concept of thinking to students in real terms. By taking a comprehensive learning video, the learning process in the classroom will be easier and interesting and able to bring students closer to the real phenomenon in nature. So that, it will facilitate the understanding of the material and critical power of students to maintain and preserve the natural surroundings. This research is Research & Development (R & D) which test and produce a video of contextual learning based on local wisdom of Java. The analysis of this study is using N-gain test, so it could be known how big the value of the increase in the students' critical thinking. As a result, video learning based on local wisdom has proven to be effective in improving students' thinking ability. Based on these five critical thinking indicators; (a simple explanation, building basic skills, conclusions, making further explanations, strategies and tactics), resulted the average score of pretest is 114 and posttest is 275, the index of N-gain is 0.77 with high category. So it can be concluded that the video learning of science based on local wisdom is significantly able to improve students critical thinking skills.

Index Terms: Effectiveness, Video Learning of Science, Local Wisdom, Student Critical Thinking

1. INTRODUCTION

Science Lesson emphasizes direct, contextual and prioritizes student activeness, whereas teachers only act as facilitators (Puskur, 2007). Teachers in addition to using methods that are relevant to the teaching material should be capable of using instructional media (Arsyad, 2008). Based on research (Rahayu, 2015), the ability of a teacher in teaching that is supported by relevant methods related to teaching materials and accompanied by learning media can improve students' understanding of the content and meaning, so that the teaching materials delivered by teachers can be absorbed by the students perfectly. The use of instructional media aims to make the material delivered more clear and not biased when accepted by students. Thus, students are expected to be able to accept and absorb easily and well the messages in the material presented. Learning media that makes students not only able to see or listen but can see as well as listen to something that is visualized video media (Sukiman, 2012). The video media used in the teaching and learning process has many benefits and advantages, such as natural substitute videos and can be viewed repeatedly, and increase the curiosity of students (Arsyad, 2008). Based on the results of research conducted (Siti Aminah et. al., 2017) the benefits of video media in science learning can improve students' critical thinking. This can happen because by using video media the student can become more eager to learn, his curiosity is strong, able to analyze what he is looking at, able to describe the conditions in the matter being discussed, able to explicitly state the conditions and intentions being discussed. The 2013 Indonesia curriculum requires science learning in junior high schools to be conducted using a scientific approach to foster thinking, working, and being scientific and communicating as an important aspect of life skills (The Ministry of Education, 2016). Rotherdam & Willingham (2009) argue that a person's success depends on 21st-century skills covering critical

thinking, problem-solving, communication and collaboration. So students need to be equipped with these abilities to face the challenges of the 21st century. The science lesson should provide a learning experience that develops critical thinking skills, plans and conducts scientific investigations, using the knowledge already learned to understand the natural phenomena that occur around it. The problem contained in one student's learning science tend to be passive and less develop the capacity of its critical (Trowbridge and Bybee, 1990). This is supported by the results of Egege and Kutieleh (2004) studies which show that most ASIA students are less able to be critical. In addition, the results of Suherman (2004) study also shows that learning in Indonesia is less fostering students' critical thinking skills. The ability to think critically will deal directly with the students' ability to solve problems (Mc Dermott, 1975). The statement is also supported by the results of research Rofiah et. al. (2013) which states that critical thinking is an effort in determining decisions and solving problems in new situations. So it is very important ability of students to think critically about junior high school students one of them learning science. Based on the problems faced requires teachers to be more professional in teaching because the key to success in the learning process is determined by professional teachers. Teachers can use video media to solve the problem because video media can improve students' critical thinking skills. Referring to the explanation that has been elaborated, then the teacher should be able to develop the video media so that the learning process that takes place becomes more interesting, fun, and able to improve students' critical thinking skills. Coupled with the various local wisdom that is around us, be it stories and also actions that are hereditary to the culture of society, will add learning more interesting, fun, and foster the ability to think critically. Critical thinking is an attitude that tends to consider and think of an issue arising from experience (Fisher, 2009). Facione 1990 sorts critical thinking in several stages: interpretation, analysis, evaluation, inference, explanation, self-regulation. On Essentially Ennis's critical thinking skills are developed into indicators of critical thinking skills consisting of five major groups, namely: 1. Provide a simple explanation; 2. Building basic skills; 3. Summing up; 4. Provide further explanation; 5. Setting strategies and tactics (Fisher, 2009). The indicator of critical thinking skills is described again becoming a sub-

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critical thinking skill by Ennis (1985). The indicators are listed in table 1 below:

Table 1. Aspects of Critical Thinking Skills with Video

No.	Indicators Skills Critical Thinking	Sub Skills Critical Thinking
1.	Provide Explanation	Simple 1. Focus question 2. Analyzing the arguments 3. Ask and answer questions
2.	Build Basic Skills	1. Consider the credibility of (criteria) a source 2. Observe and consider the results of observation
3.	Conclude	1. Make deductions and consider the results of the induction 2. Make the induction and consider the results of induction 3. Create and determine the results of consideration
4.	Make explanation	further 1. Define the term and consider a definition 2. Identify assumptions
5.	Set up a strategy and tactics	1. Decide on a course of action 2. Interacting with others

Source: Facione (2011)

To assess whether a person is a good critical thinker or a not good critical thinker, can be seen from the skill of interpreting, analyze, evaluate and conclude, explain what he thinks and make decisions, apply the power of critical thinking to himself, and improving the ability to think critically of the opinion (Facione, 2011).

1. Material and Methods

This research is Research & Development (R&D) with model of making of instructional media applied in learning at school which aim to improve students critical thinking ability. To know the level of students critical thinking ability, it is done pretest and posttest. After the increase of pretest and posttest value. Further analysis using N-gain test so it can know the value of improvements. N-gain determining step is by calculates a score gain its normalized formula:

$$g = \frac{\% post - \% pre}{100 - \% pre}$$

Categorize the average N-gain score according to the following table:

Table 2. Categories of N-gain Scores

No	The gain score is normalized	Category
1	$g \geq 0,7$	High
2	$0,3 < g \leq 0,7$	Medium
3	$g < 0,3$	Low

Source: Hake (2015)

2. Result

The students critical thinking ability in the environmental material is done by giving the test a description based on Ennis's theory, the indicators used in accordance with the indicator of critical thinking ability according to Ennis (1985). The following indicators of critical thinking according to Ennis (1985) is to provide a simple explanation, build basic skills, conclude, provide further explanation, and set strategies and tactics. Video based on the local wisdom of effective environmental material is known based on the improvement of students critical thinking ability as measured by pretest and posttest values and analyzed through the normalized gain. The N-gain index with "moderate" to "high" criteria becomes an indicator of effectiveness. The pretest and posttest results in the learning experiment can be seen in table 3 below:

Table 3. Recapitulation of Pretest and Posttest Score

No.	Indicators of Student Critical Thinking	Total score		N-gain	Criteria
		Pretest	Posttest		
1	Provide a simple explanation	133	283	0.79	High
2	Build basic skills	84	265	0.75	High
3	Conclusion	128	277	0.76	High
4	Make further explanation	78	254	0.72	High
5	Strategies and tactics	146	298	0.85	High

Source: Research data processed (2018)

In the form of drawing diagrams, can be explained by the increase in pretest and posttest score are as follows:

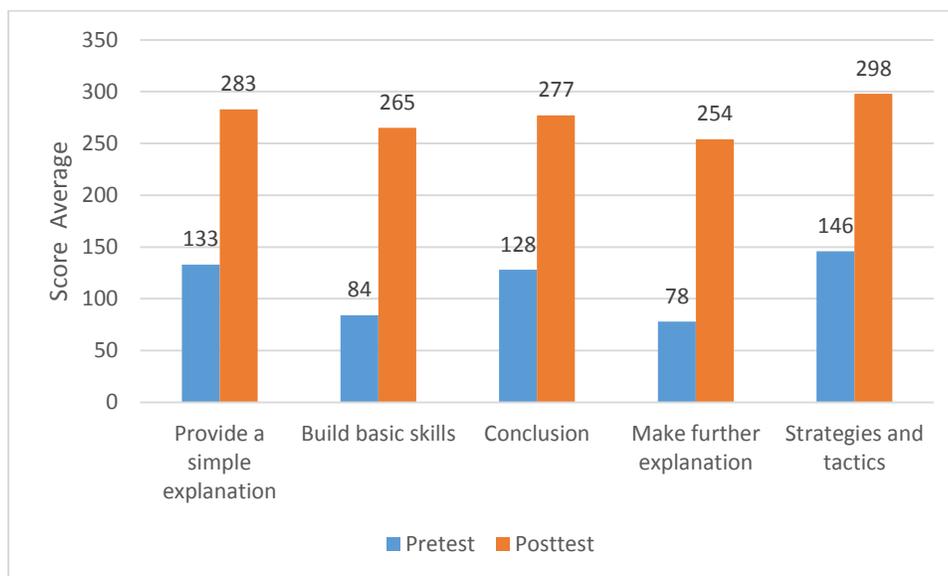


Figure 1. Average Pretest and Posttest score on Learning Trials
Source: Research data processed (2018)

Students with high critical thinking ability are logically and clearly able to describe the given problem, able to understand the purpose of the problem, able to write down the concept relationships used in the problem, and able to make the conclusions appropriately. So that students are able to solve problems by fulfilling the critical thinking indicator according to Ennis (1985). It is reinforced by Facione (2011) that critical thinking is an orderly intellectual process which actively and skillfully conceptualizes, implements analyzes, synthesizes, evaluates information obtained by observation, experience, reflection, reasoning, or communicates as to believe and what to do. In addition, critical thinking is also an inseparable part of education and critical thinking is a very important cognitive ability and schools are constantly working to improve it. So that with students able to think critically will be able to solve problems effectively especially related to the environment.

3. DISCUSSION

Video media based on the local wisdom of environmentally effective material is analyzed using N-gain based on data of pretest and posttest results on the trial of 36 students. Learning on trial was conducted as many as three meetings guided by the teacher and observed by the observer. Learning using student centre learning with lecture method, discussion, question and answer and presentation. The results indicate that video media based on local wisdom environmental material proved effective to improve critical thinking ability. A large-scale trial begins with a pretest to determine students early abilities. Furthermore, learning is done by using video media based on the local wisdom of environmental material. At the beginning of the meeting, the teacher explains the concept of the ecosystem and invites the students to ask, not only that, the teachers also form groups. The next stage the teacher asks the students to focus and pay attention to the video. At this stage, the playback of the learning video will be done by the teacher, so the student's attention should not be split on the other. The next stage the teacher distributes the student exercise

sheet containing the issues in the video that needs to be discussed. The next stage, the teacher shows the video, with occasional emphasis on the video being aired. It is intended so that students better understand the video content. The teacher discusses the student exercise sheet by appointing the group or inviting the group to answer. The pretest and posttest results for five critical thinking indicators in detail show significant increase rates. In the indicator provides a simple explanation of pretest results have a score of 133 while the posttest is 283. Of the total score, it is analyzed with N-gain an increase of 0.79 can be categorized as high. The same is true of the basic skills building indicator, the pretest result has a score of 84 while the posttest is 265. Of the total score, it is analyzed with N-gain an increase of 0.75 can be categorized as high. In the conclusion indicator, the pretest result has a score of 128 while the posttest is 277. Of the total scores, it is analyzed by N-gain an increase of 0.76 that can be categorized as high. In the indicator making a further explanation, the pretest result has a score of 78 while the posttest is 254. Of the total score, it is analyzed with N-gain an increase of 0.72 can be categorized as high. Finally, on the indicators of strategy and tactics, the pretest results have a score of 146 while the posttest is 298. Of the total scores, it is analyzed by N-gain an increase of 0.85 can be categorized as high. From these results, the video media based on the local wisdom of environmental materials proved effective for use on a big class scale. This result corroborates the findings (Aminah et. al., 2017) which states that the benefits of video media on science learning one can improve students' critical thinking. This can happen because by using video media, the student can become more eager to learn, his curiosity is strong, able to analyze what he is looking at, able to describe the conditions in the matter being discussed, able to explicitly state the conditions and intentions being discussed. Under different conditions, the findings of this study have broken previous findings from Egege and Kutieleh (2004) which show that most ASIA students are less able to be critical. And also the findings of Suherman (2004) research also shows that learning in

Indonesia is less fostering students critical thinking skills.

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4. CONCLUSION

This research succeeded in developing video media based on the local wisdom of environmental material that is valid, practical and effective through a preliminary stage, design and development. Implementation of learning using video media based on local wisdom environmental materials can improve students' critical thinking skills. Important activities that students do in observing and analyzing the problems contained in the video in the form of providing a simple explanation, build basic skills, conclude, provide further explanation, and set the strategy and tactics. Students are very interested in learning to use video media based on local wisdom because students can know the natural events that often occur in the vicinity (Jember district).

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