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Critical Thinking Ability through Problem Based Learning in Social Studies Learning in Elementary School

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Abstract. The ability to think critically, problem to solve, communication and colaboration is a part of HOTS (High Order Thinking Skills) that students really need to possess as a preparation for facing global challenges. This study aims to determine differences in students' critical thinking skills in the experimental class that uses problem based learning and control class that use conventional approach. The research method used was a quasi-experimental design with nonequivalent control-group design. The research subjects are 40 students in class V of SDN 2 Kenanga. The experimental class of 20 students and the control class of 20 students. The instrument used was a test of critical thinking skills. Data processing techniques using the SPSS 23 software program. The results showed that there were differences in students' critical thinking abilities, the average critical thinking score of the experimental class students using problem based learning was higher than the control class with conventional approaches. So it can be concluded that social studies learning with problem based learning can improve students' critical thinking skills.

Keywords: Critical Thinking, Problem Based Learning, Social Studies Learning

INTRODUCTION ~ The development of the 21st century requires students to have competencies among others, to have critical thinking and problem solving skill, communication and collaboration skill, creativity and innovation skills, information and communications technology literacy, contextual learning skills and information and media literacy skills (BSNP, 2010). As said by Paige (2009:67) that 21st century skills focus on the ability to think critically, problems solve, communicate and collaborate as part of High Order Thinking Skills. Similarly, according to Rahmayanti (in Cogan, 2007) one of the challenges of globalization in the 21st century requires that all people have characteristics, one of which has critical and systematic abilities.

The learning process is not enough just to increase knowledge, but must be equipped with the development of creative and critical thinking skills, strong character and supported by the ability to use information and communication. The ability to think critically belongs to the realm higher order thinking skills very need to be owned by students as stock in facing various kinds of challenges in era of globalization increasingly complex. This ability will accustom students a problem to solve, make decisions, and find solutions wisely to the problems faced. This is also supported by opinions At Lie (2011) Critical thinking as one of several learning skills and innovation needs to prepare students to face global challenges.

In general, the aim of Social Sciences in the Curriculum 2013 is to develop students to be sensitive to social problems that occur in society, have a positive mental attitude towards the improvement of all inequalities that occur, and to be skilled in handling any problems that occur daily both those that afflict him and those who

afflict society. Basically, the purpose of social studies learning to be achieved by teachers is to equip students to be able to think critically so as to increase interest in learning, understanding, and learning achievement. But in reality, not all students have the ability to critical thinking, as explained by Santrock (2011) only a few schools actually teach students to develop critical thinking skills. In the process of learning at school it is usually only spent on teaching students then giving the correct answer, in schools more students take for granted the material given by the teacher. In other words, students who do not have the ability to think critically will easily believe in everything that is conveyed by others including teachers without considering their critical thinking skills.

Seeing the current condition of the world of education really needs a capable and critical successor to the younger generation, students are not only required to complete assignments, or get good grades, but students are also required to have critical thinking skills. Therefore we need a learning model that is oriented towards students, so that they are able to develop the ability to think critically and solve problems encountered in daily life. Problem based learning is one of the learning models that can be applied to students' ability in problem solving and build students' motivation (Aweke, 2017). Problem based learning can improve elementary school student achievement (Zejnilage, 2015). Problem based learning is suitable and useful in learning and can learning in the curriculum 2013 because it can encourage students to think critically, problem solving skills, connect knowledge about problems, and issues.

Problem based learning in Indonesian known as problem-based learning is one form of model developed from constructivism learning theory Piaget dan Vygotsky. constructivism emphasizes knowledge as a result of human construction through their interactions with objects, phenomena, experiences, and their environment (Triatno, 2007). This learning will be able to shape higher order thinking and improve the ability of students to think critically (Ridwan, 2014). In line with Daryatno's opinion (2014) problem based learning can develop higher-order thinking skills, because through problem-based learning students learn to solve problems in the real world in a structured way to construct students' knowledge.

Problem based learning is a learning model that is based on problems as a starting point for gaining or integrating new knowledge (Savery & Duffy,1995). Fadate et al (2014) state that the problem based learning is one of the modern model of teaching that allows each learner to construct his/her own schema. Problem based learning can improve

improve students' critical thinking skills (Mairas, 2016).

This study aims to determine the differences in critical thinking skills between students who learn to use problem based

learning learning models and students who learn to use conventional learning in social studies learning.

METHOD

This study uses a quasi experiment method and uses descriptive statistics by comparing statistical figures between control variables and experimental variables (Sukmadinata, 2013). The design of this study is nonequivalent groups pretest-posttest. According to Creswell (2012), research can apply the pretest and posttest design when using quasi experiments as a method. The research subjects are 40 students in class V of SDN 2 Kenanga, Cirebon. The sampling technique used was purposive sampling technique. The class is divided into two groups. Class V A as an experimental group was 20 students and class V B as a control group was 20 students. The students in the experimental class learn to use the problem based learning model while the control class uses conventional learning. The instrument used was a test of critical thinking skills. Data processing techniques using the SPSS 23 software program include normality test, t-test and normalized gain. N-Gain is used to determine the improvement of students' critical thinking skills.

RESULT

In this study, the measured ability was the critical thinking ability of the experimental class and the control class. The research began by carrying out the pretest then posttest after receiving treatment, and n gain. Data processing tests on critical thinking skills such as pretest, posttest and gain use descriptive statistics to determine the average value, standard deviation and variance. The results of data processing can be seen in table 1.

Table 1 Descriptive Data

Data	Class	N	*Max Score*	*Highest Score*	*Lowest Score*	*Mean*	*Standar Deviasi*	*Varians*
Pretest	Experimental	20	16	4	0	1,55	1,15	1,31
	Control	20		4	0	1,60	1,19	1,41
Postest	Experimental	20	16	10	2	6,60	2,26	5,10
	Control	20		11	1	6,05	2,89	8,33

Based on table 1, it can be seen the average pretest score of the experimental class's critical thinking skills is 1.55 and the control class is 1.60. This means that the critical thinking skills of the experimental class and control class students are not much different even though the average pretest score in the experimental class is lower than the control class. So are with the standard deviation of the pretest score, the critical thinking ability of the experimental class and the control class did not show a large enough difference, it means that the data distribution of critical thinking skills in the experimental class and the control class is relatively the same.

After the two groups are given treatment, namely the experimental group through learning model based problem learning while the control group through conventional learning, the average critical thinking ability of students in the experimental class is higher than the control class.

Normality test was carried out using SPSS 23 kolmogorov-Smirnov which showed sig.0,446> 0.05. Because the significance value is greater than the significance level a = 0.05, H_0 is accepted. This means that the data meets the normality and homogeneity prerequisite tests. Then proceed to t-test used to prove the research hypothesis.

Table 2 Independent Simple Test

t-test for Equality of Means			Conclusion	Information
T	*Df*	Sig. (2-tailed)		
2,39	38	0,026	Rejected H_0	There is a difference

Based on table 2, the results of t tests that have been carried out, obtained Sig. (2-tailed) posttest critical thinking skills of 0, 026, which is smaller than a (a = 0.05). So the conclusion H0 is rejected, meaning that there is a significant difference between the average posttest data on the critical thinking ability of the experimental class students and the control class students, or in other words the critical thinking ability of students who learn through problem based learning is better than students who learn through conventional learning.

Table 3 Result N Gain

Data	Class	N	*Max Score*	*Highest Score*	*Lowest Score*	*Mean*	*Standar Deviasi*	*Varians*
Gain	Experimental	20	1	0,90	0,18	0,49	0,17	0,03
	Control	20		0,75	0,08	0,43	0,21	0,04

Increased critical thinking skills are very significant in the experimental class that uses a model of problem based learning (see table 1). The experimental class has a higher average than the control class that uses conventional learning. Also supported by an increase in N-gain results in the experimental class is 0.49 while the control class is 0.43 (see table 3), the score obtained according to Hake (1999) is in the medium category. This shows an increase in students' critical thinking skills in the experimental class after learning using problem based learning.

DISCUSSION

Based on the results of the study showed that the critical thinking skills of students whose learning uses problem based learning is better than students who learn using conventional learning. This is influenced by several factors including the

problem based learning model can build their own knowledge, so they do not easily forget the things they have gained. This is consistent with constructive theory which states that students must find and change complex information themselves, examine new information with old rules and revise them if they are no longer appropriate (Trianto, 2013). The level of student involvement is more due to problem based lerning placing students in the real world, context of problem solving (Zejnilagic-Hajric, 2015). Studies have revealed that problem based learning has a positive effect on the development of higher-order thinking skills in certain groups of students [Mergendoller, 2015]. An experimental study of 76 teachers who used problem based learning in their classrooms revealed that, compared to the control group of students in conventional classes, their students scored higher on standardized tests, as well as ability tests that measured problem solving skills and application of content to real world problems (Finkelstein,2010).

In addition, the implementation of the PBL model in learning activities also provides opportunities for students to collaborate with other groups in conducting investigations, so as to develop learning processes and social skills. This is in line with the results of research from Akinoglu & Tandogan (2007) which states that PBL requires group collaboration and allows students to think and exchange opinions with their friends. Learning theory by Vygotsky believes that social interaction with friends can stimulate the formation of new ideas and enrich the students intellectual development (Rusman,2012). Exchange of information between students can build new knowledge so students can better understand the learning material being studied. Students are also given the opportunity to interact with their friends and to make new friends through collaborative projects. Ajai, Imoko, & O'kwu (2013) also added that PBL fosters collaborative groups where students can compare and evaluate their understanding of subject matter with other understanding so as to improve their achievement.

CONCLUSION

Based on the results and discussion of the study, it can be concluded that the Problem based learning model can improve students' critical thinking skills in social studies learning in class V SDN 2 Kenanga. This is evidenced from the difference in the average score of critical thinking skills, N-Gain scores from the experimental class that are higher than the control class. In addition, there is a difference between students' critical thinking skills in the experimental class and the control class, the experimental class is higher than the control class.

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