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The Effectiveness of a Problem-Based Learning Model Based on Banten Culture in Improving the Critical Thinking Skills of Social Sciences Class VI Students at Elementary School 1 Rangkasbitung Timur

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***Abstract*— Critical thinking skills are one of the important abilities today, so the teacher's role is needed during the learning process to be able to provide stimulus by using creative and innovative learning models. Thus, this research aims to determine: 1) the level of effectiveness of the Banten culture-based problem-based learning model in improving the social studies critical thinking skills of grade VI students at elementary school 1 Rangkasbitung Timur. 2) determine the increase in social studies critical thinking skills of grade VI students at elementary school 1 Rangkasbitung Timur after using a problem-based learning model based on Banten culture. This research employes a quasi-experimental design with a sampling technique using saturated samples. The research instrument used was a test instrument in the form of essay questions with a total of 8 questions. The results of the Gregory content validity test are worth 1, which means the question is very valid and the results of the Cronbach alpha reliability test are 0.688 > 0.60, which indicate that the questions are reliable. The data analysis techniques used are initial prerequisite testing and hypothesis testing. The results obtained in this research are as follows: 1) based on the independent t-test, namely 0.000 < 0.05, which means Ho is rejected and Ha is accepted so it can be concluded that the Banten culture-based problem-based learning model is effective in improving students' social studies critical thinking skills class VI at elementary school 1 Rangkasbitung Timur. 2) based on the results of the paired t-test, namely 0.000<0.05, which means that there is an increase in the social studies critical thinking skills of class VI students at elementary school 1 Rangkasbitung Timur after using the problem-based learning model based on Banten culture, it is also strengthened with the results of the N-gain test analysis of 0.3294 with an increase in the medium category.**

Keywords— ***Problem-Based Learning Model; Banten Culture; Critical Thinking Skills; Social Studies Learning***

I. INTRODUCTION

Indonesia, as a multicultural nation rich in customs, ethnicities, religions, and cultures, boasts an abundance of cultural heritage. Banten is one of Indonesia's provinces renowned for its historical and cultural treasures that deserve preservation. These include the Banten Girang site, Surosowan Fort, Kaibon Palace, Ki Amuk Cannon, Watu Gigilang, Banten Grand Mosque, Tasikardi Site, and Speelwijk Fort. Additionally, Banten is known for its vibrant socio-cultural life, home to around 522 indigenous community groups unified under the Kasepuhan Banten Kidul tradition. "Kasepuhan" refers to esteemed figures representing enduring Sundanese customs, while "Kidul" means south, denoting communities residing in Lebak regency. However, the research conducted by Hizmiakanza & Rahmawati (2019) the old Banten area has been converted into a slum area and the development of the informal commercial sector around the area, in addition to the imbalance of the main function of Surosowan Fort and

Speelwijk Fort which are used as football match areas by the surrounding community and the emergence of several traders around the cultural heritage area. For this reason, an appropriate strategy is needed to solve these problems.

Myriad of the studies conducted deal with the implementation of PBL in the teaching and learning process. However, it is very scant that the study addressed the use of PBL combined with local cultures to teach social science to improve students' critical thinking at the elementary school level. For this reason, the writer conducted this study to fill this research niche.

In the educational context, critical thinking skills are skills that should be mastered by students, especially elementary school students in interpreting various knowledge they have as an effort to process it to provide a solution to a real event. 21st century skills are divided into three categories, namely basic literacy, competency, and character quality categories that need to be possessed at elementary and secondary education levels. In the competency category, several skills need to be mastered by students, including critical thinking skills, creativity skills, communication fluency, and collaboration skills.

Critical thinking skills have an important purpose for students so that students are encouraged to generate ideas and convey their views on a problem through consideration by finding evidence, relevant information, and an appropriate framework for thinking as a form of decision in solving a meaningful problem (Yampap, U., 2022; Risnawati, A., et al., 2022; Andriani & Anwar., 2023).

Based on the results of 'Programme for International Student Assessment (PISA) 2022' which was released on December 5, 2023, reported through the website of the Ministry of Education, Culture, Research, and Technology of Indonesia in the press release explained that Indonesia experienced an increase in position of 5-6 positions compared to 2018, but this increase in position cannot be considered satisfactory because in reality Indonesia also experienced a decrease of 12 points which indicates that Indonesia's literacy, numeracy, and science scores are included in the low category. Therefore, based on these conditions, teachers' sincerity and consistency are needed in providing a meaningful learning process for students, especially in encouraging students to manage their critical thinking skills, because the PISA assessment is not only to determine students' ability to express knowledge again but students are also assessed to carry out an analysis process based on the knowledge they have which will then be implemented in every activity carried out by students.

This is also reinforced regarding the level of students' critical thinking skills, especially in social studies learning, based on Syahlan's statements and research., I (2023) that in Social science learning process there are still problems that are often encountered, including the low level of students' critical thinking skills because teachers only assign students to fill in questions without any meaningful activities, which has an impact on the low level of students' problem solving, students are also less involved and enthusiastic during the learning process due to the low level of students' interest in reading and the lack of students' interest in looking for complete sources of information, whether from books or the internet.

To realize the level of critical thinking skills of students who are qualified in the learning process, the role of the teacher is very important as the main facilitator in the classroom. Learning that can form 21st century skills in students should be learning that focuses on students, includes collaborative activities among peers, and learning that is related to the surrounding environment (Mayasari, Kadarohman, Risdiana, dan Kaniawati, 2016). It is also strengthened based on the statement from Komalasari, I., Ridwan, I.R., dan Alfarisa, F (2020) that the thing that teachers need to pay attention to to help improve students' critical thinking skills in class is by using the right method. Therefore, the use of active, creative, innovative, and appropriate learning models will support teachers in achieving learning achievement targets.

'Problem-based learning (PBL)' model is a learning model that emphasizes problem-solving where students are given an initial orientation regarding a phenomenon or event in the surrounding environment that requires student participation and roles to provide a way out of a problem by formulating various explanations and instructions that can support the resolution of the problem and presenting it for later consideration (Saputri, 2020). This view is also strengthened based on the results of Anugraheni's research, (2018) who in her research explained that the use of problem-based learning models can increase the critical thinking skills of elementary school students. The learning process with the implementation of the problem-based learning model has a significant impact in the classroom because it opens up opportunities for students to play an active role in expressing their opinions through a high-level thinking process in finding a solution to a problem in a real-world situation based on the knowledge they have learned (Fitriyanti, et al, 2020; Eskris, Y, 2021; Dewi, V, 2023). Therefore, the problem-based learning model is considered appropriate in helping to improve the critical thinking skills of elementary school students.

The problem-based learning model can also be integrated into learning processes that contain elements of cultural values or cultural heritage as a meaningful learning resource. In a similar vein Rosidi (2017) that the learning process by integrating cultural values can provide interpretation to students in establishing and having character under cultural norms and values, in addition, students will also have full awareness to maintain and preserve local culture in their surroundings. Culture is a very appropriate medium for stimulating students to implement understanding, play an active role, and make conclusions in an integrated manner (Laksana, 2021). Therefore, culture-based learning is expected to be able to provide in-depth reinforcement so that students are trained to think at a high level. This is reinforced based on the opinion according to Azis, Dharin, and Waseso (2020:73) that the sociocultural approach is intended to;

a) Provide stimulation to students to involve themselves and interpret problems as early as possible so that at the

initiation stage in learning activities it will be easier for students to find out about sociocultural issues that are factual and in line with the subject matter, so that students will have the courage to express what they know the material being learned.

b) Create a pleasant learning atmosphere for students as a bridge to obtain new, more comprehensive explanations and insights, making it easier for students to understand socio-cultural issues in society that are related to the material.

c) Then the students will be enthusiastic in responding and asking the teacher regarding socio-cultural problems.

Based on the notions above, critical thinking skills are not limited to just one particular subject, but can also be applied and developed in other subject matter. This statement is in line with the opinion stated by Indra, N., et al, (2022) which explains that all subject teachers need to teach students to be able to think critically in detail with the aim that in the future students will implement their critical thinking skills in daily activities starting from building rational reasons, making considerations, and deciding on a way out to building solutions. The teaching process with the implementation of the problem-based learning model can be integrated through cultural problems that are close to the student's environment, making it easier for students to manage information and identify problems. Widyastuti, M (2021) culture is an element in human life that is interconnected with all activities, so that almost all human activities are tied to cultural elements. Thus, it requires persistence and seriousness from teachers while teaching students to implement a careful learning model and be committed to encouraging the development and improvement of students' critical thinking skills.

II. METHOD

The method used in this study is the experimental research method. Experimental research is research that aims to find a comparison between two variables, where in this study there are two research groups, namely one group is given treatment, and the other group is not given treatment or is usually called the control class (Ismail, F., 2018). Both groups were given a pre-test and post-test through a cognitive test in the form of the same questions, this condition aims to find differences in the improvement of students' critical thinking skills between classes that are given treatment with the implementation of the Banten culture-based problem-based learning model and the control class that applies the conventional learning model. This study uses a quasi-experimental design with a non-equivalent group pretest-posttest design where groups or classes are not selected randomly.

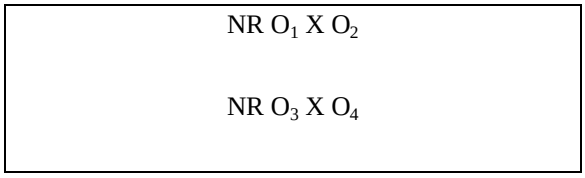

Figure 1. Non-equivalent group pretest-posttest design

Notes :

NR1: experimental class pre-determined without random selection.

NR2: The control class is decided without any choice randomly.

O1 & O2: *Pretest-posttest in experimental class after the treatment*

O3 & O4: Pretest-posttest in control class after treatment

X: The treatment given is a problem-based learning model based on Banten culture.

Source: (Jakni, 2016)

The population and sample of this study were all sixth-grade students at SDN 1 Rangkasbitung Timur with a total of 112 students with 3 classes, namely classes A, B and C. The population is a group of research targets selected as research targets which will then function as a source of research data (Bungin. B., 2017) so it can be said that the population is a collection of research samples or research targets, whereas according to Duli, N (2019) sample is a component that has quantity and characteristics owned by the population. Therefore, it can be interpreted that the research sample is part of the population. Thus, the sampling technique in this study is a saturated sample where all populations are part of the research sample that will be used as a representative of the level of effectiveness of the Banten culture-based problem-based learning model in improving students' critical thinking skills in social studies subjects in grade VI at SDN 1 Rangkasbitung Timur.

There are two variables in this study, namely independent variable and the dependent variable.

1. The Banten culture-based problem-based learning model is a free variable or independent variable (X) in this study.
2. Students' critical thinking skills of class VII social studies as the dependent variable (Y) in this study.

In the experimental class, students were given treatment throughout the learning activities with the implementation of the Banten culture-based problem-based learning model, while the conventional learning model was implemented in the control class in the form of questions and answers. After the teaching and learning activities in both the experimental and control classes, a final post-test was given as a form of data collection regarding the improvement of students' critical thinking skills. Furthermore, the researcher made a comparison based on the results of the students' pre-test before the treatment was given and the results of the students' post-test after being given the treatment.

Then, the data set was given scores based on the indicators that have been formulated. Further, in the last stage after the data were collected, the data were then checked through the

process of testing normality, homogeneity, and hypothesis. The process applied the SPSS application for Windows version 26 and Microsoft Excel 2013 software for the next calculation results were used as a decision maker and draw conclusions.

III. RESULTS AND DISCUSSION

a. Frequency Distribution of 'Pre-test – Post-test Control Class
The frequency distribution of pre-test and post-test scores in the control class' is shown in the table below.

Table 1. The results of the pretest for the control class

Scores in pretest	frequency	$\bar{x}$	Maximal sores	Minimal scores
46 – 50	5			
51 – 55	8			
56 – 60	5	57,65	75	42
61 – 65	8			
66 – 70	1			
71 – 75	2			
	= 29			

Table 2. The results of the posttest in the control class

Scores in Posttest	frequency	$\bar{x}$	Maximal scores	Minimal scores
46 – 50	9			
51 – 55	8			
56 – 60	7			
61 – 65	3	62,89	79	54
66 – 70	1			
71 – 75	1			
	= 29			

Based on the two frequency distribution tables above, it is known that the mean in the pretest and posttest values in the control class are 57.56 and 62.89 respectively. This illustrates that there is an increase between the pretest and posttest values of the critical thinking skills of class VI students at SDN 1 Rangkasbitung Timur.

b. Frequency Distribution of Pre-test – Post-test Experimental Class
The frequency distribution of pre-test and post-test scores in the Experimental class is shown in the table below.

Table 3. The results of the pretest in the experimental class

Scores in pretest	frequency	$\bar{x}$	Maximal scores	Minimal scores
46 – 50	1			
51 – 55	4			
56 – 60	5	62,42	75	46
61 – 65	8			
66 – 70	3			
71 – 75	5			
	= 26			

Table 4. The results of the posttest for the experimental class

Scores in posttest	frequency	$\bar{x}$	Maximal scores	Minimal scores
58 – 74	12			
75 – 81	9			
82 – 88	4	74,34	100	58
89 – 95	0			
96 – 102	1			
103 - 108	0			
	= 26			

Based on the two tables above, the mean on the pretest of the experimental class is 62.42 and the mean on the posttest is 74.34. This calculation confirms that the implementation of the Banten culture-based problem-based learning model has a significant impact on the increase in critical thinking skills of IPS students in grade VI at SDN 1 Rangkasbitung Timur as seen from the results of the students' pretest and posttest. The results of the descriptive statistics of the pretest-posttest in the control-experimental class are shown in the table below.

Table 5. The results of Descriptive statistics

Group tests	N	Minimal scores	Maximal scores	Means	Standard Deviation
Pretest Control class	29	42	75	58	7,216
Posttest Control class	29	54	79	63	6,023
Pretest Experimental class	26	46	75	62	7,081
Posttest Experimental class	26	58	100	74	8,769

Source: researcher's data

Based on the table above, the results show that the experimental class has a mean pretest 'score of 62, while the control class has a mean pretest score of 58. The experimental

class has a minimum score of 46 and the control class has a minimum score of 42. The maximum score of the control class is 79, while the maximum score of the experimental class is 100'. This shows that scores in the experimental class with the Banten culture-based PBL model significantly exceeded those in the control class.

1. Effectiveness of the Banten culture-based 'problem-based learning model'.

   In the first problem formulation, it was studied whether the Banten culture-based problem-based learning model is effective in improving students' critical thinking skills in social studies. The pretest-posttest research data in the experimental class appeared to be normally distributed based on the findings of the normality test. Pretest with a sig. value of 0.133 > 0.05 and a sig. value of posttest 0.200 > 0.05. The calculation shows that the research data is normally distributed. Likewise, the results of the homogeneity test findings with a sig. value of 0.141 > 0.05, indicating that the data exhibit homogeneity of variance. Meanwhile, based on the results of the independent t-test in the experimental class which throughout the learning process applies the Banten culture-based problem-based learning model, it shows that the sig. value = 0.000 <0.05, this confirms that the null hypothesis or Ho is rejected and the alternative hypothesis or Ha is accepted.

   The findings were also strengthened by pretest data on the level of critical thinking skills of students in the experimental class which is stated with an average value of 62%, then after carrying out a stimulus in the form of implementing a Banten culture-based problem-based learning model in the social science learning process, there was an increase shown based on the mean of the posttest results of students' critical thinking skills with an average posttest value of 74%. Therefore, it can be concluded that the Banten culture-based problem-based learning model is effective in improving the critical thinking skills of social studies of grade VI students at SDN 1 Rangkasbitung Timur.

2. Improving Critical Thinking Skills After Using the Banten Culture-Based Problem-Based Learning Model.

   Based on the results of the paired t-test, the sig. value was obtained as much as '0.000 <0.05, implying rejection of the null hypothesis (Ho) and acceptance of the alternative hypothesis (Ha)'. In this case, it shows that there is an increase in the critical thinking skills of Social science students in grade VI at SDN 1 Rangkasbitung Timur after utilizing the Banten culture-based 'problem-based learning' model, which is measured by comparing the pretest and posttest values. The results of the normality test on the posttest values of the experimental class are normally distributed, as clarified by the sig. value of 0.200 > 0.05, which means that the post-test data from the experimental class are normally distributed.

   As proof of the results of students' critical thinking skills has increased, it is strengthened by the N-Gain analysis in the experimental class. Based on the mean scores in posttest assessment data of the experimental class from the N-Gain analysis test of 0.3294 which is included in the moderate N-gain score category, it can be interpreted that the increase in critical thinking skills of Social science students in grade VI at SDN 1 Rangkasbitung Timur can be seen from the pretest-posttest values experiencing a moderate increase.

IV. CONCLUSIONS

The findings of this research demonstrate that the Banten culture-based 'Problem-Based Learning (PBL)' model is an effective teaching model for enhancing students' critical thinking skills in social studies. By integrating local cultural elements into the learning process, the model successfully motivates students to actively engage in discussions, collaborate with peers, and apply higher-order thinking to solve real-world problems. However, the results of the current study cannot be used to generalize, since it was conducted at one elementary school. The writer suggests that future research should be conducted in wider areas and involve more than one school to get compressive results.

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