

# Improving Critical Thinking of Elementary School Students Using Problem-Based Learning Models

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**Abstract-** Efforts to improve the quality of education in Indonesia at this time are unceasingly continued by education experts. Based on learning outcomes data obtained by fourth grade Elementary School student of Sawunggaling VIII / 389 in Surabaya City through the application of Problem-based learning models in social studies learning has increased. Classical learning completeness of students has increased by 14.74%. In addition, the development of student learning outcomes on the affective and cognitive aspects also increased. The type of research used in this research is Classroom Action Research. This study uses a qualitative and quantitative descriptive method with research procedures including (1) action planning, (2) implementation of actions, (3) observation and evaluation, (4) analysis and reflection. The activities of teachers and students during the implementation of the contextual learning model in social studies learning have increased. This is indicated by the percentage of students' critical abilities in the first cycle of 67.95% and there was an increase in the second cycle of 82.69%. Based on these results, it can be concluded that the application of the problem-based learning model can improve students' critical thinking skills in elementary schools.

**Keyword:** problem-based learning, critical thinking

## I. INTRODUCTION

Schools have a very important role in developing creativity and forming students' personalities. The main purpose of learning in school is the achievement of good learning outcomes. Learning and experience is a process that can change one's attitudes, behavior and knowledge [1]. Learning is defined as behavior change caused by experience and results of individual interactions with the environment. Each individual will be required to have skills in deciding what actions to take in dealing with problems [2].

The presumption of society is in harmony with the opinion of Sardiman who says that learning is an effort to master the material of science which is one way of shaping personality [3]. Through learning since childhood, someone will get new knowledge that will change the personality for the better.

The teaching and learning process in the classroom is directed so that students are ready to face the real problems in real life. Therefore the teacher must be responsible for the learning process which is not only focused on delivering material from the teacher to students but students must be actively involved in learning to discover, construct their knowledge and be able to process complex information on themselves and be responsible for their learning outcomes.

In the current Indonesian curriculum, the authority of teachers is broader when developing the curriculum. In developing the curriculum teachers can pour it into learning tools presented with an innovative learning model. One of the innovative learning models is problem-based learning. Problem-based learning is a learning model that motivates students to solve authentic problems, independent learning, and demanding skills in groups [4]. Problem-based learning places responsibility on students to access information in order to achieve goals while the teacher only acts as a monitor [5]. The use of problem-based learning models is able to improve students' thinking skills to solve problems and their applications in everyday life [6]. In the Problem-based learning model students must be active in solving problems presented by the teacher or from the students themselves. It is expected that through PBL learning between teachers and students becomes more alive and meaningful, so students are more interested and more active in participating in learning so that learning outcomes will be more optimal.

Based on the background exposure above, so there needs to be research to study and follow up. The follow-up is to develop oriented learning devices in the problem-based learning model to improve the critical thinking skills of four-grade elementary school students.

## II. THEORETICAL FRAMEWORK

### 2.1 Problem-based learning Models

The learning approach uses problems as a basis for learning. PBL learning begins with the teacher giving a real problem and can motivate students to identify so that students' problem-solving skills can develop. Usually, teachers form groups with the aim that students can discuss with group friends and be able to solve problems and find concepts.

Problem-based learning was first introduced at McMaster University Canada in the 1960s [7]. PBL is one approach to learning by using problems as a basis for learning. PBL is a pedagogical approach that allows learning students to be actively involved in meaningful problems. Students get the opportunity to solve problems in collaborative settings, form mental models for learning, as well as self-directed forms. PBL as a pedagogical approach uses cases and problems as a starting point for achieving learning goals. With Problem-based learning students learn to build many skills such as working in small groups to find solutions to problems and conduct research to communicate their ideas. In addition, PBL is a learning process based on problems in real life and then students are stimulated to acquire new knowledge from the basis of the knowledge they already have. PBL is an approach that empowers students to conduct research, integrates theory and practice, applies knowledge and skills to develop a defined problem. A training strategy for students to work together in groups and be responsible for professional problem-solving.

From the definition above, it can be said that PBL is a learning approach by using real problems as the beginning of the learning process so as to provide opportunities for students to discuss, submit opinions, make investigations and demonstrate solutions to problems that have been made.

### 2.2 Critical Thinking

One of the aims of school is to improve students' ability to think critically so that they can make rational decisions about something that must be done or must be believed. Critical thinking is a process of intellectual thinking where thinkers deliberately assess the quality of their thinking, thinkers use independent, reflective, clear, and rational thinking [8]. In critical thinking, a person does reflective thinking, productive, and self-evaluation.

Critical thinking is reasoned and reflective thinking by emphasizing the making of a decision about what to believe and do [9]. Critical thinking can also be interpreted as mental processes, strategies, and representations used by humans in solving problems, making decisions and learning new concepts. Another definition of critical thinking is the intellectual process in creating concepts, applying, analyzing, synthesizing, and evaluating information obtained from the results of experience, observation, and reflection.

From some expert opinions above it can be concluded that critical thinking is a thinking skill that uses all of his thoughts in order to weigh and decide a decision to be able to solve problems in daily life.

The purpose of critical thinking is to test an opinion or idea, including taking into consideration or thinking based on the opinions proposed, these considerations are usually supported by criteria that can be justified [10].

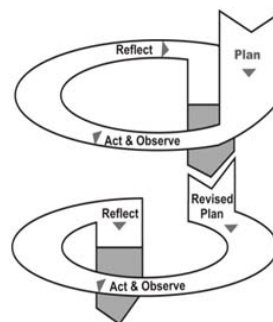
Based on the explanation of the objectives of the thinking skills, it is concluded that the purpose of critical thinking skills is to achieve a deep understanding of a matter that is examined through a series of directed and clear processes.

## III. METHOD

This research is a classroom action research which aims to explain the effect of problem-based learning models to improve students' critical thinking skills in elementary schools. The critical thinking indicators discussed in this study are (1) identifying problems, (2) determining the cause of the problem, (3) determining the consequences of the problem, (4) determining the solution to the problem. The subjects of this study were 39 fourth grade students of Sawunggaling VIII State Elementary School, Surabaya, East Java, Indonesia. This research was conducted from September to November 2018.

This study uses a development research model by Kemmis & Taggart with two cycles and there are four stages in each cycle which include planning, implementation and observation, and reflection according to the figure below.

Picture 1. Kemmis & Taggart Models



Data collection techniques are tests of critical thinking skills. The instrument of this research is a question sheet that is done by students

IV. RESULT AND DISCUSSION

From the results of validation by the expert stating that the syllabus, lesson plan, student worksheets to be used in the study have a good, valid and feasible category to be used in research.

After doing the learning, the students end by doing the test. The following are the results of the thinking skills test in the first cycle presented in table 1.

Table 1. The test result of Critical thinking skills in cycle I

Aspect	1 <sup>st</sup> meeting	2 <sup>nd</sup> meeting
The average value of critical thinking skills	67,25	68,65
Percentage (%)	67,25%	68,65%
Classical percentage (%)	67,95	
Criteria	Good enough	

Source: Data of test result

Based on table 1 shows that the value of students' critical thinking skills at the first meeting amounted to 67.25% and increased to 68.65% at the second meeting. While the percentage of students' critical thinking skills as a whole reached 67.95% and was in fairly good criteria. The criteria is considered to be lacking so it needs to be raised to be good or very good. For this reason, research was conducted in cycle II.

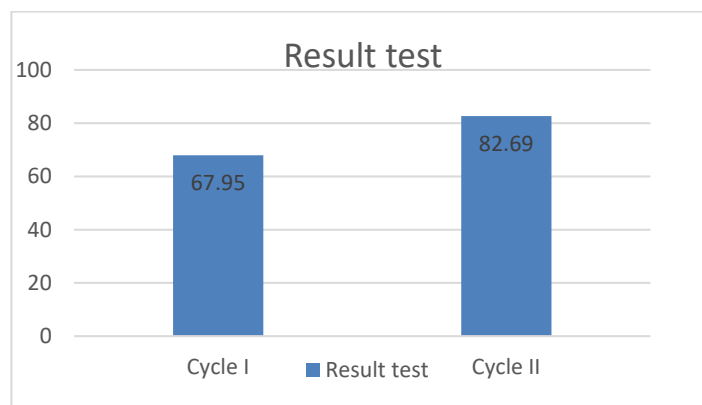
Table 2. The test result of Critical thinking skills in cycle II

Aspect	1 <sup>st</sup> meeting	2 <sup>nd</sup> meeting
The average value of critical thinking skills	81,15	84,23
Percentage (%)	81,15%	84,23%
Classical percentage (%)	82,69	
Criteria	Good	

Based on table 2 above, it can be seen that in the first meeting students' critical thinking skills obtained a percentage of 81.15%, then at the second meeting, it increased to 84.23%. From the table also shows that the average value of critical thinking skills is 82.69 with a good predicate.

Improving students' critical thinking skills between cycle I and cycle II is presented in the bar diagram below.

Diagram 1. The Comparison of students' critical thinking skills in cycles I and II



From the data in diagram 1, it can be seen that students' critical thinking skills in the first cycle were 67.95% with fairly good criteria. While the second cycle there was an increase to 82.69% with good criteria. Increasing students' critical thinking skills by 14.74%. From this data, it can be concluded that the application of a problem-based learning model can improve students' critical thinking skills on the

Indicator (1) identify problems, (2) determine the cause of the problem, (3) determine the consequences of the problem, (4) determine the solution to the problem.

## V. CONCLUSION

Based on the results of classroom action research conducted in the fourth grade of Sawunggaling VIII State Elementary School, Surabaya, East Java, Indonesia, using the application of the problem-based learning model in Social Education subjects in cultural diversity material in Indonesia was able to obtain a significant improvement in the ability aspect critical thinking of students. Improvement of students' critical thinking skills is shown by increasing the results of test questions about students' critical thinking skills in each cycle. Students' critical thinking skills in the first cycle were 67.95% with fairly good criteria and 82.69% in the second cycle with good criteria. Increasing students' critical thinking skills by applying the problem-based learning model is 14.74%.

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