The Influence of Learning Methods on Students’ Critical Thinking: A Case at Social Studies

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Abstract—The study aims to determine the effect of learning methods on social studies learning outcomes in terms of students’ critical thinking. The study was conducted in SDN Talun Subdistrict, Cirebon Regency, by using experimental research on treatment by level 2 x 2 design. The results showed that (1) Social Studies learning outcomes between groups using the Problem Based Learning method were higher than students using the Problem Solving method, (2) There is an interaction effect between learning methods with critical thinking skills on social studies learning outcomes, (3) Students who have high critical thinking skills, social studies learning outcomes using Problem Based Learning methods are higher than Problem Solving methods, (4) Students who have critical thinking skills are low, social studies learning outcomes using the Problem Based Learning method are higher than the Problem Solving method.

Keywords—PBL, PS, Results, Critical Thinking

I. INTRODUCTION

Social Studies is a study material that must be included in the basic and secondary education curriculum which includes social science in developing students' knowledge, understanding, and analytical skills towards the social conditions of the community [1]. Huriah Rachmah said Social Studies can be said to be familiar to everyone. Human social life in a pluralistic society includes aspects of social, economic, psychological, cultural, historical, geographic and political relations. Because every aspect of social life covers a broad scope, to study and study it requires specialized fields of science [2].

Objectives Social Studies is a Social Studies program for people to identify, understands and works with diverse nations and interdependence world. Over the past several decades, the professional consensus has been that such programs include goals in broad areas of knowledge, democratic value, and skills. The program that combines acquisition of knowledge and skills with the application of democratic values of life, through the present social participation ideal balance in social studies, it is essential that these major goals are viewed as equally important. The relationships among knowledge, values, and skills are one of mutual support [3][4][5][6].

In Social Studies we often see the limited learning activities of students and the very dominant role of teachers in the learning process. This results in weak learning processes and experiences and low learning outcomes. Students are only limited to memorizing without being confronted with problems to think more and act more, so learning only touching on low-level cognitive development has not developed higher-order thinking skills. The facts found in the field revealed that during the learning process the teacher-dominated the class and became the main source of knowledge, paid little attention to active activities of students, student interaction, negotiation of meaning, and construction of knowledge. Teachers also tended to use conventional learning so that learning was not effective and the teacher has difficulty in achieving the objectives of learning Social Studies. This causes low student learning outcomes in learning Social Studies, students after learning have not been able to master the concept of Social Studies learning, unable to find the concept of Social Studies because the understanding gained by students is only memorized, so students assume learning Social Studies is not interesting and boring. This phenomenon has an impact on learning outcomes of Social Studies.

Some experts explain that the importance of learning outcomes is Learning outcomes is a broad category that includes learning goals and learning objectives. Determining learning outcomes is necessary before making decisions on assessment and teaching strategies. Learning outcomes are overarching that involves how you., Your school your school district, or your state specifies what students will learn [7][8][9].

Field facts in Talun District, Cirebon Regency, there are still many students who are unable to carry out their tasks in groups and the high level of selfishness and individualism that exist in students. Students tend to work on their own learning assignments, ignoring poor friends. As a result, when given the task of learning in groups, students tend to be unable to work in groups. Thus, there will be students who feel that the learning done by the teacher is too fast, namely students who are slow in learning, on the contrary, there are other students who are quick to accept lessons that feel that the teaching done by the teacher is too slow. Students who
are slow in learning will be confused, while students who are fast in learning will feel bored.

Identified problems in Social Studies are caused by the lack of development of Social Studies learning methods which are interesting, challenging, and fun. Social Studies in order to become active learning, innovative, creative, effective and fun, it can be done in various ways. The fact is, raises the idea to design and experiment with a method of student-centered learning. The learning method in question is the Problem Based Learning method and the Problem Solving method with the ability to think critically in students.

Some experts conclude that Problem Based Learning (PBL) is a pedagogical approach that encourages those who take part in their processes to act both as supportive change agents working in collaboration with colleagues and also as individuals to use their creativity in finding solutions to practical problems. The process of questioning and finding novel solutions using the creative spirit is also challenging for those who teach and deliver PBL based curriculum, and some fundamental questions [10][11][12][13][14][15][16] [17][18][19][20][21][22][23]. This shows that the teaching method is characterized by the existence of real problems as a context for students to learn critical thinking and problem-solving skills and gain knowledge.

While the opinions of other experts convey that Problem Based Learning (PBL) is a pedagogical approach that encourages those who take part in their processes to act as supportive change agents working in collaboration with colleagues, and also as individuals to use their creativity in finding solutions to practical problems. The process of questioning and finding novel solutions using the creative spirit is also challenging for those who teach and deliver PBL based curriculum and process some fundamental questions [12][24][11][25].

In addition, some experts explain that the Problem Solving method is into a simplified method of problem-solving process, and implementing and monitoring solutions [26][14][27][28][11][29][30][31][32][33][34][35][36][37]. It was explained that it became a simple method of process solutions, including the process of building problem representations, finding solutions, and implementing and monitoring problem solving.

Supporting factors in the learning method above are influenced by students' critical thinking skills, some experts say that Critical thinking means having ask and reasoning abilities, accompanied by evidence to prove something, trying to understand the problem properly, using reliable sources and is able to consider a variety of different information to be processed, analyzed and summarized. Critical thinking means being able to consider the overall situation, the relevant reference and subject problems, looking for alternatives in developing arguments and building ideas, be open, willing to take a position, act quickly, act or the view that something is part of a complex whole, utilizing way of thinking others are critical and being sensitive to the feelings of others [37][38][39][40][41].

Based on the explanation above, it can be concluded that the results of learning Social Studies are influenced by many factors. Selection of the right learning method will affect the results of Social Studies learning because the learning method will help students understanding of learning activities which will greatly influence students' Social Studies learning outcomes. For this reason researcher studies more about learning methods by paying attention to critical thinking skills, as an innovation in the development of learning through a research study entitled the influence of learning methods on students 'Social Studies learning outcomes in terms of students' critical thinking skills in Talun District, Cirebon Regency.

A. Formulation of the problem
1. Are there differences in Social Studies learning outcomes for students who use the Problem Based Learning method and the Problem Solving method?
2. Are there interactions between learning methods and social studies learning outcomes in terms of critical thinking skills?
3. Are there differences in Social Studies learning outcomes for students who use the Problem Based Learning and Problem-Solving methods who have high critical thinking skills?
4. Are there differences in Social Studies learning outcomes for students who use Problem Based Learning and Problem-Solving methods who have low critical thinking skills?

II. Method

The method used in this research is an experiment with treatment by level 2 x 2. The dependent variable (Y) is the result of learning Social Studies as measured by Social Studies tests using an essay-shaped test, the independent variable is the Problem Based Learning (A1) method and Problem Solving (A2) and Moderator Variable, namely Critical Thinking ability (B), namely low and high critical thinking skills.

Based on the research method above, according to Donald Ary, Arief Furchan translated it as Quasi-Experiment Design [42]. This design is suitable for research for experimental research in the field of education given the controls that are in accordance with the conditions of students [43].

<table>
<thead>
<tr>
<th>Critical thinking (B)</th>
<th>Variabel Perlakuan (A)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PBL (A1)</td>
<td>PS (A2)</td>
</tr>
<tr>
<td>High Critical Thinking (B1)</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Low Critical Thinking (B2)</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

The population of this study was elementary school students in Talun District, Cirebon Regency with the sample used is the fourth-grade student of SDN 1 Cempaka as an experimental class with the treatment method Problem-Based Learning and SDN 1 Cirebon Girang as the control class with the Problem-Solving method of treatment.
III. RESULTS AND DISCUSSIONS

A. Data Description

After following the learning process using Problem Based Learning Method and Problem Solving Method, the results of Social Studies learning outcomes were obtained. Collection of data on students' Social Studies learning outcomes from each group after receiving treatment are as follows:

<table>
<thead>
<tr>
<th>Critical Thinking</th>
<th>PBL</th>
<th>PS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Max</td>
<td>Min</td>
</tr>
<tr>
<td>High</td>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td>Low</td>
<td>10</td>
<td>70</td>
</tr>
<tr>
<td>Σ</td>
<td>20</td>
<td>80</td>
</tr>
</tbody>
</table>

B. Analysis of Requirements Analysis

Collection of Social Studies learning outcomes data is analyzing data with the aim to prove the research hypothesis. before the analysis test is carried out, prerequisite test analysis is carried out which includes normality test and homogeneity test.

1) Normality and Homogeneity Test of Student Groups Using Problem Based Learning Methods and Problem Solving Methods

Social Studies learning outcomes with Problem Based Learning Method shows that it is 0.530 > 0.05; this means that the value of Social Studies learning outcomes from 20 samples of students given treatment with Problem Based Learning Method is normally distributed while the results of Social Studies learning given the Problem Solving Method treatment showed 0.236 > 0.05. This means, that the value of Social Studies learning outcomes from 20 samples of students given treatment with Problem Solving Method is normally distributed.

Social Studies learning outcomes showed that the results of the Social Studies learning outcomes homogeneity test were 40 students who were given the Problem Based Learning Method and Problem Solving Methods. A significance value of 0.475 > 0.05 is obtained which means that the value of Social Studies learning outcomes has homogeneous variance.

2) Normality Test and Homogeneity of Group Students with Problem Based Learning and Problem-Solving Methods for Students Who Have High Critical Thinking Ability

Social Studies learning outcomes show a significant value for groups of students with the treatment of Problem Based Learning Method with high critical thinking is 0.466 > 0.05, while for groups of students with the treatment of Problem Solving Method with high critical thinking significance value of 0.325 > 0.05. This explains that the two groups have data that is normally distributed.

Social Studies learning outcomes show that the significance value is 0.591 > 0.05, it means that the Social Studies learning outcomes value data from the two groups of students given treatment Method of Problem Based Learning with High Critical Thinking and Groups of Students with Problem Solving Methods with High Critical Thinking has a homogeneous variance value.

3) Test the Normality and Homogeneity of Group Students with Problem Based Learning Methods and Problem Solving Methods for Students Who Have Low Critical Thinking

Social Studies learning outcomes show that the significance value for the group of students with the treatment of Problem Based Learning Method with low critical thinking is 0.691 > 0.05, while for the group of students with the Problem Solving Method with low critical thinking significance value of 0.190 > 0.05. This explains that the two groups have data that is normally distributed.

Social Studies learning results show that the significance value is 0.282 > 0.05, it means that the Social Studies learning outcomes data from the two groups of students treated with Problem Based Learning Method with low critical thinking and groups of students with Problem Solving Methods with low critical thinking has a homogeneous variance value.

C. Hypothesis Testing

1) Social Studies Learning Outcomes that Get Higher Treatment on Problem Based Learning Methods for Students Who Get Treatment for Problem Solving Methods

Social Studies Learning Outcomes show the results of the analysis with ANOVA which shows that students who are given the Problem Based Learning Method and Problem Solving Method get the F count value of 12.84. With a significance level of 0.05 with df1 = 2 and df2 = 18, when viewed from Ftable, the value of Ftable = 3.55 is obtained. Value of Fcount = 12.84 > value of Ftable = 3.55, this means there is a rejection of H0 which means that there are differences in the value of Social Studies learning outcomes between the two groups of students who were given different learning. In addition, the acceptance of H1 means that Social Studies learning outcomes of groups of students who were treated with Problem Based Learning Method were higher than the group of students given Problem Solving Methods.

2) Interaction between Learning Methods and Critical Thinking Ability to Learn Social Studies

The interaction between learning and critical thinking on learning outcomes of Social Studies shows that through the interaction column of learning with critical thinking obtained the value of sig = 0.002 < 0.05 with a significance level of 0.05. This means that there is a significant interaction between learning used with critical thinking on learning outcomes of Social Studies.

3) Differences in Social Studies learning outcomes that get the treatment of Problem Based Learning Methods and
Problem Solving Methods for students who have high critical thinking

Social Studies learning outcomes show that the results of the analysis by t-test are that students who were treated with Problem Based Learning Methods with high critical thinking and Problem-Solving Methods with high critical thinking obtained a count of 5.04. With a significance level of 0.05 and an oversize degree of 18, when viewed in t table, it is obtained t table of 2.10.

The value of t count = 5.04 > the value of t table = 2.10, this means there is a rejection of H0 which means that there is a difference in the value of Social Studies learning outcomes between students who use different learning treatments even though they both have high critical thinking. Besides that, the acceptance of H1 means the ability of Social Studies learning outcomes that are given treatment using the Problem Based Learning Method is higher than students who use the Problem Solving Method treatment who both have high critical thinking.

4) Differences in Social Studies learning outcomes that get the treatment of Problem Based Learning Methods and Problem Solving Methods for students who have low critical thinking

Social Studies learning outcomes show that the results of the analysis by t-test are that students given treatment with Problem Based Learning Methods with low critical thinking and Problem-Solving Methods with low critical thinking obtained a t count of 1.42. With a significance level of 0.05 and a degree of magnitude 18, when viewed in t table, it is obtained t table of 2.10.

The value of t count = 1.42 < value of t table = 2.10, this means there is a rejection of H0 which means that there is a difference in the value of Social Studies learning outcomes between students who use different learning treatments even though they both have low critical thinking. Besides that, the acceptance of H1 means that Social Studies learning outcomes of students given treatment using Problem Based Learning Method are lower than students who use Problem Solving Method treatment who both have low critical thinking.

D. Discussion

1) Differences in Social Studies Learning Outcomes Between Problem Based Learning Methods and Problem Solving Methods

Based on the table of statistical test calculations discussed earlier, it can be concluded that Social Studies learning outcomes are learning using the Problem Based Learning method better than students who learn using the Problem-Solving method. In addition, learning using the Problem Based Learning method can encourage students to apply critical thinking, problem-solving skills, and knowledge about the content of real-world issues and issues. In the Problem Based Learning Method learning activities emphasize more on student-centered learning patterns. In learning using the Problem Based Learning method students are more responsible for learning themselves by placing a lot of information they need in learning.

2) Effect of Interaction Between Learning Methods and Critical Thinking Ability on Social Studies Learning Outcomes

Based on statistical analysis of students' social studies learning outcomes which are influenced by two independent variables in this study, namely, learning methods and critical thinking skills give rise to interaction effects if the treatment method is given to students who have different critical thinking abilities.

Each student has different critical thinking skills, namely students with high critical thinking skills and students with low critical thinking skills. Students who have high critical thinking skills who use the Problem Based Learning method of students will be very challenged to solve problems because each student's learning process is directed to hone their critical thinking skills. While students who have low critical thinking skills will have difficulty following the learning, therefore students who have low critical thinking skills will be better if given treatment using the Problem-Solving method. From this, it can be concluded that in the provision of appropriate learning methods must be adapted to the critical thinking skills of students who will help in improving the learning outcomes of Social Studies. This is due to the fact that each learning method has different characteristics so that it needs a match between the ability to think critically and the learning methods used.

3) Differences in Social Studies Learning Outcomes Students Who Have High Critical Thinking Ability Between Students Given the Treatment of Problem Based Learning Methods with Students Given the Treatment of Problem Solving Methods

The results of hypothesis research show that students' Social Studies learning outcomes are taught using the Problem Based Learning method with students who have high critical thinking skills, so the learning outcomes will be higher than using the Problem-Solving method.

Students with high critical thinking skills will find it easy to appreciate the opinions and reasons and ideas for solving problems because students who have this skill train to be able to behave rationally and choose the best alternative choice in determining the solution. This can be seen when students search for various information and learn together in small groups. Students enthusiastically respond to problems and provide many alternative solutions although the problem given is very complex and challenging. Students who have high critical thinking skills will consider all the tasks given by the teacher as challenges that must be faced and resolved. Therefore, students who have high critical thinking skills from Social Studies learning outcomes will be higher when using the Problem Based Learning method.

Meanwhile, for students who have high critical thinking skills given treatment using the Problem-Solving method will feel boring because the learning process is not so attention-grabbing, honing their ability to obtain information from various sources. Because of this method, all learning material is given directly by the teacher, so they are only assigned to solve problems together. This will make it difficult for students to develop their thinking.
4) Differences in Social Studies Learning Outcomes Students Who Have Low Critical Thinking Ability Between Students Given the Treatment of Problem Based Learning Methods with Students Given the Treatment of Problem Solving Methods

The results of the study show that there is an interaction between learning methods and the ability to think critically about the learning outcomes of Social Studies. This shows that the learning method has contributed to the and result of learning in Social Studies, similar to critical thinking skills also has a contribution to the learning outcomes of Social Studies. If viewed statistically, the two variables have an influence on the learning outcomes of Social Studies.

The ability to think critically according to Anggelo in Susanto is to apply rational, high-thinking activities, which include analyzing, synthesizing, identifying problems and solving them, concluding and evaluating. The ability to think critically is an ability that involves cognitive processes in analyzing, synthesizing, recognizing problems and solving them, and concluding and evaluating them.

Meanwhile for students who have low critical thinking skills are given treatment using the Problem Based Learning method will feel boring because the learning process is not so attractive. hone their ability to obtain information from various sources. Because of this method, all learning material is given directly by the teacher, so they are only assigned to solve problems together. This will make it difficult for students to develop their thinking.

IV. CONCLUSION

1. Social Studies learning outcomes between groups of students who were taught using the Problem Based Learning method higher than the group of students taught using the Problem Solving method.

2. There is an influence of interaction between learning methods with the ability to think critically on learning outcomes of Social Studies.

3. For students who have high critical thinking skills, Social Studies learning outcomes are among groups of students who are taught using the Problem Based Learning method higher than the group of students taught by the Problem Solving method.

4. For students who have low critical thinking skills, the results of learning Social Studies between groups of students who are taught using the Problem Based Learning method is lower than the group taught using the Problem Solving method.

REFERENCES


