THE EFFECT OF PROBLEM BASED LEARNING IMPLEMENTATION TOWARDS THE ELEMENTARY SCHOOL STUDENTS’ PROBLEM-SOLVING SKILL IN LEARNING SOCIAL STUDIES

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Abstract

This study aims to investigate the differences in problem-solving skills between the students in the experimental class and the students in the control class fourth-grade students while they are learning Social Studies. The method used in this study was quasi-experimental. This research was conducted in fourth grade of SDN 1 Winduhaji Kuningan with 26 students in each class. PBL model consists of 5 stages; (1) student orientation on the problem; (2) organizing students to learn; (3) guiding individual or group investigations; (4) developing and presenting the work; and (5) analyzing and evaluating the problem-solving process. While the TPS model consists of 3 stages: (1) thinking; (2) being in pairs; and (3) sharing. The instruments used in this research were problem solving tests (pre- and post-test). The results showed that there were differences in problem-solving ability between the students in the experimental class and in the control class after the treatment was given to each class both from the difference of the mean score of post-test and n-gain. Therefore, the researcher suggests the teachers to apply the PBL model in learning especially in learning Social Studies.

Keywords: Problem Based Learning, Problem-Solving Skill, Social Studies Learning

INTRODUCTION

Learning is the process of achieving the goals of the curriculum. The success of an education is determined by the efforts made on the learning process, where the goal of learning and education in general is to make students become human beings who can humanize other human beings. Thus, the implementation of learning activities should be designed in such a way that the goals of learning and education can be achieved optimally. Based on preliminary studies conducted by researchers through observation and interviews in one of the primary schools located in Kuningan, it indicated a gap between the expected national educational goals with the reality that occurred. The gaps included: (1) there were still students who were lazy to do the tasks among them because they haven’t understood the material being taught; (2) there were still students who quarreled with their peers, while the teacher mediated them to make up; (3) there were still students who were reluctant to ask when they did not understand the material presented (4) there were still students who were indifferent when looking at the garbage around them. Those things were because the students did not have the ability to solve problems they faced. Trilling & Fadel (2009) reveals that there is a set of skills of 21st century, namely critical thinking and problem solving skills; communication and collaboration skills; and creative and innovative skills. Based on the above, solving the problem is one of the skills that must be possessed by every individual to face and live life in the 21st century. One of the learning models that can be applied to develop problem-solving skills is Problem Based Learning. The learning model provides an opportunity for students to learn based on the problems that occur around them.

Simone (2014) explains "PBL is a learner-centered pedagogical approach that affords learners to engage in goal-directed inquiry." Based on the statement, the PBL provides an
opportunity for students to engage directly in conducting an investigation with the purpose of the learning is determined, so that learning activities are student center. This is in line with Arends (2008) states the essence of the PBL is to present a variety of problematic, authentic and meaningful situations to students, which can serve as a stepping-stone for investigation and investigation. Thus, PBL is a facilitating learning model students to develop the skills they have, especially when they do the investigation, so that learning will be more meaningful than the learning activities that only deliver the material directly. The stages in PBL model (Ibrahim, et al in Trianto, 2009) are: (1) student orientation on the problem; (2) organizing students to learn; (3) guiding individual or group investigations; (4) developing and presenting the work; and (5) analyzing and evaluating the problem-solving process.

Think Pair Share (TPS) is one type of cooperative learning designed to influence the interaction patterns of students (Trianto, 2009). TPS is implemented through three stages of thinking, pairing and sharing. The material used in this research was social problem which belongs to Social Studies material with KD 2.4 recognizing social problems in the students’ area. Krulik & Rudnick (Carson, 2007) define that problem is “... a situation, quantitative or otherwise, that confronts an individual or group of individuals, that requires resolution, and for which the individual sees no apparent or obvious means or path to obtaining a solution.” Martinez (Chaudhry & Rasool, 2012) define that problem solving skill is “process of moving towards a goal when the path to the goal is uncertain.” There are four steps in problem-solving skills: (1) Identify the problem; (2) Consider possible approaches to its solution; (3) Select and apply approaches; (4) Reach a defensible solution (Savage & Armstrong, 1996). In this study, those 4 steps are use as indicators for problem-solving skills.

The research question that was answered in this research is "Is there any difference in problem-solving ability between students in experimental class (Problem Based Learning) and in control class (Cooperative Learning type Think-Pair-Share)?". Thus, the purpose of this study also refers to the question, namely to know the differences in problem-solving skills between students in the experimental class and in the control class.

METHODOLOGY

The method used in this research was quasi-experimental with quantitative approach. The design used in this study was nonequivalent control-group design, which according to Gall, Gall, & Borg (2003) explained in the design of this study, the study participants were not randomly selected to be involved in the experimental group and control group and in the design implementation. These two groups got pre- and post-tests. The sample of research was focused on fourth grade students of SDN 1 Winduhaji consisting of class IVA and IVB with all samples were 52 people. The instruments used in this study were test (pre-test before treatment and post-test after treatment), while the instruments were tested the validity through expert judgement and field test. The data collected was analyzed with the help of SPSS software program (IBM SPSS Statistic 21) with significance level used in statistical test that is \( \alpha = 0.05 \). In case P-value \(<\alpha\) then \( H_0 \) is rejected, whereas if P-value \( \geq \alpha \) then \( H_0 \) is accepted.

RESULTS AND DISCUSSION

A. Research Results

Analysis of problem-solving abilities consists of analysis of pre-test, post-test scores, and improvement of pre-test to post-test (N-Gain) in the experimental class and control class. The mean difference test of pre-test, post-test, and N-Gain was done by using Mann-Whitney U test. It was because in each test there was data that was not normally distributed.

Pre-Test
The average scores in the experimental class and in the control classes were 6,423 and 7,192, respectively. Furthermore, inferential statistical tests were conducted.

**H₀:** There is no difference in the mean pre-test score of problem-solving skills between the experimental class and the control class.

**H₁:** There is an average difference in the pre-test score of problem-solving skills between the experimental class and the control class.

**Table 1. Average Difference Test of Pre-Test Scores**

<table>
<thead>
<tr>
<th>Problem Solving Abilities</th>
<th>Mann-Whitney U</th>
<th>Z</th>
<th>Asymp Sig (2-tailed)</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test of Problem Solving Ability</td>
<td>305,000</td>
<td>-0.606</td>
<td>0.544</td>
<td>H₀ is accepted</td>
</tr>
</tbody>
</table>

The data in table 1 shows that sig. 0.544 ≥ α, then H₀ is acceptable so that there is no difference in pre-test score of problem-solving ability between students in experiment class and control class.

**Post-Test**

The average scores in the experimental class and in the control classes were 21,39 and 14,23, respectively. Furthermore, inferential statistical tests were conducted.

**H₀:** There is no difference in the mean post-test scores of problem-solving skills between the experimental class and the control class.

**H₁:** There is an average difference in post-test scores of problem-solving skills between the experimental class and the control class.

**Table 2 Average Score Difference Test**

<table>
<thead>
<tr>
<th>Post-Test Problem Solving Ability</th>
<th>Mann-Whitney U</th>
<th>Z</th>
<th>Asymp Sig (2-tailed)</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Test of Problem Solving Ability</td>
<td>55,000</td>
<td>-5.205</td>
<td>0.000</td>
<td>H₀ is rejected</td>
</tr>
</tbody>
</table>

The data in table 2 shows that sig. 0.000 < α, then H₀ is rejected so that there is difference of the mean score post-test of problem-solving ability between students in experiment class and control class.

**N-Gain**

The mean scores of N-Gain in the experimental class and in the control class were 0.85 (high category) and 0.43 (medium category). Furthermore, inferential statistical tests were conducted.

**H₀:** There is no difference in the improvement of students’ problem-solving skill between the experimental class and the control class.

**H₁:** There is a difference in the improvement of students’ problem-solving skill between the experimental class and the control class.

**Table 3 The Mean Difference Test on N-Gain Scores**

<table>
<thead>
<tr>
<th>N-Gain on Problem Solving Skill</th>
<th>Mann-Whitney U</th>
<th>Z</th>
<th>Asymp Sig (2-tailed)</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Gain on Problem Solving Skill</td>
<td>26,500</td>
<td>-5.708</td>
<td>0.000</td>
<td>H₀ is rejected</td>
</tr>
</tbody>
</table>
The data in table 3 shows that sig. 0,000 < α, then H₀ is rejected so that there is a difference in the improvement of students’ problem-solving skill between the experimental class and the control class.

**B. Discussion**

The result of statistical analysis on pre-test score tested at α=0.05 shows that there was no difference in problem solving skill so that the students could be said to have the same level of problem-solving skill. After the treatment was given to the students in both classes, based on the result of statistical analysis on the post-test scores tested at α = 0.05, it was found that there was a difference of mean post-test score on students’ problem-solving skill between the experimental class and the control class. Thus, although the two models applied in this study affected the problem-solving skill of each class, but the class with the learning that applied the Problem Based Learning model could improve the problem solving skills better than the one that applied the Cooperative Learning Model Think Pair Share.

Gonzales & Batanero (2016) explains that Problem Based Learning is a very effective way to improve performance in solving problems. Carlos & Rosell (2012) explains that Problem Based Learning encourages students to become independent students in managing information, collaborating with others, and developing their own perceptions, meanings and ways of understanding reality. Seifert & Simmons (1997) reveals the purpose of Problem Based Learning, one of which is to develop students' skills in solving problems. Morrales-Mann & Kaitell (2001) concluded from his research on the application of PBL in a new curriculum in Canada that PBL provides benefits for students in improving self-reliance in learning, critical thinking skill, problem-solving skill, and communication skills. Thus, this research becomes one of the evidences to strengthen that Problem Based Learning can improve problem solving skill.

**CONCLUSION AND SUGGESTION**

Based on the result of the research, it can be concluded that the problem-solving ability between the students in control and experiment class has no difference before treatment was given. However, there was a difference in term of the ability to solve the problem after treatment was given to each class. Eventhough the ability in solving the problem of both classes have improved, the improvement in the experimental class was better than the improvement in the control class.

Since Problem Based Learning model consumes much time, it is suggested for the next researchers to optimize the time allocation in implementing the model so that the teacher can manage the class efficiently and effectively. In addition, teachers who will apply the PBL model should be teachers who have expertise in teaching so that situations and conditions that can hinder learning can be handled appropriately.

**BIBLIOGRAPHY**


