Effect Of Thinking Aloud Pair Problem Solving Type Cooperative Model On Student Problem-Solving Ability

1st Sri Hayatun Nufus
Mathematics Department
Universitas Negeri Padang
Indonesia
srihayatunnufus17@gmail.com

2nd I Made Arnawa
Mathematics Department
Universitas Andalas
Indonesia
arnawa1963@gmail.com

Abstract—This study aims to determine the effect of type cooperative model Thinking Aloud Pair Problem Solving on students' problem solving abilities. This study was a quasi-experimental study with the randomized group only design. The research subjects were students of SMPN 1 Sungai Tarab district in the 2018/2019 school year. Sampling was done randomly after testing for normality, homogeneity, and average similarity. The instrument used is a problem solving test. From the results of research conducted shows the ability of problem solving students of experimental class is better than the control class. Thus the type cooperative model Thinking Aloud Pair Problem Solving contributes to students' problem solving.

Keywords—thinking aloud pair problem solving, problem solving

I. INTRODUCTION

In the 2013 curriculum the purpose of learning mathematics includes three aspects, namely attitudes, skills, and knowledge. One aspect of knowledge is the ability to solve problems. Suherman et al in [1] said that problem solving part of the mathematics curriculum that is important in the learning process and its completion, students are likely to obtain knowledge and skills in routine problem solving. Pehkonen in [2] also explained that the problem-solving abilities of students are expected to develop students' cognitive skills, encourage creativity, and motivate students to learn mathematics. So problem solving ability is very important in learning mathematics.

Students' problem solving ability is still relatively low [3, 4]. This was also found by researchers at SMPN 1 Sungai Tarab. Developing these capabilities is one of them by applying a learning model that makes the atmosphere conducive. Many researchers have conducted research on these problem solving abilities, including [4, 5, 6, 7]. One model that can be applied to improve these abilities is thinking aloud pair problem solving (TAPPS). TAPPS learning model can improve students' problem solving [6, 7, 5].

According to Wah TAPPS is a problem-solving learning model that involves students in groups, where each group has a problem solver and there is a listener [6]. Jeon in [5] explained that “thinking is a problem solving pair that is mainly based on thinking aloud and listening”. Thinking according to Reason in [9] is a mental process of someone who is more than just remembering and understanding. Thinking aloud is thinking while saying or conveying what is being thought hard.

From the description above, the researchers want to see the extent to which the TAPPS type of cooperative learning model influences students' problem solving abilities. There are 4 problem solving steps seen, namely, (1) understanding the problem, (2) making plans, (3) implementing the plan, (4) checking back [10]. Therefore a research was carried out with the title “The Effect of the Application of the TAPPS Cooperative Learning Model on the Problem Solving Ability of Class VII Students of SMPN 1 Sungai Tarab District”. This research was conducted to find out the problem solving ability of students who learn with the TAPPS type cooperative model and students who learn with conventional learning. The hypothesis of this study is the problem solving ability of students who learn with the TAPPS type cooperative model is higher than the problem solving ability of students who learn with conventional learning.

II. METHODS

The population of this study was 7th grade students of SMPN 1 Sungai Tarab in 2018/2019 academic year consisting of 5 classes. Sampling was taken randomly, which was chosen in class 7A as an experimental class with 26 students and 7B as a control class with 25 students. Independent variable in this study is the TAPPS type cooperative learning model and the dependent variable of students' problem solving ability.

This type of research is a quasi-experimental research with TRGCOND design, which can be seen in Table I.

<table>
<thead>
<tr>
<th>Group</th>
<th>Treatment</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>Control</td>
<td>Y</td>
<td>O</td>
</tr>
</tbody>
</table>

Description:
X = Thinking aloud pair problem solving type cooperative model
Y = Conventional learning
O = Test problem solving

Research data was collected by tests. This test is used to measure students’ problem solving abilities. Tests that have been validated by the validator will be tested in class.
7 to see the validity and reliability of the questions. Scores of students’ problem solving abilities are determined according to [10].

III. RESULT AND DISCUSSION

Students’ understanding of the material that has been given can be seen from student learning outcomes [11]. The test given to students is a test of problem solving ability. After the tests in the experimental class and control class obtained data about the results of problem solving tests which can be seen in Table II.

<table>
<thead>
<tr>
<th>Class/Initial Ability</th>
<th>Problem Solving Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Experimental</td>
<td>26</td>
</tr>
<tr>
<td>Control</td>
<td>25</td>
</tr>
</tbody>
</table>

From Table 2. can be seen the average value of the experimental class is higher than the control class average. The average value of the experimental class was 9.7 and the average control class was 1.8. This means that the test results of problem solving abilities in the experimental class are higher than the control class.

The percentage of troubleshooting values according to the troubleshooting steps can be seen from the following Table III:

From Table III. It can be seen that the highest percentage of students is in the ability of students to understand the problem. The lowest percentage is the ability of students to check the answers obtained by students.

<table>
<thead>
<tr>
<th>Problem Solving Ability</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand the problem</td>
<td>96.23</td>
</tr>
<tr>
<td>Make a plan</td>
<td>35.26</td>
</tr>
<tr>
<td>Implement the plan</td>
<td>20.83</td>
</tr>
<tr>
<td>Check back</td>
<td>1.92</td>
</tr>
</tbody>
</table>

The results of testing the hypothesis in Table V shows that the value of Sig <0.05. So that it can be declared reject H0, namely the problem-solving ability of students who learn with the TAPPS type cooperative model is higher than the problem solving ability of students who learn with conventional learning.

IV. CONCLUSIONS

Based on the results of research conducted in 7A and 7B classes at SMPN 1 Sungai Tarab, it can be concluded that students’ problem-solving abilities who learn with the TAPPS type cooperative model are higher than students' problem solving abilities who learn with conventional learning. Thus, it is evident that the TAPPS type cooperative model contributes to students’ problem solving abilities.

REFERENCES


