THE USE OF PAIR CHECKS LEARNING MODEL ON UNDERSTANDING ABILITY OF MATHEMATICAL CONCEPTS OF CLASS X HIGH SCHOOL STUDENTS

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ABSTRACT

This research is based on the low understanding of mathematical concepts of students in SMA Negeri 1 Pasir Penyu because of the low ability to comprehend mathematical concepts of students, students' activeness in following the lesson is still low, student learning outcomes are still low. The purpose of this study is to know the understanding of mathematical concepts of students by using learning models pair checks. The research design used is Randomized Subjects Posttest Only Control Group Design. The population in this study is class XI IPS. Samples are randomly selected, the classes selected to be experimental class are XI IPS 1 class, and class XI IPS 4 becomes the control class. Data analysis technique in this test using normality test, homogeneity and hypothesis test that is t-test. Based on the results of the study can be concluded the ability of understanding mathematical concepts with the use of Pair Checks learning model is better than the understanding of mathematical concepts with the use of conventional learning model.

Keywords: Pair Checks Learning Model, Understanding Mathematical Concepts

INTRODUCTION

Mathematics in the world of education is one of the subjects that has an important role in both the mindset of forming students into quality and applied in everyday life. mathematics has a strong and clear structure and linkages between concepts so students are skilled at rational thinking.

In addition, mathematics is also one of the subjects that must be taught starting from elementary school to high school. Mathematics is also a means of thinking to study things logically and systematically, therefore, mathematics is very important to be mastered as early as possible by students. Based on the results of observations on students' mathematics lessons in class XI IPS SMA Negeri 1 Pasir Penyu.

Researchers see that the written understanding of mathematical concepts is still relatively low. Based on the description above, the formulation of the problem is: "Is the understanding of students' mathematical concepts with the use of pair checks learning model better than understanding the mathematical concepts of students with conventional learning in class XI IPS SMA Negeri 1 Pasir Penyu"? Based on the formulation of the problem, the objective to be achieved in this study is to find out the understanding of students 'mathematical concepts with the use of pair checks learning models rather than understanding students' mathematical concepts with conventional learning.

RESEARCH METHODS

This type of research is experimental research. The design of the study used in this study is Posttest Only Control Group Design Randomized Subjects. Randomized Subjects Only Control Group Design
Group | Dependent variable | Postest
--- | --- | ---
R | Experiment | X | \( Y_2 \)
R | Control | - | \( Y_2 \)

Description:
R = Randomization  
X = Treatment

**Error! Reference source not found.** = Posttest

Research instruments are tools or facilities used by researchers in collecting data so that their work is easier and the results are better, in the sense that they are more accurate, complete and systematic so that they are easier to process. In order for the data analysis technique to be good, the following steps are implemented. Data analysis techniques in this study aim to test the validity of the research hypothesis. For cognitive aspects tested statistically so that the conclusions were taken based on the comparison of the quality of the experimental class and the control class.

Testing the validity of the hypothesis using the t-test formula. Before the t-test, the data distribution normality test, the two variance homogeneity test, the second group of data tests were carried out. This t test aims to test the hypothesis as an attempt to draw conclusions in the study. The steps contained in the t test are as follows. The hypothesis proposed is . Error! Reference source not found. , Error! Reference source not found. Determine the value Error! Reference source not found. calculated by formula Error! Reference source not found. , Error! Reference source not found.. Determine the value Error! Reference source not found. , Error! Reference source not found.. Criteria for testing hypotheses Error! Reference source not found.. then Error! Reference source not found.. is accepted.

**RESULT AND DISCUSSION**

Normality test is done by Liliefors Test. The Liliefors test is conducted to determine whether the sample is normally distributed or not. Test the Normality of Data Understanding Student Mathematical Concepts

<table>
<thead>
<tr>
<th>Class</th>
<th>( \alpha )</th>
<th>N</th>
<th>( L_0 )</th>
<th>( L_{tab} )</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eksperiment</td>
<td>0,05</td>
<td>30</td>
<td>0,13</td>
<td>0,16</td>
<td>Normal</td>
</tr>
<tr>
<td>Control</td>
<td>0,05</td>
<td>31</td>
<td>0,09</td>
<td>0,15</td>
<td>Normal</td>
</tr>
</tbody>
</table>

The homogeneity test was analyzed using Test F. Homogeneity Test Data Understanding Student Mathematical Concepts

<table>
<thead>
<tr>
<th>Class</th>
<th>( \bar{x} )</th>
<th>( s^2 )</th>
<th>( F_{count} )</th>
<th>( F_{tab} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eksperiment</td>
<td>13,9</td>
<td>13,6</td>
<td>1,05</td>
<td>1,84</td>
</tr>
<tr>
<td>Control</td>
<td>12,5</td>
<td>12,8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

52
After the sample is normally distributed and has a homogeneous variance then it is continued by testing the hypothesis by using t test. Test of Students' Mathematical Concept Understanding Hypothesis.

<table>
<thead>
<tr>
<th>Class</th>
<th>$\bar{x}$</th>
<th>N</th>
<th>$S^2$</th>
<th>$t_{cons}$</th>
<th>$t_{table}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eksperiment</td>
<td>13.9</td>
<td>30</td>
<td>13.6</td>
<td>2.87</td>
<td>2.03</td>
</tr>
<tr>
<td>Control</td>
<td>12.5</td>
<td>31</td>
<td>12.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the table above obtained $Error! Reference source not found. = 2.875$ dan $Error! Reference source not found. = 2.0003$. Karena $Error! Reference source not found.or 2.875 > 2.0003$. This means Reject $Error! Reference source not found.$, it can be concluded that. "Understanding students' mathematical concepts with the use of pair checks learning models is better than understanding students' mathematical concepts with conventional learning".

From the description and analysis of research data, it appears that the ability to understand the concept of the experimental class is better than the control class. This can be seen from the comparison of the highest score, lowest score and the average value of both samples.

To make an equation with the results of a hypothesis test and an understanding of the concept of the concept used in the study, the value of a student is attached. Can be seen in the following picture:

\[
\begin{align*}
    f(x) &= 3x^2 + 2x + 5 \\
    f'(x) &= 3.2x^{2-1} + 2x^{1-1} + 0 \\
    &= 6x + 2x
\end{align*}
\]
Figure 1. Experimental class and control class

Based on the results of the answers above, it can also be seen that the experimental class and the control class have understood the problem and can present the concepts in mathematical representations and do the calculations well. It's just that in the control class there are few errors in mathematical notation.

CONCLUSION

Based on the results of research that has been carried out with the title of the use of pair checks learning model on understanding mathematical concepts students of SMA Negeri 1 Pasir Penyu on learning mathematics is obtained \( \text{Error! Reference source not found.} \) with real levels \( \text{(Error! Reference source not found.} 0.05 \text{ so Error! Reference source not found.} \) be accepted. This means that the hypothesis proposed in this study is accepted, namely the understanding of students' mathematical concepts with the use of pair checks learning model better than the understanding of students' mathematical concepts with conventional learning in class XI IPS SMA Negeri 1 Pasir Penyu.

Based on the results of the research obtained, the researcher can put forward some suggestions as follows. It is expected that the mathematics teachers can use pair checks learning model, because this learning model can improve the students' understanding of mathematical concepts. For the next researchers who are interested in the pair checks learning model can pay attention to the time management of group learning and management implementation. It is expected that teachers in the field of study other than mathematics in order to use pair checks learning model on learning, because this learning model requires that students can exchange opinions and check each other's results.

REFERENCES


