Improvement in Principal Activities Student Learning Function Discussion on Application of Derivatives Model of Cooperative Learning Think Pair Share Type in XI IPA 1 Class of SMAN 1 Bangkinang City

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Abstract: Expected competence in mathematics learning requires students to maximize learning. For the earnest efforts are needed from teachers or from the students. Strategies and methods used so far have not been able to increase the activity and student learning outcomes. The work done to improve the activity and student learning outcomes using cooperative learning model of Think Pair Share type. The purpose of this study was to determine the increase in activity and student learning outcomes in mathematics using cooperative learning model Think Pair Share. The result shows that the model can improve student results of XI IPA Class of SMAN 1 Bangkinang City on the Derivative Application Functions subject.

Keywords: Cooperative Learning; Think Pair Share model; the application material derivative of the function.

1. Introduction

Mastery is one of the critical success factors of education. Among the variety of methods and models of learning, the teacher is the most dominant conducted a lecture. Actually, the teacher has tried to variations in the methods and models, one of them is with a discussion group. However, in practice felt less effective, requires a lot of time, lack of classroom management so that the classroom atmosphere noisier and students' difficulties in reaching conclusions, consequently the teacher should review the material in question. If the matter is scheduled two meetings, the implementation must be added the time into three sessions. This of course caused a delay in the delivery of further material.

Delivery of material to the lecture method makes passive students during the learning progress, learning materials and they are often left at home, many students difficult for concentration, even they chat and annoy your friends or permissions out of the classroom when the learning is ongoing and very few students who can answer questions teacher, let alone to ask questions about things that are less understood.

Based on the data I collected in class XI SMA Negeri 1 Bangkinang District of the city in 2015 that absorption by the students after the daily test was 74.90 and the number of students who completed were 18 of 29 students (the percentage of completeness of 62.06%). This is caused by a lack of understanding of the concept of the student, but statements about in every exam is always asking basic concepts. All is not detached from the habit of teachers who use the lecture method in teaching. According to experts if students learn by hearing, they are able to absorb as much as 20% of the material presented, if they see and hear will absorb as much as 50%, and if they learn by doing something will absorb as much as 80%.
Based on the description above, the writer concludes that the activities of students of class XI IPA 1 SMA Negeri 1 Bangkinang are still low making them difficult to understand mathematical concepts. If this continues, it is feared they would be difficult to answer the questions of the National Examination usually ask the basic concepts they have learned previously.

2. Related Works

Research relating to the implementation of cooperative learning with Think Pair Share type has been done on the learning of Mathematics in class XI IPA 2 SMAN 1 Mangkutana with the conclusion:
1. The learning process learning model Think Pair Share may increase student activity XI IPA 2 SMA Negeri 1 Mangkutana. Student activity increased from 61.19% to 77.84%.
2. The learning process with the type of Think Pair Share can improve student learning outcomes. Think Pair Share learning mode that emphasizes the group discussions, where students who already understand the material being discussed should explain to students who do not understand the material until they can be. Learning outcomes of students increased from 31.25% to 71.88%.

Furthermore, the model have also conducted on mathematics learning in class VIII SMPN 31 Padang. The results of this study concluded that the development of student learning activities with the implementation of cooperative learning model Think Pair Share activity tends to increase from the previous class. For the experimental class student learning outcomes with the implementation of cooperative learning Think Pair Share is better than a control class with the application of conventional learning.

3. Materials & Methodology

3.1. Data

Research was conducted in the SMAN 1 Bangkinang city districts Kampar, Riau Province in the second semester of the academic year 2015-2016. The study took place in January-March 2016. The subjects were students of class XI IPA 1 SMAN 1 Bangkinang City totaling 33 people, 10 male and 23 female.

3.2. Method

The research is a classroom action research. This study was done in 2 cycles, has previously performed the initial observation to determine the condition of the subject of research that teachers have to implement cooperative learning model of think - pair - share and student activity is still low. The first cycle consists of two meetings on the material equation tangent and normal lines of a curve \( y = f(x) \) and the calculation of limit function with the argument of the form of hospital followed by a first achievement test cycle. The second cycle consists of two meetings on the material rate of change, the rate of increase, estimating the value of a function of the curve \( y = f(x) \) and the calculation of velocity and acceleration continued with achievement second test. Each cycle consists of four phases: planning, action, observation (observing) and reflection (reflecting).

There are four stages to be passed in this class action research, including planning, implementation, observation and reflection [1]. Figure 1 describes the cycle model of classroom action research conducted by researchers.

The research will be conducted in two cycles, the first cycle consists of 2 meetings and 1 daily test, the second cycle consists of 2 meetings and 1 times daily tests. Researchers will conduct five phases, early reflection, planning, action, observation and reflection. Data collection techniques used in this study, among others: the observation techniques and test engineering.
Data obtained during the learning processed by tabulating the data were analyzed with descriptive analysis:
1. learning outcomes analyzed with descriptive analysis comparing the comparative value between cycles and initial conditions.
2. Student activity was analyzed with descriptive qualitative analysis based on data obtained through observation checklist, field notes and questionnaires.

The data obtained are presented in the table, the percentage obtained by the formula:

\[ N = \frac{A}{B} \times 100\% \]  \hspace{1cm} (1)

where:
- \( N \) = Percentage of acquisition according to activity observed
- \( A \) = Number of students in accordance with the activity observed
- \( B \) = Number of students in attendance at every meeting

4. Results and Discussion

4.1. Result

With increasing student activity the student learning outcomes will also increase. It can be seen in the initial condition of completeness percentage of students (62.06%) and 74.96% absorptive capacity increased to 77.42% and 85.65 absorptive capacity in the first cycle and rising again of
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83.33% and 88.83 absorption cycle II. It means that this class action research can exceed the target indicators of success that students completeness is 65%.

Increased activity of students can be seen by comparing the initial conditions, cycle 1 and cycle 2 as shown by Table 1.

**Table 1. Positive Activity of students in the initial conditions, first cycle and second cycle**

<table>
<thead>
<tr>
<th>No.</th>
<th>Student activity observed</th>
<th>Initial Condition</th>
<th>Cycle I</th>
<th>Cycle II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total %</td>
<td>Total %</td>
<td>Total %</td>
</tr>
<tr>
<td>1</td>
<td>Preparing learning materials</td>
<td>93.93</td>
<td>75.75</td>
<td>90.00</td>
</tr>
<tr>
<td>2</td>
<td>Noting explanation of teachers</td>
<td>84.84</td>
<td>60.60</td>
<td>76.66</td>
</tr>
<tr>
<td>3</td>
<td>Answer the questions teachers</td>
<td>69.69</td>
<td>39.39</td>
<td>50.00</td>
</tr>
<tr>
<td>4</td>
<td>Ask questions</td>
<td>4</td>
<td>12.12</td>
<td>16.66</td>
</tr>
<tr>
<td>5</td>
<td>Noting conclusions</td>
<td>30</td>
<td>90.90</td>
<td>93.33</td>
</tr>
</tbody>
</table>

**Table 2. Negative Activities of Students in the Initial Conditions, First Cycle and Second Cycle**

<table>
<thead>
<tr>
<th>No.</th>
<th>Student activity observed</th>
<th>Initial Condition</th>
<th>Cycle I</th>
<th>Cycle II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total %</td>
<td>Total %</td>
<td>Total %</td>
</tr>
<tr>
<td>1</td>
<td>Permissions out of class</td>
<td>3</td>
<td>9.09</td>
<td>3.34</td>
</tr>
<tr>
<td>2</td>
<td>Chat with friends</td>
<td>6</td>
<td>18.18</td>
<td>10.00</td>
</tr>
<tr>
<td>3</td>
<td>Disrupting friends</td>
<td>3</td>
<td>9.09</td>
<td>6.67</td>
</tr>
</tbody>
</table>

Based on Table 1, we can see that there is an increase of percentage of positive activities for students to learn. In the first cycle the percentage of students who prepare learning materials is 90.00% (27) increases in cycle II becomes 93.93% (31 people). The percentage of students who pay attention to the teacher's explanation increased significantly i.e. 8.18% from 76.66% (23) to 84.84% (28 people). Percentage of students who answered questions of teachers also increased from 50.00% (15 votes) to 69.69% (23 people), a significant increase is 19.69%. The percentage of students who ask questions are still low, but there was an increase of 16.66% (5 people) to 24.24% (8). The percentage of students who notes the conclusion increases from 93.33% (28 students) to 100.00%.

In Table 2, the percentage of negative activity of students also decreased by 3.34% among others no longer permit students out of the classroom (0.00%), down from the previous 3.34% (1). Percentage of students who chatting with friends also decreased from 10% (3) to 6.06% (2), while the percentage of students who disrupt friend also decreased from 6.67% (2) to 3.03% (1).

4.2 Discussion

Based on the results, we note that the number of students who achieve mastery in the first cycle more than students who achieve mastery before action. Thus, the number of students who achieve mastery in the second cycle more than students who achieve KKM cycle. Cooperative learning think pair share can improve student’s learning outcomes on XI IPA 1 class, SMAN 1 Bangkinang City in the academic year 2015 to 2016 on the subject of the derivative function application.

Based on the observations, the performance of the group needs to be addressed, especially in the first and second meetings, among others:

1. Students are still not applying the same work in a group.
2. There is still a serious lack of students working with the program.
3. If you get in trouble more often ask students directly with the teacher of the discussions with a group of friends. While the type of cooperative learning Think Pair expected to share in the learning process is the student able to cooperate with a group of their friends.
4. The use of time is less effective, because students do not understand the technical learning.

This shows that there should be a special meeting explaining the cooperative skills that must
be owned and implemented in the learning process so that expect a learning activity is effective at the first meeting.

Another factor that is also the cause of the above obstacles is because teachers are not used to using cooperative learning model type think pair share, besides the students still cannot apply the cooperation in the group, so the time used is less effective. But in the third meeting and the fourth aspect of the discussion results increased. This is because students are getting used to the cooperative learning model. Given the motivation that teachers always give understanding of the stages of the implementation of this model of cooperative learning type of think pair share is increasing even they are more excited in learning.

From the experience of the previous writer, judging from the learning material, the material is more elusive by second cycle students compared to cycle I material. After trying implemented cooperative learning of Think Pair Share, appear to be generally share the value of students in the second cycle increased if the material is compared results of tests on the material cycle I. Thus, the results support the hypothesis of action where the implementation of Cooperative Learning Think Pair Share model can improve student results of Class XI IPA SMAN 1 Bangkinang City on Derivative Application Functions.

5. Conclusion

Some conclusions obtained from the above sections are as follows:
1. Teachers should choose methods and models appropriate to learning so that students actively in learning.
2. Cooperative learning model think-pair-share is one alternative to increase positive activities and lower negative activity of students in learning.
3. With the increase in the student activity, student learning outcomes will also increase.

The authors propose some suggestions:
1. Cooperative learning model Think Pair can be an alternative learning, especially in math learning to improve student learning outcomes.
2. Teachers should familiarize students learn to think creatively, dared to ideas and is always concerned with his friend and believe that each person has strengths and weaknesses that need to collaborate in cooperative activities.

References