The Implementation Of Peer Tutorial Method On Three Dimensional Mathematics Lesson In XII IPA 5 Class At SMA Negeri 3 Jember, Odd Semester, In The Academic Year Of 2019/2020

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ABSTRACT

We already know that children have got a phobia and make them unable to give responds to math lessons well. It concerns us since mathematics is included in one of UNBK subjects. This research was intended to improve the students' understanding and motivation so that they understood the concept of the probability of multiple events. In this research, the researchers chose 5 students in a class whose math scores were above the average of the other classmates and they were able to help other friends in understanding mathematical concepts taught by the teacher. The research was conducted through in 2 cycles and 2 meetings. The research subjects covered the XII IPA5 students of 2019/2020 in the odd semester at SMA Negeri 3 Jember. The methods used in this research were observation, interview and documentation. Based on the results of research and analysis of existing data, it can be concluded that there was a significant increase in the tutor’s motivation and the activities of peer tutorial participants from cycle I to cycle II. Tutor had good motivation. Participants' activities in the first cycle reached 70 and 80.8 in the second cycle, which means that the participants of peer tutorial were motivated so that their mean result of learning outcomes improved.

INTRODUCTION

In improving the quality of education, the collaboration between students and teachers in the learning process is needed to be done actively, so that the researcher implemented peer tutorial method as a learning method in his research. The teacher’s role and task is very important as it is in line with the demands of national development especially on education, in which it refers to meningkatkan kecerdasan kehidupan bangsa dan
kualitas sumber daya manusia yang berakhlak mulia, berbudi luhur, memiliki pengetahuan, keahlian dan ketrampilan (improve the intelligence of the nation and the quality of human resources who are noble-minded, virtuous and having knowledgable mind, expertise and skill)

The role of learning is mainly related to the efforts to provide conducive learning. A serious problem occurred in the implementation of educational programs are from the problem of learning. That is why the teacher must be able to provide the atmosphere of conducive learning during the students’ learning learning process so that they are capable in achieving the maximum learning outcomes, especially in the process of learning mathematics.

Based on the results of UNBK, the scores of mathematics always constantly shows the suboptimal results, thus a review on appropriate learning method needed to be conducted in the mathematics research. The use of peer tutorial methods was a theory emphasizing the nature of students’ learning to work on tasks through their interactions with adults and peers (Slavin, 1994). Vygotsky said that more functional mental generally occurred during the conversations or cooperation between individuals before the higher mental functions were absorbed by individual.

Peer tutorial method is a learning process in which a student is being a teacher as an information center for the other students in the class. The approach is by forming groups to solve the problems given by the teacher by helping their peers to understand the mathematical concepts better provided by the teacher.

Through this peer tutorial learning method, the students of XII Science 5 class were expected to get better understanding on the concept of three dimensions (space distance) which some teachers take it as the difficult material to deliver to students. This peer tutorial learning was expected to be able to help the process of learning mathematics, so that the result achieved the maximum learning. The ultimate goal of forming this tutorial team was to motivate individual students to be active.

The purposes of this research were to find out:
1. Whether or not the learning process through peer tutorial method in the mathematics learning process was more effective.
2. An increase on students’ motivation to learn in XII IPA5 by using peer tutorial learning method.
3. Peer tutorial learning was able to provide students in understanding mathematical concepts easily (three dimensions, which was space distance).

**METHODOLOGY**

The method used in this classroom action research (CAR) was a method of peer learning on the students of class XII IPA5 of SMA Negeri 3 Jember in the odd semester 2019/2020. The material was about three dimensions, namely space distance with the research time as many as 2x face to face (2 x 90 minutes). Class XII IPA5 students were divided into 5 groups and in each group, one student who was considered capable was chosen as a tutor in the group.

The research procedures carried out as follows:
At the first meeting for 45 minutes, the teacher explained about the concept of three dimensions (space distance) and gave examples.
2. The researcher gave evaluation questions to students which were then assessed by the teacher.
3. The teacher chose some students to become tutors.
4. The teacher gave an explanation and information about the subject matter to the tutors about what to be conveyed and discussed in the groups.
5. The teacher answered, guided and evaluated the learning processes in each group.

The classroom action research conducted were:
1. The researcher saw the peer tutors discussing material and delivering material to members.
2. The researcher created student worksheets that must be done by the students.
3. The researcher evaluated whether the participants were active or not during the activity.
4. The researcher evaluated directly the students’ learning process and observed the symptoms of gaps that arose in the evaluation and learning achievements.

The data source was all students of class XII IPA5, SMA Negeri 3 Jember in the odd semester of the 2019/2020 academic year which were divided into 5 groups, each consisting of 7 students. The class selection as a source of data/respondent was chosen randomly.

a. Data Collection Procedure
The data collection process was done by:
1. Determined 5 students who were considered/had the best math scores.
2. Formed groups by lottery so they were divided into 5 groups with 7 members each.
3. Observed the events of peer tutors and participants during the research in each group and recorded the observations.

b. Data Analysis Technique
The author in this research used a qualitative data analysis to prove whether the research was successful according to plan or not. The steps were as follows:
1. Prepared the qualitative data from the results of research that has been done.
2. Inputted values in the existing research format.
3. The results of the research that have been obtained were adjusted to the research criteria by classifying the groups according to criteria of good or less value.

RESULTS AND DISCUSSION

After conducting a series of research that was divided into two cycles, the results obtained in each cycle were as follows:

A. Cycle I (first meeting)
This first cycle was divided into two stages which were expected to help to realize the results of research as expected, namely planning and implementation stages.

1. Planning stage
- Developed learning programs that were in accordance with the sub-topics.
- Prepared the teaching media.
- Prepared the format according to the indicators.
- Prepared research sheets subjectively to be assessed.

2. Implementation
- The researcher explained the sub subject matter.
- The researcher gave examples of problems and their solutions.
- The researcher observed the participants and tutors during the first cycle on their activities and interactions and also motivations.

B. Cycle II (second meeting)

In this cycle II was more directed to the data sources which became the center of the research and the technique of research implementation was in accordance with the expected results in this research. Here are done in the cycle II, as follows:
1. Each group formed was given 5 different question material from other groups to be solved together with a guidance of the group tutor.
2. Each group must discuss those questions together during the pre-determined time.
3. The researchers observed and assessed the role of each tutor in delivering, discussing, explaining and solving the questions given by the teacher to the members as well as how they motivated their friends in the group.
4. The researchers also observed the activities of each tutor participant in the activities done to solve the questions given.

The results of the classroom action research with peer tutoring method approach of the subject in the cycles I and II, as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>Tutor</th>
<th>Participant of Peer Tutoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle I</td>
<td>Cycle II</td>
<td>Cycle I</td>
</tr>
<tr>
<td>I</td>
<td>77</td>
<td>87</td>
</tr>
<tr>
<td>II</td>
<td>78</td>
<td>89</td>
</tr>
<tr>
<td>III</td>
<td>77</td>
<td>88</td>
</tr>
<tr>
<td>IV</td>
<td>76</td>
<td>87</td>
</tr>
<tr>
<td>V</td>
<td>77</td>
<td>88</td>
</tr>
<tr>
<td>Mean</td>
<td>77</td>
<td>87.8</td>
</tr>
</tbody>
</table>

The results obtained from the indicators of learning through peer tutoring approach in the cycle II increased than the results in the cycle I both in the elements of tutor and peer tutoring participants. In the cycle I, the learning indicators of the tutor reached the mean of 77 but in the cycle II reached the score of 87.8. While the learning indicators of tutoring participants in the cycle I got the score of 70 and increased in the cycle II with the score of 80.8. by seeing this learning indicators of peer tutoring approach experienced the increase in the role and the tutor of learning so the participants of tutoring became more enthusiastic.
Table 2. Results of learning through peer tutoring method

<table>
<thead>
<tr>
<th>Group</th>
<th>Cycle I</th>
<th>Category</th>
<th>Cycle II</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor</td>
<td>77</td>
<td>Tutor</td>
<td>87,8</td>
<td>Tutor</td>
</tr>
<tr>
<td>motivation</td>
<td></td>
<td>Motivation</td>
<td></td>
<td>motivation</td>
</tr>
<tr>
<td>Participant’s</td>
<td>70</td>
<td>good</td>
<td>80,8</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td>Motivation of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>tutor participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>was less good</td>
<td></td>
<td>motivated</td>
</tr>
</tbody>
</table>

Based on the results of the research in the table above and the data analysis existed, therefore it can be concluded that there was a significant improvement both on the tutor motivation and the activities of peer tutoring participants from the cycle I to the cycle II as follows:

1. The mean score of the tutor motivation in the cycle I was 77 became 87.8 in the cycle II which means that the tutor had good motivation.

The mean score of the activities of the participants in the cycle I was 70 became 80.8 in the cycle II which means that the peer tutoring participants were motivated so the mean score of the learning achievement increased.

CONCLUSION

Based on the results of the classroom action research by using peer tutor method at XII IPA 5 class under 3 dimensional material namely space distance and by looking at the results of the analysis as well as the observation of the learning, the researcher concluded that:

1. Mathematics learning by using peer tutor method was able to produce better activities, motivation, and learning achievement in mathematics subject.
2. Peer tutor method was able to better improve students’ learning motivation so that their learning achievement improved.
3. By using peer tutor method, the students were more active, creative, enthusiastic and confident that mathematics is easy.
4. Peer tutor method made the students to be more expressive and encouraged to ask to the tutor who is actually their fellow.
5. By using peer tutor method, the researcher succeeded to conduct well and effective learning so that maximum results were achieved.

Based on the results of the classroom action research by using peer tutor method on mathematics learning at XII IPA 5 class, the researcher suggests:

1. Mathematics teacher should involve the students directly in a various learning process so that they can easily understand the basic concept of mathematics given by the teacher.
2. The implementation of peer tutor method has positive effect on the students learning motivation so that the teacher can modify each of the learning activities with other methods.

Peer tutor method can be used as mathematics learning method because it is more interesting so that the students who are shy will be more open and encouraged to ask the tutor who is actually their fellow.

REFERENCES


Vigostsky, 1990, *Pendekatan Konstruktivitas pada Sistem Cooperative*