What’s about Peer Tutoring Learning Model?

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Abstract. Mathematics learning outcomes in Indonesia in general is still far from satisfactory. One effort that could be expected to solve the problem is to apply the model of peer tutoring learning in mathematics. This study aims to determine whether the results of students’ mathematics learning can be enhanced through peer tutoring learning models. This type of research is the study of literature, so that the method used is to summarize and analyze the results of relevant research that has been done. Peer tutoring learning model is a model of learning in which students learn in small groups that are grouped with different ability levels, all group members to work together and help each other to understand the material. By paying attention to the syntax of the learning, then learning will be invaluable peer tutoring for students who served as teachers and students are taught. In mathematics, the implementation of this learning model can make students understand each other mathematical concepts and help students in solving mathematical problems that are poorly understood, due to the interaction between students in learning. Then it will be able to improve learning outcomes in mathematics. The impact, it can be applied in mathematics learning.

1. Introduction
According to the National Education, one of the goals of mathematics learning in the mathematics curriculum is to develop the ability orally, notes and graphs or other forms [1]. So, one of the expected results is the ability of pupils to develop orally, has the ability to work together and communicate well. Additionally, Erman also says that the tasks of the group will be able to spur the students to work together, help each other to integrate new knowledge with the knowledge he had [2].

Mathematics learning outcomes in Indonesia in general is still far from satisfactory, even sometimes can be said is still disappointing. It can be seen from the results of the National Examination from year to year for mathematics, such as trigonometry in the material included in the category of ‘low’ [3]. In addition, based on the results of the SMP National Exam in mathematics in 2012 in the district of Kebumen, the absorption percentage of students on the material of Plane and its elements and the properties of Plane is still relatively ‘low’, which covers 50.32% [4]. Here we see the low student learning outcomes in mathematics.

The problem about study completeness students is not achieved in mathematics learning because teacher dominate in the classroom. And then, teacher still use talkative method that teacher as center of learning and students just as listener. So, the students can be boring, not focus and shy ask their teacher. But, they enjoy ask their friend [5].

One effort to overcome the above problems is to select appropriate learning models that is the model of learning which is expected to help students understand mathematical concepts through communication among students and can strengthen the sense of social and solidarity among students. One of the model is a peer tutor learning model that puts students in the learning groups that allow...
students to work together, so that each individual can work optimally in teamwork. Peer tutoring learning is student-centered learning itself, with the help of peers in general seem closer than the relationship between students and teachers. Students designated as tutors are students who are considered smart and able to teach or be a tutor for their peers who are less intelligent or miss based on the guidelines provided by the teacher. Through peer tutoring, students are not served as the object of a lesson, but become the subject of learning. It means students are invited to become tutors or learning resources and a place to ask for their other friends. Thus, students who become tutors could repeat and explain again the material so that it becomes more understand [2]. While students are not tutors be helped and can solve problems that were previously not understood.

However, when linked with mathematics, it can help students overcome learning difficulties individually, because it is through peer tutoring learning it will create communicate verbally which is a tool to increase understanding, by guiding students to learn from other students and provide opportunities for students to reflecting their understanding. Based on the background of the problems above, the purpose of this paper is to determine whether the results of students’ mathematics learning can be enhanced through peer tutoring learning models.

2. Experimental Method
This type of research is the study of literature, so that the method used is to summarize and analyze the results of relevant research that has been done. So as to provide information that can be used to answer the research question and in accordance with the purpose of research. Relevant research in this paper relate to improving mathematics learning outcomes through peer tutoring learning models.

3. Result and Discussion
The learning result is essentially a change in student behavior, obtained through achievement test [6]. While the mathematics learning outcomes is the end result of a process of learning mathematics as a form of business that has been done during the learning process takes place. Meanwhile, the achievement of learning outcomes is more often associated with the acquisition value of students after teaching-learning and evaluation are given [3]. So, it can be concluded that the mathematics learning outcomes are the results achieved by the students or the measure of the success of students after participating in a learning process of mathematics, which can be determined by an evaluation or test, then the test results assessed by the teacher. After the assessment, teachers know the results of the students’ mathematics learning. According to Rusman, learning model is a plan or pattern that can be used to shape the curriculum (learning plan long term), designing learning materials and guiding learning in the classroom or the other [7]. Thus, the learning model is a plan that is used as a guide in learning in the classroom and to specify devices for learning or learning materials.

Tutor in Kamus Besar Bahasa Indonesia defined as those who give lessons to a person or a small number of participants [8]. Source of learning in its broadest sense is not necessarily the teacher. Learning resources can be another person who is not a teacher, but a friend of a higher class, classmates or family at home. Learning resources that do not come from teachers but coming from more intelligent people are called tutors [2]. It can be concluded that the tutor is not a teacher of learning resources and come from people who are smarter or master a certain material, which give lessons to some people. Thus, the implementation of learning like a teacher who gives lessons to students.

There are two kinds of tutors, the peer tutor and tutor sister. Peer tutor is a more intelligent peer, while the sister tutor is a tutor of a higher class. According to Dedi Supriyadi, a peer tutor is a student or some students who are designated and assigned to help students who have difficulty in learning. The tutors are taken from the group higher achievement. While Ischak and Warji explained that a peer tutor is a group of students who have completed the lesson material, provide assistance to students who have difficulty understanding the lessons learned material. Conny Semiawan argued about the peer tutors are students who are proficient can provide assistance to students who are less intelligent. Thus, because the students are an essential elements in the teaching, it was students who need to receive and achieve a variety of teaching information that can ultimately change his behavior as expected [2].
According to Erman, peer tutors are tutor learning resources other than teachers, namely peer learning more clever provide assistance to classmates at school. Help learning by peers can eliminate awkwardness. Language peers are more easily understood. With peers no reluctance, low self-esteem, embarrassment and so on to ask, or ask for help [2]. So, a peer tutor is a learning resource other than teachers that is peers who are smarter that provide aid to friends who are less intelligent or who have difficulty in learning. With the help of these, it will be good communication between peers, and an explanation of peers would be more easily understood.

According to Topping, peer tutoring learning was first applied by Andrew Bell in his experiment in the dormitory of Military Men. Then the study was developed by Joseph Lancaster. And in 1970 research peer tutors intensify and be able to overcome difficulties in learning [10]. Peer tutor learning model (peer tutoring) is one alternative that can be applied to the student in the learning process. Peer tutoring learning is learning undertaken by friends who have almost as young age, where students learn in small groups that are grouped with different ability levels. All members of the group work together and help to understand the resource materials that create mutual respect others more friends [9].

The purpose of the model of peer tutoring learning that provides opportunities for students to develop the ability to solve problems rationally, developing a social nature and the spirit of mutual cooperation in life, dominate group activities in learning and every member feels self-conscious as the group responsible, develop leadership skills, the skills of each member of the group in problem solving group. According Ningrum, a tutor should have the following criteria: (a) Has the ability academically above average students of the class; (b) Ability to collaborate with fellow students; (c) Have a high motivation to achieve good academic performance; (d) Have an attitude of tolerance and empathy with others; (e) Have a high motivation to make the group discussions as the best; (f) Be humble, brave and responsible; (g) Love to help others in distress [9].

Peer teaching can be done in the form of individual tutorials, small group or regular class lessons [11]. In this case the learning strategy used is the strategy of peer tutoring learning in small groups. According Erman, the characteristics of small group discussion are: (a) Engaging 3-9 participants; (b) Held in face-to-face interaction, each member can communicate directly with other members; (c) Having a goal is achieved by cooperation among the other members; (d) Progress according to a systematic process [2].

Meanwhile, according to Roestiyah, in a group work, students are divided into several groups. Each group consisting of 5 or 7 students that work together in solving problems or carrying out the duties stated by teachers, and the grouping of the group members adapted to students' abilities [12]. According to Ningrum, tutor or head of the group have duties or responsibilities as follows: (a) Provide tutorial to members of the teaching materials are being studied; (b) Coordinate the discussion process that takes place creative and dynamic; (c) Communicate problems to the supervising teacher if they atill do not understand [9]. The rules in peer tutor learning model according to Arjanggi and Suprihatin, are: Phase 1, Select and guide the Peer Tutor; Phase 2, Outline the objectives and prepare the students; Phase 3, The presentation of the material; Phase 4, Organize students into study groups; Phase 5, Monitor the work study groups; Phase 6, Evaluation; Phase 7, Assessment [13].

The number of peer tutors appointed are adjusted to the number of groups formed. Tutor determination that takes into account or selecting students with high academic ability [9]. Before starting teaching peers, teachers should provide a special time to train students who will act as a teacher. Students should be introduced and familiarized with the basics of teaching techniques and the resources available to him [11]. Thus, a special time to do for selecting and guiding tutor should be carried out of the class.

According to Ningrum, at the stage of presentation of the material or exploration, teachers deliver lessons [9]. Meanwhile, according to Ridwan, at this stage the teacher explains the subject matter briefly on all learners and provide questioning [14]. After delivering the material, the class is divided into groups that have been determined that each group there is one tutor. Then the teacher gives a problem for discussion with the help of peer tutors. Before beginning a discussion tutor provides the opportunity for group members to ask questions about the subject matter that has been presented by the teacher. Then the teacher monitoring the tutoring activities [9]. It can be concluded in learning peer
tutoring, the implementation of choosing and guiding students is done in a special time of the outside learning. Tutor led to its conclusion in the matter then led his friends when learning takes place. Then in the process of presenting the material the teacher presents the material through conveying this material, and then the students are grouped into a group and discuss teaching materials provided by the teacher.

The success of a tutor can be seen from the results of the group that has been described by representatives of each of the groups. However, each study model must have both negative and positive sides. According Ningrum, the advantages of peer tutoring, namely: (a) It works better for some children who have feelings of fear and reluctant to his teacher, both asked and answered; (b) As a student tutor, tutoring job, will reinforce concepts and knowledge is better than what has been discussed; (c) For the tutor becomes a chance to practice, train a sense of responsibility in carrying out its duties as a tutor, and practice patience; (d) Strengthen relationships between students that strengthen social feeling and a sense of solidarity among students; (e) The students more independent and mature and has a sense of solidarity. While the lack of peer tutors learning model are: (a) Students who assisted learning sometimes less seriously because they thought that the tutor was a friend of his own, so the results are sometimes unsatisfactory; (b) There are some students who become embarrassed when asked or answered for fear the answer will be wrong and will be known by his ignorance; (c) At a certain time tutoring job is very difficult because of differences in gender, and socio-cultural genre between tutor with the students by program improvement; (d) For the teacher also finds it difficult to find the right tutor for groups or students who need to be guided [9].

So, before being implemented peer tutors teaching, it should do the preparation and planning that hair-splitting, both regarding material and implementation. If done properly, then the peer tutors teaching it can be extremely valuable for students who served as teachers and students are taught. According to Sujono, peer tutoring learning may be one alternative course of action to be implemented by mathematical association or an activity that is only initiated by a group of students under the guidance of a teacher advisor. In other words, peer tutoring learning can not only be applied in teaching mathematics course but also could be applied in other lessons, where there are a group of students under the guidance of a teacher advisor [11]. Thus, peer tutoring learning is student-centered learning itself, where the help of peers in general seem closer than the relationship between students and teachers. Students designated as tutors are students who are considered smart and able to teach or be a tutor for their friends who are less intelligent or miss based on the guidelines provided by the teacher.

Through peer tutoring, students are not served as an object lesson, but become the subject of learning that is the students are invited to become a tutor or a learning resource and a place to ask for his friend. Thus, students who became tutor could repeat and explain again the material so that it becomes more understand [2]. While students who are not tutors be helped and can solve problems that were previously not understood.

When linked with mathematics, it can help students overcome learning difficulties individually, because through peer tutoring learning it will create communicate verbally which is a tool to increase understanding, to guide students to learn from other students and provide opportunities for students to reflecting their understanding. Has done some research trying to find how to increase students' mathematics learning outcomes through peer tutoring learning models. Teguh showed that the results of class X students learn mathematics IPA 7 SMA 1 Kudus at Trigonometry material can be improved by using a peer tutoring learning, which is the average value of learning outcomes increased by 23.12%. And also looks there is an increasing number of students who achieve mastery learning, i.e learning completeness reached 76.47% [3]. Additionally, Sri also noted, using peer tutoring learning there is an increase in the average value of learning outcomes in the material Statistics, which increased by 31.9% from the first cycle to the second cycle [1].

Rathih, Wuryanto and Arif also showed the results of their research, namely 93% of the study of students at study of peer tutoring achieve mastery, the average value of the study of students who are subject to the learning model peer tutoring approach inquiry assisted learning CD is better than average learning outcomes of students who are subject to expository learning models, and there are significant activities of learners towards learning achievement of 81.72%. Implementation of peer
tutoring learning models, especially in mathematics learning can make students more easily find and understand difficult concepts when they are discussing these issues with friends. Through discussion in the group will be established communication, where students share ideas or opinions. Through discussion will also take place in good cognitive elaboration, so as to increase the power of reason, the involvement of students in learning and provide opportunities for students to express their opinions [15].

Based on the above it appears that in the peer tutoring learning, in addition to increasing student understanding, also can train students in communication. So the achievement or student learning outcomes have also become more increasing. When completing math problems, teaching peer tutors are often used to help students slow solve the given problem. Here comes the role of students designated as a tutor to help her friends to solve problems. So, in mathematics, the implementation of this model of peer tutoring learning can make students understand each other mathematical concepts and help students in solving mathematical problems that are poorly understood, due to the interaction between students in learning. Being able to understand the lessons or concepts well, then it will have an impact on student learning outcomes. The impact is student learning outcomes increase.

4. Conclusion

Based on the research objectives and results, it can be concluded that the model of peer tutoring learning can improve student’s mathematics learning outcomes. The results of student’s mathematics learning increases whether the students who had been appointed tutor or not be a tutor.

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