THE APPLICATION OF LEARNING MODEL COOPERATIVE TYPE TEAMS GAMES TOURNAMENT (TGT) TO IMPROVE ACTIVITY LEARNED MATHEMATICS CLASS VIII C SMP MUHAMMADIYAH PLERET BANTUL YOGYAKARTA

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ABSTRACT

Learning centered on teachers caused students less active in following learning math.This study attempts to improve activity learned mathematics through learning model cooperative type *Teams Games Tournament* (TGT) on a student VIII c odd semester SMP muhammadiyah pleret bantul academic year 2016 / 2017. The research is the act of class research (PTK).A subject in this research is VIII students class c junior muhammadiyah pleret district bantul odd semester academic year 2016 /2017.Whereas the object investigated in this study is the application of the cooperative model learning type *Teams Games Tournament* (TGT) on grade students VIII C odd semester SMP muhammadiyah pleret academic year 2016 / 2017. The research was done as many as three cycles. Data was gathered using sheets of observation, and an interview .Data analysis used is descriptive qualitative. The result showed that through learning model cooperative type *Teams Games Tournament* (TGT) could jazz up the activity learned mathematics graders VIII C odd semester SMP muhammadiyah pleret bantul academic year 2016 / 2017. This is apparent from the observation students sheets activity was increasing ever cycle, at the cycle I the percentage of activity students 50,39 % on enough, the percentage of students II activity of 53,88 % on good, the percentage of students III activity of 70,81 % on good. From the pieces, observation activity was also was increasing every cycle. From the interviews obtained information that students interested in general and who love in learning math.

Keywords: the activity, learning model, *Teams Games Tournament* (TGT)

INTRODUCTION

Mathematics is a field of study that is a pioneer of other studies so it will not be separated from the development of science. Many students think that mathematics is a difficult subject. This assumption is the cause of the lack of activity in learning mathematics. Learning is one of the activities carried out in schools that often makes the problems faced by adolescents, in this case, are junior high school students. According to Cronbach cited by Djamarah, Syaiful Bahri (2011: 12-13) learning as an activity that is indicated by changes in behavior as a result of experience.

According to Muijs, Daniels and David Reynolds (2008: 343) mathematics is a key part of schooling because of the importance of basic numerical skills in daily life, the role of mathematics in the acquisition of logical thinking skills, and the role of mathematics as crucial components of other fields of science. According to Silberman (2006: 9) in order to learn to be active, students must do many tasks, they must use the brain, study ideas, solve problems, and explain what they learn.

Uno, Hamzah B. (2012: 75-76) suggests the characteristics of active learning are (1) Learning centered on students (2) Learning related to real life (3) Learning encourages children to think at a higher level (4) Learning serves the style different children's learning (5) Learning encourages children to interact multi-way (student-teacher) (6) Learning uses the environment as a medium or learning resource (7) Child-centered learning (8) Structuring the learning environment makes it easy for students to carry out learning activities (8) The teacher monitors the student's learning process (9) The teacher provides feedback on the child's work.

Student activities in learning according to the Directorate of Coaching (2010: 57-58) include (1) Enthusiastic students participating in learning (2) Student interactions with teachers (3) Interaction between students (4) Group collaboration (4) Student activities in groups (5) Student participation in concluding the results of the discussion (6) The interaction of students with learning resources.

To improve mathematics learning activities in the classroom, the teacher must use and adapt the learning model used to the conditions of students and the material presented. One learning model that can be used in classroom teaching is the cooperative learning model. According to Hamdani (2011: 30), the Cooperative learning model is a series of student learning activities in certain groups to achieve the learning objectives formulated.

According to Hamdani (2011: 31) the characteristics of cooperative learning are (1) Each member chooses a role (2) There is a direct interaction between students (3) Each group member is responsible for the way he learns and also his group friends (4) The teacher helps develop group interpersonal skills (5) The teacher only interacts with the group when needed

According to Hamruni (2009: 170-171) the advantages of using cooperative learning models are (1) Students are not too dependent on the teacher, (2) Developing the ability to express ideas and compare them with other people's ideas, (3) Fostering respect for others, (3) 4) Helps to deceive students to be more responsible in learning, (5) Increase academic achievement and social ability. (6) Developing the ability to test students 'own ideas and understanding, (7) Improving students' ability to use information and turning abstract learning into reality, (8) Increasing motivation.

According to Slavin (2005: 163-165), TGT uses academic tournaments and uses quizzes and an individual progress score system, where students compete as their team representatives with other team members whose previous academic performance is equal to theirs.

Shoimin, Aris (2014: 207) The strengths of the Teams Games Tournament (TGT) learning model are (1) The TGT learning model makes students of higher and lower academic abilities equally active and has an important role in the group, (2) Fostering a sense of togetherness and mutual respect for fellow group members, (3) Students are more enthusiastic in following the lessons, (4) Students become more happy. Of the several advantages of the TGT cooperative learning model can increase student learning activities.

The steps of the TGT cooperative method according to Isjoni (2013: 83-86) are (1) The teacher presents the material and students work in their respective groups. (2) In group work, the teacher gives LKS to each group. If there are group members who do not understand the assignment, the other group members are responsible for giving answers or explaining, before asking the question to the teacher. (3) Academic games to ensure that all group members have mastered the lesson. In academic games, students will be divided into tournament tables, where each tournament table consists of 5 to 6 people who are representatives of their respective groups. In every table of the game, there are no participants from the same group. Students are grouped together in one tournament table homogeneously in terms of academic ability. This can be determined by looking at the value they get at daily tests. (4) Scores obtained by each participant in an academic game are recorded on the score recording sheet. Group scores are obtained by summing the scores obtained by members of a group, then divided by the number of members of the group. This group score is used to give team awards in the form of certificates by including certain titles. (5) The game begins by notifying the rules of the game. The game begins by distributing question cards to play (question cards and keys are placed behind the table so that questions and keys are not read).

The formulation of the problem in this study is "Can the cooperative learning model of the Teams Games Tournament (TGT) improve the mathematics learning activities of students in class VIII C in the odd semester of SMP Muhammadiyah Pleret 2016/2017 school year?"

In accordance with the formulation of the problem above, the purpose of this study is to increase the mathematics learning activities of class VIII C odd semester of the 2016/2017 Muhammadiyah Middle School through the Teams Games Tournament (TGT) type of cooperative learning model in mathematics learning.

METHOD

This research is Classroom Action Research (CAR). The subjects in this study were students of class VIII C in the odd semester of Muhammadiyah Pleret Bantul Middle School 2016/2017 academic year with a number of 23 people with heterogeneous abilities. While the Object in this study is the whole process and application of the Teams Games Tournament (TGT) cooperative learning model to increase student activity in mathematics learning for students of class VIII C in the odd semester of SMP Muhammadiyah Pleret Bantul.

This research procedure consisted of three cycles. Learning in the stages of a cycle I, cycle II and cycle III by using the cooperative learning model type Teams Games Tournament (TGT) then the researcher acts as a teacher. According to Suharsimi Arikunto, et al (2012: 16-20), the activities carried out in each cycle are as follows (1) planning, (2) implementing actions, (3) observation and (4) reflection.

At this planning stage, the researcher arranges and prepares things as follows (1) Observes student characteristics, student activities, class situations, student conditions, facilities and infrastructure as well as the methods used in learning (2) Develops learning strategies by creating small groups consisting of out of 4-5 students with different abilities (3) Preparing learning materials (4) Preparing cards used for Games tournaments (5) Making Learning Implementation Plans (RPP) and Student Worksheets (LKS) (6) Compiling and preparing observation sheets student and teacher activities. (7) Develop interview guidelines for students and teachers.

At the implementation stage of the action, the researcher applies the lesson plans that have been made, namely learning by the reciprocal teaching approach. The material discussed is about the linear program with the details as follows (1) in cycle I discuss the linear inequality system of two variables (2) in cycle II discusses mathematical model material.

In the observation stage, the researcher was assisted by two UAD students as observers who observed all the students' learning independence during the learning activities. In the reflection stage, the researcher and observer conduct a discussion to evaluate the teaching and learning process that has been going on and prepare an action plan in the next cycle.

Data collection techniques used in this study are as follows (1) interviews were conducted on several students at the end of each cycle meeting, (2) observations were made to determine the independence of students' mathematics learning during the learning process (3) triangulation was used to find out the data obtained so more clear, consistent, thorough and certain and (4) Tests are used to determine the level of student success in participating in learning.

Analysis of the data used is descriptive analysis. The observation sheet uses the Guttman scale, so the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. (sugiyono, 2012: 139). The observation sheet of learning activities is analyzed using the percentage formula:

Percentage (P)= $\frac{total\ score\ obtained}{number\ of\ scores\ obtained}$ x 100 %

Table 1. Qualifying Percentage of Mathematical Learning Activities

Percentage	Criteria
$80\% < p \leq 100\%$	Very good
$60\% < p \leq 80\%$	Well
$40\% < p \leq 60\%$	Enough
$20\% < p \leq 40\%$	Less
$0\% \leq p \leq 20\%$	Very, very little

(Riduwan, 2010:41)

Indicators of success in this study are (1) Learning is carried out in accordance with the application of the cooperative learning model type Teams Games Tournament (TGT) (2) There is an increase in activity from the first cycle, the next cycle and so on.

RESULTS AND DISCUSSION

Learning activities that have been carried out in cycle I, cycle II, cycle III using the Teams Games Tournament (TGT) type of cooperative learning model indicate that there is an increase in students' mathematical learning activities on the subject of functions and relationships. The improvement of students' mathematics learning activities can be seen in the following table:

Table 2. Increased Student Mathematical Learning Activities Based on Observation Results

No	Observed aspects	Percentage			Information
		Cycle 1	Cycle 2	Cycle 3	
1	Enthusiastic students participate in learning	63,59 %	75,00 %	89,67 %	Increase
2	Student interaction with the teacher	65,22 %	68,48 %	84,78 %	Increase
3	Interaction between students	57,61 %	42,93 %	58,70 %	Increase
4	Group collaboration	44,02 %	56,52 %	86,96 %	Increase
5	Student activities in groups	40,76 %	52,17 %	75,00 %	Increase
6	Student participation in concluding the results of the discussion	32,61 %	34,78 %	44,57 %	Increase
7	Student interaction with learning resources	48,91 %	47,28 %	55,98 %	Increase
Average percentage		50,39 %	53,88%	70,81 %	Increase

For more details will be presented in the following graph:
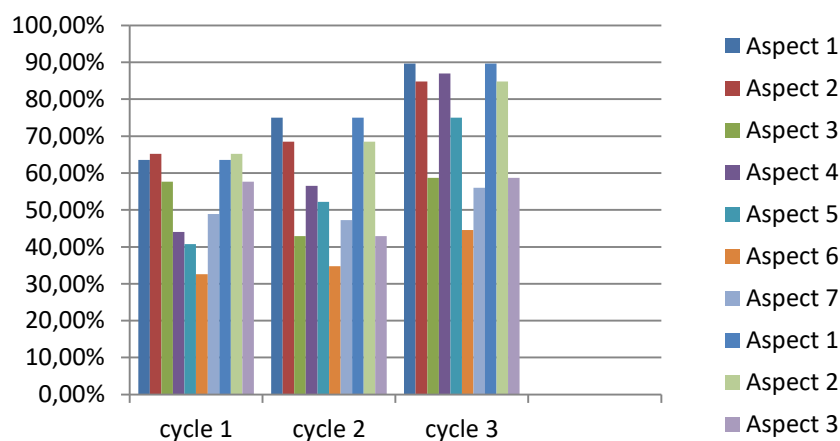
Picture 1. Graphic Increased Percentage of Student Activity Based on Aspects in Each Cycle

Based on Table 2 shows that the average percentage of student activity in the first cycle was 50.39%. This shows that the criteria have not been reached, from the results of observation most students are still reluctant to pay attention, the classroom atmosphere is so noisy and difficult to condition. After reflection on improvements in the teaching and learning process, in cycle II an increase in students' mathematical learning activities to 53.88%. This figure still shows that the criteria have not been reached,

because there is still a lack of student activity in expressing their opinions, inferring the results of discussions and interactions with learning resources. After reflection on improvements in the teaching and learning process, in cycle III an increase in students' mathematical learning activities to 70.81%. This figure meets the desired research criteria, which are good criteria. Student responses to mathematics learning using the Teams Games Tournament (TGT) type of cooperative learning model are very good. This can be seen from the results of researchers' interviews with several students of class VIII C.

Based on the indicators of research success that have been determined, this research has been successful. The success provisions state that this study was successful if there was an increase in activity from the first cycle to an average percentage of 50.39%, the second cycle to an average percentage of 53.88% and after carrying out the third cycle the average percentage of students learning mathematics reached 70, 81%. It means that students' mathematics learning activities have increased with good criteria.

CONCLUSION

An increase in activity after using the Teams Games Tournament (TGT) type of cooperative learning model in mathematics learning. This is shown based on the results of student activity observation sheets, an increase in the first cycle the percentage of student activity by 50.39% with sufficient criteria, second cycle the percentage of student activity by 53.88% with sufficient criteria, cycle III the percentage of student activity by 70.81 % with good criteria.

Mathematics learning using the Teams Games Tournament (TGT) cooperative learning model gets positive responses from students, which means students are interested and feel happy so that student activity in mathematics learning can be increased by using the Teams Games Tournament (TGT) cooperative learning model. This is evident from the results of interviews with students.

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