

Improved Science Learning Outcomes Through Teams Game Cooperative Learning Tournament

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Abstract: This research is an attempt to describe the increase of interest in Science of students of class VIII at SMP Negeri 2 Colomadu after the application of Teams Games Tournament (TGT) learning model. This research uses Class Action Research (PTK) method which includes planning, action, observation and reflection. The subjects in this study were students of class VIII at SMP Negeri 2 Colomadu, which amounted to 31 students. The object of this study is interest in learning science of students through Teams Games Tournament learning model (TGT). Data is fed by observation, test and documentation. Data analysis using comparative descriptive analysis technique with percentage. The results of this study indicate an increase in learning achievement of science students. This can be seen from the average score of learning achievement of science students also experienced an increase before the action of 68, in the first cycle of 75.5 and on the second cycle of 80.8. In addition, the percentage of students' learning mastery, example before the action of 63%, in the first cycle of 75% and in the second cycle of 94.75%. So it can be concluded that "Active learning model of TGT can improve the learning achievement of science students of class VIII in SMP Negeri 2 Colomadu".

Keywords: Learning Achievement of Science; TGT Cooperative Learning; Science Learning

Introduction

Science learning is the initial foundation in creating students who have knowledge, skills, and scientific attitudes. Science learning is directed by finding out about nature systematically, so that science is not only the assignment of a collection of knowledge in the form of facts, concepts, concepts, or principles only, but also a process of discovery. This has implications for science learning activities in schools. Science learning must contain the nature of Science consisting of three components, namely products, processes, and attitudes. These three components become a wholeness in the teaching and learning process. Teachers should be able to provide understanding for students what the meaning of Science learning is. Samatowa, (2006) explained that in a learning teacher cannot separate content in a learning activity.

Based on the results of observations in class VIII at SMP Negeri 2 Colomadu, it is known that the problem faced by students is the low learning outcomes possessed by students, especially in science lessons. This can be seen from the daily repeat value of the material science of Various Systems in Plant Life, with a KKM of 70 obtained the average repeat score is 68 and the percentage of completion is 62.5% (20 students). The problem is caused by the low learning outcomes of students in science subjects. Most students find sciences difficult to understand, so they think sciences are a scourge in learning. In addition, the methods used in the learning process still apply conventional methods or lectures.

One alternative that can be taken to improve student results is through the creativity of teachers in choosing teaching methods (Nuswowati, 2017). All teaching methods are not necessarily suitable for every subject that exists, so the implementation of teaching

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methods must be appropriate in accordance with the topic of the lesson and the sub-subject matter presented so that the teaching process will become more effective and efficient. Learning methods that can attract student results in learning, for example, is to place students in groups, because it can train students in critical thinking, creative and foster a high sense of social (Asrifan, 2021). Learning that can realize this is cooperative learning in accordance with the construction approach.

One of the cooperative learning is Team Games Tournaments (TGT). This TGT-type cooperative learning model uses academic tournaments and quizzes with individual progress scores, where students compete as representatives of their teams with other team members whose previous academic performance is on par as they are (Mudrika et al., 2018). TGT-type cooperative learning has the advantage of giving teachers the opportunity to use the competition in a constructive/positive atmosphere. TGT motivates students to compete and builds confidence when they compete in tournaments (Trianto, 2010)

Mulyasa, (2006) said learning outcomes are the student's overall learning achievements, which are indicators of basic competencies and degrees of behavior change in question. According to Purwanto, (2011), learning outcomes are behavioral changes that occur after following the teaching and learning process in accordance with educational goals.

In the application of the TGT-type cooperative learning model, there are several stages that need to be taken according to Huda, (2013), namely: (1) Teaching (teach), teachers deliver materials, convey goals, tasks, or activities that students must do and provide motivation to students; (2) Studying groups (team study) students work in groups of 4 to 6 people with different academic abilities, genders, and races/ tribes. In this stage, students are asked to study and deepen the material cooperatively with their members. To form a group can be done with the following steps: (a) make a list of academic rankings; (b) limit the maximum number of members of each team to 4 students; (c) each student is assigned a number starting from the very top (e.g.: 1, 2, 3, 4, 5, 6, and so on); and (d) each team is formed heterogeneously and academically equivalent. The purpose of this study is to assign a task to each Study Team to review with a predetermined format and worksheet.

Games (games tournament), after forming a team, students begin to compete in tournaments. The determination of the tournament is carried out homogeneously with the following steps: (a) using a list of pre-made rankings; (b) forming groups consisting of 3 or 4 students each; and (c) determining each member of each group and striving for no member to come from the same group. In carrying out this tournament game

can be done with the following stages: (a) conveying the rules of the game to the students; (b) make questions on the question sheet and answers on the answer sheet (preferably the question cards and answers have been prepared in advance), then the cards are put in several envelopes and placed on the table; (c) each team or group determines the reader of the question and the player first by being drawn; (d) the player who wins the lottery takes the envelope and gives the reader the question, then the reader about reading the question that is in the envelope; (e) the question is done independently by the player and challenger in accordance with the time specified in the matter; (f) after the time to work on the problem is completed, then the player will read the results of his work and be responded to by the challenger with a clockwise round; (g) if all players and challengers have already determined the result, the question reader will unlock the answer; (h) using the score rule will be given to the player or challenger who can answer correctly for the first time; and (i) if all the players answer wrongly, then the matter is just lied to. The game continues with all the cards of the question read out, where the player's position is rotated clockwise so that each participant Science in one tournament table can act as a question reader, player, and challenger. (Armidi, 2022; Fauziyah, 2021; Mamoud, 2022)

Scoring, after all the cards have been completed, each player in one table counts the number of cards obtained and determines how many points are earned based on the table that has been provided (Sunanto, 2007). Next, each player returns to his original group and reports the points earned based on the table that has been provided. Next, each player returns to his original group and reports the points earned to the group leader. The group leader enters the points earned by his group members on the table that has been provided, then determines the award criteria received by his group.

Group awards, awarding awards are based on the average points earned by the group. Where the determination of points obtained by each member of the group is based on the number of cards obtained as shown in the description as follows: Top scorer (highest score), high middle scorer (high score), low middle scorer (low score), middle scorer (medium score), and low scorer (score). lowest).

Based on the description above, a formulation of the problem can be taken as follows "Can the Teams Games Tournament (TGT) type cooperative learning model improve the learning outcomes of class VIII Science at SMP Negeri 2 Colomadu?". The purpose of this study is to improve science learning outcomes by applying TGT-type cooperative learning to class VIII students at SMP Negeri 2 Colomadu.

Method

This research is a classroom action research that seeks to examine, critically, and collaboratively reflect a plan for learning teacher performance, the interaction between teachers and students, and the interaction between students in the classroom. This class action research process is carried out in two cycles, each cycle consists of four stages, namely 1) planning, 2) action, 3) observation and 4) reflection. The class action activities that researchers do are the opposite of the problem to be solved, then the researcher plans an action and implements it. In the implementation of the action, the researcher conducts material delivery, action tests and observations of the activities carried out. The problems that arise in cycle I are problems that must be solved in cycle II. Furthermore, activities begin again such as activities in cycle I, namely, planning, action, observation, and reflection with changes to overcome problems that arise in cycle I.

The subject of this class action research is class VIII students at SMP Negeri 2 Colomadu as many as 31 students, as the subject of the recipient of the action, while for the subject of the action is the teacher of class VIII science as the teacher, colleagues as the subject who observes the learning process, the Principal as the subject of the data source. The object of this research is the application of the TGT-type cooperative learning model.

Instruments used in research include tests, observation sheets, and documentation sheets. Tests are used to determine the extent of improved learning outcomes with the application of the TGT cooperative learning model. Observation Sheet used observation sheet for the implementation of cooperative learning TGT. The documentation sheet aims to find out student data during research activities. This documentation sheet is in the form of photos of learning activities, attendance lists of learning activities, attendance lists, value lists, and so on.

An indicator of performance success in this study is the increase in student Science learning outcomes of Various Systems in Plant Life, which is indicated by an increase in the average score of student tests of at least 80.0 and many students with scores above the minimum completion criteria (KKM) of ≥ 70.0 reaching $\geq 85\%$.

Result and Discussion

Class action research is carried out in two cycles, because in cycle II the success indicator has been achieved. Each cycle consists of 2 hours of lessons or 80 minutes. Before carrying out the cycle, the teacher makes initial observations by using pretesting the learning results of science materials of Various Systems in Plant

Life that have been prepared by the teacher to obtain science learning results. The average result of pretesting the learning outcomes of students of class VIII of Colomadu State Junior High School 2 on the material of Various Systems in Plant Life is 68 with a percentage of 63% completion.

Each cycle consists of 4 stages: planning, action, observation, and reflection. The focus of this research is to improve students' science learning outcomes on various systems in plant life.

Cycle I

Based on the results of the evaluation in cycle I showed an increase in student learning outcomes. The average student learning outcome increased to 75.5 while the percentage of student learning increased to 75%. Based on the observations, it can be known that the learning process in the first cycle has not been going well enough and has not achieved the expected performance indicators.

The success achieved after cycle I only partially showed increased participation while other students were still passive. The solution taken to overcome these problems is that the next action is needed to be able to improve student learning outcomes by increasing students' enthusiasm to follow the TGT-type cooperative learning model, teachers monitor students at the time of material giving so that teachers can reprimand students who pay less attention and encourage student courage in expressing opinions when students do not understand about the material presented by the teacher. Another step is to reduce the number of group members to 4 students per group so that there are 8 groups.

Cycle II

Based on the results of the evaluation in cycle II showed an increase in student learning outcomes. The average student learning outcome increased to 80.8 while the percentage of student learning increased to 94.75%. Based on the results of observations in cycle II, the application of the TGT-type cooperative learning model shows success. It is characterized by: (1) Interest, attention in following and paying attention, and student learning outcomes with an increased TGT-type cooperative learning model; (2) The activeness of students in learning and perception has increased; (3) Teachers monitor discussions and reprimand students who are less serious about the following learning with a cooperative model of TGT type; (3) Students who ask teachers have increased; (4) Students can do their own questions well and have the courage to do questions in front of the class. The state of the class has calmed down during the learning process.

Because the increase in student science learning outcomes in cycle II has met the established performance indicators, the implementation of the action stops in cycle II. This study obtained data that can be tabulated as Table 1, 2, 3, and 4.

Table 1. Value of Initial Observation Results / Prasiklus

Value	Test Individual
Lowest	50
Highest	86
Completeness	63%
Average	69.25

Table 2. Result Value Cycle I currency

Value	Test Individual
Lowest	60
Highest	88
Completeness	95%
Average	75.5

Table 3. Value of Cycle II Observation Results

Value	Test Individual
Lowest	66
Highest	93
Completeness	94%
Average	81.8

Table 4. Class Profile Before and After Research Actions

Student Results	Initial Condition	Cycle I	Cycle II
Average value	68	75.5	80.8
Completed students of KKM	20 students (63%)	24 students (75%)	31 students (92.75%)

Based on the graph from Figures 1 and 2, it can be shown that student learning outcomes by applying TGT-type cooperative model learning in each round have increased, namely: (1) Before the class research action the average grade of student learning results is 69.25 with a percentage of student learning outcomes of only 62.5%, (2) After the action is taken in cycle I, the average grade of student learning results has increased by 75.5 with a percentage of completeness of 75%, (2) After the action in cycle I, the average grade of student learning outcomes increased by 75.5 with a percentage of completeness of 75%, but has not yet reached the expected indicators; (3) In cycle II, the average grade of student learning outcomes increased to 81.8 with a percentage of completion of 92.75% and has reached the expected indicators, this class action research has been successful.

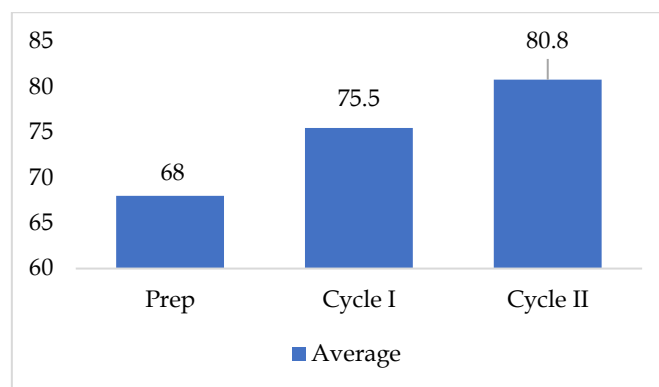


Figure 1. Average Student Outcomes on Initial Conditions, Cycle I, and Cycle II

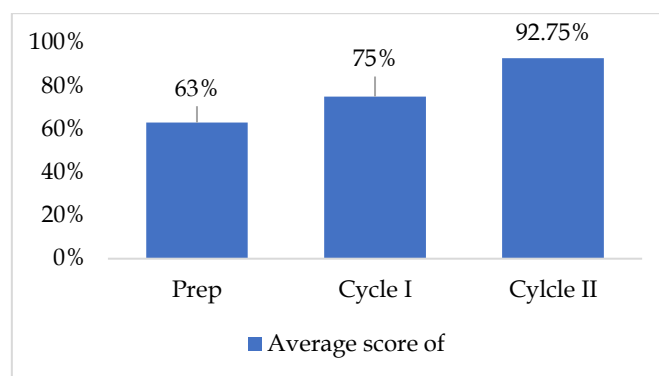


Figure 2. Percentage of Student Completion in Initial Conditions, Cycle I, and Cycle II

The average student learning outcome at the initial condition of 68 with a percentage of student learning completion of 63%, in cycle II rose to 80.8 \geq 80.0 (performance indicator) with a percentage of student learning completion of 92.75 \geq 85% (performance indicator). So, the performance indicator has been achieved so that it does not proceed to the next cycle.

The TGT learning model has an impact on the competence of science knowledge, increasing the ability to work with groups, being able to train cooperation and the readiness of students in facing any situation. In this process, students will work together in solving problems given by the teacher. This is in line with Murdika's, (2018) opinion that the TGT learning model is a group learning model wherein the learning process students can be motivated because in the learning process students are invited to play so that students become more relaxed in learning.

The use of question card media, question card media also has a good influence on the competence of students' science knowledge because in using this question card media students are required to be alert and able to think critically in reading instructions and the intent of the problems on the questionnaire. So that in the learning process students become enthusiastic. This is in line with the opinion of (Kadarwati, 2017) that

media question cards help train students' concentration and memory so that students must be ready when the teacher shows the question card media so that students will focus on the teacher and concentrate on capturing the messages contained in the question card media. The combination of the application of the TGT model with the help of question card media has an impact on science learning (Zaenudin, 2008). Students are much more relaxed in the learning process because in the learning process students are relaxed and students can interact and collaborate with their groups, then assisted by question card media that can attract students' attention. It can also train student to concentrate on the learning process.

The difference in the results of competency in scientific knowledge could be seen from the learning process that has been carried out on two sample groups, the results of hypothesis testing, and is seen based on the mean scores in the two groups. Based on this explanation, it was stated that the TGT learning model assisted by question card media had an effect on the competence of fourth-grade students of SMP Negeri 2 Colomadu.

Conclusion

Based on the research of this class action, it can be concluded that: using cooperative learning type TGT can improve science learning outcomes in class VIII students at SMP Negeri 2 Colomadu. This can be shown by the increase in the average grade of student Science learning outcomes from 68 increased to 80.8 and the percentage of student Science completion from 63% increased to 92.75%.

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