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Improving Natural Science Learning Outcomes on Natural Events Material Through Cooperative Learning Models of Teams Games Tournament Type for Class V Elementary School Students

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ABSTRACT

Purpose of the study: This research is an effort to improve the learning outcomes of class V students in Natural Sciences subjects with a teams games tournament type cooperative learning model.

Methodology: This research is classroom action research. The subjects of this research were 21 class V students, consisting of 8 boys and 13 girls. This research was carried out in 3 cycles, each cycle consisting of four stages, namely planning, implementation, observation and reflection. The data collection methods used were interviews, observation, documentation and tests. Data was analyzed statistically using a percentage formula.

Main Findings: The research results show that the Teams Games Tournament type cooperative learning model can improve learning outcomes on natural events material for class V students. Improvement from pre-cycle to cycle III. The increase from pre-cycle to cycle I was 19%, from cycle I to cycle II was 24%, from cycle II to cycle III was 23%. The number of students who completed the pre-cycle was 5 students or 24% with an average score of 47.61. The number of students who completed Cycle I was 9 students or 43% with an average score of 55.71. In cycle II there were 14 students or 67% of students completed the study with an average score of 68.09, and in cycle III there were 19 students or 90% students completed the study with an average score of 74.28.

Novelty/Originality of this study: This research contributes to the development of education and can provide new information on how to overcome problems that arise in the teaching and learning process. Especially in science subjects, especially to improve student learning outcomes in class V natural events material in science subjects.

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1. INTRODUCTION

Education is one of the main instruments in developing human resources. Education cannot be separated from educators or teachers as one of the elements that plays an important role in the learning process [1]-[3]. Learning is a combination of two learning and teaching activities [4], [5]. Learning is an activity that is

very important for individual development. Learning will occur at any time within a person, wherever and whenever the learning process can occur [6], [7]. Teaching is defined as an effort to organize the environment so as to create learning conditions for students [8], [9]. The learning process is something experienced by students, a response to all learning programmed by the teacher [10], [11].

Educators have the task of choosing the right learning model according to the material presented in order to achieve learning objectives [12], [13]. Teachers need to choose a learning model that suits the characteristics of each subject so that learning can be successful [14], [15]. One of the subjects that requires the use of learning models that suit its characteristics is the subject of Natural Sciences [16], [17].

Natural Sciences is a group of sciences, which has special characteristics, namely studying factual natural phenomena, whether in the form of reality or events and cause and effect relationships [18], [19]. Science subjects function to provide knowledge of the natural environment, develop insight and awareness of technology in relation to its use in everyday life [20], [21]. Natural Sciences are studied so that students can get to know various natural environments, identify natural events and can describe various types of impacts of natural events. Natural Science is a science that requires a lot of understanding of concepts, theories and laws, not just memorizing them [22], [23]. Therefore, in carrying out science learning, you must be active and creative in involving students to be able to think critically in solving problems, especially those related to everyday life.

The success of science learning depends on the teacher's creativity in using appropriate and interesting learning models. Learning model is a pattern used as a guide in planning learning in class and tutorials [24], [25]. A learning model can also be defined as a conceptual framework that describes systematic procedures for organizing learning experiences to achieve learning goals [26], [27]. Through the learning model teachers can help students get information, ideas, skills, ways of thinking and expressing ideas. Learning models can be used by teachers to plan learning activities [28], [29]. One learning model that can be applied in science learning is the Teams Games Tournament type cooperative learning model.

Based on preliminary studies in the implementation of science learning, various active learning models have not been used. Learning is carried out only by lecture, question and answer and assignment methods. Students only act as recipients of the material and are not trained to discuss with each other. This condition causes students to become passive, bored, and have difficulty understanding the material, so that some students' test scores are still below the Minimum Completeness Criteria. It can be seen from the results of student learning in natural events that many students are still below the Minimum Completeness criteria, namely out of 21 students only 5 students were able to achieve the Minimum Completeness criteria, while 16 students are still below the Minimum Completeness criteria. The minimum completion criteria score for science subjects at the school is 70.

Based on these problems, to create more meaningful learning is to try to apply the teams games tournament type cooperative learning model. Teams Games Tournament is a type of cooperative learning that is easy to implement, involves the activities of all students without any differences in status, involves the role of students as peer tutors and contains elements of play [30], [31]. The advantage of this learning model is that it can make students more actively involved in the learning process. Apart from that, students are also trained to exchange ideas and practice cohesiveness in groups. The choice of class and material is considered very appropriate for implementing the teams games tournament learning model. Class V is the top class at the basic education level so students should be trained in a sense of responsibility, the ability to exchange ideas in solving problems, and be active in learning activities so that students can participate in learning well. Natural event material is material related to events in nature that are related to everyday human life. So, in following this material, concentration is really needed so that students can understand, differentiate and classify various kinds of impacts of natural events and how to deal with the impacts of these natural events. Students are trained to discuss using this learning model to solve problems related to events in nature. Apart from that, holding academic games will raise students' enthusiasm in studying the material and doing the assignments given by the teacher. So that students can understand the material well.

Previous research regarding the application of the learning model conducted by Nurhayati et all., [32] discusses the application of the team games tournament type cooperative learning model in science subjects in general, while the research that will be carried out by researchers is the application of the team games tournament type cooperative learning model in science subjects, especially material on natural events. What is different about this research, apart from the material used, is that the research methods used are also different. Previous research by Nurhayati et all., [32] used a pre-experimental design method while this research used a classroom action research method. Research using this model is an innovative step that can enrich existing learning methods and provide interesting alternatives for teachers and students in the teaching and learning process. The urgency of this research lies in the need for an effective and interesting learning approach to increase students' understanding of scientific concepts, especially in the context of material on natural events which is important to understand at the basic education level. Thus, this research provides a valuable contribution in efforts to improve the quality of science learning at the elementary school level. Based on this description, the researcher is interested in conducting classroom action research with the aim of finding out

improvements in science learning outcomes regarding natural events through the Team Games Tournament type cooperative learning model for Class V Madrasah Ibtidaiyah students.

2. RESEARCH METHOD

This research uses the classroom action research method. Classroom action research is action research in the field of education which is carried out in the classroom area with the aim of improving and/or enhancing the quality of learning [33]. Classroom action research is a strategic way for teachers to improve educational services which must be provided in the context of classroom learning and improve the quality of school programs as a whole [34]. The subjects in this research were class V Madrasah Ibtidaiyah students in the science subject material natural events. There are 21 students in class V, including 13 female students and 8 male students, and a science subject teacher. Researchers can collaborate with teachers, so that this learning model can be applied in science learning.

Instruments are tools used by teachers or observers to measure and collect data that will be used to determine the success of the action plan carried out. The instruments used in this research consisted of: (a) Learning Implementation Plan using the team games tournament type cooperative learning model, (b) Science subject evaluation test sheet on natural events, (c) Observation sheet on teachers when implementing the model team games tournament type cooperative learning, (d) Observation sheet of students during the learning process of the team games tournament type cooperative learning model. Data is information about the research object. Data is used to answer formulated problems and to test hypotheses. Data collection in this research used interview, documentation, test and observation methods.

Data analysis is the analysis of data that has been collected in order to find out how successful actions in research are to improve student learning [35]. Analysis of students' successful actions or achievements is carried out by providing evaluations in the form of written test questions at the end of each lesson. This analysis is calculated using simple statistics to calculate classical completeness using the percentage formula:

$$P = \frac{\Sigma \, siswa \; yang \; tuntas \; belajar}{\Sigma \, siswa} \; x \; 100\%$$

3. RESULTS AND DISCUSSION

3.1 Cycle I

Cycle I learning was carried out in class V with a total of 21 students. Learning lasts for 70 minutes (2 x 35 minutes). The main material taught in cycle I is natural events regarding earthquakes and tsunamis. The learning process refers to the learning plan that has been prepared. Based on the benchmark value using the Minimum Completeness Criteria value for class V in Natural Sciences subjects, namely 70.

$$P = \frac{\Sigma \, siswa \; yang \; tuntas \; belajar}{\Sigma \, siswa} \; x \; 100\%$$

$$= \frac{9}{21} \text{ x } 100\% = 43\%$$

In this first cycle, learning is classically incomplete, because students who get a score ≥70 only reach 43% of the total number of students. The percentage results have not yet reached the success indicator, namely 85%, so researchers must carry out the next cycle, namely cycle II.

3.2 Cycle II

Cycle II learning was carried out in class V with a total of 21 students. Learning lasts for 70 minutes (2 x 35 minutes). The main material taught in cycle II is natural events regarding volcanic eruptions and floods. The learning process refers to the learning plan that has been prepared. The benchmark value uses the Minimum Completeness Criteria value for class V in Natural Sciences subjects, namely 70.

$$P = \frac{\Sigma \, siswa \; yang \; tuntas \; belajar}{\Sigma \, siswa} \; x \; 100\%$$

$$= \frac{14}{21} \text{ x } 100\% = 67\%$$

In cycle II, classically students have not completed their studies because only 67% of students obtained a score ≥ 70, while the criteria for completeness was 85%. So researchers will carry out the next cycle, namely cycle III.

3.3 Cycle III

Cycle III learning was carried out in class V with a total of 21 students. Learning lasts for 70 minutes (2 x 35 minutes). The learning process refers to the learning plan that has been prepared. The benchmark value uses the Minimum Completeness Criteria value for class V in Natural Sciences subjects, namely 70.

$$P = \frac{\Sigma siswa\ yang\ tuntas\ belajar}{\Sigma siswa}\ x\ 100\%$$
$$= \frac{19}{21} \text{ x } 100\% = 90\%$$

In cycle III, there were 19 students who had completed their studies (90%), while there were 2 students who had not completed their studies (10%). Based on this data, it shows that in cycle III the learning was considered complete because it had reached the predetermined classical completeness criteria, namely 85% of the total number of students obtained a score of 70. Learning in cycle III was considered successful so the research was stopped until cycle III.

Science learning on natural events material using the team games tournament type cooperative learning model has an influence on student learning outcomes. The completeness of student learning outcomes in the learning process using the team games tournament learning model is proof of the success of using this learning model. Based on the results of this research, we can see in table 1 the following recapitulation of pre-cycle, cycle I, cycle II and cycle III:

Table 1. Recapitulation of Values for Cycle I – Cycle III

Cycle	Average	Category	Amount	Percentage
Pre Cycle	47.61	Complete	5	24%
		Not Completed	16	76%
I	55.71	Complete	9	43%
		Not Completed	12	57%
II	68.09	Complete	14	67%
		Not Completed	7	33%
III	74.28	Complete	19	90%
		Not Completed	2	10%

Based on Table 1, it can be seen that after taking action using the team games tournament model, student learning outcomes increased. This can be seen in the increase from the pre-cycle of students who had completed their studies, 5 students (24%), while those who had not yet completed their studies were 16 students (76%) with an average score of 47.61. The results of the first cycle were 9 students (43%) who had completed their studies, while 12 students (57%) had not yet completed their studies with an average score of 55.71. Based on these results, it does not meet the predetermined criteria for completion, so it continues with cycle II with different material and time. Data obtained from the second cycle learning results showed that 14 students (67%) had completed their studies and 7 students (33%) had not yet completed their studies with an average score of 68.09. Based on the obtained scores, it can be seen that learning outcomes from cycle I to cycle II increased by 24%. However, the learning outcomes obtained by students in cycle II also do not meet the classical completeness criteria that have been set, namely 85% of the total number of students who have completed their studies. So this research was continued in cycle III with different material and time. Student learning outcomes in cycle III were 19 students (90%) had completed their studies and 2 students (10%) had not yet completed their studies with an average score of 74.28. Based on these data, it can be seen that student learning outcomes from cycle II to cycle III have increased by 23%. The implementation of learning in cycle III has met the predetermined learning completeness criteria, namely 90% of the total number of students have completed learning so that classroom action research is stopped in cycle III. So it meets the criteria ≥ 85%. Students who have not completed learning in cycle III will be given independent action in the form of exercises or remediation monitored by the teacher so that it is hoped that all students can complete their learning.

This discussion can be depicted using a bar chart like the following image:

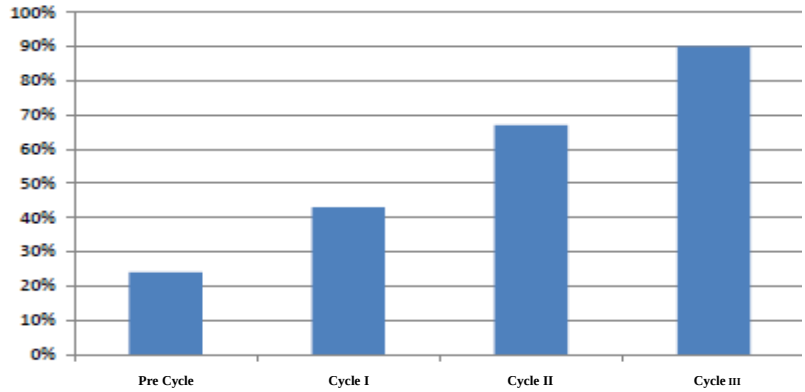

Figure 1. Bar Diagram of Pre-Cycle - Cycle III Student Learning Completeness

Figure 1 shows that student learning outcomes after implementing the team games tournament type cooperative learning model increased from pre-cycle to cycle III. In pre-cycle, 24% of students had completed their studies, in cycle I, 43% of students had completed their studies, in cycle II, 67% of students had completed their studies, and in cycle III, 90% of students had completed their studies. The increase in students who completed learning from pre-cycle to cycle 1 was 19%, cycle I to cycle II was 24% and cycle II to cycle III was 23%.

Improving science learning outcomes on natural events material is an important thing to develop in the educational process, especially at the elementary school level. One approach that can be used to achieve this goal is through the teams games tournament type cooperative learning model. This model emphasizes cooperation between students in groups, where each group member plays an active role in achieving learning goals.The application of the teams games tournament model to fifth grade elementary school students is expected to have a positive impact on their understanding of natural events. In this model, students are grouped into competitive teams, but still work together to achieve a common goal [36]. In addition, the existence of tournaments in this model provides an element of healthy competition, which can increase students' motivation to learn.

Through teams games tournament activities, students can help each other understand science concepts, share ideas, and together find solutions to the problems given [37]. Interaction between students in this cooperative learning model can improve social skills, communication and overall understanding of science concepts [38], [39]. It is hoped that the learning outcomes obtained from implementing this learning model can create an active, interactive and enjoyable learning environment for fifth grade elementary school students, so that they can improve their achievement in understanding natural events material in science subjects.

The impact of the article regarding improving science learning outcomes on natural events material through the Teams Games Tournament type cooperative learning model for fifth grade students can be very significant. First of all, this article can make a positive contribution to society's understanding of the effectiveness of cooperative learning methods, especially the team games tournament model, in improving student learning outcomes. By providing empirical evidence through research results, this article can serve as a basis for educators and policy makers to adopt a more collaboration-oriented learning approach at the elementary school level. Apart from that, another positive impact is increasing student learning motivation. Through healthy competition in a tournament format, the team games tournament model can stimulate students' interest in science learning, making the learning process more interesting and interactive [40]-[42]. This can create a more dynamic learning environment and motivate students to actively participate in learning activities.

This research has important implications in improving science learning outcomes on natural events material through a team game tournament type cooperative learning model for fifth grade elementary school students. The research results show that the use of this model can provide a significant increase in student learning outcomes from pre-cycle to cycle III. With a consistent percentage increase from cycle to cycle, it can be concluded that this learning model is effective in increasing students' understanding of scientific concepts related to natural events. In addition, the implications of this research also show that there is potential to develop better learning methods at the basic education level by utilizing cooperative approaches involving team games. Recommendations for further research involve evaluating the long-term impact of implementing this model, including in terms of students' knowledge retention and their ability to apply science concepts in real situations. Thus, this research provides a strong foundation for further development in efforts to improve science learning among elementary school students, especially in understanding natural events.

However, this article also has several limitations that need to be noted. One of the main limitations is the generalization of research results only to fifth grade students. Improvements in learning outcomes may vary at different grade levels or at higher levels of education. In addition, additional variables such as individual learning styles or learning environment conditions can also influence learning outcomes and need to be taken

into account in further research. Therefore, although this article makes a positive contribution, it needs to be acknowledged that the team games tournament learning model may not always be a suitable solution for all learning contexts.

4. CONCLUSION

The teams games tournament learning model can improve the learning outcomes of class V Madrasah Ibtidaiyah students in science subjects on natural events. This is evidenced by the percentage of learning outcomes which continues to increase from pre-cycle to cycle III. The increase from pre-cycle to cycle I was 19%, from cycle I to cycle II was 24%, from cycle II to cycle III was 23%. The number of students who completed the pre-cycle was 5 students or 24% with an average score of 47.61. The number of students who completed cycle I was 9 students or 43% with an average score of 55.71. In cycle II there were 14 students or 67% of students completed the study with an average score of 68.09, and in cycle III there were 19 students or 90% students completed the study with an average score of 74.28. Recommendations for further research are that research could involve aspects of evaluating the long-term impact of implementing the team games tournament model on students' understanding of science concepts, such as measuring knowledge retention and application of concepts in real situations. Thus, further research can provide a more holistic and comprehensive view of the success and potential for improvement of the teams games tournament type cooperative learning model at the basic education level.

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