Implementation Of Teams Games Tournament (TGT) Type Learning Model To Improve Mathematics Learning Outcomes Of Class IV Students

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Abstract. This research is aimed to improve the student outcomes study on fourth-grade student Dayah Tanoh in Mathematics in the chapter on the least common multiple and greatest common divisor Team Games Tournament (TGT) cooperative learning model. This study is action research. The subjects of this study were 28 students of four grade classes. This research was done in two cycles through four steps. The data of this study was collected by an observed and objective test. The analysis data of this study used quantitative descriptive and qualitative descriptive. The succeeded indicators were determined when the average of the student's outcomes in Mathematic improved from cycles I to cycles II. The results of the analysis data in this study showed that there was an enhancement in every cycle. Those can be seen in cycles I of classical completeness was 56% and cycles II improved to 88%. The averages of students' activity increase from 3,4 to 4,8 in cycles II. We can conclude that implementation of the TGT Model could increase the student outcomes in Mathematic Subjects and student activities for fourth-grade students in Dayah Tanoh.

Keywords: Teams Games Tournament (TGT), student outcomes, the least common multiple and greatest common divisor

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INTRODUCTION

Education plays an important role in creating a generation that can compete in the development of science and technology in the 21st century. The world's rapid development and global change are a challenge for meme educators to prepare future generations. Education determines the progress of a nation.

Education will always experience various challenges and obstacles both for students and teachers. Currently, the biggest challenge in the world of education is how to deliver material that can be understood and accepted by students. Teachers are required to be able to understand material not only from one aspect but must be able to learn from various aspects of teaching.

Elementary school-age children's education is the initial stage when children begin to understand the chapter, whether reading, writing, telling stories, counting to other general learning. According to Jean Piaget, the stages of development of cognitive elementary school children could be through playing and interacting together with a friend (Widayanti & Slameto, 2016). For children's cognitive development to run well, a form of learning is needed, namely a collaborative learning model. Learning mathematics is not just about the process of calculating addition, subtraction, multiplication, and division but goes into methods where students must be able to explain how to get the results of these problems. Mathematics is one of the main subjects in learning starting from grade I elementary school. Mathematics is an exact science that deals with reasoning and also underlies human life. Mathematics must be given to students from elementary school as an important thing to create knowledge and innovation. Mathematics is one of the subjects most feared by students in elementary school. Some students consider mathematics as a difficult subject, causing students to dislike the process of learning mathematics, they think that mathematics is a boring subject and even becomes an obstacle to learning motivation. The basic thing is that students don't like learning mathematics because mathematics is a deductive and abstract science that uses symbolic language and it is difficult to understand for students who are still at the stage of developing thinking that is not yet formal and relatively concrete (Widodo & Kartikasari, 2017). According to (Karunia & Mulyono, 2016) understanding

form mathematics is capable understand an idea of mathematics in a manner whole and functional.

The success of students in education can be influenced by several factors, one of which is the success of learning outcomes. A success learning outcomes can describe the ability of students after what they know and learn (Molstad & Karseth, 2016). Learning outcomes can be interpreted as the level of success of students in learning the subject matter at school which is stated in the score obtained from the test results regarding a certain amount of material. Learning outcomes are the final results achieved by students after experiencing the process of learning mathematics, in the form of numbers or letters or commonly used symbols such as size success or nope a learning process (Firmansyah, 2015). Learning outcomes are the acquisition of the learning process of students according to teaching objectives. Where the teaching goals are targets that must be achieved by students to achieve teachers.

Results of preliminary observations of Dayah Tanoh Elementary School, grade IV students had low knowledge of mathematics, especially on least common multiple and greatest common divisor material. They are not proficient in solving least common multiple and greatest common divisor questions, especially story problems. There are still many students who obtain individual learning outcomes test scores below the Minimum Learning teacher determined by the school, which is ≥ 71. This is due to a lack of practice and also students' understanding of the material. The attention of students who are lacking in the teaching and learning process greatly influences the knowledge gained in class so that they do not encourage them to broaden their knowledge and thinking. A thing by the opinion (Yandari & Kuswaty, 2017) that is necessary for interesting learning to develop abilities and understanding in students.

Least common multiple are the result of multiplying a number by a natural number (Gunanto, Adhalia, 2016). The least common multiple is the smallest multiple of the same value and is allied to 2 or more numbers. Greatest common divisor are all numbers that can divide a number (Gunanto, Adhalia, 2016). Greatest common divisor is the greatest common factor that divides two or more numbers.

The direct learning model is a learning model that emphasizes knowledge procedurally and strategies (Sudirah, 2020), that is, the teacher will hes students to do something to achieve learning objectives, which is done systematically. In general, the learning process in the classroom used direct instruction, where the teacher plays a role active. The direct learning model is a learning model where students obtain much knowledge with observe and imitating other people's behavior. This learning model works to obtain knowledge procedural and declarative (factual) and is taught in a manner gradually (Handayani & Abadi, 2020).

With a learning system like this one-way communication tends to occur, the teacher actively explains, and students sit listening and remembering what has been delivered by the teacher. So that students become passive recipients of knowledge. The Impact of the use of the direct instruction learning model, namely not enough motivation for a number of students in follow learning.

In the learning process at school, the teacher wants to use approaches, models, strategies, and techniques that can make students active, both physically, mentally, and socially (Mujiati, 2017). The teacher must plan and use a model that can stimulate learning to learn in a manner active, innovative, and critical and teachers do not only stick to one learning model so that learning is not boring but attracts the attention of students (Damayanti & Aproyanto, 2017). With this situation, a learning system is needed that involves students actively in learning activities, to improve mathematics learning achievement, especially in least common Multiple and greatest common divisor chapters.

One of the learning models that actively involves students is the Teams Games Tournament (TGT) cooperative learning model. The TGT learning model is a cooperative model that divides students and Becomes a group consisting of 5-6 students in a manner heterogeneous cooperate with student bunch for obtaining points for scoring them. Who have the same ability, gender, and race different (Menanti & Rahman, 2015). According to Saco (Rusman, 2012) state that "in the learning model Teams Games Tournament (TGT) students play game with members of another team to obtain a score for a team each of them. "Game could arrange by the teacher inside form

quiz form related questions with Theory lesson. Learning The purpose of the TGT model is to build cooperation between several people by providing mutual correction and appreciation of learning outcomes. With this model, smart students can help students who understand, while students who already understand will understand more because they do more practice. TGT can also make students more flexible in learning and can encourage an attitude of responsibility, honesty, and participation. Dynamic student inclusion in learning can make the learning atmosphere fun and interesting. The TGT model has a different Step compared to other learning models because in this learning students work in groups or teams then students do games as a tournament being held good on every meeting or every week.

Based on the background above, this research was entitled " Implementation Of Teams Games Tournament (TGT) Type Learning Model To Improve Mathematics Learning Outcomes Of Class IV Students.

METHODS

This research uses Classroom Action Research (CAR) method which aims to improve learning. PTK can help someone, especially the teacher, in coping with problems practical problems encountered (Bagja Sulfemi & Setianingsih, 2018), and helps achieve the learning objectives of this research collaboration between teachers and researchers. The Researcher is directly involved in the research process from Step planning to the end research. The purpose of PTK is to solve problems, improve conditions, develop, and improve the quality of learning (Prihantoro & Hidayat, 2019). The Characteristic main of PTK exists to treat To repair Education in the real.

According to Kemmis and Mc. Taggart (Iskandar & Narsim, 2015), stated that PTK is a form of investigation reflection self-done researcher in a situation social (incl education) to increase rationality and justice in social or practice education, understanding practice, situation ongoing practice. It is very rational for a researcher for collaborating, though often conducted myself and sometimes with other people. In other words, teachers can give different treatment _ with learning models certain until destination learning is reached. This research uses PTK Kemmis & Mc method. Taggart. This model consists of four stages : planning (plan), action (act), observation (observe), and reflection (reflect) (Prihantoro & Hidayat, 2019).

Planning is all something that will be conducted in Step action. This action step is performed together with observation. The teacher acts with observe what happened. After procedures and observations, research data was collected. This data is analyzed to determine if the goals and results of the research are "fully" achieved or not. This data analysis is called reflection. If the goal study no fully achieved and to validate the results research, the researcher makes a cycle or another round of planning to think repeat. The cycle or this circle continues until the researcher evaluates that the problem under study has been completed and the process or destination learning has increased.

The research was carried out in class IV of Dayah Tanoh Elementary School, Pidie. The subjects studied were 28 students of grade IV SD Dayah Tanoh Elementary School, Pidie for the 2020/2021 academic year in learning mathematics on Least Common Multiple and Greatest common divisor chapter.

The technique used for data collection is testing and observation. Tests conducted for evaluating successful learning students are given at the end of learning. Observation conducted listen and give sheet observation to observers for observing activity During learning going on. Data analysis techniques for knowing the results study classic with the use formula :

$$x = \frac{\sum siswa\ yang\ tuntas\ belajar}{\sum siswa}\ x\ 100\ \%$$

(Aqib & Amrullah, 2019)

Called complete if absorb learning student reached 85% (Aqib & Amrullah, 2019). For Activity Level Students (ALS) used the formula :

$$\overline{X} = \frac{\sum x}{N}$$

Description: $\overline{X} = Rata - rata$, $\sum x = Jumlah\ seluruh\ skor$, N = Number of Subjects

The assessment criteria are:

- 4.50 ≤ ALS ≤ 5.00 : very good
- 3.50 ≤ ALS ≤ 4.49 : good
- 2.50 ≤ ALS ≤ 3.49 : enough
- 1.50 ≤ ALS ≤ 2.49 : less
- 1.00 ≤ ALS ≤ 1.49 : very less

RESULTS

In this chapter, the researcher will present the results and findings from research at Dayah Tanoh Elementary School Pidie about the effort application of the Teams Games Tournament (TGT) learning model to increase results study student class IV on least common multiple and greatest common divisor chapter. Learning least common multiple and greatest common divisor chapter in learning mathematics student class IV Dayah Tanoh Elementary School, Pidie who has held in two-cycle.

Student learning outcomes in the initial conditions on the least common multiple and greatest common divisor material were still low. Based on the observations made by the researchers, this was due to teachers at Dayah Tanoh Elementary School tending to use the direct instruction learning model in which the teacher plays an active role in learning while students only need to hear and remember what has been conveyed by the teacher. The learning model used by teachers tends to be monotonous and boring, though Mathematics is required lessons method thinks extra hard so the teacher should use a fun learning model to be able to lower tension in think child. Objective test result data student class IV on condition beginning before study show a grade point average of 6.8.

Increase results study student held learning with using the TGT model. The Implementation activity study teach for the cycle I was carried out in class IV with amount student whole 28 students. The learning process is carried out in the lesson plan that has been prepared. At the start, teacher learning does apperception about material that has given and give motivation to students. Then the teacher communicates the purpose of learning to be reached and shares it with the student into 5 groups each group consisting of 5-6 students.

Next, the teacher stimulates students with explain tree Theory learning. Then the teacher gives student worksheet to students for done together member group. The Teacher ordered students to discuss for complete student worksheet and if in a member group something is not understood, other members are responsible answer explain until understand.

After discussing and completing worksheet. Teachers, and students To do a game (tournament) that is academic for practice chapter material by students. Tournaments are being played like contests intelligent carefully. Every group chooses one member to be representative, then all representative groups stand up parallel to the front class with a distance of one group with group 60 cm. Then the teacher reads the question in form orally students who have knowing the answers show hands and immediately took a whiteboard marker to write answers on the board write. The representative group the fastest you can answer the question given will get a value of 100. Then score the will be collected and at the end, Theory learning will be counted. The group that gains the score highest will get awards given by teachers and members group other.

Next held test results study for knowing results learning in a manner individual from implementation cycle I. This test is given shaped essay questions as many as 3 questions with an allocation of 30 minutes time. When finished, the teacher collects the results answer. By applying the TGT learning model in a cycle I obtained the average value of achievement study students 81.6, students who complete only 14 people, and students who have a score below the minimum learning mastery as many as 11 people. Those results show that on cycle first in a manner classic completed students in learning only 56 % smaller from the desired percentage, ie by 85%. This is because the method set study is still new and in part from a student still not yet can adapt self with the new learning process.

Obtained data from activity students than in the analysis for knowing ALS average score during the learning process teaching going on with using the deep TGT learning model learning mathematics least common multiple and greatest common divisor chapter in class IV obtained an average of 3.4 (enough).

From learning in cycle I obtained information from score tests, worksheet values, and observations of teacher and student activities, known results study students not yet reached completeness classics that have set, because still there part students who haven't achieved the specified KBM school. This is due because still exists obstacles encountered in the learning process both by the teacher and student. Therefore it is necessary to learn again cycle next. Obstacles faced in the implementation of the learning process in cycle I, namely: lack of student motivation during the learning process, still lack is understanding of the student about the learning model still, there are fewer students active in the learning process still, there are fewer students notice during the learning process.

Because cycle I not yet reach the completeness maximum specified so need to conduct cycle II with repair learning in cycle II. The learning process is carried out by a lesson plan that has been prepared. At the start teacher learning pronounce greetings, then prayer is led by the chairman class. The Teacher communicates presence to students and also asks news students, then the teacher motivates students to be enthusiastic about learning. Before entering, teacher learning stimulates students with ask learning that has then for repeat return materials that have studied before, then the teacher explains destination learning to be conducted in learning to be done. After that just go inside learning where the teacher explains tree Theory learning. The teacher divides students into a group already distributed in cycle I. Then the teacher gives worksheet to the student for done together member group. The teacher ordered students to discuss for complete worksheet and if in a member group something is not understood, other members are responsible answer explain and teaching until all members of the group can work on questions.

After discussing and completing worksheet, teachers, and students do a game (tournament) that is academic to measure mastery chapter by students. Tournaments are being played the same as was done in cycle I however some rules in-game change. Every group chooses one member to be representative, the teacher prepares some seat in the front class, then all representative of the group sits on the chairs that have been provided with bringing a tool to write. The teacher or student read questions in form verbal, and all students to be representative groups complete matter in the seat that has been provided. Students who have knowing answers show hands and immediately answered answers that have been obtained along with method the of workmanship. The Representative group that can answer quickly and correctly will get a value of 100. Then score the will be collected and at the end, Theory learning will be counted. The group that gains the score highest will get appreciation or appreciation given by teachers and friends. After the tournament was finished academics held test results study for knowing the results from implementation cycle II. This test is given shaped essay questions as many as 5 least common multiple questions and 4 greatest common divisor questions with an allocation of 30 minutes each. After it's done researcher gathers the results answer and conclude the Theory as well as conveys possible moral messages to build student enthusiasm. Then researcher close learning with say greetings.

The average value of the results study students obtained than in cycle II, namely 78.59. Complete students in manner individuals in cycle II, namely 22 students and students who did not achieve the specified minimum learning mastery ≥ 71 respectively individual in learning as many as 3 students. Completeness classical in cycle II is 88%. Completeness study in a manner classic has achieved the target set by the researcher ≥ 85%. The results in cycle II, namely 88%, experienced better upgrades that cycle I.

From the results of observation activity students, it is known that activities carried out by students in cycle II averaged 4.8 (very good). There is an enhancement from cycle I. In cycle, I activity student is at in criteria Enough, but in cycle II it happened enhancement to activity student from results observation guardian class or observer becomes very good criteria.

Based on data in cycle II can be seen exists enhancement to results study students and activities undertaken by students in the learning process. The learning outcomes in cycle II have also reached completeness classics that have set namely 85%, in cycle II this completeness achieved classics at 88%. Based on the results and analysis could conclude that 22 students are complete and 3 students are not yet complete. Based on observation During learning cycle II, plan implementation learning that has been arranged could hold very well. All students are very enthusiastic and excited in following activity implemented learning. It can see from the average observation data teacher activities and activities of students. Activity students in cycle II obtained an average of 4.8 and were included in the very good criterion. The Discussion group went on with good cooperation.

DISCUSSION

Learning about least common multiple and greatest common divisor material in class IV of Dayah Tanoh Elementary School, Pidie, has been carried out in 2 cycles. The aim is to determine the level of success of individual students in the learning that has been done. Researchers collaborated with class teachers to improve the learning process in class on least common multiple and greatest common divisor material. The learning process in cycle I at the beginning of the lesson the teacher prepared a Learning Implementation Plan, learning materials for the least common multiple and greatest common divisor, woeksheets for each group in the form of an essay, cycle I test questions, and observation sheets. Then the teacher communicates the learning objectives to be achieved and divides students into 5 groups. Before dividing the worksheets the teacher explained the main learning material, then the teacher distributed the woeksheets.

The teacher orders each group to answer the worksheets. After completing the worksheet the teacher and students carry out an academic tournament to measure students' mastery of the material, the game is like a quiz contest. Each group chooses one person who will be the representative. All representatives stand parallel in front of the class then the teacher reads the questions, those who know the answers immediately raise their hands and write the answers on the blackboard. If it is correct, the group will get a value of 100. In the first cycle, the tournament was carried out with 4 sessions with different representatives. To find out the individual abilities of students the teacher gives test questions in the form of essays. In the learning process of the first cycle, students who complete having a value ≤71 only 14 students and 11 of the 25 students who attended had grades below the minimum learning mastery.

These results indicate that in the first cycle, classically, students who complete learning are only 56% smaller than the desired percentage, which is 85%. And the value of student activity in cycle I averaged 3.4 and was included in the Enough criteria. This is because the learning method set is still new, some of the students are still unable to adjust to the new learning process and some of them are still confused with learning models that have never been implemented before in the learning process. Due to the large number of students who did not complete the first cycle, it was continued with the second cycle by correcting the mistakes made in the first cycle

In cycle II the material taught was about least common multiple and greatest common divisor. The learning is almost the same as in cycle I but in cycle II students are believed that each member of the group has rights and the same obligation in the discussion, so that all students become more active. In Cycle II the rules of the game were changed, the teacher provided several chairs in front of the class and each representative sat on the chair. The teacher or students read the questions in oral form, and students who know the answers raise their hands and immediately answer the answers along with the workmanship that has been obtained. The tournament is carried out repeatedly with different group representatives for each session until the allotted learning time is over. In cycle II, all students were enthusiastic and eager to participate in learning. Students have full responsibility for carrying out assignments given by the teacher. Student performance shows good results. This can be seen from the increase in student learning outcomes.

In cycle II, student learning outcomes for Least Common Multiple and Greatest common divisor material with the TGT learning model increased in cycle II increased from the results obtained in the cycle. Student activities in cycle I, according the average of 3.4 (Enough) while the results obtained are 4.8 (Very Good) in the learning process cycle II. The implementation of

learning materials for least common multiple and greatest common divisor uses the TGT-type learning model, which makes it easier, more interesting, and more ambitious to be able to do it. The learning atmosphere becomes more fun, and concrete, not fixated on books and just accepting the teacher's explanation. The TGT model places more emphasis on learning where all students are active and take part. This model can also improve cooperative relations between students and increase students' sensitivity to the surrounding environment.

The learning atmosphere becomes more relaxed and enjoyable, coupled with the existence of academic tournaments which can be the main attraction for students to learn. For students, coupled with a learning model that is divided into study groups to make students motivated learning, excited because they can help each other and establish familiarity between classmates. Understanding that is quickly driven by the spirit of team learning in groups makes students understand the material more quickly and are interested in working together in solving each problem given. Data analysis in this study states that "There is a significant effect of applying the Teams Games Tournament (TGT) cooperative learning model to learning outcomes in Least Common Multiple and Greatest common divisor material for fourth-grade students at Dayah Tanoh Elementary School, Pidie. The learning outcomes obtained by students reach the specified completeness and also an increased activity for students after the use of this TGT model. This is in line with the results of research (Setiana & Purwanto, 2013), (Surya, 2018) and (Wiranti, 2019).

CONCLUSION

Based on the research results of the Team Games Tournament (TGT) cooperative learning model on Least Common Multiple and Greatest common divisor material carried out in class IV students at SD Dayah Tanoh, Pidie Regency, it can be concluded as follows:

1. Student learning outcomes on Least Common Multiple and Greatest common divisor material increased with the implementation of the Teams Games Tournament (TGT) model. This can be seen from the test results in cycles I and II. In the first cycle, the students' classical completeness was 56% while in the second cycle it increased to 88%.
2. Student activity is further increased by implementing the Teams Games Tournament (TGT) model. This can be seen from the observations of the homeroom teacher in cycle I, the average value of student activity is 3.4, in cycle II it becomes 4.8. There was an increase in the assessment criteria from Fair to Very Good.

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