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Effects of Cooperative Learning Model Implementation Teams Games Tournaments And Troubleshooting Capabilities to Improve Learning Outcomes Matter Physics In Business And Energy In Class Private Sma Xi Imelda Terrain TP .2017 / 2018

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Abstract-The purpose of this research is to: (1) to know the significant influence cooperative learning model of type Teams Games Tournaments and Model derect Introdaction, (2) To know the difference of students who have high problem solving with students who have low problem solving to learning outcomes, (3) To find out Whether there is an interaction between Teams Model Co-operative Learning Model and problem solving on learning outcomes on business and energy subject matter. This research is a type of quasi-experimental research, with two-group pre-test and post-test research design. The population of this research is all students of class XI of first half of Private High School Imelda Terrain TA 2017/2018. as many as four classes (128 people). The study sample consisted of two classes, namely Class XI-1 and class XI-2 taken by Cluster random sampling, a class XI-1 was taught by cooperative learning model of type Teams Games Tournaments (class experiment) and class XI-2 were taught with derect Introdaction learning models (control class). Data was Analyzed using SPSS 21 so that it can be given the conclusion that there is influence of learning models to student learning outcomes. The result of the ANOVA test of problem solving abilities of the student during the learning process there is influence of problem solving abilities to student learning result. The test results using ANOVA can be concluded that there is interaction between cooperative learning model of Teams Games Tournaments type and derect Introdaction learning models with problem solving abilities to learning result. From the calculation that the percent increase is in learning outcomes for the experimental class is greater than the control class learning outcomes. This shows that there are significant differences in the percentage of Physics learning outcomes that are taught using cooperative learning model of type Teams Games Tournaments with Physics learning outcomes taught by derect Introdaction

Keywords: Teams Games Tournaments type of cooperative learning, derect Introdaction, problem-solving ability, learning outcomes

1. Introduction

Education is a very important role in preparing qualified human resources. Education is also one of the essential needs of human life that can enhance human dignity. Without education one can not live decently. Therefore, education should be maintained as much as possible both in terms of facilities and infrastructure. Sardiman (2011: 52) states that education and teaching is one business that is conscious purpose to systematically focus on behavioral changes leading to the maturity of the students. Therefore, the core of the teaching process is the learning activities of students in achieving a goal of teaching.

In the learning process is expected the two-way communication between teachers and students on a reciprocal basis, for the sake of learning a great interaction that leads to the achievement of maximum learning outcome objectives. So that the learning objectives can be

achieved, then the learning process is required so that students play an active role in learning, and teachers who originally acted as a learning resource was converted to a facilitator of learning activities that directs (guiding) students to solve problems encountered in the study , so as to build motivation and improve student learning activities. Efforts that can be done for example by applying a variety of learning models.In the implementation of the evaluation of student learning in school, what often happens is the low results obtained student learning. To improve student learning outcomes need creativity in designing learning so that teachers can make learning physics to be interesting, the better, and favored students. To be able to associate a new concept or new information with the concepts that already exist in the cognitive domain, students need some kind of help mental form of regulator early (Teams Games Tournaments) that directs students to the material they will be learning, and help them to megingat back information related that could be used to help infuse new knowledge resulting in meaningful learning. As a means to help make the information more meaningful for students by connecting prior knowledge with new lessons given are using the model of Cooperative Learning Teams Games Tournaments mode.Learning is a word that is already familiar with the community. For the student or students "learning" is a familiar word. Even an integral part of all their activities in studying in institutions of formal education, learning activities they do every time in accordance with the wishes, the hopes of a turnaround. For those students "learning" is a word that is familiar, even an integral part of all their activities in studying in institutions of formal education, in which learning activities they do every time liking in the hopes of a turnaround. The changes that occur in themselves a lot of good nature or kind because it is certainly not any change in a person is a change in the sense of learning. According to Abdurrahman (2010: 116) is the ability of learning outcomes obtained after the child through the learning activities. According to Abdurrahman (2010: 116) there are three domains of learning outcomes: cognitive, affective and psychomotor.

In terms of teachers, teaching acts ends with the evaluation of learning outcomes. The learning result is output (output) of a processing input (input). Input from the system in the form of a variety of information while the output is an act or performance. According to Syarifuddin and Arai (2010) designed the evaluation also included the task of a teacher when the draft study. Because the job of a teacher (designer) is organizing the people, materials and procedures so that students learn efficiently. But the teacher as a designer is not only prepared a draft evaluation, but also carry out an evaluation study to determine learning outcomes.

In terms of students, learning outcomes is the culmination of the learning process. With the end of a learning process, the students gain an outcome study. The learning result is in part thanks to the actions of teachers, an appearance pengajaran.Pada purpose other parts that are useful for improving learning outcomes ways to learn more (Mudjiono and Dimyanti, 2010: 10). Real learning outcomes of what to do and what not to do before. In this case a change in behavior. The level of student learning outcomes can not be separated from some of the factors that influence it.

In general fill "Model" is defined as a conceptual framework that is used as a guideline in conducting. Joycen (Trianto 2011: 22) defines "learning model is a plan or a pattern that is used as a guide in classroom teaching or learning in the tutorial". Meanwhile, according to Rusman (2011: 133) that the learning model is a general pattern of learning behaviors to achieve the expected learning goals ". Thus, the model pembelajran are ways in which there are several methods pembelajran which should be used by teachers in delivering learning materials for students to achieve the expected goals.

Cooperative learning model type Teams Games Tournaments or matches the original game developed by the team of David De Vries and Edward Keath year (1995). In this model, students play a game with other team members to their team's score. "Teams Games Tournaments are one type or model of cooperative learning are easy to implement, involving the activities of all students without any distinction of status, involving the role of students as peer tutors and contain elements of games and reinforcement" (Shoimin, 2014: 203). Furthermore, the definition of "Teams Games Tournaments are one type of cooperative learning that puts students in study groups consisting of 5-6 students who have the ability, gender and race was different", (Isjoni, 2010: 83).

The steps (syntax) that can be applied in cooperative learning Teams Games Tournaments through the concept of Slavin (2011: 166) No 5

phase 1 : Presentation in class

The teacher presents the information or subject matter to students either by demonstration or reading material

phase 2 :Team

The teacher explains to students how to form study groups and work together in groups to make the changes efficiently.

phase 3 : game

Teachers observe encourage and guide students in completing the tasks assigned in the form of the game in completing the task,

phase 4 :Tournament

The teacher pointed to the students to be the first tournament table, next to the second table and so on. After the first tournament, students will exchange table depending on the student's performance in the last tournament.

phase 5 :recognition team

Teachers provide feedback andan award given to the team who have worked in completing tasks diturnamenkan.

Model derect Introdection learning is learning that emphasizes the verbal process of delivering material from a teacher to a group of students with the aim that students can master the subject matter is optimal. The use of this model the students do not need to search for and find their own facts, concepts and principles clearly because it has been presented by the teacher. Learning activities using expository teaching tends to be centered on the teacher.

In general, teachers prefer to use the lecture method combined with question and answer method. Lecture method was chosen because it is easily implemented with a simple preparation, saving time and effort, with a direct step to reach all students and to do enough in the classroom.

The learning model has its advantages and disadvantages of each. strengths and weaknesses of an instructional model of teachers teaching the precision required to determine the appropriate learning models to be used in the process of teaching and learning. As for the advantages of cooperative learning model type Teams Games Tournaments, (Shoimin, 2014: 208) are:

1) Cooperative learning model type Teams Games Tournaments not only make intelligent learners (high academic ability) is more prominent in learning, but learners capable lower academy also participate and have an important role in the group.
2) With this model will foster a sense of togetherness and mutual respect among members of the group.
3) In this model of learning makes the students more enthusiastic about the course. because in this learning teacher promised an award in the best group participants.
4) Learners in learning makes students become more happy in the class because there is activity in the form of a tournament game.

As for the weaknesses of the cooperative learning model Teams Games Tournaments, are:

a) Takes a long time
b) Teachers are required to be good at choosing a suitable subject matter for this model
c) Teachers should prepare for this model well before it is applied, for example, create questions for each table tournament or competition and the teacher must know the order of academic learners from highest to lowest.

Generally the concept is an abstraction that describes the general characteristics of a group of objects, events or other phenomena. defines the concept as follows: (1) a notion / idea is relatively perfect and meaningful, (2) an understanding of an object, (3) product subjective derived from how a person makes sense of the objects or objects through experience (after the perception of the object / objects).

According to Bruner (Budiningsih, 2005) explains that the formation of the concept and understanding of the concept of a two mengakategorikan activity that demands a different thought process. Categorize activities include pengindentifikasian and placement examples (objects or events) into classes using the basic criteria. In the understanding of concepts, concepts already exist sebalumnya, while in the formation of the concept is the opposite, namely the action to establish

new categories. So it is an act of discovery. The action consists of two components, namely (1) the action concept formation and (2) an act of understanding the concept. Artina, the first step is the formation of the concept, then proceed with the understanding of the concept.

The problem is a word often heard by us. But something be a good deal depends on how one obtains the problem within its capabilities. Great Sebgian the physicists suggest that the problem is a question that must be answered or responded to the students. Not all the questions is a problem, because something becomes a problem only if the question the question suggests a challenge that can not be solved by routine procedures well known to students. Everyone has different abilities both in receiving, considering mauun menggunkan something received. It is due to that each person has a different way in terms of preparing the whole hog sgala observed, viewed, or thinking.

Solving problems with the analysis of the object and the following phenomena appear organized an expert thinking about big ideas in physics, such as Newton's second law and how diaplikasikannya, while those who are just learning tend to solve problems with remembering, manipulate the question to get the answer. When resolving the problem of physicists often describe a simple qualitative diagram they do not simply put the figures into the formula.

To understand the physics problem-solving skills appropriately, need to understand the following three terms, namely: the problem is a gap between the two senses of someone who does not know how to cope. One of the problems in the classroom teaching can be interpreted with the matter, that the solution can not be done by repeating it, but through analysis and reasoning. Solving the problem is to find a way to close the existing group.

2. Method

This study is a quasi-experimental study. The population in this study were all students of class XI SMA PRIVATE IMELDA Semester Academic Year 2015/2016 Terrain totaling 128 students. The research sample was taken two (2) classes of students. Sampling is done randomly (cluster random sampling) and obtained grade XI-2 as the experimental group (32 people) who taught learning model Cooperative type Teams Games Tournaments and class XI-1 as a control group (32 people) who taught The learning model derect Introdaction In this study using three variables are: (1) The independent variable (X) ie Cooperative Learning model type Teams Games Tournaments and Pempelajaran derect Introdaction (2) moderator variables in this study are solving understanding of the concept which is divided into solving high concept understanding and solving poor understanding of the concept. (3). The dependent variable (Y) which results grade students learn physics in materials and energy business.

The research procedure in making the experimental data are: (1) Preparation Stages include: (a) Develop research schedule. (B) Make the teaching plan. (C) Preparing the test items. (2) Implementation Phase includes: (a) Determine the sample class from an existing class. (B) Carry out pre-test the experimental class and control class to obtain preliminary data. (C) Conduct an analysis of the data pretest that normality test, homogeneity test and test difference in the average value of pretest students in the experimental class and control class. (D) Perform teaching two classes, namely, the control class is given treatment with derect learning Introdaction while the experimental class is treated with Cooperative Learning Model type Teams Games Tournaments. (E) Provide posttest in the experimental class and control class to determine student learning outcomes after being given a different treatment. (F) Conduct an analysis of the data postes namely normality test, homogeneity test, ANOVA two lanes, (3) After the hypothesis test can be concluded.

The research instrument used to collect data is a physics learning outcomes achievement test on the material in class XI Enterprise and Energy. A test given to a sample class is Essay, with the number of test items 10 questions. The test is based on Bloom's taxonomy in the cognitive domains, (Arikunto 2005). namely: (a) Knowledge / (C1). (B) Understanding / (C2), (c) Application of / (C3), (d) Analysis / C4. (E) Synthesis / C5., (F) Evaluation / C6.

Details of the test will be adjusted to the test items were tested and in accordance with the learning indicators as shown in Table 3. The tests that have been prepared beforehand tested for validity level or levels of reliability, distinguishing features, and level of difficulty of the test. Arikunto (2009: 39) says, "a test is said to have content validity if the tests can measure certain special

purpose parallel to the material or the content of the lesson." The criteria that must be considered in the preparation of test items used in research instruments are:

Table 1.

Test Item Specifications

No.	Topic / Sub Topic	Bloom's Taxonomy						Jlh
		C1	C2	C3	C4	C5	C6	
1	Pengerian effort	1						1
2	Forms of energy		2					1
3	Large busaha performed on an incline			3		10		2
4	Large calculations and energy				4, 5, 6			3
5	Determine the amount of kinetic energy and potential energy		11			7	8	3
6	Determine the amount of effort on a plane				14	12		2
7	energy utilization				13		9	2
amount		1	2	1	5	3	2	14

The validity of the test item.

Before being used in the actual study, tests were arranged beforehand divalidkan validator, and tested on students who were not selected as sample. Once the data is collected it is then the data is processed with SPSS 21. To calculate the validity of the formula used product moment correlation of person (Arikunto, 2005: 72), with the formula

$$r_{xy} \frac{N(\Sigma XY) - (\sum X)(\sum Y)}{\sqrt{\{N(\sum X^2) - (\sum X)^2\}\{N(\sum Y^2) - (\sum Y)^2\}}}$$ Where:

r xy: product moment correlation coefficient

$\sum$ x: Number of students who answered correctly for each item

$\sum$ y: Total score total

$\sum$ xy: multiplication jumalah item scores and total score

$\sum$ x2: Number of distribution of scores X squared

$\sum$ y2: Number of distribution of scores Y squared

N: The total number of students

The criteria of validity is a matter considered valid if r xy> rtabel and vice versa about said invalid if r xy <rtabel (rtabel obtained from the critical value r product moment).

Reliability Test.

According Arikunto (2005: 87) to determine the reliability coefficient alpha can be used formula as follows:

$$r_{11} = \left(\frac{n}{n-1}\right)\left(1 - \frac{\sum \sigma i^2}{\sigma i^2}\right)$$

Where:

r11: The reliability test

σ i2: Variance Total

n: Number of items

$\sum \sigma$ i2: Total variance score for each item

As for calculating the variance of each item used formula,

$$\sigma^2 = \frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N}$$

with; N: The number of students takers

σ^2 : The variance of the total score

X: The value of each item

Test reliability testing criteria are:

0.00 <r ≤ 0,40 = low reliability.

0.40 <r ≤ 0.70 = Reliability medium.
0.70 <r ≤ 0.90 = High Reliability.
0.90 <r ≤ 1.00 = very high reliability.
The difficulty level tests
According Arikunto (2005: 208) to determine the level of difficulty of each of the test items used formula is:

$$P = \frac{B}{JS}$$

Where:
P: Level of difficulty
B: The number of students who answered correctly
JS: The total number of students
Criteria for determining the level of difficulty of the test items are:
P: 0.00 <TK> 0.3, the issue is said to be difficult
P: 0.3 <TK> 0.7, the issue is said to be moderate
P: 0.7 <TK> 1.00, about exactly easy
Distinguishing Power Tests
According Arikunto (2005: 213) to determine the difference of each of the test items used formula is:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B}$$

Where:
D: Power differentiator
BA: The number on the answer correct siswakelompok
BB: The number of students who answered correctly a lower group
JA: The number of students in the top group
J_B : The number of students in the lower group
Criteria for distinguishing according Arikunto (2005: 218) is as follows:
D = 0.00 to 0.20: Less
D = 0.21 to 0.40: Enough
D = 0.41 to 0.70: Good
D = 0.71 to 1.00: Very good
validity Questionnaire

To measure the students' emotional intelligence questionnaire validity was determined by using the Product Moment Correlation formula of Karl Pearson described by Arikunto (2005: 72). As for the calculation of student emotional intelligence questionnaire reliability is determined by the formula coefficients Alpha expounded by Arikunto (2005: 87)

Preparation of the test begins with planning assistance lattice and lattice formed by indicators of the level of emotional intelligence are summarized from several theories and consulted with several psychologists.

The test instrument learning outcomes designed using many questions subjektive test with five-point tests. Where the research instruments divalidkan by experts as lecturers and teachers who are experienced,containing the cognitive aspects that aspect of the application (C3), the solution (C4), synthesis (C5), evaluation (C6).

Table 2.
Grid Test Questionnaire Troubleshooting

Aspect	Indicators of achievement of learning outcomes	Number	ladder
Understanding the problem	Using the concept of a great relationship electrical force, a large electric charge, and the distance between electrically charged objects in mathematical problem	1.2	C4
	Using the concept of the relationship between the electrical force, a large electric field strength and electric mutants	3.4	C6
	Using the concept of electric potential to the distance between the object electric bermutan	5	C5

Plan a strategy that will be done	Using the concept of a great relationship electrical force, a large electric charge, and the distance between electrically charged objects in mathematical problem	1.2	C4
	Using the concept of the relationship between the electrical force, a large electric field strength and electric mutants	3.4	C6
	Using the concept of electric potential to the distance between the object electric bermutan	5	C5
implement strategies	Using the concept of a great relationship electrical force, a large electric charge, and the distance between electrically charged objects in mathematical problem	1	C4
	Using the concept of the relationship between the electrical force, a large electric field strength and electric mutants	3.4	C6
	Using the concept of electric potential to the distance between the object electric bermutan	5	C5
Re-examine whether or not the answer	Using the concept of a great relationship electrical force, a large electric charge, and the distance between electrically charged objects in mathematical problem	1.2	C4
	Using the concept of the relationship between the electrical force, a large electric field strength and electric mutants Using the concept of electric potential to the distance between the object electric bermutan	3.4 5	C6 C5

The sample in this study can be classified into two groups: Experiment by learning the application of the model Teams Games Tournaments type of cooperative effort and energy on the material and the control group were given instruction derect Introdaction more wear lecture method. It can be seen at

table 3,
ANOVA 2 Land

Concept Training (B)	Learning Model (A)		
	TGT (A1)	DI (A2)	
Low (B1)	A1B1	A2B1	μ_{B1}
High (B2)	A1B2	A2B2	μ_{B2}
	μ_{A1}	μ_{A2}	

keterngan:
A1 = Model pembelajarang cooperative *Teams Games Tournaments* (TGT)
A2 = Learning Model *derect introdaction* (IN)
A1B1 = group of students with low understanding of the concept of cooperative learning *Teams Games Tournaments*
A2B1 = Group of students understanding of the concept of learning model derect Low Introdaction
A1B2 = Group of students understanding of the high concept of cooperative learning model TGT
A2B2 = Group of students understanding of high-concept learning model DI
μ_{A1} = Group of students with problems in a cooperative learning model TGT
μ_{A2} = Group of students solving problems with the model pembelajaranDI

μ_{B1} = Group of students solving problems with understanding the concept of low

μ_{B2} = Group of students solving problems with understanding the high concept

3. Results and Discussion

Testing the validity and reliability tests were performed using SPSS 21. Based on the validity and reliability of test instruments, the result of calculation of the 14 items that were in ujikan valid is 10 with a value of r count> r table and items that have the highest value is 0.735 and the lowest score is -0.063. Based on these data it can be concluded that the 10 questions that deserve to be used as a research instrument.

Reliability test results based on the data processed with SPSS 21 researchers showed that the count r (0.824)> r table (0,296). According to Nugroho (2005: 72) "reliability of a construct variable is said to be good if it has a value of Cronbach's Alpha> 0.600". So we can conclude that the questions in the questionnaire is reliable and fit for use as a research instrument. Of the 14 questions that tested, two questions were classified as moderate, and 12 are relatively difficult matter. Of the 14 questions that were tested, three questions were classified as good, 2 matter is classified, 7 questions that pertained less and 2 matter that is in excellent condition. Based on the results of validity and reliability questionnaires, found that of the 30 items in ujikan valid is 25 with a value of r count> r table and items that have the highest value was 0.457 and the lowest score is -0.108. Based on these data it can be concluded that the 25 questions that deserve to be used as a research instrument.

Based on the test results of student learning both pretest and posttest both experimental class or grade control, the obtained diskriptive statistics for each group.

table 4

Data Descriptive Statistics Learning Outcomes

descriptive Statistics

	N	Minimum	maximum	mean	Std. deviation
Experiments pretest	32	12:00	40.00	20.69	5,750
Postes Experiment	32	54.00	97.00	83.13	9817
Control pretest	32	12:00	40.00	20.88	7.102
Postes Control	32	46.00	87.00	63.16	13 553
Valid N (listwise)	32				

Based on calculations obtained data normality test Asymp. Sig. (2-tailed) both pretest and posttest experimental class and control class. To determine the normal data or not can be determined by the criteria if the value Asymp. Sig. (2-tailed)> α = 0.05 then the normal data. Based on calculations in mind that the entire value Asymp. Sig. (2-tailed) Overall> α = 0.05, we can conclude all the data are normally distributed .. Based on the calculation above data homogeneity test looks for a table Sig. pretest pretest both experimental and control. To find the data homogeneous or inhomogeneous can be determined by the criteria if the Sig. > 0.05 then the data homogeneous.

Based on the calculations of output thitung -0.116 and ttabel 1.69 at levelα= 0.05. Then after comparing with the test criteria is received Ha hypothesis if t <t table and reject Ho if t> t table. It is obtained that t <ttabell or in other words Ha rejected. This shows that the initial capabilities grade students both control and experimental class is likely to be similar and not significantly different.

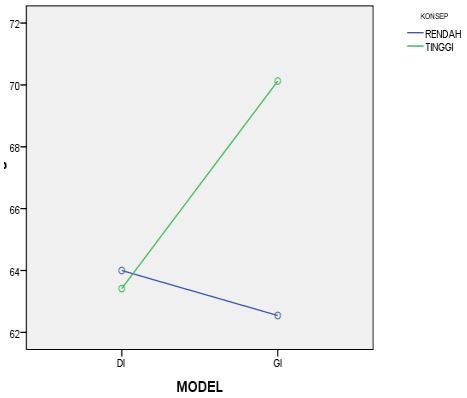
Based on the calculation of 2 x 2 factorial ANOVA obtained while the value of F = 43.469 Ftabel = 1.63 to dk (31; 31) and the real level α = 0.05 turned out to be the value of F = 43.469> F table = 1.63 so reject Ho hypothesis testing. in other words that the students be taught using problem solving learning model will gain higher learning outcomes than students that learned using expository teaching model. This is evident from the average student learning outcomes that learned by using

learning model of problem solving ($\overline{X}$ = 83.13) was higher than that learned student learning outcomes using expository teaching model ($\overline{X}$ = 63.16).

Based on the calculation of 2 x 2 factorial ANOVA obtained F count = 1,746 with sig is 0,001, while the value of F table = 1.63 to dk (31; 31) and the real level α = 0.05 turned out to be the value of F = 1,746> F table = 1.63 so reject Ho hypothesis testing. in other words that the students that learned by using learning model Teams Games Tournaments will gain higher learning outcomes than students that learned by using learning model derect Introdaction.

This is evident from the average student learning outcomes with high emotional intelligence ($\overline{X}$ =61.86) Higher than student learning outcomes that have low emotional intelligence ($\overline{X}$ = 45.31).

Based on ANOVA test table obtained Fhitung16.171 by Sig. 0.00. Therefore the value of Sig. < α = 0.05 it can be concluded that there is an interaction learning model Teams Games Tournaments with troubleshooting on learning outcomes.



Percent increase learning outcomes for the experimental class (28.4%) is greater than the percent increase in learning outcomes Control class (19.2%) with an increase in the difference between the experimental class and the control of (9.2%). This shows that there are significant differences percentage Physics learning outcomes are taught using learning model Teams Games Tournaments learning outcomes taught physics learning model derect Introdaction

4. Conclusion

Based on the results of data processing that has been performed using SPSS 21, the conclusion that: (1) The students that learned by using learning model Teams Games Tournaments obtain higher physics learning outcomes of the students that learned by using learning model derect Introdaction. It can be seen from the acquisition of the average score of learning outcomes Physics learning model Teams Games Tournaments generate an average value higher than the average value that learned with derect Introdaction on Enterprise and Energy X Semester at SMA Private Imelda Terrain TP 2015 / 2016. (2) Understanding the concept of understanding the concept of high and low, giving significantly different effect on the results in the materials and energy businesses. (3) There is an interaction between the learning model and understanding of concepts in physics affect learning outcomes. This means that the model of learning and understanding concepts together in influencing student learning outcomes.

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