International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531
(Print & Online)

http://gssrr.org/index.php?journal=JournalOfBasicAndApplied

The Influence of Teams Games Tournament Cooperative Learning Model on Students' Creativity Learning Mathematics

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Abstract

This research has a purpose to know whether the influence of Times Games Tournament cooperative learning model on students' creativity learning mathematics. This type of research is a pseudo experiment by determining one class of randomly to be used as an experimental class. Problem in this research is *student's creativity in learning mathematics*. The subjects of this research is all students of grade VIII SMP of Mardi Lestari of Medan consisting of 2 classes with the total number of students 67 and the sample of this study is class VIII-1 with the number of students 35 as an experimental class. Data collection techniques are conducted by observation to observe student activities and tests them to measure the skills, knowledge of intelligence, abilities or talents possessed by individuals or groups. To determine the result of Student Learning Mathematics Creativity is this research used statistical test. The results showed that cooperative learning model type Teams Games Tournament has an influence on Student Creativity In Learning Mathematics is 63.71% while the remainder 36.29 influenced by other factors.

Keywords: Times Games Tournament; Creativity.

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1. Introduction

Education is basically an effort to provide the knowledge, insight, skills and other specific skills for individuals to develop their talents and personality. Education makes people expend themselves to be able to face any changes caused by the advancement of science and technology. This remark mentioned by the author in [3] which states "National education was function to develop the ability, character and civilization of the dignified nation in program to educate the life of the nation, the purpose of the development of learners to be a human who believes and devout to almighty god, to be honorable, healthy, Knowledgeable, capable, creative, independent and become a democratic and responsible citizen ". The author in [10] says that mathematics (science of definite) for children in general is a subject that is unpopular, important to understand. This condition give the illustrates of the lack of mathematical and scientific ability, which can result in low student competitiveness in te context of science development if not as a hated subject. In accordance with the authors' statement [1] that: "Of the various subject of study taught in schools, Mathematics is a subject of study that was considered as the most difficult for students, both for student who don't find the difficult on this subject and for students with learning difficulties". From the it can be conclude that students regard mathematics as a difficult subject.

Creativity is a person's ability to create something new, both in the form of ideas and works, in the form of aptitude (thought processes) and no aptitude (feeling), in new works as well as in combination with existing things, and all relatively different With pre-existing ones like the author said[6]. Creativity does not occur in specific aspects such as art, literature or science, but is also found in motely life, including mathematics. The discussion in mathematics is more emphasized in the process, that is the process of creative thinking. Writer in [6] who express "Creativity refers to the ability that characterizes a creative person". This is in line with the authors of [7] indicators of mathematical creative thinking is fluency, flexibility, originality, and elaboration, based on the results of learners with high initial ability which cannot be achieved in indicators of originality well. Therefore, creativity in mathematics is more appropriate termed as creative thinking of mathematics. Creative thinking of mathematics refers to the ability to produce a variety of problem solving in mathematics. In learning mathematics, students are really creative in solving problems in mathematics, so it will impact on the memory of students who will be more persistent about what has been learned. Therefore, the effort to cultivate student creativity is an obligatory action, especially by the teacher. Creativity is essentially expressionistic because the expression (expression) which is anphysical trait that can develop through exercises. Creativity is all new thinking, the way, new understanding / model that can be delivered, and then we used in life. In creativity, there is the process of a new process, whether it is an idea or an object in a newly generated form or series. Creativity is also an ability to think in new and unusual ways and generate unique problem solving. The author in [6] there are three creative personal conditions is openness to experience. The ability to assess situations according to one's personal benchmarks (internal locucevalucation) and the ability to experiment, to "play" with concepts.

Cooperative learning is a practice strategy where students learn in small groups that have different levels of qualification. Author [5] in completing small group tasks that have different levels of ability. In completing the group, each member works together and mutually helping to understand a learning material. Learning is not

finished if one of the friends in one group has not complete the learning materials. The quiz at [12] that: "Cooperative learning is a practice model where learning systems and work in small groups of 4-6 people are collaborative in order to stimulate students more passionate in learning".

The author in [12] cooperative learning TGT model is one type or model of cooperative learning that is easy to apply, involving the activities of all students seems to have no status difference, involving the role of students as peer tutors and contain elements of game and *reinforcement*. The meaning of *reinforcement* is any form of verbal or non-verbal response, which is part of the teacher's behavioral modification of student conduct that aims to provide information or feedback from students for their actions as an act of encouragement or correction. Technical implementation of TGT is similar to STAD. Each student is placed in a group of three low, medium, and high-skilled individuals such as the author at [4]. Thus, each group has a comparable member composition. Where Teams Games-Tournament model of cooperative learning has five main components: class presentations, teams, games, tournaments, and team recognition that require students to work in small groups. Therefore, in an effort to improve students 'mathematical reasoning ability, cooperative learning model of Teams Games Tournament type is expected to increase students' activity so they can construct their own knowledge in learning. In the TGT writers in [11] students play the game with other team members to score for their respective teams. The game can be arranged by teachers in the form of tournaments in the form of questions related to the subject matter. TGT learning process will be more easily applied when assisted by the existence of a learning medium for games (Games) such as the author in [9]. According to [13] Team Game Tournament procedure is as follows (1) teachers divide students into groups of 4-5 heterogeneous students, (2) in the tournament table, students are grouped according to the respective ability level, (3) students occupy the tournament table guided judges and auxiliary judges, (4) carry out the tournament, (5) scoring.

2. Research Method

This type of research is a pseudo experiment by determining a sample class that is taken randomly as an experimental class. In this research the data retrieval method is done by wearing to one experimental class of a dealing condition. The population in this study is all students of class VIII SMP of Private Mardi Lestari of Medan in class VIII second semester of the school year 2013/2014 with the number VIII there are 2 classes amounting to 67 people. The sample is taken one class that is class VIII-1 which consists of 35 students. The research design is in the form of *pretest-posttes control grup*. The treatment given to the experimental class is using of cooperative learning model of TGT type. This research is a research that aims to know the effect of "something" that is imposed on the "subject", which is students.

Tabel 1: *Two Group Pretes-Posttest Design*

Group	***Pretest***	**Treatment**	***Postes***
Eksperimen	T_1	X	T_{2X} X_1 T_2

Note :

X: Learning using cooperative practice model of TGT type.

T_1: Pretest is given to the experimental class to determine initial capability.

T_2: *Posttest* is given after the treatment in the experimental class to determine the final ability.

The research variables consist of exempt variable and dependent variable. Exempt variable is cooperative learning model type TGT and dependent variable is creativity learn student mathematics. Instruments used for data collectors consisting of observations and tests of students' creativity in learning mathematics. Before being used to capture research data, the test instrument was first validated to test its validity and reliability. Data obtained in the study were analyzed descriptively. Descriptive analysis aims to describe the skills of learning process using TGT and student creativity. Before the first hypothesis test, normality test using liliefors test and hypothesis test using ANAVA.

3. Result

The result of class observation in the sample by using cooperative learning model of Teams Games Tournament type has the effect on Student Learning Mathematics Learning. The lowest score is 56, the highest value is 94, the average value is 77.22 and the standard deviation is 11.65.

Tabel 2: Observation Result Data

No.	X_t	f_t	**Average**
1	56	1	
2	58	2	
3	61	1	
4	64	3	
5	67	1	
6	69	4	
7	72	2	
8	75	3	77,22
9	78	2	
10	81	2	
11	83	2	
12	86	3	
13	89	2	
14	92	6	
15	94	1	
Total	**1125**	**35**	

Note :

Xi : observation value

Fi : Frequency value

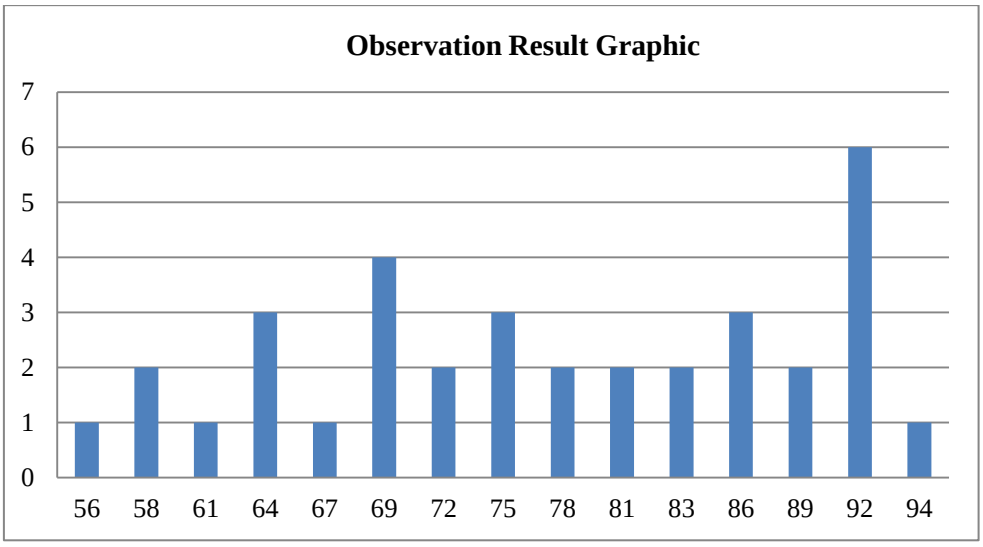

Figure 1: Observation Result value

Post-Test results in the sample class obtained the lowest value of 40 and the highest value 94, the average value of 71.1 and standard deviation 15.107. Post-Test value data of the sample class can be seen in the following table.

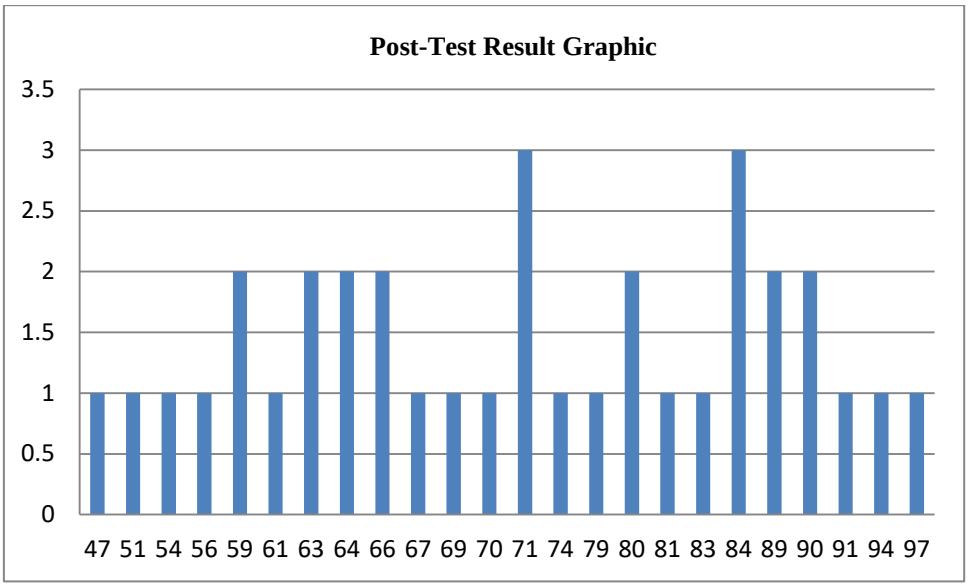

Figure 2: *Post-Test*result

Tabel 3: Value data l *Post-Test*

No.	X_t	f_t	**average**
1	47	1	
2	51	1	
3	54	1	
4	56	1	
5	59	2	
6	61	1	
7	63	2	
8	64	2	
9	66	2	
10	67	1	
11	69	1	
12	70	1	73,17
13	71	3	
14	74	1	
15	79	1	
16	80	2	
17	81	1	
18	83	1	
19	84	3	
20	89	2	
21	90	2	
22	91	1	
23	94	1	
24	97	1	
Total	1740	35	

Note :

Yi : *Post-Test*value

Fi : Frequency value

Based on the results of regression analysis calculation obtained regression equation that is Y = 3.0758 + 0.9076X In the equation obtained regression b = 0.907 marked positive, which means that both variables have a positive linear relationship and students' mathematical creativity will increase with the influence of model TGT type learning if the TGT type learning model increases by one unit. From the test of linear regression obtained F

Count <F table or 2.086 <2.46 then H0 rejected and Ha accepted, be the linear regression model.

From regression significance test obtained Fcount ≥ Ftable or 57.9432 ≥ 4.13 then H0 accepted and Ha rejected, so that is the regression model means. So it can be concluded that the linear regression model and means, so it means that there is influence of cooperative learning model type TGT to the creativity of student learning mathematics.

Tabel 4: Calculation Result of ANAVA

Source variance	d_k	JK	KT	F_{count}	F_{table}
Total	35	193363	193363	-	-
coefficient(a)	1	189119.5333	189119.5333		
Regression (b/a)	1	653,0514	653,0514	57,9432	3,14
Residue	33	5317,92	161,149		
Tuna Cocok	12	1074,453333	89,5377	2,086	2,46
Error	21	4243.466667	202,0698		

Based on the calculation results obtained correlation coefficient r^2 = 0.6371, means the relationship model of cooperative learning type TGT to students' learning creativity, good creativity. Based on the calculation of significance test correlation coefficient obtained $\mathbf{t_{count}}$ = 7,6081 and $\mathbf{t_{table}}$ = 1.69. Thus $\mathbf{t_{count} > t_{table}}$ or 7.6081> 1.69 then the hypothesis H0 rejected and Ha accepted then concluded there is a meaningful relationship on the model of cooperative learning TGT type of student learning creativity of mathematics. Then from the calculation coefficient of determination obtained r^2 = 63.71% means cooperative learning model type TGT have an effect on the creativity of learning mathematics students of 63.71% while the remaining 36.29% influenced by other factors.

4. Discussion

Based on the results of the above research it can be said the influence of cooperative learning model type TGT have an effect on the creativity of learning mathematics students. This study is in line with the authors of [17] who say that the average score of students' learning independence on cooperative learning type TGT includes high criteria, improved reasoning ability and mathematical connections of learners who follow cooperative learning type TGT better than those who follow direct learning , There is no interaction of TGT type cooperative learning model and direct learning model to improve students' mathematical reasoning ability, and there is interaction of cooperative learning model of TGT type and direct learning model to the improvement of mathematic connection ability of learners. Vygotsky proposed three categories of achievement in his attempt to solve Problems (1) students achieve success well, (2) students achieve success with help, (3) students

Failed to achieve success like the author in [15]. In this case it can be seen that the students achieve success well on the creativity of learning mathematics with the help of model of learning type of TGT. The nunung writer in [8] said that there is a difference in the learning activity of mathamatics between students who use cooperative learning type TGT with students who get learning conventionally. The authors in [2] also say that overall improvement in the mathematical reasoning ability of students who acquired learning with cooperative learning model type Teams Games Tournament is better than students who gain learning with conventional approach. In addition, the authors of [14] A recommendation was made to incorporate Cooperative TGT as a pedagogical approach to enhance interest in actively learning mathematics with peers via tournaments among students. Students in Cooperative TGT classrooms have also learned to socialize while learning mathematics. As for other studies that might strengthen this study from the authors [16] in their research TGT was used cooperatively in the mathematics class in the general government secondary schools. This model encourages students to be competitive, cooperate with other students and become more active and creative in their learning. Their findings suggest that students using TGT cooperative models perform better than those who undergo a conventional learning model.

5. Conclusion

From the data analysis and hypothesis testing then as the conclusion in this research is "There is influence of cooperative learning model type Teams Games Tournament (TGT) to the creativity of learning mathematics of students on class VIII circle material at SMP Mardi Lestari Medan". Thus cooperative learning model type Teams Games Tournament (TGT) can significantly affect the creativity of learning Mathematics students of 63.17% can be explained through linear relationship.

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