

**TEAMS GAME TOURNAMENT (TGT) MODEL INFLUENCE ON STUDENTS'
MATHEMATICS ABILITY THROUGH ONLINE LEARNING ON CLASS VII
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Email: zuhrimuin63@gmail.com***Abstract**

The purpose of this study was to determine the effect of the Teams Game Tournament (TGT) cooperative learning model on students' mathematical abilities. This research was conducted at Public Junior High School 2 Hinai. The population in this study were all grade VII students of Public Junior High School 2 Hinai as many as 4 classes with a total population of 83 students. The sample in this study was class VII A which consisted of 20 people as the experimental class and class VII B amounted to 20 people as the control class. This type of research is quasi-experimental, the instrument used to collect data is a test containing 5 questions describing students' mathematical abilities. The data analysis technique used normality test, homogeneity, simple linear regression test, linearity, significance and hypothesis testing. Based on the hypothesis test, it is known that the r count value is 0.94 with r table 0.45, so r count $>$ r table ($0.94 > 0.45$), which means that it accepts H_a , that is, there is an influence of the Teams Games Tournament (TGT) model on students' mathematical abilities in class VII Public Junior High School 2 Hinai.

Keywords: Perceived Usefulness, Intention to Use, Attitude Toward Using

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INTRODUCTION

Along with the rapid development of technology and science which is slowly starting to shift the lifestyle of school-age children, especially during the covid-19 pandemic like today, children are required to learn via mobile phones (online) (Collins & Halverson, 2018). Not a few of them prioritize playing online games rather than learning online. Kuntarto in (Handayaningsih et al., 2021) explains online learning is a learning activity that uses internet technology where people can learn flexibly and can be done anywhere and anytime without having to face to face. Currently online provides new experiences for students and teachers

because online learning is more challenging than conventional learning (Irwan & Hasnawi, 2021).

Therefore, as a teacher, learning in the classroom must also adapt to the current state of the students and the teacher should not be careless (Haris & Jihad, 2013). Teachers must have good teaching strategies so that students can learn effectively (Suryani, 2022). This is in line with Murtiyasa and Hayuningtyas (2020) which states that the learning strategies used by the teacher will affect the activities and creativity of students during learning activities. Students today need a learning model that can increase the interaction between their peers

through interactive games as learning innovations without leaving the purpose of learning. By making innovations in online packaged games, students will interact in real terms and work together as if they were playing interactive games (Sanjaya & Eka, 2021). In addition, the learning carried out must be meaningful, namely by involving students in the learning process and the questions given must also be challenging in terms of the problems. Learning that presents problems will stimulate students to think critically (Alfalati & Wibawa, 2020).

On this occasion the researcher wants to do online learning that is packaged with a modified game or commonly called the Team Games Tournament (TGT). Team Games Tournament (TGT) in this learning model students play games with other team members to get additional points for their team scores (Wilujeng, 2013). Nasrum (2017) cooperative learning type TGT consists of 5 stages, namely: the stage of class presentation (class presentation), learning in groups (teams), games (games), competitions (tournament), and group awards (team recognition). In addition, cooperative learning TGT also creates an active learning environment in solving exercises, and discussions among students and teachers (Veloo & Chairhany, 2013).

Observations in the field are deliberately carried out by researchers in order to obtain accurate data for the smooth continuity of research as well as to further prepare learning in class. Based on observations made by researchers and conversations with mathematics subject teachers for class VII Public Junior High School 2 Hinai that students' mathematical abilities are still low in participating in learning and learning outcomes can still be maximized, this usually happens to students who if given assignments or homework do not want to carry out these obligations, even so there are some students who look enthusiastic in participating in the lessons given by the teacher and there are also

students whose learning outcomes are quite satisfactory because they often get maximum scores. So the researchers concluded that students' mathematical abilities were low in participating in mathematics learning in class which resulted in learning outcomes that were not optimal, this could be seen from students who were less interested in doing the assignments given by the teacher. Because many of these students did not understand this mathematics learning.

There are many solutions that can be used to overcome the problems above. One of them is cooperative learning which was developed into Team Games Tournament (TGT). Based on research conducted by many other researchers who have previously conducted research, it is proven that cooperative learning provides a large enough role in improving students' mathematical abilities (Rukmi et al., 2020). Moreover, The TGT cooperative learning model is well applied in learning because it can improve student learning outcomes (Pongkendek et al., 2019).

METHOD

This research was conducted at Public Junior High School 2 Hinai, which is located at Jalan Perjuangan, East Peaceful Village. The time of this research is in March, the odd semester to completion. The population in this study were all class VII Public Junior High School 2 Hinai which amounted to 4 classes while the samples were 2 class VII, namely class VII-A totaling 32 students as the experimental class and class VII-B totaling 23 students as the control class. The sampling technique used is purposive sampling, namely taking samples with certain considerations (Sugiyono, 2019).

This research is a quasi-experimental type (quasi-experimental) and Randomized Pretest-Posttest Control Group Design (Creswell, 2012). In this design, there were two groups that were chosen randomly, then given a pretest to find out if there was a difference between the experimental group

and the control group in the initial state. The experimental class was given treatment, namely the Teams Games Tournament type of cooperative learning model. While the control class was given treatment, namely learning mathematics with conventional methods.

This research procedure consists of two stages, namely the preparation stage and the implementation stage. The preparation stage consists of three steps, namely: 1) compiling a research schedule, 2) developing a lesson plan, 3) preparing a data collection tool. The implementation phase consists of five steps, namely: 1) random sampling to be used as the experimental class and control class, 2) giving pretest to both classes which aims to determine the students' initial abilities, 3) giving treatment to the experimental class by applying a learning model TGT and conventional learning models in the control class, 4) giving a posttest to both classes to determine the increase in understanding of mathematical concepts after learning with the TGT model, 5) the test results of the two groups are then compared to see if there are differences in the ability to understand mathematical concepts of students who are taught by using the TGT model. Cooperative Type TGT and conventional learning

The instrument used in this study was a test consisting of pretest and posttest. Before the test is given to students, it is first tested by the validator in order to determine the validity, reliability, level of difficulty and distinguishing power of the test. After the data is obtained, the data is analysed using certain techniques. The data analysis

technique used in this study is the normality test used to determine whether the analysed data is normally distributed or not, homogeneity test is carried out to determine the variance of each class which is normally distributed, simple linear regression test is used to predict how far the difference in the value of the dependent variable is, when the value of the independent variable is manipulated or changed. The significance test is used to test whether the regression coefficient obtained is significant (mean) or not. The linearity test was carried out with the null hypothesis (H_0) which stated that the regression was linear against the alternative hypothesis (H_a) which stated that the regression was non-linear. Hypothesis testing This test is used to test the hypothesis whether the truth is acceptable or not.

RESULTS AND DISCUSSION

This research was conducted at Public Junior High School 2 Hinai which is located at Jalan Perjuangan, East Peaceful Village. The population in this study were all class VII Public Junior High School 2 Hinai which amounted to 4 classes while the samples were 2 class VII, namely class VII-A totaling 32 students as the experimental class and class VII-B totaling 23 students as the control class. The purpose of this study was to determine the effect of the Teams Game Tournament (TGT) on students' mathematical abilities.

A. Experimental class

Based on the research conducted, the data obtained in the experimental class are as follows.

Table 1
Pretest and posttest

Pre-test Data			Post-test Data		
Interval	experimental class	Criteria	Interval	experimental class	Criteria
$0 \leq KAM < 29$	4	Low	$0 \leq KAM < 40$	0	Low
$30 \leq KAM < 39$	11	Medium	$41 \leq KAM < 70$	7	Medium
$40 \leq KAM < 50$	5	High	$71 \leq KAM < 100$	13	High

From the table above, it can be seen that the most pretest scores obtained in the experimental class were 24 and 20 as many as 4 people. The purpose of the pretest was to see the initial abilities of the two classes. Once known, two different treatments were given in terms of the learning process. class VIIA with the Teams Games Tournament (TGT) model as the experimental class and class VIIB with the conventional model as the control class. After the learning process using the

TGT model, the experimental class, namely VIIA, was given a posttest. The results can be seen in the table above that the highest score in the experimental class is 48 with 5 people and 100 for 1 person.

B. Control class

Based on the research conducted, the data obtained in the control class are as follows.

Table 2
Pretest and posttest data for control class

Pre-test Data			Post-test Data		
Interval	experimental class	Interval	experimental class	Interval	experimental class
0≤KAM<29	7	Low	0≤KAM<40	4	Low
30≤KAM<39	11	Medium	41≤KAM<70	12	Medium
40≤KAM<50	2	High	71≤KAM<100	4	High

From the table above, it can be seen that the highest score in the pretest in the control class was 28 as many as 7 people. Meanwhile, after being given the posttest the highest score in the dick class was 92 as many as 2 people.

1. Normality Test

This test is conducted to see whether the data is normally distributed or

not. normality test using the Liliefors test with the criteria $L_{arithmetic} \leq L_{table}$ and $\alpha = 0.05$. If the criteria are met then the data is normally distributed. The results of the calculation of the normality test are shown in the following table.

Table 3
Normality test results

Class	$L_{arithmetic}$		L_{table}	criteria
	Pre-test	Post-test		
Experiment	0,1388	0,1609	0,19	Normal
Control	0,1199	0,1554	0,19	Normal

From the table above, it can be seen that the $L_{arithmetic}$ for the experimental class for pretest and posttest is 0.1388 and 0.1609, and $L_{arithmetic}$ for the control class for pretest and posttest are 0.1199 and 0.1554 respectively and the overall $L_{arithmetic}$ 0, 19 so that it can be concluded that both the experimental class and the

control class $L_{arithmetic} \leq L_{table}$, which means that both classes are normally distributed.

2. Homogeneity Test

This test was carried out with the variance similarity test. It is said to be homogeneous if $F_{arithmetic} \leq F_{table}$ with a significance level of $\alpha = 0.05$.

The results of the homogeneity test calculation are shown table 4.

Table 4
Homogeneity test results

Class	$F_{\text{arithmetic}}$		F_{table}	Criteria
	Pre-test	Post-test		
Experiment	1,556	1,169	2,17	Homogeneous
Control	1,556	1,169	2,17	Homogeneous

Based on the table above, it can be seen that the calculated pretest and posttest both experimental and control classes are smaller than F_{table} ($F_{\text{arithmetic}} \leq F_{\text{table}}$) that it can be concluded that the two classes are homogeneous.

3. Simple Linear Regression Test

The results of the simple linear regression test are $\hat{Y} = 10.66 + 1.59X$

4. Significance Test

The results of the significance test are shown in the following table

Table 5
significance test results

Source of Variance	DK	JK	RJK	F
Reg (a)	1	19220	-	$F_{\text{arithmetic}}=16,537$
Reg (b/a)	1	1163,88	1163,88	
Residue	18	1266,837	70,379	
Total	20	21650717	1234259	

From the distributive table F obtained F_{table} db numerator 1 and db denominator = $N - 2 = 20 - 2 = 18$ at level $\alpha = 0.05$ then $F_{\text{table}} =$ Thus it can be seen that $F_{\text{arithmetic}} > F_{\text{table}}$ i.e. $16.5 > 4.41$ then H_0 is rejected and it can be concluded that the direction

coefficient of the regression equation is sufficient.

5. Linearity Test

This test is carried out to see if the data can be linear or not. the following table of linearity test results

Table 6
results of linearity test

Variance sources	DK	JK	RJK	F
Tuna match	6	1,163	0,1938	$F_{\text{arithmetic}} = 0,0018$
Error	12	1268	105,66	
Total	18	1269,85	105,85	

By looking at the distribution list F with db numerator = $N - k = 20 - 8 = 12$ db denominator = $k - 2 = 6$ at level $\alpha = 0.05$ then $F_{\text{table}} =$ Thus it can be seen that $F_{\text{arithmetic}} < 3.00$ so it can be concluded that the equation $\hat{Y} = 241.1 + 1.59X$ is linear.

6. Hypothesis testing

H_a : There is no effect of the Teams Games tournament (TGT) model on students' mathematical abilities through online learning in class VII Public Junior High School 2 Hinai

H_0 : There is an influence of the Teams Games tournament (TGT) model

on students' mathematical abilities through online learning at Grade VII students of Public Junior High School 2 Hinai.

Hypothesis testing in this study used a regression test of the data on

the results of mathematical abilities obtained by students, namely the data from the pretest and posttest results. The results of calculations using the regression test are made in the following table.

Table 7
hypothesis test results

$r_{\text{arithmetic}}$	r_{table}	N	Hypothesis	Description
0,94	0,45	20	$r_{\text{arithmetic}} > r_{\text{table}}$, Ho accepted	There is an effect of the Teams Games tournament (TGT) model on students' mathematical abilities $r \neq 0$.

From table 6, the results of calculations using regression, it is obtained count = 0.94. Then this value is compared with $r_{\text{table}} = 0.45$ with $N - 20 - 2 = 18$ and a significant level of 5%. Because $r_{\text{arithmetic}} > r_{\text{table}}$, Ho is rejected and Ha is accepted, thus it can be concluded that there is an influence of the Teams Games tournament (TGT) learning model on students' mathematical abilities.

CONCLUSION

Based on the results of the research and discussion that have been stated previously, it can be concluded that there is an effect of the Teams Games Tournament (TGT) model on the mathematical ability of class VII Public Junior High School 2 Hinai in the 2021/2022 academic year. This is evidenced by the researcher based on the calculation of the $r_{\text{arithmetic}} 0,94 > r_{\text{table}} 0.45$ which shows that the Teams Games Tournament (TGT) learning model on the mathematical ability of the proposed hypothesis is accepted.

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