

# The Implementation of Team Games Tournament Models Using Google form Assisted Student Worksheets in Increasing Students Achievement in Mathematics During the COVID-19 Pandemic

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## ABSTRACT

This study aims to determine the effectiveness of the TGT Learning Model using Google Form in learning Mathematics during the Covid-19 pandemic in the 8<sup>th</sup>-grade students of Junior High School (SMPN) 14 Bulukumba on student learning achievement. The type of research is pre-experimental research. The research design used is One-Group Pre-test Design. The population of this study consisted of 6 groups. The sampling technique is conducted through cluster random sampling technique. The instrument data collection technique is the learning achievement test. Statistical analysis used is descriptive statistical analysis and inferential statistics. From the results of descriptive statistical analysis, i.e. average score, standard deviation, maximum score, and minimum score. The result shows that after implementing the method, the average post-test score was better than the average pre-test score. The average post-test score was 77.83, the learning achievement (value gain) students are in the medium category. Based on these acquisitions, it can be concluded that the use of the TGT Learning model with Google Form is effective to apply.

**Keywords:** TGT Learning Model, Covid-19 Pandemic, Learning Achievement, Google Form.

## 1. INTRODUCTION

The Covid-19 pandemic has brought many changes in all sectors including education in Indonesia. School activities which usually become routine activities, now have to switch to an online learning system where it has an impact on learning efficiency. The government has issued various policies and initiatives to deal with learning obstacles during the Covid-19 pandemic, such as the revision of the Joint Decree (SKB) of the Four Ministers which was issued on August 7, 2020, to adjust learning policies in the current pandemic era. In addition, schools are given the flexibility to choose a curriculum that suits the learning needs of students during a pandemic, as stipulated in the Decree of the Minister of Education and Culture regarding the curriculum during an emergency.

The teaching and learning process in schools is carried out from home or known as learning from home activities (BDR). The implementation of the online learning process currently has various problems. According to Asmuni [1], online implementation during the Covid-19 pandemic gives various problems to teachers, students, and parents. As for teachers, they find it hard to master IT and limited access to student supervision. For students, there is inactivity to participate in learning, limited supporting facilities, and internet network access. Meanwhile, from the parents' side, they have limited time to accompanying their children to study at home during online learning. These problems are not solely due to student errors but can also be caused by the use of inappropriate learning media. In this modern era, education is supposed to be adaptive to changes due to the development of science and technology. On the other hand, the sophistication of the

technology used in learning during online Distance Learning (PJJ) has a huge impact on degrading the social skills of students, especially in communicating and collaborating with other students. In addition, the selection of a monotonous learning model causes students to become bored during their learning process. So, it forces teachers to be creative by providing a fun atmosphere during the learning process. Thus, the students can improve their performance and increase their learning achievements.

Cooperative learning is a learning model that divides students into small groups. This method is expected to reduce gaps in the learning process and students can support each other to improve their achievement. In addition, it can also develop relationships between groups and increase self-esteem and self-confidence. Cooperative learning can make a difference in the classroom into the material in learning because there is an interaction that helps each other achieve learning goals together [2].

The TGT learning model utilizes games and tournament activities to measure each student's score progress system. The use of games activities in this teaching model can make students play an active role in exploration, experimentation, competition, and collaboration activities [3]. According to Shoimin [4] in implementing the TGT learning model, 5 main parts must be remembered, namely: class presentation, group formation, games, tournaments, and awarded the group with the highest score. This learning model invites students to develop their knowledge related to learning materials [5]. The TGT learning model can facilitate students to be more involved during learning (Putra, 2015: 145). The TGT learning model invites students to participate in learning problem-solving activities. In line with this, Slavin [2] explains that the Team-Games-Tournament (TGT) uses games that can be adapted to any topic. These games are usually better than individual games, they provide opportunities for peers to help each other and avoid one of the problems of individual games. i.e., that the more consistent the students, the bigger possibility they get to win. If all students are put on a mixed ability team, all students have a good chance of success. However, in this study, the author provides the same number of questions with the same level of difficulty considering that learning is carried out online using the Google Form application.

In education, Google Forms can be utilized to provide quizzes, surveys on the effectiveness of the learning process, collect open-ended question answers, and others [5]. Google Forms is a free feature of Google email. Besides surveys, Google Forms also can work on can also an online exam. In Google Forms, we can create various modes of

questions from multiple-choice, short answers, and answers with explanations. In addition, we can also create questions that use pictures or something else. Because of these advantages, giving assignments using Google Form media is considered effective and can improve student learning achievement during this Covid-19 pandemic. Based on this background, the author is interested in finding out the effectiveness of the application of the Learning Tournament method using Google Form during the Covid-19 pandemic in 8th Grade from Group C of Student at Junior High School 14 Bulukumba.

## **2. METHOD**

This research is quantitative research with a pre-experimental approach involving one class (One Group) as the experimental class or the treatment class (treatment). This study describes the learning achievement of students through the application of the Tournament Learning Method. The research design used in this study was the One-Group Pre-test post-test Design. To use this design, we can compare the results obtained by students in the pre-test and post-test. The pretest is before the implementation of the Learning Tournament Method. Meanwhile, post-test is the results obtained after the application of the Learning Tournament method. The population in this study were students of the 8<sup>th</sup> Class of Junior High School of 14 Bulukumba spread over 6 classes. The research sample consisted of 1 class, the class that was given treatment using the learning tournament method with the Cluster Random Sampling Technique, the eighth grade from group C with 30 students. The class is divided into 6 online groups through WhatsApp groups with heterogeneous levels of intellectual ability, pre-test and post-test questions are given using the Google Form. Tournament activities are carried out at the end of the learning activities of each meeting, tournament questions for each group are sent to each group via a different link to make it easier for the teacher to calculate the group score. The provision of material before the tournament is held is carried out through a WhatsApp group with consideration that it is easily accessible by students. Group discussions can be carried out in groups or class groups. After conducting a tournament with a certain time limit, considering that each student's internet access is different, the teacher conveys the score for each group and gives appreciation to the one who gets the highest score. Calculation results Normality test is used to determine whether the research data comes from a population that is normally distributed or not. Normality test for experimental group variables

through Kolmogorov Smirnov normality test. Further, the homogeneity test using Levene's test to test the similarity of the variance-covariance matrix. To determine the effectiveness of the application of the learning tournament method in Mathematics learning in terms of learning achievement, an analysis was carried out using the paired sample t-test.

**3. RESULT**

**3.1. Students' Mathematics Learning Outcomes Result**

The test data for learning mathematics results consist of pre-test data and post-test data. In summary, statistical descriptions of students' mathematics learning outcomes are presented in the table below:

**Tabel 1.** Descriptive statistical data analysis

	N	Mimumum	Maximum	Mean	Std. Deviation
Before Treatment	30	15	95	54.33	17.798
After Treatment	30	40	100	80.67	16.491
Valid N (listwise)	30				

Based on the results of descriptive statistical data analysis, overall, the highest score achieved by students during the pre-test is 95, and the lowest score is 15. The average value is 54.33 and the standard deviation is 17.798, while in the post-test the highest score was achieved by students at the pre-test. The test is 100 and the lowest score is 40. The mean score is 80.67 and the standard deviation is 16.491.

**3.2. Analysis of the effectiveness of the learning method**

Analysis of the effectiveness of the learning method on students' Mathematics learning outcomes, then the paired-sample t-test is carried out.

**Tabel 2.** The paired sample t-test

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Before treatment	54.33	30	17.798	3.250
After Treatment	80.67	30	16.491	3.011

The hypotheses tested are:

H<sub>0</sub>: There is no significant difference between learning outcomes before and after using the TGT learning model with Google Form ( $\mu_1 = \mu_2$ )

H<sub>1</sub>: There is a significant difference between learning outcomes before and after using the TGT learning model with Google Form ( $\mu_1 \neq \mu_2$ )

From the results of the analysis using IBM SPSS Statistics 20 obtained t count = 7.673 with a significance value of 0.000. If it is associated with the test criteria with a significance value of 0.05, then H<sub>0</sub> is rejected. This means that we can conclude that there is a significant difference between Mathematics learning outcomes in the pre-test and post-test. The learning improvement can be noticed after applying the TGT learning model using Google Form.

**3.3. Initial Conditional Analysis**

1) Normality Test

From the normality test with the Kolmogorov-Smirnov test, it was found that the achievement of the post-test value had a Sig value of 0.035 > 0.05, this indicates that the data is normally distributed.

2) Homogeneity test of the variance-covariance matrix

Homogeneity test for multivariate test using Levene's test. The results of the calculation of IBM SPSS Statistics 20 obtained a significance of 0.355 > 0.05, it is concluded that the variance-covariance matrix of the two populations is the same or homogeneous.

**4. CONCLUSIONS**

The results of other data prove that the results of the independent samples t-test test are known that Sig. (2-tailed) of 0.000 < 0.05 means that there is a significant difference between Mathematics learning outcomes in pre-test and post-test data. It means, there is an increase in Mathematics learning outcomes after applying the Tournament Method with Google Form. This proves that this activity will be greatly implemented during pandemics. This method can improve the ability to collaborate between students and their group members, foster a competitive spirit between study groups while increasing self-confidence to provide the best for the group. The implementation of the TGT learning model opens up more opportunities for variations and the development of learning strategies towards a better direction. Thus, the Mathematics learning process and achievement will get better during the Covid-19 pandemic.

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