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The Effectiveness of Team Games Tournament in Improving Students' Collaborative Abilities

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ABSTRAK

Penggunaan model pembelajaran yang kurang tepat dalam proses pembelajaran menyebabkan peserta didik cenderung pasif. Penelitian ini bertujuan untuk menganalisis pengaruh penerapan model pembelajaran kooperatif Team Games Tournament (TGT) *terhadap kemampuan kerjasama mahasiswa kelas A6-22 dan A7-22. Penelitian ini menggunakan desain quasi eksperimen dengan pendekatan kuantitatif dan termasuk dalam kategori penelitian eksperimen. Populasi penelitian adalah seluruh mahasiswa kelas A6-22 yang berjumlah 34 orang sebagai kelas kontrol dan A7-22 yang berjumlah 33 orang sebagai kelas eksperimen. Teknik pengumpulan data menggunakan uji validitas, uji normalitas, uji homogenitas, serta uji hipotesis dengan independent sample t-test. Hasil penelitian menunjukkan bahwa data berdistribusi normal dan homogen, serta terdapat perbedaan yang signifikan antara kelas eksperimen dan kelas kontrol. Nilai rata-rata kelas eksperimen adalah 61,15, sedangkan nilai rata-rata kelas kontrol adalah 57,85. Berdasarkan hasil analisis, hipotesis nol (H_0) ditolak dan hipotesis alternatif (H_a) diterima, yang berarti model pembelajaran* Team Games Tournament (TGT) *berpengaruh secara signifikan terhadap kemampuan kerjasama mahasiswa. Dengan demikian, penggunaan model pembelajaran* Team Games Tournament (TGT) *terbukti lebih efektif dibandingkan dengan model pembelajaran konvensional dalam meningkatkan kemampuan kerjasama mahasiswa.*

ABSTRACT

The inappropriate application of learning models in the learning process often results in passive student engagement. This study aims to analyze the impact of the Team Games Tournament (TGT) cooperative learning model on students' collaboration skills in classes A6-22 and A7-22. The study employed a quasi-experimental design with a quantitative approach, categorized as experimental research. The population consisted of all students in class A6-22 (control group, 34 students) and A7-22 (experimental group, 33 students). Data collection techniques included validity tests, normality tests, homogeneity tests, and hypothesis testing using the independent sample t-test. The results indicated that the data were normally distributed and homogeneous, with a significant difference between the experimental and control groups. The average score in the experimental group was 61.15, while the control group scored 57.85. Based on the analysis, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_a) was accepted, indicating a significant positive effect of the Team Games Tournament (TGT) learning model on students' collaboration skills. Therefore, the TGT learning model is proven to be more effective than conventional teaching methods in enhancing students' collaboration abilities.

1. INTRODUCTION

The educational literature mentions several obstacles that influence the effectiveness of collaborative learning, these are often investigated through the perception of only one actor, either the teacher or the student. Therefore, some sources of obstacles encountered by teachers and students may not have been revealed. Collaborative learning Collaboration can be defined as a set of teaching and learning strategies that encourage students to coordinate efforts in small groups (two to five students to improve their own learning and each other's learning (Aprilliyah, 2014; Buchal & Songsore, 2018). To achieve this goal, teachers have tried to organize various types of collaborative activities in classroom teaching them

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(Haataja et al., 2022; Le et al., 2018). Collaborative learning is a powerful educational intervention, especially when dealing with complex problems that involve multiple perspectives or specialized expertise. Diversity among group members can help create a rich learning environment by providing multiple social perspectives, as well as opportunities for cognitive restructuring and support in the form of feedback, emotional support, and deliberate practice. In such learning situations, students participate actively in group learning activities, while the teacher usually plays the role of facilitator. Collaborative learning can be characterized as a series of social interactions that focus on developing common ground and shared knowledge (J. Chen et al., 2018; Ramos et al., 2022). However, research also shows that there are challenges in ensuring that collaborative or cooperative experiences are successful for all participants, as individuals can also contribute in ways that dominate and marginalize others encouraging off-task behavior and limiting overall success due to reduced personal performance Team composition also is one of the key factors in collaborative problem solving (Abdurrahman, 2023; Strauß & Rummel, 2020). To obtain quality learning or to realize effective learning goals, it is necessary to implement a learning approach that is centered on students. Cooperation is a form of social process in which certain activities aim to achieve common goals by helping each other and understanding each other's activities. Cooperation means working together to achieve a goal, with cooperation in learning, students can become more active, practice accuracy, express opinions and respond when answering questions from teachers or friends, students are also more enthusiastic and motivated (Cahyaningtyas et al., 2023; Romiyati et al., 2023). One place where collaborative learning can be applied is in education, specifically in the classroom, which is the right place to learn how to work in groups or teams, which will be useful in the future (Järvelä et al., 2023; Marlina, 2021).

In collaborative learning, collaboration has objectives including developing cognitive outcomes (eg knowledge), social outcomes (eg communication and collaboration skills), and motivational outcomes (eg attitudes). This problem arises in relation to less than optimal collaborative learning design, such as minimal teacher guidance during collaborative learning and assessment (Meijer et al., 2020; Supena et al., 2021). Collaborative learning is an effective learning activity and incorporating collaborative learning into courses is beneficial for students regarding learning and social perspectives such as social presence. Some scientists interpret that cooperation is a group or association effort to achieve a common goal, where each part is obliged to provide thoughts, ideas, or assumptions in seeking effective improvements. Similar to the built-in cooperation model where students brainstorm and each contribute or give them the knowledge they need to find a solution. In this case, it is hoped that there will be constructive cooperation, namely cooperation that does not depend on each other but complements each other and offers solutions so that the goals to be achieved together can be achieved successfully (Azizah & Iklas, 2021; Herrera-Pavo, 2021). Where in collaborative learning or cooperation, one of the indicators explains that being involved in completing tasks, respecting opinions and including each group, in groups, helping each other, respecting the contribution of each member, everyone in the group working together to solve problems and reach agreements (Azizah & Iklas, 2021; Riquelme et al., 2019).

Social interaction makes students' understanding explicit and can improve their understanding through discussion with many people or with other people, elaboration, and negotiation with others to reach a shared understanding. There is support in the literature that social interaction between people is very important in learning, and in developing cognitive and problem-solving abilities. Research also finds students process information differently when they work in groups than when they work alone (C. H. Chen et al., 2020; Rosen et al., 2020; Silalahi & Hutauruk, 2020). Many studies show that collaborative problem solving is increasingly important in today's complex and interconnected world and therefore increases the interest in teaching and assessing with students. One variant of the learning model that can be applied as a solution to overcome the problems above is the application of the TGT learning model. The quality of education, schools must organize more optimal learning. One is the method of delivering knowledge, and the skills approach teachers must have when carrying out the learning process (Novritasari et al., 2022; Riquelme et al., 2019). Teachers have didactic and pragmatic goals for implementing collaborative learning. By applying the learning model teachers can convey material more easily, one model that can be applied by teachers to foster students' cooperative attitudes is the TGT learning model. The learning process is basically a communication process between teachers and students, both directly and indirectly through the use of learning media (Meijer et al., 2020; Parmiti et al., 2020).

The Learning Model is also known as useful learning which describes how students learn and work together in small meetings consisting of two to five individuals with different meeting structures. TGT style cooperative learning is learning that includes all student activities in a group without taking into account differences (Rahmat et al., 2021; Sukenda Egok, 2022). The Team Game Tournament (TGT) collaborative learning model is a social learning model where students participate in academic games as representatives of their respective groups. TGT is a form of cooperative learning that combines teams, group discussions,

and a final game or competition (Hamdani et al., 2019; Munawaroh & Prasetyaningtyas, 2023). The learning model allows students to be more relaxed when responsibility, cooperation, healthy competence and involvement in learning are insufficient (Irma, 2021; Sugianto et al., 2022). This TGT learning model is widely used in various subjects, with this TGT students will enjoy the atmosphere of a tournament, and because they compete with groups that have the same composition of abilities, the competition in this TGT is fairer than in traditional learning in general. TGT is a model that involves all students' activities, including religious, nationalist, independent, cooperation, and integrity, without having any status differences, involving the role of students as peer tutors with an element of play (Firdaus et al., 2020; Syaifuddin et al., 2020).

Previous research revealed that applying the type cooperative learning model Team Games Tournaments (TGT), succeeded in increasing physics learning activities in class X BKP3 1 Denpasar Vocational High School (Kurniawati et al., 2020). Another research is that applying the TGT cooperative learning model (Teams Games Tournament) can increase the learning motivation of students in class XI IPS 1, Lubuk Basung 1 High School (In'am & Sutrisno, 2020). The TGT- type cooperative learning model is a learning model that can develop knowledge, abilities, and skills as a whole in a fun and competitive learning atmosphere inside the learning process. In addition, applying the TGT-type cooperative learning model increases student learning outcomes (Syaifuddin et al., 2020; Wulandari, 2020). Based on the results of research that has been done before, it shows that there is an increase in the activity of students after using the TGT type cooperative learning model on plant structure material conducted in class VIII-F of SMP Negeri 32 Semarang. The increase in student activity occurred due to the use of cooperative learning models as an alternative learning so as to create a pleasant learning atmosphere. In addition, other studies have seen that the use of the TGT learning model using puzzle media can increase student activity and learning outcomes by showing that there are significant differences in the experimental class and the control class. Previous research findings stated the usefulness of the Teams Games Tournament (TGT) model, namely a fun learning type TGT consisting of 5 parts, namely: Groups, games, competitions, and class introductions all involve receiving skills (Auliyah et al., 2022; Hikmah et al., 2018; Widyasari et al., 2022).

Therefore, an educator or teacher is also required to be able to master various models and strategies in learning. One model that can be applied in the classroom to make learning interesting and fun is the learning model known as Teams Games Tournament (TGT) or team games competition, created by David De Vries and Keath Edward. This TGT model can be used as an solution to several problems that occur, one of which is increasing student activity, collaboration between students in the learning process, apart from that, this TGT model can also invite students to think critically, thereby expressing their opinions (Banani & Aman, 2022; Galuh Ningtiaz et al., 2023). At the basic education level, this learning model can be used in various subjects, including exact sciences, social sciences and languages. TGT is ideal for teaching and learning purposes with one correct answer clearly stated. However, open-ended assessments such as essays or performances can be used to modify the TGT for use with purposes that are not clearly defined (Maryoto, 2022; Noorfaedah, 2022). Learning will provide maximum results if it is supported by the use of appropriate learning models. Students can learn more easily when participating in learning activities using the TGT model and can also instil a sense of responsibility in students. This research aims to analyze whether there is an influence on the Teams Games Tournament (TGT) learning model on student collaboration after using or implementing the TGT learning model on PGRI Yogyakarta University students. The novelty of this research is focused on the application of modifications of the TGT model that are not only aimed at improving students' academic achievement, but are also designed to improve collaboration skills. For example, by introducing additional rules or special stages in the TGT model that emphasize collaboration, not just individual competition.

2. METHOD

This type of research is an experiment with a quasi-experimental design and a quantitative approach. This research uses an experimental method with a quantitative approach. The type in this research is included in the true experimental design with pretest-post-test control group design (Miller et al., 2020). In this research, two classes were used, namely control and experimental classes. Where the implementation of the Teams Games Tournament (TGT) learning model will be applied to the experimental class, namely in class A7-22 with a total of 33 students and for the control class, different actions will be given in class A6-22 with a total of 34 students by applying the conventional model or learning models that have been applied by previous teachers. The method in this research is quantitative.

Data analysis in this study used validity, normality and homogeneity tests as well as hypothesis testing which was carried out through the independent sample t-test. This research will be conducted on students at PGRI University Yogyakarta, Pretest-post-test Control Group Design is presented in Table 1.

Tabel 1. Pretest-Posttest Control Group Design

Group	Pretest	Treatment	Posttest
Experimental	O_1	X_1	O_2
Control	O_2	X_2	O_4

Data collection in this research used a questionnaire. Questionnaires are used to see the influence on student collaboration. The analysis techniques used in this research are validity tests, normality and homogeneity tests with the aim of determining the type of statistical test to be used, as well as hypothesis testing according to the results of normality and homogeneity tests, namely using the independent sample t-test.

3. RESULT AND DISCUSSION

Result

The results of this study show that the data has a normal and homogeneous distribution. There is a significant difference between the experimental class and the control class. Therefore, Ho is rejected and Ha is accepted. The average score in the experimental class was 61.15 while in the control class it was 57.85. Therefore, it can be concluded that the learning model using the Team Games Tournament (TGT) has a significant influence on student cooperation and using the Team Games Tournament (TGT) learning model is more effective than using the conventional learning model on students' collaboration abilities. To see whether the questionnaire instrument is valid or not, here is how the Product Moment Correlation formula is used by researchers in researching questionnaire validation test results is show in Table 2.

Tabel 2. Validity Test Results

Number of Item	R_{count}	R_{table} 5%	Sig.	Criteria
1	0.373	0.338	0.027	Valid
2	0.420	0.338	0.012	Valid
3	0.068	0.338	0.700	Invalid
4	0.527	0.338	0.001	Valid
5	0.719	0.338	0.000	Valid
6	0.653	0.338	0.000	Valid
7	0.696	0.338	0.000	Valid
8	0.450	0.338	0.007	Valid
9	0.125	0.338	0.473	Invalid
10	0.455	0.338	0.006	Valid
11	0.625	0.338	0.000	Valid
12	0.602	0.338	0.000	Valid
13	0.427	0.338	0.010	Valid
14	0.509	0.338	0.002	Valid
15	0.601	0.338	0.000	Valid
16	0.570	0.338	0.000	Valid
17	0.210	0.338	0.227	Invalid
18	0.433	0.338	0.009	Valid
19	0.488	0.338	0.003	Valid
20	0.611	0.338	0.000	Valid

Table 2 it can be concluded that there are 17 valid statements in the valid questionnaire instrument and there are 3 invalid ones, namely numbers 3, 9 and 17. Where to find out whether they are valid or invalid we can see from the r_{count} value where if $r\text{-}_{count} > r\text{-}_{table}$ then the statement The questionnaire can be said to be valid as in Table 3.

Table 3. Normality Test Results

Variable	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Collaborative Abilities	Pre-test (experiment)	0.113	33	0.200	0.970	33	0.493
	Post-test (experiment)	0.149	33	0.061	0.949	33	0.122
	Pretest (Control)	0.128	34	0.171	0.940	34	0.061
	Post-test (Control)	0.115	34	0.200	0.959	34	0.220

Based on Table 3, the data normality test is used to see whether the data normality values are normal or not using the Kolmogorov-Smirnov formula. From the table above it is known that the sig value for the cooperation ability of experimental class students before being given treatment and after being given treatment is 0.113 and 0.149. Then in the pre-test and post-test control classes, they are 0.200 and 0.061. Where for decision making the sig value > 0.05 has a Normal distribution, it can be interpreted that the data results from the pre-experimental class have a value of 0.113 > 0.05, which means the data results can be said to be Normal. The post-experimental Sig value has a sig value of 0.061 > 0.05, which can be said to be normal. Likewise, in the Pre-Test and Post-test Control Classes which have Sig values of 0.171 > 0.05 and 0.200 > 0.05, it can be said that both sig values in the control class are Normal. After the scores are normal, the next step is the paired t test to see whether there is an influence between the TGT learning model on student collaboration. Paired sample t test results are show in Table 4.

Table 4. Paired Sample t Test Results

Paired Group		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre Test Experiment-Post Test Experiment	-8.182	5.966	1.039	-10.297	-6.066	-7.878	32	0.000
Pair 2	Pre Test Control-Post Test Control	-1.441	8.843	1.517	-4.527	1.644	-0.950	33	0.349

Base on Table 4, to determine whether there is a difference or influence in the paired sample t test, you can use the Paired Sample t Test, whether the Teams Games Tournament (TGT) cooperative learning model has an effect on student cooperation. It can be seen from the table above that the cooperative Teams Games Tournament (TGT) type influences student cooperation, with decision making: if the Sig value is less than 0.05, then the cooperative Teams Games Tournament (TGT) type has an influence on student cooperation which is the location where the experimental class value has a Sig value. (2-tailed) 0.000 < 0.05, indicating that the Sig value of the experimental class is less than 0.05, indicating that there is a difference or influence. However, in the control class there is no difference because the Sig value in the control class is greater than 0.05, as follows 0.349 < 0.05. Homogeneity test results is show in Table 5.

Table 5. Homogeneity Test Results

Test of Homogeneity of Variance					
Variable		Levene Statistic	df1	df2	Sig.
Collaborative Abilities	Based on Mean	0.265	1	64	0.609
	Based on Median	0.384	1	64	0.538
	Based on Median and with adjusted df	0.384	1	61.886	0.538
	Based on trimmed mean	0.280	1	64	0.598

From Table 5, it can be concluded that if the value of the sig based on Mean is > 0.05, the variance of the experimental and control class post-test data is the same or homogeneous. In the table, the Based on Mean sig value is 0.609 > 0.05, which means that the experimental and control class posttest data are the same or homogeneous. Thus, one of the conditions of the independent sample t-test has been fulfilled. Independent sample test results t-test is show in Table 6.

Table 6. Independent Sample Test Results t-test

Statistical Parameters	Levene's Test for Equality of Variances			Df	t-test for Equality of Means				
	F	Sig	T		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence interval of the Difference	
								lower	upper
Equal variances assumed	165	0.685	2.573	65	0.012	3.299	1.282	739	5.859
Equal variances not assumed			2.580	63.695	0.012	3.299	1.282	744	5.853

Table 6, this test aims to find out whether the post-test results of experimental group and control group students are comparable. To see the results of the experiment, you can see the table above. As in the table above, sig. (2-tailed) of 0.012 < 0.05, it can be concluded that the Cooperative Team Games Tournament (TGT) learning model and the lecture or conventional model differ on average in terms of student cooperation or in the two groups after being given treatment there is a significant difference in ability. cooperation. To find out the average post-test score of the experimental class and control class, you must look at the measurement Table 7.

Table 7. Group Statistical Results

Variable	Group	N	Mean	Std. Deviation	Std. Error Mean
Collaborative Abilities	Post-test Experiment	33	61.15	4.764	0.829
	Post-test Control	34	57.85	5.674	0.973

Discussion

From the data analysis it is known that the use of the Team Games Tournament (TGT) learning model can be applied in learning because it has a good influence on the ability of student cooperation. This is caused by several things, such as an alternative to creating a variety of atmosphere in the teaching and learning process, and can help teachers to overcome problems in learning, increase student independence in learning, increase student activities in the learning process, training students' acceleration of thinking (Amelya et al., 2021; Apriani & Anwar, 2023). Improving student cooperation skills can occur as long as the teacher can choose and use the right learning model. Learning by applying the TGT learning model is a learning model that presents concepts accompanied by group learning and games, and related to how a person learns or style/way of learning, relevance, and full benefits for learning (Amalia, 2020; Tussadiah & Febriyana, 2021). The application of the TGT learning model can be used in various subjects at the basic education level (SD/MI), including languages, social sciences and exact sciences. TGT is ideal for teaching and learning purposes with one correct answer clearly stated. The application of the TGT model has advantages, including at the class presentation stage, the TGT model can train students to dare to ask and answer questions from the teacher. In the group learning stage, the TGT model trains the courage to express opinions and makes learning more relaxed (Erviani et al., 2022; Yusuf & Jahrir, 2023). At the game and tournament stages, the TGT model trains students to obey the rules and increases enthusiasm and enthusiasm for learning. At the group appreciation stage, applying the TGT model can train students to appreciate other people's efforts and accept decisions.

The results of the research carried out were consistent with previous research, namely that the research results showed that the percentage of completion of mathematics learning outcomes increased, the increase in student learning outcomes was 19.7%, so it was proven that the Teams Games Tournament learning model was able to improve students' mathematics learning outcomes. And the same research shows that the application of the TGT type cooperative learning method can increase the activity and mathematics learning outcomes of sixth grade elementary school students (Lestari et al., 2018; Mahayasa, 2023). Furthermore, elsewhere, research found that the TGT learning model was proven to be able to show that the average collaboration skills of students taught using the TGT (Team Games Tournament) type cooperative learning model assisted by Kokami media were in the very strong category (Erviani et al., 2022). This is also supported by other research parties who found that the results showed that the TGT learning model in the high category increased the average score in each cycle after implementing the Team

Game Tournament (TGT) type cooperative learning model and achieved classical student learning completeness of 77. 78% in the last cycle (Mulyadi, 2022; Noviani et al., 2021). The results of this research are also relevant to previous research which proves that the TGT learning model has an effect on students' collaboration abilities, as evidenced by the increase in the average of students in the experimental class to 61.15, while in the control class which only used conventional methods the average score was 57. 85.

Based on discussions which prove that there is a positive influence in the application of the TGT learning model on students' collaboration abilities. Therefore, with this, teachers are expected to be able to create innovative learning in order to make students more effective. The TGT learning model really supports students in the learning process. Student involvement in carrying out learning activities is also higher so that students appear more active in learning activities. The application of the TGT learning model can improve students' collaboration skills because students have very high enthusiasm and are active in the learning process (Nurtianingsih et al., 2023; Ruhiat et al., 2023). based on discussions which prove that there is a positive influence in the application of the TGT learning model on students' collaboration abilities. Therefore, with this, teachers are expected to be able to create innovative learning in order to make students more effective.

The TGT learning model really supports students in the learning process. Student involvement in carrying out learning activities is also higher so that students appear more active in learning activities. The application of the TGT learning model can improve students' collaboration skills because students have very high enthusiasm and are active in the learning process (Banani & Aman, 2022; Firdaus et al., 2020). Based on the findings, 1) Students who learn to use the TGT model show that students get a new learning situation in the application of game -based models, so they look more enthusiastic and enthusiastic in Carry out the learning process, and 2) In the application of this model with the right game to make the learning process creative and innovative, can provide positive stimulation to student learning motivation. 3) Students feel comfortable to express their respective opinions during the learning process, so as to create a compact and conducive atmosphere in learning. This finding is strengthened by previous research stating the application of the TGT learning model triggers students in the ability of student cooperation as well as to increase critical thinking, active and more easily understood in the learning process (Amalia, 2020; Chamdani & Hidayah, 2020).

Based on the research that has been carried out in this study, it is highly recommended that the Team Games Tournament (TGT) learning model be implemented in the classroom learning process, considering that students' cooperative abilities are very important in the learning process, especially at the elementary school level. so that the benefits of implementing the learning model are socialized so that it can help teachers in developing students' collaborative abilities. Apart from that, research that examines the effect of using the Team Games Tournament (TGT) learning model on other students' collaboration needs to be carried out in order to find out what other benefits can be obtained from implementing the Team Games Tournament (TGT) learning model in learning. In future research that uses this learning model, it is hoped that more innovation will be carried out in implementing the Team Games Tournament (TGT) learning model. Apart from that, in implementing the Team Games Tournament (TGT) learning model, the steps must be adjusted more clearly so that the learning carried out can take place optimally and effectively.

4. CONCLUSION

In this research, there is an influence or difference between the collaboration of PGRI Yogyakarta University students using the Team Games Tournament (TGT) learning model in class A7-22 with the conventional learning model in class A6-22. This can be seen by using or proven by using the Independent Sample t-test which was obtained by the two groups after the treatment, there were significant differences in student cooperation. Based on the results of the research that has been reviewed, it shows that the Team Games Tournament (TGT) learning model has an influence on the cooperative abilities of PGRI University Yogyakarta students. This result can be seen from the significance value of 0.00 < 0.05, meaning (HO) is rejected and (HA) is accepted. However, learning using the Team Games Tournament (TGT) learning model will be better than using conventional learning.

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