

The Effect of The Team Game Tournament Learning Model on Student Learning Outcomes

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Abstract

This study aims to determine the effect of the Cooperative Learning model of the Teams Games Tournament (TGT) type on the learning outcomes of Grade X students at private vocational school. The research method used was a quantitative method with a quasi-experiment approach. The results of this study indicate that the application of the Team Games Tournament (TGT) learning model has a positive contribution to improving students' learning outcomes. This is shown by the difference in the average learning outcomes between the experimental class and the control class, as well as the hypothesis testing results which indicate a significant effect. It was found that in the control class, the average pretest score was 48.64 and the posttest score was 59.77, while in the experimental class, the average pretest score was 49.79 and the posttest score was 77.92. Meanwhile, based on the analysis results, the significance value (Sig. 2-tailed) was 0.000. This value is lower than 0.05, so H_0 is rejected and H_1 is accepted. Therefore, it can be concluded that there is a significant effect of the Teams Games Tournament learning model on students' learning outcomes.

Keywords: Team Games Tournament (TGT), Learning Outcomes, Quasi-Experimental Research

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INTRODUCTION

Student-centered learning models are one of the approaches widely recommended in educational literature due to their effectiveness in improving learning outcomes. At the same time, teacher-centered learning models also continue to play an important role and remain relevant in various instructional contexts (Goel, 2025; Ridwan & Hadi, 2022; Untari, 2022). This indicates that the quality of learning does not only depend on the content being taught, but also on how the content is delivered so that it can be well received by students and actively engage them in the learning process through the instructional model used (Fitri, 2022; Goodwin, 2024; Syzdykbayeva et al., 2025). A learning model is a planning process that serves as a guideline for implementing teaching and learning activities, as well as an approach that encourages changes in students' behavior, thereby contributing to improved learning outcomes.

The Cooperative Learning model of the Teams Games Tournament (TGT) type was chosen as an alternative because it packages the learning process into an academic tournament format that is competitive yet enjoyable. This model is expected to bridge students' familiarity with games and the academic demands they must fulfil. Low learning

outcomes remain a common problem in school learning processes, and this phenomenon is also found at SMKS Jambi Medan. This can be seen from the fact that learning outcomes have not yet reached the expected level based on the established Learning Objective Achievement Criteria (KKTP), where 28 out of 50 students did not meet the KKTP standard. One alternative that can be considered is the use of a more active, student-centered learning model such as Teams Games Tournament (TGT), which is expected to increase students' engagement and learning outcomes.

Cooperative learning has been widely recognized as an instructional approach that promotes active participation, interaction, and shared responsibility among students during the learning process (Martínez et al., 2022; Nahar et al., 2022). Unlike traditional teacher-centered approaches that position students as passive recipients of information, cooperative learning encourages students to construct knowledge through collaboration, discussion, and problem-solving activities (Aslan et al., 2024; Assalihee et al., 2024). Cooperative learning can improve students' academic achievement by creating positive interdependence, individual accountability, and meaningful peer interaction. One of the cooperative learning models that integrates these principles is the Teams Games Tournament (TGT) model which combines teamwork with academic competition through structured games and tournaments (Chu et al., 2022; Kao et al., 2023; Kaya & Ercag, 2023). The TGT model provides opportunities for students with different abilities to contribute equally within their teams, thereby increasing motivation, confidence, and engagement in learning activities.

The competitive yet supportive atmosphere created by TGT can reduce learning boredom and encourage students to actively participate in achieving both individual and group success (Azizah et al., 2025; Hidayaty et al., 2022). Cooperative learning models, including TGT, have consistently produced positive effects on academic achievement because they encourage students to explain concepts to peers, receive feedback, and develop deeper understanding (Arif & Aziz, 2023; Safitri, 2024). The implementation of TGT is considered particularly relevant because vocational students require learning environments that emphasize active involvement, practical understanding, and collaboration. However, previous studies on TGT have predominantly focused on general subjects or specific fields such as accounting, science, and basic vocational competencies.

The implementation of the Teams Games Tournament (TGT) learning model has an effect on students' learning outcomes in the subject of Basic MPLB for Grade X students at SMK Negeri 1 Pematangsiantar. The results of the study were supported by data analysis showing a significant difference in learning outcomes between students taught using the Teams Games Tournament model and those taught without it. The cooperative learning model of the Teams Games Tournament (TGT) type has a positive and significant effect on students' learning outcomes in Financial Accounting for Grade XI students at SMK Negeri 1 Gowa.

Although previous studies have shown that the Teams Games Tournament (TGT) learning model has a positive effect on students' learning outcomes, most of these studies were conducted in different subjects and educational contexts. Therefore, there is still limited research examining the implementation of the TGT model in Digital Business learning at vocational high schools, particularly in SMKS Jambi Medan. The object of this study is to determine whether there is an effect of the cooperative learning model of the TGT type on the learning outcomes of grade X digital business students at SMKS Jambi Medan.

RESEARCH METHOD

This study employed a quasi-experimental research design to examine the effect of the Teams Games Tournament (TGT) cooperative learning model on students' learning outcomes in Digital Business subjects. The quasi-experimental approach was selected

because the research involved existing classes without random assignment of individual participants. The research was conducted at SMKS Jambi Medan, involving a population consisting of 46 Grade X Digital Business students. The sampling technique applied was total sampling, where the entire population was used as the research sample. The sample was divided into an experimental class that received instruction using the Teams Games Tournament (TGT) learning model and a control class that received conventional learning instruction (Hirose & Creswell, 2023).

Data collection in this study was conducted through observation and learning outcome tests. Observation was used to obtain supporting data regarding the implementation of the learning process and student participation during instructional activities. Meanwhile, the test instrument was utilized to measure students' cognitive learning outcomes after the learning process was implemented. The test consisted of questions designed based on the learning objectives of the Digital Business subject and was administered to both the experimental and control classes to identify differences in students' achievement after the treatment.

Before being used as a research instrument, the test items underwent a series of instrument quality evaluations, including construct validity testing, empirical validity testing, and reliability testing to ensure the accuracy and consistency of the measurement tool. In addition, item analysis was conducted by examining the difficulty level and discrimination index of each test item. After the instrument met the required validity and reliability criteria, the collected data were analyzed using prerequisite statistical tests, including normality and homogeneity tests. The hypothesis was subsequently tested using an independent sample t-test to determine whether there was a statistically significant difference in learning outcomes between students who were taught using the Teams Games Tournament (TGT) model and those who were taught using conventional learning methods.

FINDINGS AND DISCUSSION

Implementation of the Teams Games Tournament (TGT) Learning Model Through Classroom Observation

The implementation of the Teams Games Tournament (TGT) learning model was evaluated through classroom observations conducted by the subject teacher during the learning process in the experimental class. The observation focused on the extent to which the researcher implemented the learning activities according to the stages of the TGT syntax. The observed indicators consisted of three main stages, namely the introduction phase, the main learning activities, and the closing phase. The observation results showed that the implementation of the TGT learning model was carried out effectively and followed the planned instructional procedures.

During the introduction phase, the implementation of the learning model received a very good evaluation from the observer. The researcher began the learning activity by providing greetings, checking students' readiness, conducting apperception activities, explaining the learning objectives, and providing ice-breaking activities. These activities contributed to creating a comfortable classroom environment and preparing students psychologically before entering the learning process. The implementation of an engaging introduction phase is important because students' initial motivation and readiness can influence their involvement and understanding throughout the learning activity.

The main learning activities were conducted through several stages of the TGT model, including material presentation, team formation, group discussion, tournament activities, and reward distribution. Based on the observation results, the researcher was able to implement each stage according to the characteristics of cooperative learning. The material presentation stage provided students with the necessary conceptual understanding, while the team formation stage encouraged students to collaborate with peers who had different levels

of academic ability. This finding indicates that the TGT model was implemented not only as a competitive activity but also as a collaborative learning strategy that encouraged peer interaction.

The tournament stage became one of the main characteristics of the TGT learning model implemented in the classroom. During this stage, students participated in academic competitions by answering questions related to the learning material. The observation showed that students demonstrated high enthusiasm and active participation during the tournament activities. The competitive atmosphere created through the tournament encouraged students to be more involved in the learning process while maintaining cooperation within their respective teams. This finding supports Slavin's (2014) argument that TGT can increase students' motivation because it combines teamwork, academic challenges, and recognition of achievement.

The reward stage was also implemented effectively as part of the TGT learning process. The researcher provided appreciation for students' achievements and participation during the tournament activities. The provision of rewards functioned as positive reinforcement that encouraged students to maintain active involvement and improve their learning performance. According to cooperative learning theory, recognition of group achievement can strengthen students' responsibility toward their team and increase motivation to contribute during collaborative activities (Johnson & Johnson, 2019). Therefore, the reward component in TGT plays an important role in maintaining students' engagement throughout the learning process.

The lesson was concluded systematically through evaluation and appreciation of students' participation. Classroom observation results indicated that the implementation of the Teams Games Tournament (TGT) learning model was conducted in accordance with the expected learning syntax. The effective implementation of each stage suggests that TGT can provide a structured learning environment that combines academic achievement, collaboration, and student engagement, which may contribute to improving students' learning outcomes in Digital Business subjects.

Instrument Testing

Before being used for data collection, the research instrument underwent several tests to ensure its quality and suitability. The instrument testing consisted of validity testing, reliability testing, item difficulty analysis, and discrimination index analysis. These tests were conducted to determine whether the instrument was capable of measuring students' learning outcomes accurately and consistently.

Validity Test

The validity test was conducted to determine the extent to which each test item was able to measure the intended learning outcomes. The analysis was performed using the Product Moment correlation technique with the assistance of SPSS software. An item was considered valid if the calculated correlation coefficient (r_{count}) was higher than the critical value (r_{table}) at a 5% significance level, or if the significance value (Sig.) was less than 0.05.

Based on the validity test results, the obtained r_{count} values were compared with the r_{table} value of 0.361. The analysis showed that 20 out of 30 test items met the validity criteria, while 10 items did not meet the required criteria. Therefore, the 20 valid items were selected and used as the research instrument, whereas the invalid items were excluded from further analysis.

Reliability Test

The reliability test was conducted to evaluate the consistency of the research instrument. The reliability analysis was performed using the Cronbach's Alpha method with the assistance of SPSS version 26. An instrument was considered reliable if the Cronbach's Alpha coefficient was greater than 0.60, indicating an acceptable level of internal consistency among the test items. The results of the reliability analysis are presented in Table 1.

Table 1. Results of the Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
0.888	20

Based on the reliability test results, the instrument obtained a Cronbach's Alpha coefficient of 0.888. This value exceeds the minimum reliability standard of 0.60, indicating that the instrument has a high level of internal consistency. Therefore, the instrument was considered reliable and suitable for measuring students' learning outcomes.

Level of Difficulty Analysis

The difficulty level analysis was conducted to determine the proportion of students who were able to answer each test item correctly. This analysis was used to identify whether the items were categorized as easy, moderate, or difficult. A higher difficulty index indicates that an item is easier, while a lower index indicates that the item is more difficult.

The results of the difficulty level analysis on the 20 valid test items showed that 8 items were categorized as easy, while 12 items were categorized as moderate. The dominance of moderate-level items indicates that the instrument had an appropriate level of difficulty because it was able to measure students' abilities without being excessively easy or difficult. Therefore, the items in these categories were considered suitable for assessing students' learning outcomes.

Discrimination Index Analysis

The discrimination index analysis was conducted to determine the ability of each test item to differentiate between students with higher and lower levels of ability. A good test item should be able to distinguish students who have mastered the learning material from those who have not yet achieved mastery.

Based on the discrimination index analysis, 17 items were classified as having good discrimination power, while 3 items were categorized as having fairly good discrimination power. Items with good and fairly good discrimination indices were retained because they were considered capable of distinguishing students' abilities effectively. In addition, these items had also fulfilled other requirements, including validity and appropriate difficulty levels. The results of the instrument testing indicated that the test items used in the research met the required criteria in terms of validity, reliability, difficulty level, and discrimination index. Therefore, the instrument was considered appropriate for collecting data on students' learning outcomes in the implementation of the Teams Games Tournament (TGT) learning model.

Data Analysis

Descriptive Analysis

Descriptive analysis was conducted to provide an overview of students' learning outcomes in both the experimental and control classes before and after the implementation of the learning model. This analysis aimed to describe the characteristics and distribution of students' achievement scores based on the pretest and posttest results. The descriptive

statistical analysis included the number of participants, mean score, maximum score, minimum score, and standard deviation for each class. The results of this analysis were used to identify differences in students' learning outcomes between the experimental class, which received the Teams Games Tournament (TGT) learning model, and the control class, which received conventional learning instruction.

Table 2. Descriptive Analysis

Descriptive Statistics						
	N	Min	Max	Mean	Std. Deviation	Variance
Pretest Control	22	30	80	48.64	12.458	155.195
Posttest Control	22	40	90	59.77	13.045	170.184
Pretest Experiment	24	35	75	49.79	11.081	122.781
Posttest Experiment	24	55	100	77.92	10.624	112.862
Valid N (listwise)	22					

Table 2, the learning outcomes of students in both the experimental and control classes showed an improvement from the pretest to the posttest scores. In the control class, which consisted of 22 students, the pretest scores ranged from 30 to 80, with a mean score of 48.64 and a standard deviation of 12.458. After the learning process using conventional instruction, the posttest scores increased, with scores ranging from 40 to 90 and a mean score of 59.77. The standard deviation of 13.045 indicates that the distribution of students' scores remained relatively varied after the learning process.

In the experimental class, which consisted of 24 students, the pretest scores ranged from 35 to 75, with a mean score of 49.79 and a standard deviation of 11.081. After the implementation of the Teams Games Tournament (TGT) learning model, students' posttest scores increased significantly, with scores ranging from 55 to 100. The mean posttest score reached 77.92, accompanied by a standard deviation of 10.624. These results indicate that students who received learning through the TGT model achieved higher learning outcomes compared to those who received conventional learning.

The comparison of mean scores between the two classes shows that both learning approaches contributed to improving students' achievement; however, the increase in the experimental class was greater. The experimental class experienced an increase of 28.13 points from the pretest mean score (49.79) to the posttest mean score (77.92), while the control class only increased by 11.13 points from 48.64 to 59.77. This difference suggests that the Teams Games Tournament (TGT) learning model provided a more effective learning environment in supporting students' understanding and achievement. Furthermore, the lower variance value in the experimental class posttest (112.862) compared to the control class posttest (170.184) indicates that students' learning outcomes in the experimental class were more consistent after the implementation of the TGT model. The smaller standard deviation also suggests that the distribution of students' scores was more homogeneous, indicating that the learning model was able to support students with different levels of ability.

Normality Test

The normality test was conducted to determine whether the distribution of students' learning outcome data met the assumption of normal distribution before conducting further statistical analysis. The normality analysis was performed using the Shapiro-Wilk test with the assistance of SPSS version 26. The Shapiro-Wilk test was selected because it is appropriate for analyzing data with a relatively small sample size. The data were considered normally distributed if the significance value (Sig.) was greater than 0.05. The results of the normality test are presented in Table 3.

Table 3. The Results of Normality Test

		Tests of Normality					
		Kolmogorov-Smirnova			Shapiro-Wilk		
Classes		Statistic	df	Sig.	Statistic	df	Sig.
Learning Outcomes	Pretest Control (Discovery Learning)	.184	22	.052	.928	22	.111
	Posttest Control (Discovery Learning)	.188	22	.041	.926	22	.103
	Pretest Experiment (TGT)	.117	24	.200*	.944	24	.204
	Posttest Experiment (TGT)	.161	24	.109	.952	24	.302

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 3, all significance values obtained from the pretest and posttest scores of both classes exceeded the significance level of 0.05. The experimental class obtained significance values of 0.204 for the pretest and 0.302 for the posttest, while the control class obtained significance values of 0.111 for the pretest and 0.103 for the posttest. Since all significance values were greater than 0.05, the learning outcome data in both the experimental and control classes were concluded to be normally distributed.

The fulfillment of the normality assumption indicates that the data distribution met the requirements for applying parametric statistical analysis. Therefore, further analysis using statistical tests, including the independent sample t-test, could be conducted to examine whether there was a significant difference in students' learning outcomes between the experimental class using the Teams Games Tournament (TGT) model and the control class using conventional learning methods.

Homogeneity Test

The homogeneity test was conducted to determine whether the variance of students' learning outcome data between the experimental and control classes was equal. This test was performed as one of the prerequisite analyses before conducting the independent sample t-test. The analysis was carried out using Levene's Test with the assistance of SPSS version 26. The data were considered homogeneous if the significance value (Sig.) was greater than 0.05, indicating that there was no significant difference in variance between the compared groups. The results of the homogeneity test are presented in Table 4.

Table 4. The Results of Homogeneity Test

		Test of Homogeneity of Variance			
		Levene Statistic	df1	df2	Sig.
Learning outcome	Based on Mean	.153	1	44	.698
	Based on Median	.054	1	44	.817
	Based on Median and with adjusted df	.054	1	40.797	.817
	Based on trimmed mean	.103	1	44	.750

The significance value based on mean was 0.698. Since the obtained significance value was greater than 0.05, the null hypothesis stating that the variances between groups are equal was accepted. Therefore, the learning outcome data from the experimental and control classes were considered homogeneous. The fulfillment of the homogeneity assumption indicates that the data were suitable for further analysis using the independent sample t-test with the assumption of equal variances.

Hypothesis Test

The hypothesis test was conducted to examine whether there was a statistically significant difference in students' learning outcomes between the experimental class, which implemented the Teams Games Tournament (TGT) learning model, and the control class, which received conventional learning instruction. The analysis was using the Independent Sample t-test with the assistance of SPSS version 26 at a significance level of 0.05.

The decision-making criteria were determined based on the significance value (Sig. 2-tailed). If the significance value was less than 0.05, H_0 was rejected and H_1 was accepted, indicating a significant difference between the two groups. Conversely, if the significance value was greater than 0.05, H_0 was accepted and H_1 was rejected, indicating that no significant difference existed between the groups. Since the homogeneity test showed that the variances were equal, the interpretation of the t-test results was based on the Equal Variances Assumed row in Table 5.

Table 5. The Results of Hypothesis Test
Independent Samples Test

Table of the Results of Hypothesis Test											
		Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
Learning Outcomes	Equal variances assumed	.851	.361	- 5.191	44	.000	-18.14	3.49	- 25.188	- 11.100	
	Equal variances not assumed			- 5.145	40	.000	-18.14	3.52	- 25.269	- 11.019	

The significance value (Sig. 2-tailed) under the Equal Variances Assumed condition was 0.000. This value was lower than the significance level of 0.05, indicating that H_0 was rejected and H_1 was accepted. Therefore, there was a statistically significant difference in students' learning outcomes between the experimental class and the control class. Furthermore, the mean difference value of -18.14 indicates that the experimental class achieved higher learning outcomes compared to the control class. The negative value appears because the calculation was based on the comparison between the control class and the experimental class. These findings indicate that the implementation of the Teams Games Tournament (TGT) learning model had a significant effect on improving students' learning outcomes in Digital Business subjects compared to conventional learning methods.

Discussion

The implementation of the Teams Games Tournament (TGT) learning model based on classroom observation showed that the learning process was carried out effectively according to the planned instructional stages. The finding successfully implemented the main components of the TGT model, including material presentation, team formation, tournament activities, and rewards. The observation results indicated that students were actively involved during the learning process and demonstrated positive responses toward collaborative and competitive activities. The principles of cooperative learning highlight that effective collaboration among students can enhance engagement through positive interdependence, individual responsibility, and meaningful peer interaction (Arizka & Khairuna, 2022; Nadrah,

2023). These findings are consistent with the research conducted by Ratnasari et al. (2023), which found that the implementation of the TGT model in vocational education increased student participation and improved learning outcomes through structured teamwork and academic competition.

The descriptive analysis results revealed that the application of the TGT learning model contributed to a greater improvement in students' learning outcomes compared to conventional learning methods. The experimental class experienced an increase in the mean score from 49.79 in the pretest to 77.92 in the posttest, while the control class increased from 48.64 to 59.77. This difference indicates that students who participated in TGT-based learning achieved better academic performance after receiving the treatment. The improvement can be explained by the characteristics of TGT, which combines cooperative learning, academic games, and group competition to create a more engaging learning environment. Similar findings were reported by Bandaso et al. (2023), who stated that the TGT cooperative learning model had a positive and significant effect on students' learning outcomes in Financial Accounting subjects because it encouraged students to actively participate and collaborate during the learning process.

The effectiveness of the TGT model in improving learning outcomes is also related to its ability to increase students' motivation and active involvement. Through tournament activities, students are encouraged to understand the learning materials, discuss with their teammates, and contribute to achieving group success. The competitive elements in TGT do not only create challenges but also provide opportunities for students to support each other during the learning process. Cooperative learning theory explains that students can achieve better academic performance when they are actively engaged in interaction, explanation, and knowledge sharing with their peers (Ayeni et al., 2024; Ciptaningsih & Rofiq, 2022; Maduningtias et al., 2022). This finding is supported by previous research conducted by Novritasari et al. (2022), which showed that the implementation of TGT increased students' motivation and participation because the learning process became more enjoyable and interactive.

The results of hypothesis testing further confirmed the difference in learning outcomes between students taught using the TGT model and those taught using conventional learning methods. The independent sample t-test produced a significance value of 0.000 (<0.05), indicating that there was a statistically significant difference between the experimental and control classes. The mean difference of 18.14 points demonstrated that students in the experimental class achieved higher learning outcomes than students in the control class. These findings indicate that the TGT learning model provided a more effective instructional approach for improving students' understanding of Digital Business materials. This result is in line with Lestari and Widayati (2022), who found that cooperative learning models involving group-based competition significantly improved students' academic achievement compared to traditional teaching approaches.

The descriptive analysis also showed that the experimental class obtained a lower posttest variance value (112.862) compared to the control class (170.184). This finding indicates that students' learning outcomes in the experimental class were more consistent after the implementation of the TGT model. The relatively smaller variation suggests that TGT was able to support students with different levels of academic ability by encouraging peer assistance and collaborative learning. Cooperative learning approaches provide opportunities for students to learn from each other, allowing students with different abilities to achieve better learning progress through social interaction and shared responsibility (Tran, 2020). Therefore, the implementation of TGT not only improved average learning outcomes but also contributed to creating a more balanced learning achievement among students.

The findings of this research strengthen previous evidence regarding the effectiveness of the Teams Games Tournament learning model in improving students' learning outcomes. The results indicate that TGT is a relevant learning alternative for vocational education because it combines cognitive learning objectives with collaboration, communication, and active participation. TGT can improve student achievement through an interactive and student-centered learning process. Therefore, the implementation of the TGT cooperative learning model can be considered an effective strategy for improving the learning outcomes of Grade X Digital Business students at SMKS Jambi Medan.

CONCLUSION

The results of this research indicate that the implementation of the Teams Games Tournament (TGT) cooperative learning model has a significant contribution to improving students' learning outcomes in Digital Business subjects at SMKS Jambi Medan. The descriptive analysis showed that students in the experimental class achieved a higher increase in learning outcomes compared to the control class, with the mean posttest score of the experimental class reaching 77.92, while the control class reached 59.77. Furthermore, the results of the independent sample t-test showed a significance value of 0.000 (<0.05), indicating a significant difference between students who learned using the TGT model and those who received conventional learning. These findings demonstrate that TGT provides a more active, collaborative, and engaging learning environment through teamwork, academic tournaments, and reward systems. Therefore, the Teams Games Tournament (TGT) learning model can be considered an effective alternative instructional approach for improving the learning outcomes of Grade X Digital Business students at SMKS Jambi Medan.

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