Research Article

The effect of cooperative learning model on cooperation and learning outcomes of futsal playing skills

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ABSTRACT

This study aimed to determine the effect of the TGT-type cooperative learning model on students' cooperation and learning outcomes and the relationship between cooperation and students' learning outcomes in playing futsal. This pre-experiment research used One group Pretest-Post-test Design. 29 class X students (16 males and 13 females) were sampled to fill out a cooperation questionnaire and were observed using the Game Performance Assessment Instrument (GPAI) while playing futsal. Descriptive statistical test, normality test, Paired Sample T-test, Wilcoxon Signed Rank, and Product Moment correlation test. The results showed that the value of cooperation increased significantly (t = 5.399, p = 0.000) from the pretest of 147.72 to 156.97 at the post-test, an increase of 6.3%. The value of GPAI increased significantly (Z = -3.375, p = 0.001) from the pretest of 1.362 to 1.458 the post-test increasing by 7.05%. There was no relationship between cooperation and GPAI (r = -0.048, p = 0.804). It is concluded that the TGT-type cooperative learning model can improve students' cooperation and game performance during futsal learning. Cooperation in general does not contribute to learners' performance when playing futsal. The variable of tactical awareness in playing futsal may need to be investigated to determine the adequate cooperation model needed in the game of futsal.

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Introduction

Physical education is part of an education that contributes to the development of human individuals by doing physical activities naturally to find outgrowth and development (Nugraha, 2015). This is proven that humans will never forget the nature and need to achieve health, physical fitness, and sports are also a form of effort to improve the quality of human life which is directed at the formation of character and personality (Rasyd et al., 2019). Physical Education, Sports, and Health (PJOK) is one of the important components in the education system that seeks to produce changes in the quality of individuals, both physical and emotional behaviour (Liandro et al., 2023). PJOK learning has one of the materials that contains a big ball game, one of which is futsal, where team games require good cooperation between teams and good individual abilities. But when there are deficiencies in individuals, then this will be covered by good cooperation in the team. There are problems encountered in futsal game learning activities in class X of SMK Negeri 2 Surabaya, based on what was seen and felt when researcher underwent PLP there. One of the problems that arise is the

lack of cooperation of students in learning futsal games and the desire of students to immediately play futsal games. This is not supported by the presence of individual skills that are seen to be less than good, especially in real situations and conditions on the field when playing. In learning futsal games, many students, especially class X at SMK Negeri 2 Surabaya, do not master the skills in playing futsal. For example, in passing, many students are still not precise and effective in doing it, which means they are still deviating and not aiming right at their friends. When dribbling, it is easy for opponents to take it. Likewise, when shooting towards the goal which is far from the target and sometimes soars far above the goal. Another thing that is a major problem is the lack of cooperation of students in playing futsal, while the expected results are the values of cooperation, mutual respect, honesty, responsibility, enthusiasm, sportsmanship, and self-confidence. The lack of cooperation in this learning is seen when the game is in progress and students are still playing individually and with quite high egoism, so that there is no good cooperation in the game. This is a serious problem in futsal games, because cooperation is the main thing that must be considered. If there is not collectively in playing, then the expected results during the learning process are very lacking and will affect the results of learning to play futsal. This makes researchers interested in following up by conducting research using the cooperative learning model type Team Games Tournament (TGT) which aims to improve cooperation and learning outcomes in playing futsal for students.

The cooperative learning model type TGT is very appropriate to be applied in efforts to improve cooperation and basic futsal skills because this TGT learning is a type of collaborative learning, where all students work together in small groups without involving differences in status involving the role of students as "peer tutors" containing elements of play and reinforcement. This is supported by Nurmahmidah (2017) who stated that TGT learning is one of the cooperative learning models that is easy to implement by involving the activities of all students without any differences in status, involving the active role of students and containing elements of reinforcement games. Existing research often does not separate the effects of different components in cooperative learning models (e.g., task sharing, communication, or reflection) on learning outcomes and cooperation. A more detailed study of the effect of each cooperative component on students' futsal playing skills and cooperation is needed. After that, TGT also provides a reward to the group that wins the match, this will make students more motivated, enjoy, and serious in learning. For example, all students, especially women who are still passive in learning futsal sports will be motivated through several women's futsal videos and given additional points if students are more active in learning. While students who are more dominant will be given a limit to score 2 goals so that other students also feel the sensation of scoring goals. For cooperation itself, it is not only in matches but also in learning in the form of games to stimulate, get used to cooperative attitudes, and communication between group members to achieve common goals. The implementation of TGT can be beneficial for students to create a fun, interesting learning atmosphere and increase the activeness of all

students because they are required to be more active and accustomed to working together in solving problems so that they can be motivated and have an interest in learning (Purnomosari et al., 2014). In this research, evaluate the effect of cooperative learning models on improving cooperation between students and the level of playing techniques in the context of futsal games.

Method

In this study, the researcher used a quantitative approach with an experimental method, namely pre-experimental design. This study used One Group Pretest-Post-test Design. In this design there is a pretest before being given treatment and a post-test after being given treatment. Thus, the results of the treatment can be known more accurately, because they can be compared with the conditions before being given treatment. The population of this study were students of class X of SMK Negeri 2 Surabaya. There are 24 classes in the 2023/2024 academic year. The sample taken was one class X. This study used a cluster random sampling technique which was selected randomly by taking representatives of the region or area (Maksum, 2018a). The results of the sampling obtained were class X TAV 1 which consisted of 29 students, 16 boys and 13 girls.

The questionnaire instrument in this study was used to measure cooperation with indicators of student cooperation being helping each other, wanting everyone to play, working together to achieve goals, respecting others, and providing support. This questionnaire was adopted from (Dewi, 2018) which had received validation testing by expert lecturers with a 95% confidence level and had been tested by obtaining a reliability test result of 0.869. Because the questionnaire was used for junior high schools, while the research location was in a vocational high school. Therefore, the questionnaire must be tested first at the high school/vocational high school level to determine whether the questionnaire previously used for junior high schools can also be used for vocational high schools. The questionnaire in this study used a Likert scale which was carried out by giving a checklist ($\sqrt{}$) in the available alternative answer column and contained statements that must be answered according to one's personality. The skill instrument in this study was used to measure the learning outcomes of futsal playing skills. This skill test uses the GPAI (Game Performance Assessment Instrument) instrument created by Griffin, Mitchell, and Oslin Hoedaya in 1998 (Gouveia et al., 2019). To measure the learning outcomes of futsal playing skills in this study, there are 3 components that are the focus in assessing students' playing performance, namely decision making (correct or incorrect), skill execution (efficient or inefficient), and support (correct or incorrect) (Gouveia et al., 2019). The technique used to obtain an overview of the data used in the study is seen from the average value, standard deviation, median, mode, minimum and maximum values using the help of IBM SPSS 20 (Rosalina et al., 2023).

Results and Discussion

This study uses questionnaire and GPAI instruments where the data that has been obtained is processed using SPSS 20. The following is questionnaire data and GPAI for class X TAV 1 student at SMK Negeri 2 Surabaya. The results of the descriptive statistical test are as follows:

Table 1. Statistical Test

Statistic	Cooperative		Decision Making		Skill Execution		Support		Game Performance	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
N	29	29	29	29	29	29	29	29	29	29
Mean	147.72	156.97	0.548	0.600	0.591	0.635	0.666	0.668	1.362	1.458
Std. Deviation	13.461	12.824	0.163	0.154	0.181	0.168	0.272	0.276	0.406	0.384
Minimum	125	128	0.11	0.20	0.22	0.20	0.13	0.21	0.51	0.57
Maximum	180	180	0.89	0.83	0.83	0.86	1.00	1.00	1.93	1.94

From the results of the statistical analysis above, it shows that the number of students in class X TAV 1 SMK Negeri 2 Surabaya during the data collection was 29 people. The following is an explanation of the various aspects in the table above, including:

Aspect of Cooperation Level

In the pretest, the results were obtained with an average (mean) = 147.72, standard deviation (std. deviation) = 13.461, the lowest value was 125, and the highest value was 180. In the post-test, the results were obtained with an average (mean) = 156.97, standard deviation (std. deviation) = 12.824, the lowest value was 128, and the highest value was 180.

Aspect of Decision Making

In the pretest, the results were obtained with an average (mean) = 0.548, standard deviation (std. deviation) = 0.163, the lowest value was 0.11, and the highest value was 0.89. In the post-test, the results obtained were an average (mean) = 0.600, standard deviation (std. deviation) = 0.154, the lowest value was 0.20, and the highest value was 0.83.

Skill Execution Aspect

In the pretest, the results obtained were an average (mean) = 0.591, standard deviation (std. deviation) = 0.181, the lowest value was 0.22, and the highest value was 0.83. In the post-test, the results obtained were an average (mean) = 0.635, standard deviation (std. deviation) = 0.168, the lowest value was 0.20, and the highest value was 0.86.

Support Aspect

In the pretest, the results obtained were an average (mean) = 0.666, standard deviation (std. deviation) = 0.272, the lowest value was 0.13, and the highest value was 1.00. In the post-test, the results obtained an average (mean) = 0.668, standard deviation (std. deviation) = 0.276, the lowest value of 0.21, and the highest value of 1.00.

Game Performance Aspect

In the pretest, the results obtained an average (mean) = 1.362, standard deviation (std. deviation) = 0.406, the lowest value of 0.51, and the highest value of 1.93. In the post-test, the results obtained an average (mean) = 1.458, standard deviation (std. deviation) = 0.384, the lowest value of 0.57, and the highest value of 1.94.

Normality testing uses the Shapiro Wilk statistical test with the help of SPSS 20. The purpose of the normality test is to ensure that the data obtained is normally distributed or not. The data requirements if normally distributed if the Asymp. Sig value > 0.05. The results of the normality test are as follows:

Table 2. Normality Test

Aspect	Asymp. Sig		Conclusion
	Pretest	Post-test	
Cooperative	0.585	0.104	Normal
Decision Making	0.440	0.028	Not Normal
Skill Execution	0.032	0.004	Not Normal
Support	0.011	0.007	Not Normal
Game Performance	0.119	0.005	Not Normal

Based on the results of the table above, it shows that 4 aspects are not normally distributed because the Sig value. <0.05, while from the aspect of the level of cooperation, the distribution is normal because the Sig value. > 0.05.

Hypothesis Test

Cooperation Questionnaire

To find out if there is a difference between pretest and post-test, it is necessary to conduct a Paired Sample T-Test. Using this test because the data has met the requirements of a normally distributed parametric statistical test. The following are the results of the t-test of the cooperation questionnaire, among others:

Table 3. T Test of Cooperation Questionnaire

Aspect	Pretest		Post-test		Difference		t	Sig.	Conclusion
	Mean	SD	Mean	SD	Count	%			
Level of Cooperation	147.72	13.461	156.97	12.824	9.25	6.3%	5.399	0.000	Difference

Based on the table above, it shows that the Paired Sample T-Test results get a result of 0.000. So, it can be explained that there is a significant difference or increase because the value of 0.000 <0.05, so the truth in the formulation of problem 1, shows that H0 is rejected and Ha is accepted, which means that there is an effect of the TGT type cooperative learning model on student cooperation by 6.3%.

GPAI Learning Outcomes

For learning outcomes on GPAI using a nonparametric statistical test, namely the Wilcoxon Signed Rank Test because it has not met the requirements by not being normally distributed. The following are the results of the Wilcoxon Signed Rank Test, among others:

Table 4. Wilcoxon Signed Rank Test

Aspect		N	Mean		Difference		Z	Sig.	Conclusion
			Pre	Post	Count	%			
Decision Making	Negative Ranks	4	0.548	0.600	0.052	9.5%	-3.014	0.003	Difference
	Positive Ranks	19							
	Ties	6							
	Total	29							
Skill Execution	Negative Ranks	5	0.591	0.635	0.044	7.45%	-2.542	0.011	Difference
	Positive Ranks	18							
	Ties	6							
	Total	29							
Support	Negative Ranks	3	0.666	0.668	0.002	0.30%	-2.466	0.014	Difference
	Positive Ranks	22							
	Ties	4							
	Total	29							
Game Performance	Negative Ranks	5	1.362	1.458	0.096	7.05%	-3.375	0.001	Difference
	Positive Ranks	24							
	Ties	0							
	Total	29							

From the results of the table above, it shows that the calculated Z value; Sig. value is DM = -3.014; 0.003, SE = -2.542; 0.011, S = -2.466; 0.014, GP = -3.375; 0.001. So, it can be concluded that there is a significant difference between the pretest and posttest because the Sig. value obtained is <0.05. Based on the table above, it can be concluded that:

Decision Making Aspect

There was an increase of 9.5% with 4 samples experiencing a decrease, 19 samples experiencing an increase, and 6 samples experiencing a determination.

Skill Execution Aspect

There was an increase of 7.45% with 5 samples experiencing a decrease, 18 samples experiencing an increase, and 6 samples experiencing a determination.

Support Aspect

There was an increase of 0.30% with 3 samples experiencing a decrease, 22 samples experiencing an increase, and 4 samples experiencing a determination between pretest-post-test.

Game Performance Aspect

There was an increase of 7.05% with 5 samples experiencing a decrease, 24 samples experiencing an increase, and 0 samples experiencing a determination between pretest-post-test. So the truth in the formulation of problem 2, shows that H0 is rejected Ha is accepted which means that there is an influence of the TGT type cooperative learning model on the learning outcomes of students' futsal playing skills.

Relationship Between Cooperation and Learning Outcomes

To determine the relationship between cooperation and learning outcomes using the Product Moment correlation analysis test as follows:

Table 5. Product Moment Correlation Test

GPAI	r	Sig.	Alpha	Conclusion	Percentage
Decision Making	-0.191	0.322	0.05	no relationship	4%
Skill Execution	0.048	0.806	0.05	no relationship	0.23%

GPAI	r	Sig.	Alpha	Conclusion	Percentage
Support	0.073	0.708	0.05	no relationship	1%
Game Performance	-0.048	0.804	0.05	no relationship	0.23%

Based on the results of the table above, it shows that the Sig. value > 0.05 with a percentage of DM = 4%, SE = 0.23%, S = 1%, GP = 0.23%. When viewed from the results of the table above, the calculated r shows the degree of relationship (correlation coefficient) at a very low level. So H0 is accepted, and Ha is rejected, which means there is no relationship between cooperation and the learning outcomes of students' futsal playing skills.

Based on the research data from the calculation of the cooperation questionnaire and GPAI learning outcomes which were then processed using SPSS version 20 by obtaining the analysis results aimed at answering the formulation of the problem, namely whether there is an influence of the TGT type cooperative learning model on cooperation and learning outcomes, and whether there is a relationship between cooperation and learning outcomes of class X TAV 1 students at SMK Negeri 2 Surabaya.

To find out the differences and effects of TGT type cooperative learning on student cooperation, it can be proven by the t-test using the Paired Sample T-Test. Based on the results of the t-test, the Sig. value is obtained. 0.000 < 0.05, then there is a difference between the pretest and post-test of 6.3%. When viewed from the average % of data results in the cooperation questionnaire, it can be concluded in the first problem formulation that H0 is rejected and Ha is accepted, which means that there is an influence of the TGT type cooperative learning model on student cooperation of 7%. By modifying the futsal game, students find it easier to accept the material presented and students become more active in helping each other, working together, and motivating each other in learning through group work activities to achieve common goals, namely group success (Dewi, 2018). This is one of the applications of the cooperative learning model with a tactical approach so that students are required to be more active and motivated to achieve learning goals optimally by providing opportunities for students to further develop their abilities. Cooperative learning is also a model that emphasizes students to interact with each other by sharing information and knowledge they have, so that the learning process has no distance between one student and another (Abdullah, 2017). TGT type cooperative learning involves the activities of all students by dividing them into small groups and learning is not cantered on the teacher (Yulia et al., 2020). The form of cooperation develops when students can be moved to achieve a common goal and there must be an awareness that in the long term the goal will benefit all.

Based on the learning outcomes on GPAI using the Wilcoxon Signed Rank Test, it aims to determine the differences and effects of TGT type cooperative learning on student learning outcomes, obtaining Sig. values of DM = 0.003, SE = 0.011, S = 0.014, GP = 0.000. So, it can be concluded that there is a significant difference between

pretest and post-test because the Sig. value obtained is <0.05. So, there is a difference between pretest and post-test of DM = 28%, SE = 13%, S = -51%, GP = 27%. And if seen from the average % of data results on GPAI, it can be concluded in the second problem formulation that H0 is rejected and Ha is accepted, which means that there is an effect of the TGT type cooperative learning model on student learning outcomes of DM = 13%, SE = 10%, S = 5%, GP = 9%. Invasion sports require several aspects that can develop the game, one of which is basic skills in playing futsal, namely decision making, skill execution, support, and game performance. TGT type cooperative learning can foster critical thinking skills and this results in a directed process in making decisions to choose a skill that you want to do so that it is more useful (Evi et al., 2017). Each basic skill is interrelated and must be supported by the cooperation of each player. The more correct decisions are made, it shows that the player has an advantage in playing (Andrianto, 2023). One of the benefits of TGT type cooperative learning is that it can raise students' learning motivation, which is the basis for individuals to carry out a learning activity. With motivation that grows from within and outside, it can move players to dare to take efficient skill executions when carried out to achieve common goals (Wijaya & Ferianto, 2023). When making the right decision, it can indirectly foster self-confidence to dare to take more efficient actions to do. Skills can be mastered well, if practiced continuously. Everyone's skill factor is different depending on the learning process, personality, and surrounding environment (Matitaputty, 2019). Through the playing method, students are more enthusiastic and happier, so they don't get bored quickly when providing learning materials. This TGT type cooperative model emphasizes the cooperation of everyone regardless of status because futsal is a team sport. A relatively small field has almost no room to make mistakes, so good support is needed to help friends who carry the ball (Matitaputty, 2019). With support in playing futsal, the game will run well so that it can achieve its goals. Any shortcomings in the team can be covered by mutual support. TGT involves students as peer tutors, especially if there is a fun game and a match that must be won by one of the groups, therefore students carry out a very important aspect, namely support (Evi et al., 2017). If decision making, skill execution, and support are fulfilled, then the performance in playing will look better.

Player performance is supported by good and correct mastery of basic skills so that the game develops, not only that, mental and physical conditions are interconnected to ensure better performance (Santiaji, 2020). This can be improved by getting motivation from yourself or others who can help to be braver in acting. TGT can make students more active in carrying out competitive activities, in addition, with rewards, students are more motivated and have the freedom to play in groups actively and enjoyably (Wibowo, 2018). By using the TGT type, it aims to overcome boredom and laziness in students so that they are more active in playing futsal. The skill of playing in a group depends on the skills of the individuals in the group itself. Therefore, through cooperative learning, the TGT type allows communication between students and others and can foster students' cooperation skills.

Based on the results of the Product Moment correlation analysis test to determine whether there is a relationship between cooperation and learning outcomes, the Sig value is obtained. of DM = 0.322, SE = 0.806, S = 0.708, GP = 0.804. The calculated r obtained is included in the very low category in the degree of relationship (correlation coefficient). So, it can be concluded in the third problem formulation that H0 is accepted, and Ha is rejected which means there is no relationship between cooperation and the learning outcomes of students' futsal playing skills because the Sig. value obtained is > 0.05. The results of the percentage of this analysis test are DM = 4%, SE = 0%, S = 1%, GP = 0%. Based on the assumptions in this study, it states that students fill out the cooperation questionnaire according to the actual conditions, but in the field when playing futsal there are still differences between the playing time conditions and the questionnaires filled out. Futsal sports have high intensity, therefore aerobic, anaerobic endurance abilities and individual skills are needed to slow down, speed up, and make decisions in playing. Apart from all that, there is one factor that can affect futsal playing performance, namely decreased physical work capacity due to the intensity of the game and causing fatigue (Fadzillah, 2022). This requires intensive physical training over a long period of time to obtain good physical quality and individual skills. The demands of physical ability from a competitive match can cause fatigue which leads to decreased playing performance. According to (Diyawitama, 2020) that decreased physical condition is also caused by mental fatigue which can interfere with concentration, the ability to receive information, decision making, and this can make players lazy to move to provide support to their teammates. As a result of fatigue, there is a decrease in interest in moving actively in playing, especially in female students who can be said to still have poor physical conditions (Akurat & Maksum, 2021).

Conclusion

The statistical results showed that learners' cooperation scores and game performance increased significantly after receiving treatment in the form of TGT type cooperative learning model for futsal game material. This finding shows that the nuances of a collaborative environment have an impact on the social attitudes and playing performance of learners. However, there was no relationship between the value of cooperation and learners' game performance. The strongest possibility is that the cooperation variable in the measurement questionnaire is not relevant to the type of cooperation required in playing futsal. Only indications of the value of cooperation in general were successfully measured using the questionnaire, while in futsal games cooperation is needed related to tactical awareness in line with the nuances of futsal games. For this reason, it is possible to conduct future research to determine the adequate cooperation model needed in futsal games.

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