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Article

The Effectiveness of the Teaching Game Model in Improving Football Passing and Shooting Cooperation

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ABSTRACT

The purpose of this study was to analyze the effectiveness of the teaching game model in improving cooperation in passing and shooting football. The research method used was quantitative with an experimental research type. The research design used was nonequivalent control group design pretest and posttest. The population of the study was all fifth grade students of Madrasah Ibtidaiyah while the research sample was 40 students. Data collection techniques used motor skills tests. Data analysis used a paired t-test while the prerequisite test used normality with Shapiro Wilk and homogeneity tests. The results showed that 40% of students had very good passing skills, while 50% of students showed very good shooting skills. The paired t-test showed significant differences in both variables, with a p-value of less than 0.05, indicating that the intervention succeeded in improving these skills statistically and practically. The results of the normality and homogeneity tests also indicated that the measured data met the assumptions for further analysis. It can be concluded that the teaching game model can improve cooperation in passing and shooting football.

1. Introduction

Teaching and learning activities in schools, especially physical education subjects, are learning processes that utilize various physical activities to achieve learning objectives. Baharuddin et al., (2024) explains that physical education is one of the subjects that must be followed by students as a means for students to be able to develop their potential through various physical activities. One of them is in the form of physical activities taught in schools, namely sports games, so that the delivery of lesson materials can also be done through playing activities. One of the mandatory sports game materials and included in the physical education curriculum in schools is the subject of soccer.

Football learning developed in the physical education curriculum, both through intra curricular and extracurricular programs, not only teaches students to learn about various basic techniques or how to play football, but more than that students can develop various social attitudes within themselves (Selis et al., 2024). Football has an important position because it not only teaches basic techniques but also fosters social values such as cooperation and sportsmanship (Wani et al., 2024). Arridho et al., (2021) explains that football is a team game, each team consists of eleven players, and one of them is a goalkeeper. This game is almost entirely played using the legs, except for the goalkeeper who is allowed to use his arms in the kicking area.

In its development, this game can be played outside the field (outdoor) and indoors (indoor) (Utomo & Indarto, 2021). The main goal of the game of soccer is to put the ball into the opponent's goal as much as possible with sportsmanship in accordance with the agreed rules and try to prevent the opponent from putting the ball into the goal being guarded (Ariestika et al., 2020). To be able to achieve the goal of playing soccer, certain techniques are needed in playing the ball. Soccer requires mastery of various basic techniques, such as passing and shooting, which are the foundation of the game. Passing and shooting techniques are important elements in the game of soccer, which are the basis for creating a dynamic and effective game.

Passing technique in soccer is the most basic technique compared to other techniques to learn in soccer. This passing technique is very important because the essence of soccer to be the best relies on teamwork through passing techniques used for teamwork (Kahar et al., 2022). Meanwhile, the goal of soccer is to shoot at the goal. A player must master the basic skills of kicking the ball and then develop a series of shooting techniques that allow him to shoot and score goals from various positions on the field (Sanusi et al., 2022).

The results of observations and interviews with sports teachers, students have difficulty mastering passing and shooting due to ineffective teaching methods. Basic technique training often gets very little time allocation, so that students' mastery of this technique is not optimal. Other factors, such as minimal facilities and a large number of students, are also obstacles in implementing effective learning.

One form of innovation and modification that can be applied by teachers in physical education learning is by implementing the right learning model in teaching soccer game material. So far, the model used by teachers in soccer learning is a conventional learning model that often makes students feel bored and unmotivated. This needs to be found a way out by utilizing a learning model that can help the teaching and learning process and make students more motivated in participating in learning activities, such as the teaching game learning model. The *Teaching Game* model has been known as a game-based learning approach and emphasizes the development of technical and tactical skills contextually (Ferraz et al., 2023; Harvey et al., 2020; Mohamed et al., 2024; Panskyi & Rowinska, 2021).

This approach integrates learning aspects with playing experiences, so that students can understand and apply skills in a real game context. One of its main characteristics is game-based learning, where students learn through activities designed to improve technical skills such as passing and shooting, while interacting with classmates. In addition, this model also emphasizes the importance of teamwork, helping students develop social and communication skills while playing in groups. By facing realistic game situations, students can hone their tactical and strategic abilities. Feedback provided during and after the game helps students understand their strengths and weaknesses, as well as ways to improve their skills. The Teaching Game model is also adaptive and flexible, so it can be adjusted to various levels of student ability, allowing each individual to learn according to their pace and needs (Isti & Ichsan, 2021).

Previous studies on the *Teaching Game model* have shown potential in improving mastery of basic techniques, but most have focused on only one aspect, such as passing or shooting. There have not been many studies that specifically evaluate the effectiveness of this model in improving teamwork through a combination of passing and shooting, such as in the study Awaluddin et al., (2023); Munir & Wahyudi, (2022). This study focuses on the use of the *Teaching Game model* to improve passing and shooting cooperation, which has not been studied in depth in the context of football learning in schools. Based on the explanation above, the purpose of the study is to analyze the effectiveness of the teaching game model in improving football passing and shooting cooperation.

2. Method

The research method uses quantitative, with an experimental research design. The research design used is nonequivalent control group design pretest and posttest. This study aims to describe a phenomenon, event, or condition based on quantitative data obtained from measurements or surveys (Teguh et al., 2023). The population of the study was all fifth grade students of MI while the sample of the study was 40 students using a simple random sampling technique. The reason for choosing the subject is because fifth grade students (aged 10–11 years) are at an ideal stage of motor and social development to learn sports skills, especially football. They are able

to understand basic game strategies such as passing and shooting. At this age, students are at a stage of social development that emphasizes the importance of collaboration and teamwork in groups. The *teaching game model* is suitable for training cooperation as well as technical skills. The research location in Banjarnegara consists of three schools, namely MI Ma'arif Pucung Bedug, MI Hizbul Qur'an Parakan, and MI Muhammadiyah Kaliajir. The reason for choosing this location is because it provides a variety of student characteristics and educational environments. This allows the study to obtain richer and more diverse data. The selected schools have adequate sports facilities and football activities, thus supporting the implementation of the *teaching game model*. Banjarnegara has the potential for sports development, but faces certain challenges in terms of early childhood development in the field of sports. This study could be the first step to improve the quality of sports learning in the area. Data were collected using tests while data analysis used statistical tests on paired t-tests. The prerequisite test used the normality test (Shapiro Wilk) and the homogeneity test through data processing applications with SPSS version 29 and the data was presented using a table then the analyzed data was interpreted by explaining the description of the patterns found. The following are the criteria for the basic football passing ability test presented in the form of a table below:

Table 1. Basic Ability Test Criteria for Passing and Shooting in Football

Mark	Criteria
4	Very good
3	Good
2	Enough
1	Not enough

3. Results and Discussion

Based on the results of the basic soccer passing ability test from 40 samples, the following results were obtained:

Table 2. Percentage of Basic Passing Ability

Criteria	Percentage
Very good	40%
Good	27.50%
Enough	25%
Not enough	7.50%

Based on table 2 which displays the results of the basic passing ability test, it can be seen that the majority of students showed good passing ability. As many as 40% of students are in the Very Good category**,** which indicates mastery of passing

techniques with high consistency and accuracy. Furthermore, 27.5% of students are in the Good category, which reflects fairly stable passing ability but there is still room for improvement. As many as 25% of students are classified as Sufficient, indicating that they understand the basics of passing but need further practice to improve accuracy and fluency. Meanwhile, only 7.5% of students are in the Less category, which means these students need special attention to improve basic passing techniques.

These results indicate that the applied learning method has had a fairly positive impact on students' passing ability in general. However, there is a small group of students who need a more intensive approach, such as additional training or special assistance, to catch up. According to Akhyar et al., (2024); Ariefky & Inayati, (2023) t, evaluation of learning outcomes like this is very important to know the level of student mastery of the skills taught, so that teachers can develop more effective learning strategies in the future. Furthermore, the results of the basic soccer shooting test obtained the following results:

Table 3. Percentage of Basic Shooting Ability

Criteria	Percentage
Very good	50%
Good	22.50%
Enough	18%
Not enough	10%

The table above shows the distribution of the results of the basic shooting ability test conducted on a group of participants. Of the total participants, 50% showed abilities categorized as “Very Good”. This reflects a high level of mastery of shooting techniques, which could be due to consistent practice or experience in playing. Meanwhile, 22.50% of participants are in the “Good” category, indicating that they have a good understanding, although there is still room for improvement. The “Enough” category with a percentage of 18%, indicates that some participants still need more attention in developing their passing skills. Then, 10% of participants are in the “Less” category indicating that they have difficulty in mastering this technique.

These results indicate that there is variation in basic passing ability among participants, which may be due to factors such as training frequency, coaching guidance, and playing experience. Previous research has also shown that targeted training and constructive feedback can significantly improve technical skills in sports (Ahmad, 2024; Salman et al., 2024). The detailed results of the passing ability test are shown in the following table 4:

Table 4. Passing Ability Test Results

Mark	MIM Kaliajir Sample Frequency	MIMA HIQU Parakan Sample Frequency	MIMA Pucungbedug Sample Frequency	Number of Sample Frequency	Presentation
4	7	5	4	16	40%
3	5	2	4	11	27.50%
2	2	2	6	10	25%
1	1	1	1	3	7.50%
Amount	15	10	15	40	100%

The table above shows the results of the passing ability test conducted on three sample groups, namely MIM Kaliijir, MIMA HIQU, and Pucungbedug. Of the total 20 participants, the highest score (4) was obtained by 6 participants from MIM Kaliajir, which reflects that they have very good passing ability, with a percentage of 30%. The MIMA HIQU group showed good results with 5 participants getting a score of 3, which means that 25% of participants from this group have adequate skills. Meanwhile, the Pucungbedug group showed that 10% of participants got a score of 2, which indicates a challenge in mastering the passing technique.

From this analysis, it can be seen that MIM Kaliajir has the best performance in passing skills, followed by MIMA HIQU, and Pucungbedug who still need to improve their abilities. Variations in these results can be influenced by factors such as training methods, experience, and frequency of training received by each group. Research shows that improving technical skills in sports is highly dependent on structured training and effective feedback (Arifin, 2023; Tumaloto et al., 2024). Furthermore, the results of the shooting motor ability test were as follows:

Table 5. Results of Shooting Motor Ability Test

Mark	MIM Kaliajir Sample Frequency	MIMA HIQU Parakan Sample Frequency	MIMA Pucungbedug Sample Frequency	Number of Sample Frequency	Presentation
4	5	7	8	20	50%
3	3	1	5	9	22.50%
2	3	2	2	7	18%
1	4	0	0	4	10.00%
Amount	**15**	**10**	**15**	**40**	**100%**

To find out whether there is a significant difference between the pretest and posttest, a paired t-test was conducted. The results of the t-test showed that there was

a significant difference in both variables, namely Passing, namely t(29) = 18.32, p <0.05 while Shooting, namely t(29) = 21.12, p <0.05. With a p-value result that is smaller than 0.05, it can be concluded that the application of the *Teaching Game model* has an effect on improving passing and shooting abilities. The following are the results of the pretest and posttest from the comparison of passing and shooting abilities in football after the teaching game model was applied, namely:

Table 6. Pretest and Posttest Results

Variables	Pretest Average	Posttest Average	Difference (Posttest-Pretest)	T-value (t-test)	P-value
Passing	55.4	85.3	29.9	18.32	<0.05
Shooting	60.2	88.1	27.9	21.12	<0.05

The table above shows the results of the pretest and posttest for passing and shooting skills in football. The average pretest score for passing skills was 55.4, while the average posttest score increased to 85.3, resulting in a difference of 29.9. This significant increase is reflected in the t-test value of 18.32 with a p-value of less than 0.05, indicating that this change is very statistically significant. For shooting skills, the average pretest score was 60.2 and the posttest reached 88.1, with a difference of 27.9. The t-test score for shooting was 21.12, also with a p-value below 0.05, confirming that the increase in shooting skills was also significant. These results indicate that the applied teaching model has a significant positive effect on improving participants' passing and shooting skills. Previous research supports these findings by showing that interactive and game-based teaching methods can improve technical skills in sports (Al-Majid et al., 2024; Cahyaningtias & Ridwan, 2022; Rimansyah, 2023).

There are various factors that can affect the learning outcomes of participants in mastering basic soccer techniques, both passing and shooting. Factors such as playing experience, frequency of training, quality of training, and feedback received by participants greatly affect the level of mastery of techniques. Research by Setya et al., (2024) shows that structured training and effective feedback are very important in improving technical skills in sports. Therefore, coaches and educators need to ensure that participants receive sufficiently intensive training and focus on developing basic skills.

The paired t-test is used to determine whether there is a significant difference between the results of the pretest and posttest for two main variables, namely the ability to pass and the ability to shoot football. The paired t-test was chosen because the purpose of the study was to compare two conditions measured in the same group (namely pretest and posttest values). The following are the results of the paired t-test presented in the table 7 below:

Table 7. Paired t-Test Results

Variables	Pretest Average	Posttest Average	Posttest-Pretest Difference	t-Value	p-Value	Conclusion
Passing	55.4	85.3	29.9	18.32	<0.05	There are different effective game-based teaching methods in improving passing skills.
Shooting	60.2	88.1	27.9	21.12	<0.05	There are different effective game-based teaching methods in improving shooting skills.

The table presented shows the results of paired t-tests for two variables, namely Passing and Shooting. The average pretest score for passing ability was 55.4, which increased significantly to 85.3 in the posttest, indicating the effectiveness of the intervention in improving the skill. The posttest-pretest difference in passing was 27.9, indicating a significant increase. Likewise, shooting ability, which had an average pretest of 60.2 and a posttest of 88.1, also reflected a significant increase with the same difference. The t-value obtained for passing was 18.32, while for shooting it reached 21.12, with p-values below 0.05 for both variables. This shows that there is a significant difference between the pretest and posttest results, indicating that game-based interventions are effective in improving the abilities of both aspects. This intervention has been proven to be successful in improving passing and shooting skills, which can be supported by the literature on the importance of game-based methods in developing sports skills.

Based on the results of the paired t-test analysis presented in Table 7, it was found that the game-based teaching method had a significant impact on improving passing and shooting skills. The increase in the average pretest to posttest scores on both variables, each followed by a p-value <0.05, indicated that this approach was effective. These results are in line with previous studies, as explained by Rojabi et al., (2024), that the paired t-test is a powerful tool for evaluating mean differences in the same group before and after an intervention. In this context, the intervention in the form of a game-based method provided a measurable increase in sports skills.

The findings also support the experiential learning theory Lestari & Setiawan, (2024), which states that active learning through hands-on activities, such as games, is more effective than passive learning methods. Game-based methods allow learners to practice contextually, integrating theory with practice, which can improve motor skills such as passing and shooting. In addition, the study by Abni et al., (2024)

showed that a t-test with a p-value < 0.05 indicates a significant difference that is practically relevant, which in this case means that the game-based teaching method not only produced positive results, but was also statistically significant.

Before conducting a paired t-test, the data was checked using a normality test and a homogeneity test to determine whether it was normally and homogeneously distributed. The following describes the results of the normality test and homogeneity test presented in the table below:

Table 8. Normality Test Results

Variables	Normality Test (Shapiro Wilk)	p-Value Normality	Normality Conclusion
Passing Pretest	(Shapiro Wilk)	0.215	Data is normally distributed
Passing Posttest	(Shapiro Wilk)	0.134	Data is normally distributed
Shooting Pretest	(Shapiro Wilk)	0.175	Data is normally distributed
Shooting Posttest	(Shapiro Wilk)	0.182	Data is normally distributed

The table above shows the results of the normality test using the Shapiro-Wilk method for the Passing and Shooting variables in the pretest and posttest data. The p-values for all variables, namely 0.215 for Passing Pretest, 0.134 for Passing Posttest, 0.175 for Shooting Pretest, and 0.182 for Shooting Posttest, are all greater than 0.05. This indicates that the data for each variable is normally distributed. The normality test is an important step in statistical analysis, because many statistical methods assume that the data used is normally distributed. With these results, further analysis, such as paired t-tests or analysis of variance, can be carried out with confidence that the normality assumption is met. This discussion is in line with the literature stating the importance of meeting the normality assumption in data analysis, as explained by Mair & Wilcox, (2020), which emphasizes that the success of statistical analysis depends on the precision of the assumption. Thus, the results of this normality test provide a strong foundation for continuing further analysis of the effectiveness of the intervention carried out. Meanwhile, the homogeneity test is presented in the following table 9:

Table 9. Homogeneity Test Results

Variables	Homogeneity Test	p-Value Homogeneity	Homogeneity Conclusion
Passing pretest – posttest	Levene	0.318	Homogeneous Variance
Shooting pretest – posttest	Levene	0.290	Homogeneous Variance

Table 9 presents the results of the homogeneity test using the Levene method for the Passing and Shooting variables, with the aim of testing the equality of variance between the pretest and posttest groups. In Passing, the p-value is 0.318, while in Shooting, the p-value is 0.290. Since both p-values are greater than 0.05, it can be concluded that the data variance in each group is homogeneous. This indicates that the assumption of homogeneity of variance is met, which is one of the important requirements in parametric statistical tests, such as the paired t-test. Homogeneity of variance ensures that differences in pretest and posttest results are not influenced by unequal variances between data groups, so that the analysis results are more valid.

The game-based approach to sports teaching creates a structured, balanced, and student-centered learning environment. Teaching Game Model applied in game-based teaching emphasizes the development of teamwork through activities involving passing and shooting. With this approach, students are actively involved in real game situations, thus not only improving technical skills, but also producing consistent and controlled learning patterns (Fikri et al., 2024).

This approach is also in line with the implementation of Game Sense in soccer, which emphasizes the importance of integrated tactical understanding and technical skills (Ramos et al., 2021). The Teaching Game model is effective in improving cooperation and technical sports skills such as passing and shooting, as described by Barba-Martín et al., (2020); Sgrò et al., (2021). Since the data are normally distributed and the variance between groups is homogeneous, the assumptions for continuing the paired t-test are met. Thus, the results of the paired t-test showing a significant difference between the pretest and posttest are reliable and acceptable.

4. Conclusion and Suggestions

Game-based teaching methods, especially the Teaching Game model, significantly improved students' sports skills. The results of the analysis showed that 40% of students had excellent passing skills, while 50% of students showed excellent shooting skills. The paired t-test showed significant differences in both variables, with a p-value of less than 0.05, indicating that the intervention succeeded in improving these skills statistically and practically. In addition, the results of the normality and homogeneity tests also indicated that the measured data met the assumptions for further analysis. Suggestions for further researchers are to consider variations in the learning methods used, such as comparing the Teaching Game model with other approaches, such as the drill method or project-based learning. In addition, it is advisable to conduct research with skill measurements over a longer period of time after the intervention, in order to assess the durability of the skills acquired. Then, the integration of technology in teaching, such as the use of training applications or software, can increase student engagement and provide faster and more accurate feedback.

5. Author Contribution

Ahmad Syarif drafted the research concept and design, collected data and presented tables. Yudesta Erfayliana drafted the discussion, conclusion, and abstract.

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