Impact of Team Game Tournament Model on Overhand Passing Performance in Volleyball

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Abstract
Objectives. This study aims to examine the effect of the Team Game Tournament (TGT) learning model on improving overhand passing skills in volleyball among eleventh-grade students at SMA Negeri 1 Ogan Komering Ulu. The study responds to the need for more engaging and effective instructional models in physical education, particularly for skill-based sports such as volleyball.
Materials and Methods. The research employed a one-group pretest-posttest pre-experimental design. A total of 36 students were selected through cluster random sampling. The intervention involved two structured learning sessions using the TGT model, designed to develop overhand passing technique through cooperative, competitive gameplay. Student performance was assessed using standardized rubrics that evaluated psychomotor, affective, and cognitive domains. Statistical analysis was conducted using paired sample t-tests and normality tests with SPSS 26.
Results. The results showed a statistically significant improvement in students' overhand passing performance following the intervention. The average score increased from 73.92 (pretest) to 78.36 (posttest), with a paired samples t-value of 5.100 and a significance level of $p = 0.000$ ($p < 0.05$). This demonstrates that the TGT model has a meaningful effect on enhancing students' volleyball passing skills.
Conclusions. The Team Game Tournament model is an effective and engaging approach to teaching volleyball skills in high school physical education. It supports not only psychomotor skill development but also enhances motivation, cooperation, and cognitive understanding. Educators are encouraged to integrate the TGT model into instructional practice to improve learning outcomes in sports-based subjects.

Keywords: Team Game Tournament, overhand passing, volleyball, cooperative learning, physical education

Introduction

Physical education is an essential component of the school curriculum (Mustafa & Dwiyogo, 2020) that plays a crucial role in fostering students' physical, emotional, and cognitive development (Abduh et al., 2024). One of the most prominent sports taught in schools is volleyball, which emphasizes teamwork, coordination, and technical skill (Dwi Yulia Nur Mulyadi et al., 2023). Among the fundamental techniques in volleyball, the overhand pass is particularly important, as it serves as a key element in initiating and supporting effective team attacks (Ozawa et al., 2021). Mastery of this skill requires not only physical ability but also proper technique and continuous practice (Duhe, 2020).

However, field observations conducted at SMA Negeri 1 Ogan Komering Ulu revealed that students, particularly those in Grade XI, often experience difficulties in executing overhand passes with precision. These challenges include poor hand positioning, lack of coordination, and insufficient strength or control, which may be linked to the conventional instructional methods that do not adequately engage or motivate learners.

To address this issue, there is a growing need to adopt more interactive and student-centered learning models. One such approach is the Team Game Tournament (TGT) model, a type of cooperative learning strategy that combines academic learning with team-based competition. TGT encourages student collaboration, active participation, and structured gameplay, making the learning process more engaging and effective. According to (Hamka & Sari, 2025) the TGT model fosters cooperation and responsibility among students, while enhancing skill acquisition through repeated, meaningful practice in a competitive setting.

Previous studies have shown that TGT can improve student performance in various subjects, including physical education. For instance, research by (Luo et al., 2020) demonstrated that TGT significantly increased student enthusiasm and motor skill development during PE activities. Similarly, (Arantes et al., 2025) found that the TGT model improved volleyball passing skills more effectively than conventional teaching methods.

Based on these considerations, this study aims to investigate the effectiveness of the TGT learning model in improving overhand passing skills in volleyball among eleventh-grade students. The research seeks to provide empirical evidence on the benefits of cooperative learning in skill-based instruction and to offer practical recommendations for improving the quality of physical education teaching in schools.

Materials and Methods
Study Participants.

This study involved a total of 36 eleventh-grade students from SMA Negeri 1 Ogan Komering Ulu, South Sumatra, Indonesia. The participants were selected using cluster random sampling from a population of 396 students. The sample consisted of 7 male and 29 female students from class XI-3. All participants took part in physical education classes and had not previously received instruction using the Team Game Tournament (TGT) model.

Study organization.

The research utilized a pre-experimental design with a one-group pretest-posttest model. This design allowed the researchers to measure changes in overhand passing performance before and after the intervention. Prior to treatment, students completed a pretest to assess their initial volleyball overhand passing skills. The treatment phase consisted of two structured learning sessions applying the TGT model during physical education lessons.

The TGT model was implemented by dividing students into small teams and guiding them through volleyball tasks that combined skill practice and competitive play. The posttest was administered at the end of the second session to evaluate the impact of the intervention. Student learning outcomes were assessed across three domains:

- Psychomotor: execution of the overhand pass in volleyball using a performance rubric.
- Affective: cooperation, responsibility, and enthusiasm during team activities.
- Cognitive: understanding of overhand passing techniques and game-related strategies.

Statistical analysis.

Data were analyzed using IBM SPSS version 26. Descriptive statistics were used to summarize student performance scores. The Kolmogorov–Smirnov test was employed to test the normality of the pretest and posttest data. To evaluate the effectiveness of the intervention, a paired samples t-test was conducted at a significance level of $\alpha = 0.05$. The t-test compared pretest and posttest mean scores to determine whether the improvement in performance was statistically significant.

Results

This study examined the effect of the Team Game Tournament (TGT) learning model on the overhand passing skills of eleventh-grade students in volleyball. Data were collected

using pretest and posttest assessments administered before and after the intervention, which consisted of two sessions implementing the TGT model during physical education class.

Descriptive Statistics

Table 1 presents the descriptive statistics of student scores before and after the implementation of the TGT model. The mean pretest score was 73.92, which increased to 78.36 in the posttest, indicating an improvement in students' volleyball overhand passing performance.

Table 1. Descriptive Statistics of Pretest and Posttest Scores

Test	N	Minimum	Maximum	Mean	Standard Deviation
Pretest	36	67	87	73.92	4.958
Posttest	36	71	90	78.36	4.858

Normality Test

The Kolmogorov–Smirnov test was used to examine the distribution of the data. The results showed that the significance values for both pretest ($p = 0.200$) and posttest ($p = 0.181$) were greater than 0.05, indicating that the data were normally distributed.

Table 2. Normality Test Results (Kolmogorov–Smirnov Test)

Variable	Statistic	df	Sig. (p-value)
Pretest	0.096	36	0.200
Posttest	0.101	36	0.181

Paired Samples t-Test

To determine whether the observed improvement was statistically significant, a paired samples t-test was performed.

Table 3. Paired Samples t-Test for Pretest and Posttest Scores

Mean Difference	Std. Deviation	Std. Error Mean	t-value	df	Sig. (2-tailed)
4.44	5.745	0.871	5.100	35	0.000

The results of the t-test showed that the difference between the pretest and posttest scores was statistically significant ($t = 5.100$, $p < 0.05$), confirming that the TGT learning model had a positive effect on the students' overhand passing skills in volleyball.

Discussion

The results of this study demonstrate a significant improvement in the overhand passing skills of eleventh-grade students following the implementation of the Team Game Tournament (TGT) learning model. The statistical analysis indicated a meaningful increase in

the average score—from 73.92 in the pretest to 78.36 in the posttest—with a t-value of 5.100 and a significance level of $p = 0.000$, confirming the effectiveness of the intervention.

This outcome aligns with Widya Sastri et al. (2022), who reported that the TGT model produced superior improvement in basketball skills—passing, dribbling, and shooting—compared to the STAD model over eight weeks (Sastri et al., 2024). Similarly, Padillah et al. (2021) found that TGT positively affected both social skills and volleyball performance using a quasi-experimental, pretest–posttest design (Padillah et al., 2020). Furthermore, Mihran et al. (2023) demonstrated that TGT significantly increased volleyball learning activity and skill outcomes, with measurable gains in student engagement and performance (Mihran et al., 2023).

Specifically focusing on overhand passing, Agus (2024) reported substantial improvements among sixth-grade students following a TGT-based intervention in volleyball (Agus et al., 2024). It was shown that the TGT format—combining cooperative teams, repeated skill practice, and tournament-style competition—Fosters higher motivation, peer feedback, and technical mastery. These elements directly reflect the structure of this current study, where students participated in team drills under supervised competition, which likely contributed to higher performance outcomes.

Beyond psychomotor gains, TGT also promotes affective development. Padillah et al. (2021) noted an increase in social skills—teamwork, communication, respect—alongside performance gains in volleyball. This suggests TGT fosters a holistic learning experience, enriching both physical ability and interpersonal growth.

While the positive results are robust, this study's design (single-group pretest-posttest) and short intervention duration are limitations. Future research could use a randomized control trial with an active control group, explore other sports skills, and measure long-term retention. Nonetheless, the current findings provide compelling evidence that TGT is an effective, research-backed approach to improving overhand passing skills in school-based volleyball programs.

Conclusions

This study concludes that the Team Game Tournament (TGT) learning model has a significant and positive effect on improving volleyball overhand passing skills among eleventh-grade students at SMA Negeri 1 Ogan Komering Ulu. The results revealed a statistically significant increase in performance, with posttest scores notably higher than pretest scores ($t = 5.100$, $p < 0.05$).

The cooperative and competitive nature of the TGT model fosters active engagement, peer support, and skill mastery, making it an effective instructional strategy in physical education. It is recommended that educators adopt the TGT approach in volleyball and other team sports to enhance both technical skills and student motivation.

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