



The Effect of Game-Based Learning on Basketball Chest Pass Performance among Seventh-Grade Students at SMP Negeri 30 Medan

Nico Febrian Gurning¹, Devi Catur Winata², Khairul Usman³, Mizar Aulia⁴

^{1,2,3} Sekolah Tinggi Olahraga dan Kesehatan Bina Guna, Indonesia

Corresponding Author: devicaturwinatastokbinaguna@gmail.com

Abstract

This study aims to determine the effect of implementing a Game-Based Learning Model on basketball chest pass learning outcomes for seventh-grade students at SMP Negeri 30 Medan, Academic Year 2025/2026. This study used a pre-experimental method with a One Group Pretest-Posttest Design. The population in this study was all seventh-grade students of SMP Negeri 30 Medan, while the sample size was 35 students determined using a total sampling technique. The research instrument used was a basketball chest pass skill test against the wall for 30 seconds. Data analysis was carried out through normality tests, homogeneity tests, and hypothesis tests using t-tests. The results showed that the average pretest score was 11.81, while the average posttest score was 15.44, resulting in an increase of 3.63 points or 30.74%. The results of the normality test showed that the pretest and posttest data were normally distributed, while the results of the homogeneity test showed that both data had homogeneous variances. Based on the results of the hypothesis test, $t_{count} = 40.48$ and $t_{table} = 2.032$ were obtained at a significance level of 5% with degrees of freedom (dk) = 34. Because $t_{count} > t_{table}$ ($40.48 > 2.032$), then H_0 is rejected and H_a is accepted. Based on the results of the study, it can be concluded that the Game-Based Learning Model has a significant effect on the learning outcomes of basketball chest passes in class VII students of SMP Negeri 30 Medan in the 2025/2026 Academic Year. The application of this learning model has been proven to be able to improve student learning outcomes and create a more active, enjoyable, and effective learning process.

Keywords: *Game-Based Learning Model, Chest Pass Learning Outcomes, Junior High School Students*

Introduction

Physical Education plays a vital role in the educational landscape by focusing on the development of physical fitness, movement skills, and health, as well as the shaping of students' social and emotional attitudes. In this subject, students are required not only to master theoretical concepts but also to effectively demonstrate various movement skills. One of the topics taught at the Junior High School (SMP) level is large-ball games, with basketball being a primary discipline.



Basketball involves various fundamental techniques that students must master, one of which is the chest pass. This technique is a crucial passing skill that supports teamwork and game effectiveness. However, in reality, many students still struggle to master the chest pass properly—particularly regarding accuracy, power, and movement coordination. These issues often stem from the use of conventional teaching approaches. Teachers tend to rely on lectures and demonstrations without providing sufficient opportunities for active student participation. Consequently, students' interest in learning declines; they become easily bored and lack motivation during lessons. Ultimately, learning outcomes—specifically the mastery of the chest pass technique—suffer and fail to reach their full potential.

On the other hand, seventh-grade students—who are in the early stages of adolescence—tend to prefer activities that are engaging, interactive, and challenging. They grasp material more easily when it is presented through activities requiring direct involvement, such as games. Therefore, it is necessary to implement a teaching model that accommodates these needs, thereby making the learning process more dynamic, enjoyable, and effective. The Game-Based Learning model offers several advantages, including increased student engagement, the creation of an enjoyable learning atmosphere, and the encouragement of critical thinking and collaboration among students. In the context of basketball instruction, this model can be implemented through various games specifically designed to practice the chest pass technique. Consequently, students do not merely learn the theory but also actively practice the skill in situations that simulate actual gameplay.

Preliminary observations at SMP 30 Medan revealed that the majority of seventh-grade students had not yet demonstrated proficiency in the chest pass technique. This was evident from inaccurate passing trajectories, suboptimal throwing power, and a lack of controlled movement coordination. Furthermore, student engagement levels tended to be low, particularly when lessons relied on methods lacking variety.

These conditions indicate a need to revitalize the instructional approach, specifically by selecting a model that aligns with the students' characteristics. Teachers are expected to facilitate a learning process that is dynamic, innovative, and enjoyable to ensure learning objectives are fully achieved. Implementing the Game-Based Learning model is considered a potential solution to improve student learning outcomes, particularly regarding mastery of the chest pass technique.

Furthermore, selecting an appropriate instructional model aligns with the implementation of the *Kurikulum Merdeka* (Independent Curriculum), which emphasizes a student-centered learning approach. In this framework, students act as the primary participants in the learning process, while teachers serve as guides and facilitators. The Game-Based Learning model is particularly well-suited to this approach, as it allows students to engage directly and learn through real-world experiences. Game-based learning integrates game elements into the educational process, enabling students to learn while they play. By utilizing this model, students are expected to become more actively motivated and better able to understand and master specific skills.

Efforts to improve learning outcomes—specifically regarding mastery of the chest pass technique—also yield significant long-term benefits. Solid mastery of fundamental skills serves as a foundation for students to develop comprehensive basketball abilities. Moreover, sports activities contribute to improved physical fitness, the cultivation of discipline, the development of teamwork, and the fostering of sportsmanship.

However, the implementation of Game-Based Learning in physical education remains underutilized, particularly at SMP 30 Medan. This may be attributed to teachers' limited understanding of the concept or challenges in designing game activities that align with



learning objectives. Consequently, research is needed to analyze the extent to which the Game-Based Learning model influences improvements in student learning outcomes.

This research aims to provide a clearer picture of the effectiveness of the Game-Based Learning model in enhancing students' chest pass skills. Additionally, the findings are expected to serve as a reference for physical education teachers when selecting and implementing more creative and effective instructional models. Based on the preceding explanation, the researcher is motivated to conduct a study titled: "The Effect of the Game-Based Learning Model on Chest Pass Learning Outcomes among 7th-Grade Students at SMP 30 Medan in the 2025/2026 Academic Year."

This research is expected to contribute positively to efforts to improve the quality of physical education instruction, particularly regarding the mastery of fundamental basketball techniques. Furthermore, the study aims to offer a potential solution to issues such as low student achievement and a lack of student engagement in the learning process. Through the implementation of the Game-Based Learning model, it is hoped that a more engaging, effective, and meaningful learning environment will be created, thereby maximizing the attainment of physical education learning objectives.

Materials and Methods

Study Design

This study employs an experimental research method. The experimental method is defined as a systematic approach aimed at investigating the influence of one variable on another through the application of a specific treatment and strict control of conditions. The research design utilized is the one-group pre-test-post-test pre-experimental design. This design involves a single group that undergoes a pre-test (O), receives a treatment (X), and subsequently takes a post-test.

The success of the treatment is determined by comparing the pre-test and post-test scores. In this one-group pre-test-post-test pre-experimental study, the initial step involves selecting the research sample and organizing it into a single study group. The subsequent step entails administering a pre-test to measure learning outcomes regarding the basketball chest pass. The research design is presented in

Tabel 1. Desain one group pre-test post-test
Sumber : (John Creswell, 2010: 172)

O1	X	O2
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Legend:

O1: Pre-test

O2: Post-test

X: Treatment

The treatment administered in this study employs a Game-Based Learning model approach. According to Sukadiyanto, training yields optimal results when conducted over an eight-week period, achieving a 50% improvement. However, due to time and cost constraints, this study will be conducted over a period of five weeks (one month and one week). Participants will receive the treatment ten times throughout the one-month duration.



Study Participants

The study population consists of all Grade VII students at SMP Negeri 30 Medan, totaling approximately 75 students.

The entire sample for this study comprises 35 individuals, selected using a random sampling technique.

Statistical Analysis

Data collection in this study employed a test and measurement method aimed at obtaining quantitative data regarding students' basketball chest pass abilities. According to Suharsimi Arikunto, a data collection technique is the method a researcher uses to gather the data required for a study. In quantitative research, collected data must be numerical in form to allow for statistical analysis.

The instrument used was a basketball chest pass skill test covering two assessment aspects: the process aspect and the outcome aspect. The process aspect was assessed via an observation sheet using a rating scale, while the outcome aspect was measured based on the number of successful chest passes a student performed within a specific timeframe. This aligns with Widiastuti's view that physical education evaluation must encompass the assessment of both movement processes and outcomes.

The procedure for the basketball chest pass test was as follows:

1. Students stood behind a line positioned 3 meters from the wall.
2. Students performed a chest pass toward the wall.
3. The ball had to rebound and be caught correctly.
4. The test was conducted over a duration of 30 seconds.
5. Each student was given two attempts, and the best score was recorded.

Table 2. Rating Scale

Number of Successful Passes	Score
< 5 times	1
6–10 times	2
11–15 times	3
>16 times	4

Results

Before conducting the research, the researcher first interviewed the teacher to gather information regarding the basketball chest pass learning outcomes of 7th-grade students at SMP Negeri 30 Medan for the 2025/2026 academic year. Subsequently, the researcher administered training sessions and conducted a post-test.

The preliminary step involved planning the training program, followed by the execution of the research stages.

The stages were as follows:

- a. The researcher introduced themselves and explained the purpose and objectives of the research.
- b. The researcher explained basketball game techniques.
- c. The researcher explained the training program designed to develop basketball chest pass skills.



d. After completing the training program over ten sessions, the participants took a post-test using the basketball chest pass assessment instrument.

Upon completion of the research activities, the results from the pre-test and post-test were obtained.

1. Chest pass ability during the pre-test

The pre-test data description is based on measurements taken prior to the intervention. Descriptive analysis of the pre-test data regarding basketball chest pass learning outcomes for 7th-grade students at SMP Negeri 30 Medan yielded a maximum score of 8, a minimum score of 16, a mean of 11.81, and a standard deviation of 2.23. The resulting frequency distribution table is presented below, following the method outlined by Sudjana (2002: 47) for determining the number of class intervals.

This study aims to determine the effect of the Game-Based Learning model on chest pass learning outcomes. The results indicate that the Game-Based Learning model influenced the chest pass learning outcomes of 7th-grade students at SMP 30 Medan during the 2025/2026 academic year.

Before the instruction using the Game-Based Learning model was implemented, all students took a pretest to assess their initial proficiency in the basic basketball chest pass technique. Data analysis revealed a pretest mean score of 11.81 with a standard deviation of 2.23. These figures indicate that the students' initial ability to perform the chest pass was relatively low. This was evident from the fact that many students were unable to execute the chest pass with correct technique—regarding the starting position, the push from both hands, and target accuracy—during a 30-second wall-passing drill.

After assessing the students' initial abilities, the researcher implemented the Game-Based Learning model. This instructional model emphasizes learning activities through games designed to align with specific learning objectives. During the process, students did not merely receive explanations from the teacher but actively participated in various games related to the basic chest pass technique. Consequently, the learning atmosphere became more engaging and enjoyable, thereby boosting student motivation.

Throughout the learning process, students appeared more active in participating in the assigned activities. The games incorporated into the Game-Based Learning model encouraged students to collaborate, communicate, and strive for accurate chest pass execution to ensure the games proceeded smoothly. This environment allowed students to practice the chest pass movement repeatedly without boredom, leading to an improvement in their motor skills.

Upon completion of the entire instructional sequence, students took a posttest using the same instrument as the pretest. Data analysis showed that the posttest mean score rose to 15.44, with a standard deviation of 2.41. Compared to the pretest mean of 11.81, this represents an increase of 3.63 points, or approximately 30.74%. This improvement indicates that instruction using the Game-Based Learning model effectively enhances basketball chest pass learning outcomes among 7th-grade students at SMP Negeri 30 Medan.

Prior to hypothesis testing, prerequisite analyses—specifically normality and homogeneity tests—were conducted. Based on the normality test results using the Chi-Square method, the pretest and posttest data were found to be normally distributed, as the calculated χ^2 value was lower than the critical χ^2 value at a 5% significance level. Furthermore, the homogeneity test results indicated that the variances of the pretest and posttest data were homogeneous; the calculated F-value of 1.17 was lower than the critical F-value of 1.78. With these two conditions met, the data were suitable for hypothesis testing (t-test).

Hypothesis testing was performed using a paired-sample t-test. The calculations yielded a calculated t-value of 40.48, whereas the critical t-value at a 5% significance level with 34



degrees of freedom (df) was 2.032. Since the calculated t-value exceeded the critical t-value ($40.48 > 2.032$), the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) was accepted.

This improvement in learning outcomes occurred because the Game-Based Learning model provides a more meaningful learning experience. Instruction structured as a game creates an enjoyable atmosphere, thereby increasing student motivation to participate. Additionally, this model offers students opportunities for experiential learning ("learning by doing"), making it easier for them to grasp the basic chest pass technique and apply it during actual gameplay.

These findings align with learning theories stating that game-based instruction can boost student motivation, participation, and learning outcomes. In Physical Education (PJOK), using games as an instructional medium creates an enjoyable environment while allowing students to master movement skills through repetitive practice. Therefore, the Game-Based Learning model serves as an effective alternative for improving learning outcomes regarding basic basketball techniques, specifically the chest pass.

Based on the results of the analysis and discussion, it can be concluded that the implementation of the Game-Based Learning model has a positive and significant impact on the basketball chest pass learning outcomes of 7th-grade students at SMP Negeri 30 Medan during the 2025/2026 academic year. Consequently, this learning model is suitable for implementation by Physical Education teachers as an alternative approach to improving the quality of the learning process and student learning outcomes regarding basketball.

Acknowledgments

Based on the research findings and data analysis regarding the effect of the Game-Based Learning model on basketball chest pass learning outcomes among 7th-grade students at SMP Negeri 30 Medan during the 2025/2026 academic year, it can be concluded that the implementation of the Game-Based Learning model has a significant impact on these learning outcomes.

This is evidenced by the increase in students' average learning outcome scores: the mean pre-test score rose from 11.81 to a mean post-test score of 15.44 following the intervention using the Game-Based Learning model. Normality test results indicated a normal data distribution, while homogeneity test results showed that the data possessed homogeneous variances. Furthermore, the hypothesis test (t-test) results revealed that the calculated t-value exceeded the t-table value; consequently, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) was accepted.

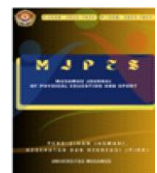
Thus, it is concluded that the implementation of the Game-Based Learning model significantly influences basketball chest pass learning outcomes for 7th-grade students at SMP Negeri 30 Medan in the 2025/2026 academic year. The Game-Based Learning model has proven effective in improving students' learning outcomes regarding the fundamental skill of the basketball chest pass.

Conflict of Interest

Thank you to the teachers, students, and principal SMP Negeri 30 Medan

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