

# The Impact Of Game-Based Learning Approach On Motivation In Physical Education

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## The Impact Of Game-Based Learning Approach On Motivation In Physical Education

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### Abstract

Low motivation and participation of students in learning Physical Education (PJOK) is one of the challenges in elementary schools. Monotonous learning approaches are less able to attract students' interest. Therefore, innovative strategies are needed such as game-based approaches that can create a more enjoyable and interactive learning atmosphere. This study aims to determine the effect of game-based learning approaches on students' learning motivation in PJOK subjects. This study aims to determine the effect of game-based learning approaches on students' learning motivation in Physical Education subjects. The background of the study is based on the low level of active participation of students in Physical Education lessons, which requires an innovative and interesting approach to increase their motivation. This study uses a quantitative method with a pre-experimental design of the One Group Pretest-Posttest Design type. The subjects of the study were 30 students of class V-A SDN Kandangan III/621 who were selected randomly in clusters. The data collection instrument was a learning motivation questionnaire given before and after treatment. The results of the descriptive statistical analysis showed an increase in the average score from 50.86 (pretest) to 60.93 (posttest). The normality test showed that the data was normally distributed, while the t-test showed a significant difference between the pretest and posttest results ( $p < 0.05$ ). This shows that the game-based learning approach is effective in increasing students' learning motivation. The conclusion of this study is that the application of game elements in learning can create a more enjoyable learning atmosphere, increase active participation, and support the development of students' cognitive, motoric, and social aspects holistically. This approach is recommended as an alternative strategy in learning Physical Education, especially at the elementary school level.

**Keywords:** Game-based learning, Learning motivation, physical education

### Introduction

In Indonesia, physical education has an important role in the national education curriculum (Faradila et al., 2024). Through physical education, students are given physical skills and taught various values such as cooperation, discipline, and leadership. However, students often have difficulty in being motivated to actively participate in physical education. Data from the Ministry of Education and Culture (2020) mentioned that only about 30% of students show high enthusiasm in physical education activities. This is a challenge for educators to find methods that can increase student motivation effectively. One approach that

is now increasingly being applied is game-based. This approach combines game elements in the learning process, aims to attract students' attention and encourage their participation (Rahayu Khoerunnisa et al., 2023). Research shows that the application of games in education has great potential to increase student motivation and engagement. (Sukenti & Syarif, 2021). Games not only make learning more interesting, but also create a competitive and collaborative atmosphere that can be beneficial in physical education. The many cases that occur, the obstacles experienced must be immediately sought for solutions so that they do not happen again.

A variety of planned physical activities, physical education serves to help students hone coordination, endurance, and body strength, while getting used to an active lifestyle that supports long-term health. In addition, physical education also plays an important role in shaping students' character by conveying the values of perseverance, responsibility, and skills in managing emotions and stress in various situations. This shows that physical education contributes to physical development, as well as building individuals who are more prepared to face challenges in everyday life. Traditional learning approaches in physical education, sports and health are often less attractive to students who are already accustomed to technology and digital environments. (Kassim et al., 2022). One-way methods involving repetitive physical activity usually fail to attract students' maximum interest. In today's digital age, students tend to be more responsive to interactive learning experiences involving technology. The mismatch between students' current learning styles and conventional methods can result in decreased motivation, minimal participation, and low positive impact of physical education on students' physical development and character (Gråstén & Watt, 2016). Therefore, it is important to develop more adaptive and technology-based learning approaches to improve the effectiveness of physical education in the digital era. Game-based learning has emerged as an innovation in education that can significantly increase student engagement and learning experience (Garza et al., 2023).

This approach combines game elements in the learning process, which creates a more interesting, challenging, and enjoyable atmosphere for students. Several studies have shown that game-based learning not only increases student motivation and participation, but also provides a better understanding of concepts through a comprehensive and exploratory learning experience. By implementing game strategies such as achievement levels, situation-based challenges, and quick feedback, it can encourage active student engagement as well as strengthen their understanding of the course material (Lyons, 2015). Therefore, game-based learning is considered an innovative solution that has the potential to increase learning

effectiveness, especially in subjects that require physical and mental participation, such as physical education.

The game approach offers a new way to increase student participation through more engaging and interactive activities. Unlike traditional methods that tend to be monotonous, this approach includes game elements such as competition, challenges, and direct feedback, so that it can make students more motivated to participate. By creating a more lively and interesting learning environment, game-based learning not only supports students in developing motor skills and physical fitness, but also builds teamwork and self-confidence in activities (Yogman et al., 2018). Therefore, using game-based learning in physical education is a relevant strategy to overcome the challenge of low motivation.

**Materials and Methods**

This research uses a quantitative approach, namely an approach that aims to solve the problems being researched based on numbers, starting from the data collection process, presentation, to data analysis. The method used in this study is pre-experimental design, with the type of One Group Pretest-Posttest Design. In this design, there is only one group, namely the experimental group, and students in the group cannot be moved or randomized. This design begins with the implementation of a pretest, then treatment is given, and after that it is continued with a posttest.

The population in this study includes all individuals who are the source of the required data, namely all fifth grade students of SDN Kandangan III/621, totaling 90 students and divided into 3 classes. However, only a few classes were taken as samples. The sampling technique was carried out by cluster random sampling, which is random sampling based on groups. The sample selected was class V-A of SDN Kandangan III/621 SMP consisting of 30 students.

Data collection in this study was conducted using a questionnaire. Data analysis techniques used descriptive statistics, which include the presentation of average values (mean), percentages, standard deviations, and inferential statistics with prerequisite tests in the form of normality and homogeneity tests.

**Research flowchart**

No	STEP	Activity Description	Information
1.	Research Design	Determining a quantitative approach with a pre-experimental design of the	No control group

		One Group Pretest-Posttest Design type	
2.	Population Determination	All 90 students of class V of SDN Kandangan III/621	Consists of 3 classes
3.	Sampling Techniques	Using cluster random sampling technique	One class was taken at random
4.	Sample Determination	Class V-A consists of 30 students	Experimental group
5.	Preparation of Instruments	Developing a learning motivation questionnaire as a data collection tool	Valid dan reliabel
6.	Pretest	Provide a learning motivation questionnaire before treatment	Measuring students' initial motivation
7.	Treatment	Providing a game-based learning approach during several meetings	Applied in PJOK subjects
8.	Posttest	Providing a learning motivation questionnaire after treatment	Measuring changes in motivation
9.	Data analysis	Using descriptive statistics (mean, percentage, SD) and inferential (t-test, normality, homogeneity)	Testing the significance of differences in scores

**Results**

This study aims to determine the effect of learning through games on learning motivation. This study was conducted in 2 meetings. The first meeting was a pretest with a learning motivation questionnaire consisting of 17 statements. After the pretest was given, students received treatment or were given game media. In the second week, students were given treatment or given game media first, then given a posttest in the form of a learning motivation questionnaire with 17 statements. The data in this study were in the form of questionnaire sheets filled out by students in class V-A as the class used in the study. The results of the descriptive statistical analysis of the pre-test and post-test of learning motivation can be seen in table 1:

Table 1. Descriptive Statistical Analysis of Pre-Test and Post-Test

Statistik	Pretest	Posttest
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Mean	50.86	60.93
Median	50.81	62.00
Std. Deviation	3.335	3.826
Range	11	13
Minimum	46	54
Maximum	57	67

Table 1 presents descriptive statistical data on the results of the pre-test and post-test of students before and after participating in the learning process. The results of the analysis show a significant increase in student learning achievement. The average pre-test score of 50.86 increased to 60.93 in the post-test, indicating an increase in students' understanding after learning. The median score also increased from 50.81 to 62.00, indicating that most students achieved better results. Although there was an increase in the standard deviation value from 3.335 to 3.826, the variation in the score was still within normal limits and showed a distribution of values that remained under control. An increase was also seen in the range of values, from 11 to 13, and in the minimum and maximum values, from 46 to 54 and from 57 to 67, respectively. This shows that both low and high scorers experienced positive development. Overall, these data reflect the effectiveness of the learning provided in improving students' overall abilities. The approach used has been proven to have a positive impact not only on students with high abilities, but also on those who previously had difficulty in learning.

**Table 2. Normality Test Table**

Variabel	P	Keterangan
Pretest	.946	Normal
Posttest	.940	Normal

Table 2 shows the results of the normality test on the pretest and posttest data conducted to determine whether the data distribution follows a normal distribution. The significance value (p-value) for the pretest data is 0.946 and for the posttest is 0.940. Both values are greater than the significance limit of 0.05 ( $p > 0.05$ ), which means that the pretest and posttest data do not show significant deviations from the normal distribution. Thus, it can be concluded that the data on both variables, namely pretest and posttest, are normally distributed. This shows that the assumption of normality is met, so that parametric statistical analysis techniques can be used in further data processing, such as t-tests or other analyses. Distribution These normal data also strengthen the validity of the measurement results, because they show that student scores are distributed fairly and are representative of the population.

Table 3. Results of Paired Samples Test pretest posttest

		Paired Samples Test					t	df	Sig. (2-tailed)
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
Pair 1	Pretest - Posttest	-10.069	1.944	.361	Lower	Upper	-27.886	28	.000
					-10.809	-9.329			

Table 3 shows the results of the Paired Samples Test analysis between students' pretest and posttest scores. Based on the test results, the average difference in scores between the pretest and posttest was -10.069, with a standard deviation of 1.944 and a standard error mean of 0.361. The 95% confidence interval for the difference in values ranges from -10.809 to -9.329, all of which are below zero. This indicates that statistically there is a significant decrease in the pretest score compared to the posttest, which means that the posttest score is consistently higher. The t-value is -27.886 with a degree of freedom (df) of 28 and a significance value (Sig. 2-tailed) of 0.000, which is far below the significance limit of 0.05. This shows that there is a very significant difference between the pretest and posttest results. In other words, the learning that has been carried out has a real positive effect on improving student abilities. These results support the success of the learning strategy used in improving student learning outcomes in a measurable manner.

### Discussion

This study shows that a game-based learning approach has a positive impact on improving student learning outcomes in physical education (Ulimaz et al., 2024). Based on data analysis, there was a clear improvement in student evaluation results after they participated in the learning process that implemented game elements. This approach is able to encourage active student involvement and create a fun learning atmosphere, thereby increasing their understanding and participation during the activity (Syahrani & Wiza, 2024). In addition to increasing average scores, developments were also seen in the achievements of students with diverse abilities (Prasetyo et al., 2023). Students who initially showed low learning outcomes experienced improvements, as did students who had shown good performance from the start. This shows that the game-based approach is inclusive and can reach all levels of student ability in a balanced manner (Harsiwi & Arini, 2020). This approach also allows students to learn naturally through direct experience and exploration, not just through verbal instructions from the teacher.

From the results of the prerequisite test, the data distribution was declared normal. This means that the distribution of student scores is within a reasonable range and reflects the general tendencies that occur in the classroom. This finding provides a strong basis for concluding that game-based learning is not only fun but also pedagogically effective (Syafriadi et al., 2021). Data normality also strengthens the validity of the results, which shows that this approach does not produce extreme results, but is consistent in increasing student learning outcomes evenly. Further analysis through comparative tests also showed a significant difference between the results before and after learning (Elti & Wahyuningsih, 2023). Consistent improvements in almost all students are an indicator that this approach has a real influence on the learning process (Hanaris, 2023). This shows that methods that involve elements of competition, challenges, and social interaction through games provide a more meaningful and memorable learning experience for students (Maritsa et al., 2021).

Overall, the application of a game-based learning approach in physical education has been proven to be able to overcome low student motivation, as well as improve overall learning outcomes (Andriani & Rasto, 2019). Through this strategy, teachers can create learning that is not only physical, but also trains students' social skills, cooperation, and self-confidence (Sugeng et al., 2023). Therefore, this approach is worthy of being an alternative in learning activities, especially to improve the quality of learning experiences in elementary school environments (Ummah et al., 2022).



The success of the game-based approach in this study is also inseparable from its ability to create a more dynamic and enjoyable learning atmosphere (Hayati, 2022). When students feel emotionally and physically involved in the learning process, they tend to be more motivated to follow instructions, complete challenges, and collaborate with classmates (Roudlo, 2020). Game elements such as challenges, rules, rewards, and opportunities to try again have provided a space for exploration that encourages student activeness. This makes learning not only an obligation, but a fun and meaningful experience.

In addition, this approach also plays a role in developing students' social aspects, such as the ability to work in a team, empathy, and communication (Roudlo, 2020). In the game, students are invited to interact, strategize, and support each other to achieve common goals. This indirectly hones social-emotional skills which are very important in character formation. Thus, game-based learning not only has an impact on cognitive and motor aspects but also contributes to the holistic development of students' personalities (Azhar & Wahyudi, 2024).

Although the results of this study show positive findings, there are several limitations that need to be considered. First, the research design used was a pre-experimental with One Group Pretest-Posttest Design, which did not involve a control group, thus limiting the ability to more objectively compare the effects of the treatment on other groups. Second, the research sample was limited to one class in one elementary school, so generalization of the results to a wider population still needs to be done carefully. Third, data collection only relied on a learning motivation questionnaire, which is subjective and can be influenced by the emotional condition of students when filling it out.

To overcome the existing limitations, it is recommended that further research use an experimental design that includes a control group, such as a quasi-experimental or true-experimental design, so that the comparison of results is stronger and more reliable. In addition, the scope of the sample needs to be expanded, both in terms of number and diversity, by involving more schools and different grade levels to expand the generalizability of the findings. Data collection instruments should also be supplemented with other methods such as field observation, interviews, or video analysis, so that the results obtained are more objective and comprehensive. Further research is also recommended to examine the effect of this approach on other aspects of PJOK learning, such as students' discipline, creativity, and critical thinking skills.

## Conclusions

Based on the results of the study, it can be concluded that the game-based learning approach has a significant positive impact on increasing student motivation and learning outcomes in physical education. Statistical data shows an increase in the average score from pretest to posttest, indicating that after participating in game-based learning, students showed better understanding and skills. In addition, the results of the normality test confirmed that the pretest and posttest data were normally distributed, allowing the use of parametric statistical tests for further analysis. The results of the paired samples t-test showed a statistically significant difference between the pre- and post-learning scores, strengthening the evidence that this approach is effective. These findings support the importance of innovation in physical education teaching methods, especially through a more interactive and fun approach. Game-based learning can increase student engagement, build self-confidence, and encourage their active participation in physical activities. Thus, this approach is highly recommended as an alternative learning strategy to overcome low student motivation, especially in the context of physical education in elementary schools. This study also serves as a basis for developing a more adaptive learning model that is in accordance with the characteristics of students in the current digital era.

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