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## The Effectiveness of Educational Game-Based Learning Media in Increasing Student Learning Motivation

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**Abstract.** Student motivation in Physical Education can be enhanced by using innovative educational game-based learning media through Educaplay. Thus, this study assesses how well educational game-based learning media boost students' media to learn. A quantitative pre-experimental study with a one-group pretest-posttest design was the methodology. The population was 320, and the sample size was 32 students, using random sampling. This study showed a significant difference between the pretest and posttest after hypothesis testing using a paired sample t-test. Since the significance value is  $0.000 < 0.05$ ,  $H_a$  is accepted and  $H_0$  is refused. With an N-gain score of 0.690 and an N-gain percentage of 69.00, Educaplay's effectiveness level in boosting motivation is classified as quite effective after the N-gain test. Therefore, Educaplay's educational game-based learning materials are quite successful in boosting students' motivation for Physical Education learning.

**Keywords:** Learning Media, Educational Games, Educaplay, Learning Motivation, Physical Education

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## 1 Introduction

Students that are addicted to internet gaming lose track of time, which might result in reduced motivation (Sari et al., 2024). Students who lack motivation frequently participate in Physical Education in a sluggish manner (Pranata et al., 2021). According to (Durisa et al., 2022), this laziness leads to an uncomfortable learning environment and inefficient learning.

Both student motivation and activity throughout the session are indicators of effective learning (Kasmaja, 2016). To achieve successful learning in Physical Education classes, teachers must figure out how to boost student motivation. Learning media are one technique to boost motivation (Husna & Supriyadi, 2023). One way to encourage students to actively engage in the learning process is through educational game-based learning media (Handayani & Nurhayati, 2025).

Students' interest in following the learning process from start to finish determines their drive to learn. In order to keep students' interest throughout the learning process, educational games must be used (Fameska et al., 2023). Because games are enjoyable, students are drawn to them (Rohayati et al., 2019) and utilize them as a way to pass the time when they're bored while studying (Yakin et al., 2018). By including instructional components, the learning process can capitalize on students' passion for gaming. A stimulating and enjoyable learning environment can be established using educational games, allowing students to play, study, and demonstrate comprehension of the subject matter (Mokoagow et al., 2021). Deeper involvement can also result from the use of enjoyable learning (Fitrianti & Hidayati, 2025). According to (Abdillah et al., 2024) and (Putri et al., 2024), the use of educational game-based learning media might boost students' willingness to study by increasing their motivation engagement in the process.

Previous study has made extensive use of educational game-based learning media. Learning outcomes and student attention can be positively impacted by educational game-based learning media, according to a study (Handayanto et al., 2024). Educational games can also assess student learning outcomes in the cognitive domain, according to study (Citra & Rosy, 2020). According to research by (Nurhikmah et al., 2024), educational games learning media can boost students' motivation to learn mathematics in addition to raising their interest and learning results. Prior studies have found no connection between educational game-based learning resources and students' motivation to learn in Physical Education. But educational game-based learning media are crucial for Physical Education (Al Hakim & Maratussolichah, 2024). For this, a closer look at educational media based on games that motivate students to learn during Physical Education instruction is necessary. It is anticipated that using educational media based on games will increase students' motivation to learn Physical Educational.

In this study, educational game-based learning media for Physical Education lessons on physical fitness were delivered via the Educaplay platform to boost learning motivation. By using multimedia space as a tool and infrastructure to support the learning process in the classroom, Educaplay's application in Physical Education learning for physical fitness material is highly pertinent. Matching Column Game, Froggy Jumps, Word Game, Memory Game, Quiz, and many other engaging features are available on Educaplay (Batitusta & Hardinata, 2024). Educaplay can facilitate collaborative learning for students by creating educational games that allow them to actively construct knowledge in addition to receiving it (Anwar & Jasiah, 2024). Prior studies that employed Educaplay as a teaching tool focused mostly on science, math, and language. For example, research conducted by (Masrurroh et al., 2025) examined the use of Educaplay for the learning outcomes of Indonesian students; research conducted by (Zega et al., 2025) examined the effects of Educaplay on learning outcomes and learning motivation in mathematics classes; and research conducted by (Marfhadella et al., 2025) examined the learning outcomes of kimia material. Therefore, Physical Education learning on physical fitness content using educational games media via Educaplay represents a novel advancement in the way the learning process is implemented. New developments in this research may result from the use of educational games via Educaplay, which is applied directly to Physical Education learning activities.

Because of this, research on educational media based on educational games via Educaplay with Physical Education students' motivation to learn must be conducted. One way to encourage pupils to learn Physical Education is by using Educaplay's instructional games. Based on the above research, a study on the effectiveness of educational media based on games in increasing students' motivation to learn will be conducted.

## 2 Method

The research was conducted with permission from the school and a research permit letter recommended by Surabaya State University, this research was conducted at State Junior High School 47 Surabaya. Pre-experimental and quantitative experimental research methods were used in this investigation. There was no control group because the design used a one-group pretest-posttest (Cahyaningtias & Ridwan, 2021). Because this approach employs a pre-experiment in which one group is tested repeatedly to assess the stability of the results and determine the effectiveness of the learning media by comparing the pretest and posttest scores, it does not utilize a control group. A total of 320 students from grades VII-A to VII-J were the population of this study, and 32 students from grade VII-E were used as the sample. The sampling strategy used was random sampling. First, all classes VII-A through VII-J were recorded on paper. Next, one class was randomly selected using a lottery technique, resulting in class VII-E being selected as the research sample.

Data analysis methods utilizing SPSS Statistics 25.0 include a Shapiro-Wilk normality test to ascertain whether or not the data is normally distributed. Once the data's normality has been established, a hypothesis test will be performed using the Mann-Whitney U test for non-normally distributed data and the paired sample t-test for normally distributed data. With the caveat that  $H_0$  is rejected if the significant value is  $<0.05$  and accepted if the significant value is  $>0.05$ , the hypothesis test is employed to decide whether  $H_0$  is accepted or rejected. The effectiveness of learning media in raising students' motivation to learn should then be assessed using an N-gain test.

A questionnaire was employed in this study's data gathering method for both the pretest and the post-test. A student learning motivation test that matched the sample indicators was given via the questionnaire. The student learning motivation tool was taken from (Pratiwi & Ridwan, 2021), which had completed reliability and validity testing. The results of the reliability and validity tests were 0.867 and 0.986, respectively, indicating that the questionnaire was appropriate for usage. Following the completion of the pretest questionnaire, pretest was given, and the post-test questionnaire was subsequently completed. Through a media feasibility test with knowledgeable validator lecturers, treatment was administered via the Educaplay educational game learning media.

The treatment phase consisted of four sessions, each lasting two hours. A smart television in the multimedia room, which served as a channel for educaplay learning materials, encouraged student activity. According to the computation data, the media expert's assessment result was 90%. According to that percentage, the findings of the media feasibility test were highly appropriate for use. The validation procedure was completed prior to the sample's data collection.

### 3 Result

A pre-test and post-test learning motivation questionnaire on the use of educational games learning media through Educaplay was used to collect the data for this study. 32 students in grades VII–E at SMPN 47 Surabaya participated in this pre-experimental, quantitative study using a one-group design. This information was required to assess how well the Educaplay educational game increased motivation. SPSS 25.0 was then used to analyze the collected data. In order to characterize student motivation in the pretest and post-tests about the usage of learning media, the first step involved a descriptive analysis. The following table displays the descriptive analysis's findings:

**Table 1.** Descriptive Analysis

| <b>Statistics</b> | <b>Pretest</b> | <b>Post-test</b> |
|-------------------|----------------|------------------|
| Mean              | 81,09          | 93,94            |
| Median            | 81,00          | 93,00            |
| Std. Deviation    | 2,977          | 5,599            |
| Range             | 12             | 22               |
| Minimum           | 77             | 82               |
| Maximum           | 89             | 104              |

The pretest and post-test mean motivation scores were 81.09 and 93.94, respectively, according to the descriptive analysis table. The pretest and post-test median scores were 81.00 and 93.00, respectively. The post-test standard deviation was higher than the pre-test value ( $5.599 > 2.977$ ), indicating that the motivation data after the intervention yielded more varied scores. The post-test's minimum score went from 77 to 82. The maximum score, which was 89 in the pretest and 104 in the post-test, showed the same pattern. Additionally, for  $22 > 12$ , the posttest's range was larger than the pretest's.

To ascertain if the study data was regularly distributed, a normality test is then carried out. If the sig. value is  $>0.05$ , the data are deemed normally distributed; if it is  $<0.05$ , the data are deemed non-normally distributed.

**Table 2.** Normality Test Results

| <b>Variable</b>      | <b>Shapiro-Wilk Sig.</b> | <b>Information</b> |
|----------------------|--------------------------|--------------------|
| Motivation Pretest   | 0,117                    | Normal             |
| Motivation Post-test | 0,417                    | Normal             |

The significant values for the pretest and posttest data were 0.117 and 0.417, respectively, according to the normalcy test results table. It can be inferred that the research data is regularly distributed because both values are  $>0.05$ . The next step is to perform a hypothesis test after the data shows normalcy. A research hypothesis's validity is confirmed by hypothesis testing. This study employed a paired sample t-test for hypothesis testing. The purpose of this exam was to ascertain how the pretest and posttest findings differed. The following table displays the findings from the pretest and posttest motivation hypothesis testing.

**Table 3.** Paired Sample T-Test Results

| <b>Variable</b>    | <b>t</b> | <b>df</b> | <b>Sig. (2-tailed)</b> |
|--------------------|----------|-----------|------------------------|
| Pretest – Posttest | -13,513  | 31        | 0,000                  |

A significant value (Sig. 2-tailed) of 0.000 is displayed in the paired sample t-test results table. The pretest and post-test motivation levels change significantly, as indicated by the significance value of less than 0.05, which rejects  $H_0$  and accepts  $H_a$ . Following a paired sample t-test, the N-gain test is used to assess the degree of motivation-boosting effectiveness.

**Table 4.** N-Gain Test Results

| <b>Variable</b> | <b>N</b> | <b>Minimum</b> | <b>Maximum</b> | <b>Mean</b> | <b>Category</b> |
|-----------------|----------|----------------|----------------|-------------|-----------------|
| N-Gain Score    | 32       | 0,18           | 1,24           | 0,690       | Currently       |
| N-Gain Persen   | 32       | 18,18          | 123,53         | 69,00       | Quite Effective |

The N-gain score and N-gain percent have means of 0.690 and 69.00, respectively, according to the N-gain test results table. These values are classified as moderate and reasonably effective. As a result, the effectiveness of educational games from Educaplay can increase motivation quite effectively.

## **4 Discussion**

The study's findings show that using learning game-based educational media via Educaplay to help Physical Education acquire physical fitness content has an effect on boosting motivation. The significant difference between motivation test results before and after the intervention can be considered evidence of this. This improvement indicates that the use of educational media to increase motivation is quite effective.

Student achievement in Physical Education learning is strongly correlated with learning motivation (Nugraha et al., 2025). Pupils that are very motivated to learn typically participate more actively in class activities. Students who are highly motivated may also be more enthusiastic and disciplined during the learning process. High learning motivation can also inspire curiosity, an exploratory attitude, and persistence in reaching learning objectives, according to earlier study (Hestiningtyas & Saifudin, 2022). A nice environment has a significant impact on students' motivation to engage in Physical Education learning (Ketaren et al., 2025). According to (Arianti et al., 2025), a nice learning environment can make students feel joyful and excited, which makes them feel at ease and enhances their ability to concentrate. These circumstances may motivate pupils to participate fully in their education. This is consistent with studies by (Mubarak et al., 2025), which demonstrates that a play approach can boost motivation, promote active engagement, and make learning fun.

Using instructional educational game-based learning media can foster a positive environment and increase students' enthusiasm for learning (Windawati & Koeswanti, 2021). Students' focus and active participation in learning activities during Physical Education classes demonstrate their excitement. Students that are enthusiastic can actively respond to inquiries, show a high level of curiosity, and engage in the learning process. This suggests that instructional game-based learning resources might draw students' focus to the subject matter.

Because students actively participate in the learning activities rather than only passively absorbing the content, educational game-based learning materials offer a unique learning experience. Students who grasp the content more readily and are more driven to finish it are examples of this. According to (Karimah et al., 2025), using educational game-based learning media can increase students' engagement in the educational process.

Educaplay educational games learning media can offer a more diversified learning environment than traditional teaching techniques, which can increase motivation in Physical Education learning on physical fitness content. According to (Gazali, 2016), traditional Physical Education teaching methods frequently place the teacher at the center of the learning process, making pupils bored and exhausted during class. Students are seen actively responding to questions, finishing tests, and accomplishing challenges when Educaplay is implemented using multimedia room amenities and infrastructure. Educaplay also gives students the chance to understand the subject matter. This result supports earlier research (Dharmawan & Ruja, 2025) that found that through Educaplay, kids learn to make decisions, think critically, and collaborate in a fun environment in addition to having fun. Students may get actively involved in educational activities as a result. Students' engagement in the classroom can foster a positive environment that encourages participation and enthusiasm for Physical Education learning. According to (Patty et al., 2026), improving the learning environment encourages students who were previously less engaged to begin participating more actively.

These results are consistent with studies by (Rizkiani & Nurhasanah, 2025), which demonstrates that Educaplay can foster a positive and engaging learning environment that can boost active student participation. Students are pushed to finish the instructional game Educaplay offers in this learning environment. Slide shows, word puzzles, matching games, matching pairs, memory games, yes/no, fill-the-blank, quizzes, and froggy jumps are just a few of the elements that Educaplay offers to provide learning content. An enjoyable learning experience can be produced by Educaplay's appealing appearance and engaging elements (Mahbubillah et al., 2025). Additionally, Educaplay's challenges and scores encourage students to compete for the greatest outcomes throughout the learning process. Students' motivation to study Physical Education may rise as a result of this circumstance, which may pique their interest in actively participating in the continuous learning process. The research conducted by (Ramadhani et al., 2025) further strengthens this research. According to the study, students become more engaged during the learning process when they are more motivated and enthusiastic, which helps them meet learning objectives.

Educaplay learning exercises can also stimulate students' curiosity and motivate them to take their studies more seriously, which will enhance their ability to concentrate and focus. This interest stems from the fact that Educaplay is a novel approach to Physical Education instruction. According to (Rahayu & Dewi, 2022), this innovation has the potential to stimulate students' motivation by igniting and fostering their interest during the learning process. Educaplay is used in conjunction with mild movement exercises during the learning process, in addition to being a novel invention in educational media. Students can mimic the movement exercises shown by using Educaplay's capabilities. With the help of this application, students actively participate in both movement exercises and critical thinking. Physical Education learning is essentially inextricably linked to movement or physical activity (Widiastuti, 2019).

Thus, the implementation of educational games through Educaplay in Physical Education lessons on physical fitness can directly foster students' active engagement in learning. This active engagement can significantly boost motivation in Physical Education. As a result, using Educaplay educational games in Physical Education instruction can be an innovative alternative

learning media that contributes to the development of a less boring and more diversified learning environment.

## 5 Conclusion

Based on research conducted at SMPN 47 Surabaya in grades VII-E, it was shown that using educational media based on games through Educaplay in a meaningful way can increase students' motivation to learn Physical Education. The usefulness of learning media in boosting student motivation during Physical Education classes is classified as moderately effective. These findings suggest that Educaplay's educational game-based learning materials can boost students' motivation. In order to obtain a comprehensive understanding of educational game-based learning media through Educaplay in Physical Education learning, it is advised that future research continue to combine the use of educational game-based learning media through Educaplay with the most recent innovations so that the level of effectiveness is in the very effective category. Additionally, the scope of variables should be expanded.

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