

# The Effectiveness of Game-Based Learning Tapak Langkah to Increase Learning Motivation of Elementary School Students

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## Abstract

*Purpose:* This quantitative study has the goal of measuring the effectiveness of Tapak Langkah game-based learning to increase learning motivation in elementary school students.

*Methodology:* This study uses the design of the Pree Post Test Control Group. The subject of this study involves 43 students (22 students of class IV A and 21 students of class IV B). Student learning motivation data was collected through questionnaires. The collected data was analyzed using parametric statistical types, namely the General Linear Model test and the N-gain test.

*Results:* The results of the study showed that the General Linear Model test had a significance value of  $0.000 < 0.05$ . In the N-gain test, a score of 83.9941% of the experimental class and 29.7667% of the control class was obtained, which means that the use of the Tapak Langkah game proved to be effective in increasing the learning motivation of elementary school students.

*Applications/Originality/Value:* The use of the Step Site game in increasing learning motivation has not been researched. Following up on the findings in this study, game-based learning can be explored so that students get the maximum learning experience.

## Introduction Section

High learning motivation is one of the keys that can affect the success of the learning process at the elementary school level. This is because high learning motivation can stimulate students to learn more consistently and diligently, so that the learning process in elementary school can be carried out properly (Salomo Leuwol et al., 2023). The existence of learning motivation in students can have a positive influence on students' learning styles (Rosa, 2022). If students have high motivation when learning, then all learning activities can be followed well, they will be more enthusiastic in searching, understanding information and completing assignments. Students who have high motivation to learn in every learning allow students to get maximum learning results in certain subjects (Ardi & Desstya, 2023). Motivated students will be easily given direction, assignment and tend to be active in learning (Bulkini & Nurachadijat, 2023). With high motivation to learn, students tend to be more focused, persistent, and active in participating in learning. On the other hand, low motivation to learn can make the learning process less effective, where students quickly feel bored or give up easily when facing difficulties.

In the context of motivation, motivation is divided into two types, namely intrinsic and extrinsic motivation. According to Zheng et al., (2024) (Zheng et al., 2024) stated that intrinsic motivation is motives that reflect students' interests or needs that come from within each individual to do something. Intrinsic motivation is needed in learning activities, especially when studying alone. Students who do not have intrinsic motivation will have difficulty when doing activities related to learning (Mashartanto et al., 2022). This is because the student does not have a strong internal motivation in himself to pursue knowledge and skills voluntarily. Meanwhile, extrinsic motivation is a motive that can arise when there is a stimulus from external factors. When stimulated from external factors, each individual can bring out motives from within. External factors such as rewards and punishments often affect extrinsic motivation. So a teacher must pay attention to these two aspects, because both have an important role in reducing low motivation to learn in students. By combining these two types of motivation, it can create a more conducive learning atmosphere and support student development.

Learning motivation in elementary school students is influenced by various complex factors, both from within themselves and outside their environment. Ryan & Deci (2020) (Ryan & Deci, 2020) stated that intrinsic motivation, such as confidence, curiosity, has an important role in supporting students to actively learn. Students will be more motivated to learn if the subject matter is suitable for their lives and beneficial for their future. In addition, parental involvement and support are very important to foster students' desire to learn, because parents are the closest and most influential figures in children's lives. When parents encourage their children, express high expectations, and provide a supportive learning environment at home, students will be more motivated in learning. The use of technology and interactive learning

approaches has been proven to increase student motivation and make learning activities more enjoyable (Lai & Bower, 2019). This the use of technology and interactive learning approaches provides a more engaging learning experience for students, increasing student engagement in the learning process actively, rather than just being passive listeners. When students are invited to think, collaborate, and play an active role in learning, they feel more engaged and motivated.

Creating a fun learning environment such as using an interactive approach, namely game-based learning or called Game-Based-Learning (GBL) not only makes it easier for students to understand the material, but also makes them more interested in learning. The process, score, and competition in the game can be attributed to external awards, thus increasing students' motivation to learn (Jaaska et al., 2022). The results of the research conducted by Jaramillo-Mediavilla stated that the use of games in the learning process can have a positive influence on student learning motivation, increasing student engagement and performance (Jaramillo-Mediavilla et al., 2024). Games in learning have become a popular approach in increasing students' motivation to learn, especially at the elementary school level. This provides students with the opportunity to learn in a more interactive and fun environment. Therefore, incorporating learning games into the curriculum is important in providing a useful and enjoyable learning experience for students.

Interactive approaches such as game-based learning Tapak Langkah Including games that can be proposed as an alternative in increasing student motivation and involvement in the learning process. Game Tapak Langkah is an educational game that involves physical media consisting of boxes or sequential steps, where each step contains a challenge, question or task related to the subject matter and must be completed by the player to be able to move forward. Each student stops on a box, they must complete the task before continuing the game. The presence of the element of stepping forward allows players to create a tense and fun dynamic, so that students feel more involved in the learning process. This combination of education and entertainment makes learning more engaging and enjoyable for students, especially at the elementary school level which often requires an interactive approach. Thus, game-based learning can make the classroom atmosphere more fun and less rigid, but the learning goals can still be achieved well, so that a spirit of learning emerges (Zega & Tangkin, 2023).

Game-based learning has gained wide attention in the world of education because of its ability to increase students' motivation to learn. Various previous studies that discuss game-based learning have shown positive results, namely game-based learning has proven to be an effective method in increasing student learning motivation. Based on the results of research conducted by Afidah & Subekti, (2024) (Afidah & Subekti, 2024) The research is supported and Aulia et al., (2022) (Aulia et al., 2022). From the study, it was concluded that incorporating games in learning was effective in increasing students' motivation to learn. Other studies by Li et al., (2024) (LI et al., 2024) explained that digital educational games have an effect on motivation and learning engagement. So to find out the most effective types of games and components in various learning contexts, further research needs to be conducted. The difference between this study and previous research is as far as the researcher's observation is that learning that combines types of games Tapak Langkah No one has ever researched.

Based on the above background, this study aims to measure the effectiveness of Tapak Langkah game-based learning in increasing the learning motivation of elementary school students. This research is important because game-based learning such as Tapak Langkah can provide a deeper understanding of how games can be an effective tool in creating an engaging and interactive learning environment. This study involved 43 students in grades IV A and IV B at SD Negeri 01 Munggur. This research is also expected to be able to provide practical recommendations for teachers in implementing more innovative and effective learning methods in the classroom, so as to increase student involvement in the teaching and learning process.

## Research Methods

This study uses a quantitative research method with the type of experimental research because the data obtained is related to numbers that can be counted. This research uses a design Pre Posttest-Control Group. The design in this study uses Quasi Experiment. Research pattern Quasi Experimental It was done by comparing the results of the experimental group with the control group (Sugiyono, 2019). Design selection Quasi Experiment i.e. to show the causal relationship that arises from the use of games Tapak Langkah in learning that links between the experimental group and the control group. The population in this study is all grade IV students of SD Negeri 01 Munggur. Meanwhile, the sample in this study amounted to 43 students consisting of 22 students in class IV A and 21 students in class IV B. Non-probability sampling is a technique applied in sampling. The research sample consisted of students of class IV A as the experimental group and students of class IV B as the control group. The motivational instrument used in this study adapts from the research (Krismony et al., 2020). The results of the instrument validity test calculated using the Gregory formula show a figure of 0.85 which is included in the very high criteria. Meanwhile, the reliability test using the Alpha-Cronbach method produced a value of 0.80 which is included in the high category. The instruments used include aspects of learning motivation, namely the desire and desire to succeed, the encouragement and need in learning, the existence of hopes and ideals in the future, the existence of interesting activities and the existence of a conducive learning environment. The instrument is assessed with a 4-point Likert Scale. The use of questionnaires is used to obtain data related to student learning motivation. The data analysis technique used to test the significance of the average score for the two groups is using Anova Univariate General

Linera Model Test (GLM) and to find out the level of effectiveness of using games in learning, data can be analyzed by searching N-Gain Score in the experimental and control groups.

## Research Results and Discussion

### Research Results

This research was carried out to determine the effectiveness of Tapak Langkah game-based learning in increasing the learning motivation of grade IV students at SD Negeri 01 Munggur. In the experimental group, students were given five procedures, the first of which was that the students were given one pretest to fill out a questionnaire to find out the level of motivation for students to learn before the treatment, three times the treatment by asking students to play Tapak Langkah games in learning, and the last to find out the level of motivation to learn after being given the treatment, the students were given one posttest by filling out a questionnaire. In the control group, the research was carried out by providing five procedures, first students were given one pretest by filling out a questionnaire to find out the level of motivation to learn, three times learning with conventional methods and one posttest. The data to be processed are student data before using the Tapak Langkah game in learning and student data after using the Tapak Langkah game in learning, namely 43 students consisting of 22 students in the experimental class and 21 students in the control class. Based on the Pre-Posttest Control Group research design, the description of the study can be seen in table 1 below.

**Table 1.** Description of Descriptive Statistics of Learning Motivation

Description	Experiment		Control	
	Pretest	Posttest	Pretest	Posttest
Average	58.32	76.59	58.52	65.10
Std.Deviation	2.175	1.333	2.620	2.548
Max	65	79	62	71
Min	54	74	52	62

Based on the results of the analysis in table 1, the results show that the average score before the game treatment is given Tapak Langkah in the experimental class, which is 58.32. Meanwhile, after the treatment was given, the average score in the experimental class increased to 76.59. This shows that the learning motivation in the experimental class has increased by 18.27. Meanwhile, in the control class, the increase in learning motivation was only 6.58. To confirm and support this data, it is necessary to conduct a normality test to determine the type of statistical test to be used.

**Table 2.** Normality Test Results

Shapiro Wilk		
Data	Sig.	Ket.
Pretest	0.110	Usual

In Table 2, the results show that the significance value for the pretest data in the control and experimental classes is 0.110 greater than 0.05. Based on these results, it can be concluded that the pretest data is normally distributed. Therefore, hypothesis tests can be carried out using parametric statistical tests.

**Table 3.** Pretest Homogeneity Test Results

Levene's Statistics		
Data	Sig.	Ket.
Pretest	0.528	Homogeneous

Based on the results of the analysis in table 3, the results of the homogeneity test obtained the significance value of the Levene's Test in the pretest results, which was 0.528 greater than 0.05. This shows that the data has the same variance (homogeneous) so future tests can use the General Linear Model test to test whether there is a significant influence between games Tapak Langkah with motivation to learn. The following are the results of the General Linear Model test related to Learning Motivation:

**Table 4.** General Linear Model Test Results

Dependent Variable: Learning Motivation			
Source	F	Sig.	Ket
Tapak Langkah Games	348.319	0.000	Influential

Based on table 4, the results of the General Linear Model test have a value of sig. obtained is 0.000 and the F value is 348.319. Since the significance value of 0.000 is less than 0.05, it can be concluded that there is a significant influence between the games Tapak Langkah with students' motivation to learn. Next to test the level of effectiveness of the game Tapak Langkah N-gain tests can be per-formed by looking for scores between the experimental and control classes.

**Table 5.** N-Gain Test Calculation Results

Class	N-Gain Result (%)	Ket.
Experiment	83.9941	Effective
Control	29.7667	Ineffective

Based on the analysis of table 5 above, the effectiveness test with the N-gain formula produced a value of 83.9941% for the experimental class and 29.7667% for the control class. The data showed that the N-gain value of the experimental class was greater than that of the control class according to the hypothesis and effectiveness tests.

**Table 6.** N-Gain Score Effective Interpretation

Percentage (%)	Interpretation
< 40	Ineffective
40 – 55	Less Effective
56-75	Quite Effective
>76	Effective

Based on the guidelines of table 6 above, game-based learning Tapak Langkah proven to be effective in increasing students' motivation to learn. This is shown by the N-gain value in the experimental class, which is 83.9941% greater than 76% in the control class. This increase signifies that game-based learning Tapak Langkah able to increase learning motivation. Thus, this method can be used as an effective alternative to increase student learning motivation at the elementary school level.

## Discussion

This study shows that game-based learning can effectively affect the learning motivation of elementary school students. Interesting learning can arouse students' curiosity which will further increase their motivation in participating in learning activities. An interesting learning process is one of the factors that increase student motivation in learning (Suharni, 2021). The learning games used in this study are games Tapak Langkah. This game is designed with the aim of making students more interested in the subject matter during the learning process. Increased motivation to learn can be achieved with games Tapak Langkah, the flow of stepping forward in the game is indirectly able to stimulate students' learning motivation. In addition, the elements of competition and achievements in the game Tapak Langkah encouraging students to be more active and enthusiastic in learning. Learning through games not only involves students to sit still in class, but it also encourages them to move, interact, and actively participate. With this method, students are not only interested in learning, but also motivated to understand and master the material in depth.

Various efforts can be made to increase the learning motivation of elementary school students, one of which is by integrating game elements Tapak Langkah in teaching and learning activities. The use of interesting learning media such as games is the cause of increased student motivation in learning (Hidayati et al., 2022). This is in line with research Firdausi et al., (2021)(Firdausi et al., 2021) which states that one of the effective and not boring teaching strategies is to integrate elements of play into the learning process which is often referred to as gamification. This approach aims to create a more dynamic and engaging learning atmosphere, where students not only focus on the subject matter conventionally, but can also interact in a fun way through games. This is in line with the constructivist learning theory that the learning process will become more meaningful and effective when students are actively involved in building knowledge with the surrounding environment (Winatha & Setiawan, 2020). So that the use of games Tapak Langkah In this study, it can be an effective tool to encourage student involvement in an active and meaningful learning process. This allows students to build knowledge independently through interaction with their peers.

This study shows some similarities and differences with previous research that discusses the effectiveness of game-based learning. One of the relevant studies is a study by Nahampun et al., (2024) (Nahampun et al., 2024) which found that the game-based learning method can significantly increase students' learning motivation, especially in the aspect of intrinsic motivation. In the study, the increase in student motivation was associated with high student enthusiasm and interactive elements in games that created a fun and challenging learning experience. This interactive element not only encourages students to actively participate, but also creates a positive learning environment that allows students to explore and learn from their mistakes.

Furthermore, research by Akbar et al., (2022) (Akbar et al., 2022); Rosidah et al., (2022) (Rosidah et al., 2022) It also supports these findings by showing that PowerPoint educational game-based learning can improve the classroom atmosphere that tends to be passive and monotonous to be more dynamic and full of interaction. In the context of this study, games Tapak Langkah serves as an effective tool to stimulate students' intrinsic motivation, as it involves teamwork, deci-

sion-making, and the completion of exciting challenges. Game-based learning in learning plays a role in connecting feelings of fun and reducing stress when doing problems or exercises during the learning process (Hu & Razlog, 2023). This approach provides students with opportunities to collaborate and learn from each other, which contributes to their increased motivation and engagement. This active involvement is especially important in today's educational context, where students often face a variety of distractions and challenges that can reduce their interest in learning.

However, there is a difference between this study and the research conducted by Nahampun, especially in terms of the type of game used. In the previous study, the researcher applied digital-based educational games, while this study used physical or concrete games that involved movement activities directly through Tapak Langkah. Although this approach is more traditional, the results still show effectiveness in triggering similar motivational responses in students. In addition, this research is different from the research Qodr, (2020) (Qodr, 2020) which found that extrinsic motivation dominated the use of learning games. In the study, factors such as wanting to achieve a high score influenced students' motivation more. This is certainly contrary to the results of this study, which shows that students' learning motivation is more dominated by intrinsic factors. However, in this study, learning games not only serve as a tool to achieve academic goals, but also as a medium that can encourage student exploration, creativity, and active engagement. Students will show greater curiosity and increased confidence while engaging in games which in turn contributes to the development of intrinsic motivation. The findings of this study offer several important explanations that support the application of game-based learning Tapak Langkah in increasing the learning motivation of elementary school students. First, the game Tapak Langkah emphasizes the interactive element, where students are faced with challenges that require them to work together and make decisions. This creates a learning environment that activates cognitive and affective engagement simultaneously, thereby stimulating students' intrinsic motivation. In the perspective of Self-Determination Theory, this theory highlights the importance of intrinsic motivation as well as three fundamental psychological needs: autonomy, competence, and connectedness (Chiu, 2022). If these needs are met, students will become more motivated to learn. The theory can be implemented with game mechanics such as Tapak Langkah that combines teamwork and decision-making.

In addition, another explanation can be attributed to how Tapak Langkah stimulating the social-cognitive aspects of student motivation. Students who engage in games that require direct social and physical interaction feel more responsible for their learning process, which contributes to increased intrinsic motivation. Compared to digital game-based learning as discussed in previous studies, physical games such as Tapak Langkah providing opportunities for students to get direct feedback from their peers and the surrounding environment. This serves as a positive reinforcement that increases student engagement. It also shows that learning games that utilize physical activity such as Tapak Langkah still has relevance in the context of learning, especially in primary schools where physical activity is essential to increase student motivation. This is in accordance with the study Khairunnisa & Ilmi, (2020) (Khairunnisa & Ilmi, 2020) which explains that the learning media that can be applied to learning games is more effective using concrete games paired with digital, because not all students have gadgets or technological facilities, especially at the elementary school level. Thus, game-based learning approaches such as Tapak Langkah can be an effective tool not only to increase learning motivation, but also to strengthen social interaction in the classroom. This research supports the idea that the combination of interactive and traditional learning methods can create an ideal balance in meeting students' motivational and developmental needs.

The findings of this study show that the use of game-based learning Tapak Langkah significantly increasing students' learning motivation in elementary school. According to Pratiwi et al., (2021) (Pratiwi et al., 2021) In his research, he stated that educational game-based learning can be applied in increasing student learning motivation in elementary school. These results are in line with previous research that suggests that interactive elements in games can create a more enjoyable and engaging learning experience, The study results Jaramillo-Mediavilla et al., (2024) (Jaramillo-Mediavilla et al., 2024) supports this research that gamification can encourage student engagement and motivation so as to encourage students to be actively involved in collaborating in the learning process. The recorded increase in intrinsic motivation also showed that students felt more empowered and engaged in their learning. By engaging students in activities that require cooperation, decision-making, and challenge solving, Tapak Langkah successfully creating a learning environment that supports student involvement in learning. Increased motivation to learn, students tend to be more actively involved in the learning process and more ready to receive new knowledge (Utami et al., 2024). This reflects that educational games are able to create active interaction and participation of students, thus allowing them to be directly involved in the learning process especially in an era where their attention is often divided by various distractions (Wahyuni et al., 2023).

On the other hand, the findings of this study also show that although game-based learning can increase learning motivation, there are differences in this study in intrinsic and extrinsic motivation. In contrast to previous research that found that extrinsic motivation predominates, this study shows that games Tapak Langkah more successful in stimulating students' intrinsic motivation. Results Zein & Rahayu, (2022) (Zein & Rahayu, 2022) supporting that more traditional approaches, such as games that involve physicality, remain relevant to increase learning motivation in today's educational context. As such, educators are advised to consider the use of a variety of learning methods, including games that involve physical activity, to meet students' motivational needs and create a more dynamic and enjoyable learning atmosphere. These findings emphasize the importance of further exploration of how different learning approaches can be applied in the future so that they can complement each other to improve the overall student learning experience (Zainuddin et al., 2020). Results Ucus, (2015) (Ucus, 2015) explained that with the game-based teaching method, students feel happy because

they can be active in games and games in learning are suitable for all elementary schools so that games are not only applied in physical education but can be applied to other materials.

Although this study shows positive results, there are some limitations that must be considered. First, the study was conducted in only one class in one school, so the results may not be generalized to the broader population. Second, the instruments used to measure learning motivation are only limited to questionnaires, so they cannot capture all aspects of motivation that may exist.

## Conclusion

In this study, the effectiveness of game-based learning Tapak Langkah The results of the study show that the game Tapak Langkah effective in increasing the learning motivation of elementary school students. This is shown in the results of the N-gain test of the experimental class is greater than the results of the control class. A series of student activities in game-based learning Tapak Langkah able to increase learning motivation optimally.

Through the findings obtained in this study, game-based learning in elementary schools is highly recommended. Exploration related to the type of game needs to be carried out by teachers so that students are always motivated in learning and get the maximum learning experience. In addition, further research that examines the comparative application of digital-based and non-digital-based learning game methods also needs to be carried out. The research can provide information related to its advantages and disadvantages.

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