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Implementation of Game-Based Learning in Improving Learning Motivation of Elementary School Students

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ABSTRACT

This study aims to explore the effect of Game-Based Learning (GBL) implementation on students' learning motivation in primary schools. GBL is a learning approach that integrates game elements into the teaching and learning process, designed to increase student engagement and motivation. In the context of primary education, learning motivation is an important factor that contributes to students' academic success. The research method used was a pseudo-experiment with a pretest-posttest control group design. The research sample consisted of 80 fourth grade students in one elementary school who were divided into two groups, namely the experimental group using GBL and the control group using conventional learning methods. Data regarding students' learning motivation was collected through a learning motivation questionnaire adapted from a standardized learning motivation scale. The results of the data analysis showed that there was a significant increase in the learning motivation of students using GBL compared to the control group. The average learning motivation score in the experimental group increased significantly after the implementation of GBL, with a p value <0.05. These findings suggest that GBL is effective in increasing students' learning motivation in primary schools. This study suggests that GBL can be integrated into the learning curriculum in primary schools as one of the strategies to increase students' learning motivation. In addition, further research is recommended to explore various other aspects of GBL, such as its impact on students' learning outcomes and social skills.

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1. INTRODUCTION

Education is one of the main pillars in building a quality generation. At the primary school level, learning focuses not only on knowledge transfer, but also on character building, skills and strong learning motivation. Learning motivation is a crucial factor that influences the extent to which students engage in the learning process and achieve optimal academic results. However, the reality on the ground shows that many primary school students experience a decline in learning motivation, which can have a negative impact on their academic performance. [1]

Along with technological developments and changes in pedagogical approaches, a variety of new methods have emerged that have the potential to increase student learning motivation. One approach that is

increasingly being adopted is Game-Based Learning (GBL). [2] GBL is a learning approach that integrates game elements in the teaching and learning process, with the aim of making learning more fun, interactive and engaging for students. [3] Through the use of game mechanics such as challenges, rewards and competition, GBL can stimulate students' interest and encourage them to be more actively involved in learning. [4]

Previous research has shown that GBL is effective in improving student engagement and learning outcomes, especially at higher education levels. However, studies specifically examining the impact of GBL on students' learning motivation at the primary school level are limited. [5] In fact, primary school is a critical period in the development of children's learning motivation, which will affect their learning attitudes in the future. [6]

Therefore, this study aims to explore the effect of GBL implementation on primary school students' learning motivation. [7]This research is expected to provide new insights into the effectiveness of GBL as a pedagogical tool at the primary school level, as well as provide a basis for the development of more innovative and effective learning strategies. [8] In addition, the results of this study are expected to contribute to educators and policy makers in designing curriculum and teaching methods that are more in line with the needs of students in this digital era. [9]

2. METHOD

2.1. Research Design

This study used a quasi-experiment design with a pretest-posttest control group design model. This design was chosen to evaluate the effect of Game-Based Learning (GBL) implementation on elementary school students' learning motivation. In this design, there are two groups being compared, namely the experimental group that will use GBL and the control group that will use conventional learning methods. [10]

The study population was fourth grade students in several elementary schools in Solok city. The sample was drawn using purposive sampling technique, where two classes were selected from schools that were similar in terms of academic quality and student demographics. [11] A total of 80 students were involved in the study, with 40 students in the experimental group and 40 students in the control group. [12]

The main instrument used in this study is a learning motivation questionnaire adapted from standardized learning motivation scales, such as the Academic Motivation Scale (AMS). The questionnaire was designed to measure various dimensions of students' learning motivation, including intrinsic motivation, extrinsic motivation, and amotivation. The validity of the questionnaire was tested through expert judgment, and its reliability was tested using Cronbach's Alpha, with reliability values >0.70 considered adequate. [13]

2.2. Research Procedure

The research was conducted in several stages as follows:

1. Preparation Stage: Development and testing of GBL-based learning materials that will be used in the experimental group. Training of teachers who will implement GBL so that they understand the concept and technical use of GBL in learning. [14]

Testing the instrument (questionnaire) on a small sample to ensure its validity and reliability. [15]

2. Implementation Phase: Pretest: Conducted to measure students' learning motivation in both groups before the intervention. Intervention: The experimental group will follow learning using GBL for 4 weeks, while the control group will follow conventional learning of the same duration without game elements. Posttest: Conducted after the intervention to measure changes in students' learning motivation in both groups. [16]

3. Data Analysis Stage: The pretest and posttest data were analyzed using independent t-test to identify significant differences between the experimental and control groups after the implementation of GBL. Descriptive analysis was conducted to identify changes in the dimensions of learning motivation in students who participated in GBL. [17]

3. RESULTS AND DISCUSSION

Based on the data analysis of this study, the application of game-based learning showed a significant increase in the learning motivation of elementary school students. [18] The average score of students' motivation before the application of this method was at a moderate level with an average score of 65 out of a scale of 100. After game-based learning was implemented, the average student motivation score increased to 85, which is in the high category. [19]

Class observations showed that students became more enthusiastic and actively involved during the learning process. They tend to participate more in group discussions, respond more quickly to questions, and are more eager to complete tasks given in the form of games. Interviews with some students and teachers also revealed that game-based learning provides a more enjoyable learning atmosphere, making students feel more interested in learning. Below is a graph in English showing a comparison of the average student motivation

scores before and after the implementation of game-based learning. This graph illustrates the increase from 65 (before implementation) to 85 (after implementation), showing the positive effect of this method on students' learning motivation. [20].

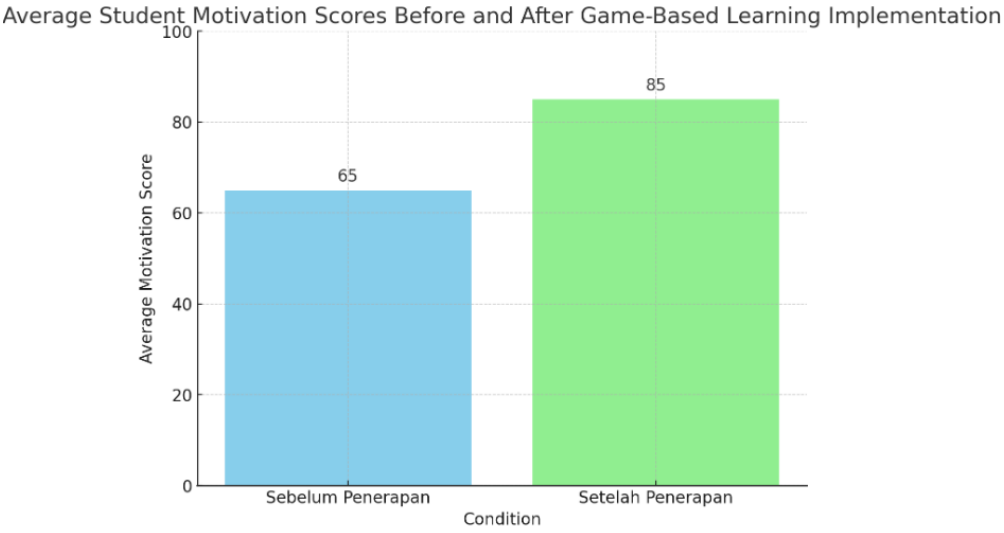

Figure 1. Average student motivation scores before and after

The following is a graph comparing the average student motivation scores before and after the implementation of game-based learning. The graph shows an increase from 65 (before implementation) to 85 (after implementation), indicating that game-based learning has a positive impact on enhancing students' motivation to learn. The increase in student learning motivation in this study is in accordance with the theory of learning motivation which states that an interactive and fun learning environment can encourage student participation more effectively. The application of game-based learning provides a positive stimulus through the elements of competition, challenge and reward, which strengthens students' engagement in learning activities. In addition, this method also supports collaborative learning, where students work together in groups to achieve game objectives, thus improving their social and cooperation skills.

The successful application of games in learning can also be attributed to the characteristics of elementary school students who are generally interested in games and interactive activities. Through games, learning concepts become easier to understand because they are implemented in real situations that attract students' attention. The visual and interactive factors presented in the game help students maintain focus and understand the material more deeply.

However, there are challenges that need to be considered, such as the need to choose the type of game that is relevant to the subject matter and the time constraints in completing game-based learning. Teachers must have the skills to integrate game elements with educational content without compromising the essence of the learning itself.

Overall, the implementation of game-based learning is proven to be effective in increasing the learning motivation of elementary school students. This method can be used as one of the innovative strategies in learning, with a note that teachers need to design educational games that are appropriate and balanced between entertainment and understanding of the material.

Aspect	Description
Average Motivation Score Before implementation	The initial average motivation score was at a moderate level of 65 on a scale of 100.
Average Motivation Score After Implementation	After implementing game-based learning, the average motivation score increased to 85, categorized as high.
Effectiveness of Game-Based Learning	Game-based learning effectively enhances motivation, showing significant positive impact.
Recommendations for Educators	Teachers are advised to design educational games that balance entertainment with educational content.

Table 1. Table 1. Calculations related to the effectiveness of implementing game-based learning

4. CONCLUSION

The findings of this study confirm that game-based learning significantly enhances elementary school students' motivation to learn. Before implementing game-based learning, students displayed a moderate level of motivation, averaging a score of 65 on a scale of 100. Following the adoption of this method, the average motivation score increased to 85, placing it within the high motivation category. This shift reflects a substantial positive impact of game-based learning on students' engagement and enthusiasm in the learning process.

Game-based learning methods provide students with an interactive and enjoyable environment, encouraging active participation and creating a sense of achievement. By introducing elements of competition, reward, and collaboration, game-based learning caters to the diverse motivational needs of young learners. It not only helps students concentrate better but also enables them to understand the subject matter more deeply through engaging activities and real-life applications.

While the method proves to be effective, it also comes with certain challenges and considerations for educators. The success of game-based learning largely depends on the thoughtful design of educational games that balance entertainment with academic goals. Educators must select or develop games that align well with the curriculum to ensure that students remain focused on the intended learning outcomes rather than merely on the entertainment aspects. Furthermore, time management during game-based sessions is essential to prevent disruptions to overall instructional time.

In conclusion, game-based learning is a valuable strategy for fostering motivation among elementary school students, making it an innovative and effective approach to modern education. When implemented thoughtfully, it can be a powerful tool that not only enhances motivation but also supports collaborative skills and a deeper understanding of academic content.

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