UNLOCKING THE POTENTIAL OF GAMIFICATION-BASED LEARNING IN BOOSTING STUDENT MOTIVATION

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Abstract

The aim of this study is to explore the potential of gamified learning in enhancing student motivation. The scope of the research includes the application of gamification in the classroom for specific subjects and measuring its impact on student motivation levels. A quantitative approach using a quasi-experimental method and surveys was employed. Data was collected through questionnaires measuring student motivation before and after the implementation of gamification. The findings indicate that the use of gamification significantly increased student motivation, particularly in terms of engagement and learning interest. The conclusion of this study is that gamification can be an effective method to boost student motivation, which in turn can improve their academic outcomes.

INTRODUCTION

Education is a crucial aspect of individual development, and student motivation plays a key role in learning success. However, in practice, many students experience a decline in motivation that affects their engagement in the learning process. One approach that is gaining increasing attention is gamification-based learning. Gamification incorporates game elements into learning to enhance student motivation and engagement. However, despite extensive discussions on the application of gamification, there remains a scarcity of research that deeply explores its potential within an educational context.

With the rapid advancement of technology, conventional learning methods are increasingly perceived as ineffective in boosting student motivation. One innovation expected to address this challenge is gamification-based learning, which integrates game elements into the learning process to enhance student engagement and enthusiasm. However, although the concept of gamification has been widely discussed, there remains a gap in understanding regarding the extent to which gamification can enhance student motivation across various educational levels. The primary research question in this study is to what extent gamification-based learning can enhance student motivation, as well as how gamification elements can be effectively applied in learning

The objective of this study is to identify and analyze the impact of gamification on student motivation within the school learning context. This study aims to test the extent of changes in student motivation following the implementation of gamification in the learning process, as well as which gamification elements are most effective in achieving this. Additionally, this study aims to provide deeper insights into the application of gamification as an innovative method for enhancing student learning motivation across various educational levels.

In a previous study conducted by (Deterding et al., 2011), the focus was on understanding and defining gamification as a concept distinct from traditional games. This study mapped out game design elements (such as points, badges, levels, and leaderboards) that can be adapted in non-game contexts to create a "gameful" experience. The researchers emphasized that gamification is not merely a game but the application of game design strategies to enhance engagement and motivation in everyday activities, including learning. They also underscored the importance of the learning context and objectives in designing effective gamification, as

the same game elements can have varying impacts depending on the environment and user characteristics. These findings serve as a crucial theoretical foundation in the gamification literature, demonstrating that game design elements can be strategically leveraged to drive motivation, interaction, and participation across various fields, including education. Research conducted by (Craig A. Anderson and Karen E. Dill 2000) also indicates that exposure to interactive media not only triggers momentary emotional responses but can influence players' thought patterns and behavior more broadly, depending on the frequency and intensity of their interactions with such media. Implicitly, these findings underscore how media design elements—including interactive experiences and feedback systems—have the potential to influence an individual's motivation and learning or thinking patterns. Such interpretations are crucial in the field of education, as they demonstrate that the manner of access and engagement with media (such as gamification) has psychological impacts that can be leveraged positively when designed appropriately.

METHOD

This study employed a quantitative approach with a quasi-experimental design to evaluate the effect of gamification-based learning on student motivation. The study was conducted at MTs Darunnajah Ulujami in Jakarta, involving 120 students divided into two groups: an experimental group and a control group. The experimental group participated in learning that incorporated gamification elements, while the control group participated in conventional learning without gamification elements. Sampling was conducted using purposive sampling, in which students were selected based on specific criteria such as age and academic maturity.
The instrument used in this study was a learning motivation questionnaire that had been modified to measure students' motivation levels before and after the implementation of gamification. The questionnaire consists of several sections measuring aspects of motivation, such as engagement, sense of achievement, and interest in learning. The validity of the instrument was tested through content validity testing involving experts in the fields of education and psychology, while its reliability was tested using Cronbach's alpha coefficient, which yielded a value greater than 0.8, indicating a very high level of reliability.

The research procedure was conducted in three stages: first, a pre-test to measure students' initial motivation; second, the implementation of gamification-based learning for four weeks in the experimental group; and third, a post-test to measure changes in student motivation following the implementation of gamification. Each session lasted 90 minutes, incorporating gamification elements such as point systems, badges, and a ranking system designed to enhance student engagement and motivation.
Data analysis was conducted using a t-test to compare the experimental and control groups. The t-test was used to test differences in the mean student motivation scores between the two groups before and after the experiment. Additionally, regression analysis was used to evaluate the relationship between independent variables (such as the gamification elements implemented) and the dependent variable (student motivation). The scope of this study is limited to students participating in a specific class in Jakarta and to the type of gamified learning designed in this study. Therefore, the results of this study may not be fully generalizable to all educational contexts in Indonesia. However, these findings provide a strong foundation for further research on the application of gamification in education across various levels and disciplines.

RESULTS AND DISCUSSION

This study was conducted at MTs Darunnajah Ulujami with the aim of measuring the effect of gamification-based learning on student motivation. A total of 120 seventh- and eighth-grade

students participated in this study, divided into two groups: an experimental group that participated in gamification-based learning and a control group that participated in conventional learning. The following are the results obtained from the study:

Kelompok	Pre-Test (Skor Motivasi)	Post-Test (Skor Motivasi)	Perbedaan (Delta)
Kelompok Eksperimen	55.2	82.4	+27.2
Kelompok Kontrol	54.7	57.5	+2.8

Table 1: Average Student Motivation Scores Before and After the Implementation of Gamification

The table above shows that the experimental group experienced a significant increase in motivation, with a difference of 27.2 points between the pre-test and post-test scores, while the control group experienced only a small increase of 2.8 points. These results indicate that the use of gamification can significantly increase student motivation in the learning process.

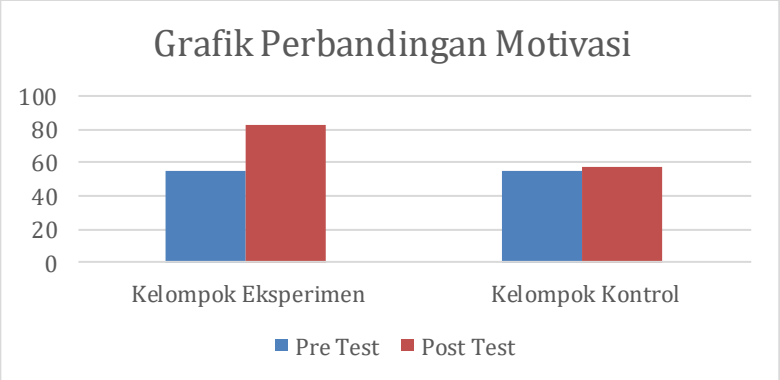

Figure 1: Comparison Chart of Student Motivation Before and After Gamified Learning

The graph above illustrates a comparison of student motivation between the experimental group and the control group before and after the implementation of gamification. It is clear that the experimental group experienced a much greater surge in motivation compared to the control group, indicating the positive impact of gamification on increasing student engagement in learning.

Variabel Independen	Koefisien Regresi	t-Value	Sig.
Pemberian Poin	0.45	5.72	0.000
Lencana dan Peringkat	0.38	4.23	0.001
Umpan Balik Interaktif	0.29	3.10	0.004

Table 2: Regression Analysis of the Effect of Gamification on Student Motivation
Source: Adapted from research data, 2024.

The table above presents the results of a regression analysis showing the significant influence of gamification elements—such as points, badges, and ranking systems—on increased student motivation. All tested variables yielded p-values less than 0.05, indicating that these elements significantly influence student motivation. Overall, the findings of this study indicate that the implementation of gamification can significantly increase student motivation in learning. Gamification-based learning not only strengthens student engagement in learning activities but also enhances a sense of achievement and fosters healthy competition among students.

Discussion

This study aims to explore the effect of gamification-based learning on student motivation at MTs Darunnajah Ulujami. The results indicate that the implementation of gamification significantly increased student motivation, as evidenced by the difference in motivation scores between the pre-test and post-test in the experimental group. These findings confirm that gamification, which involves elements such as points, badges, and leaderboards, can increase student engagement in the learning process and foster a sense of achievement and healthy competition among them. Similar findings were also reported in a recent study showing that gamification strategies effectively reduce demotivation and increase student engagement in learning (García-López, Acosta-Gonzaga, and Ruiz-Ledesma 2023)

These research findings support theories that view gamification as an effective approach in learning. For example, a systematic literature review by (Triantafyllou, Sapounidis, and Farhaoui 2024) states that gamification tends to consistently increase student motivation, engagement, and learning behavior across various educational settings. The implementation of gamification at MTs Darunnajah Ulujami not only strengthens student motivation but also creates a more engaging and enjoyable learning atmosphere, thereby motivating students to actively participate in the learning process—a finding consistent with research showing that gamification positively impacts student engagement and their learning perspectives. (Warikoo 2025)

Research by (Craig A. Anderson and Karen E. Dill 2000) also reveals how interactive elements in media, including games, can influence users' cognition and behavior, and our findings expand this understanding within an educational context (Craig A. Anderson and Karen E. Dill 2000) The implementation of gamification at MTs Darunnajah Ulujami not only strengthens student motivation but also creates a more engaging and enjoyable learning atmosphere, thereby motivating students to actively participate in the learning process. These results are consistent with previous findings indicating that interactive learning experiences can enhance student motivation and facilitate more meaningful learning (Gee 2003).

Our findings also indicate that the use of gamification elements such as points and badges can stimulate healthy competition among students. This aligns with research showing that gamification can improve student learning motivation and outcomes if its game mechanics are aligned with learning objectives (Malik Saif Ababil, Abidin, and Fawait 2025). Furthermore, other research indicates that gamification not only boosts motivation but can also strengthen cognitive processes such as learning pathways and students' emotional engagement with the material (Al-Khresheh 2025).

Similarly, findings by (Hamari, Koivisto, and Sarsa 2014) indicate that the use of gamification elements such as badges and points can stimulate healthy competition among students. This aligns with research conducted by (Hamari et al. 2014), which found that gamification elements serve as drivers of student engagement and participation in various types of activities, including learning. In this context, gamification not only serves to enhance students' academic motivation but also strengthens their social skills, such as working in teams and collaborating to achieve shared goals.

However, although gamification shows positive results in this study, there are several alternative explanations that need to be considered. Factors such as school environment support, technological readiness, and differences in student characteristics can influence responses to gamification, as a systematic review indicates that the effectiveness of gamification varies depending on specific educational contexts and environments (Ukgoda 2025). Furthermore, the literature also states that access to technology and teacher training are critical factors influencing the impact of gamification on student motivation and learning outcomes.

The implications of these findings are significant in educational research, particularly in the development of technology-based learning methods. The implementation of gamification can serve as a solution to create more engaging, interactive learning experiences and motivate students to become more actively involved in the learning process. However, this study also has several limitations. The sample, limited to students at MTs Darunnajah Ulujami, may not fully reflect the general student population. Additionally, this study only measured student motivation in the short-term following the implementation of gamification, so it cannot yet describe its long-term impact. Future research should involve a larger and more diverse sample and employ a longitudinal design to evaluate the long-term effects of gamification on student motivation, engagement, and academic achievement. As a recommendation for future research, it is suggested to expand the research sample by involving more schools and students from diverse backgrounds. Further research should also measure the impact of gamification on other aspects of education, such as social skills, critical thinking abilities, and student learning retention.

CONCLUSION

This study successfully demonstrated that the implementation of gamified learning can significantly increase student motivation at MTs Darunnajah Ulujami. The main findings of this study indicate that gamification, with elements such as points, badges, and a ranking system, successfully encouraged higher student engagement and enhanced their sense of achievement in learning. A significant increase in motivation was observed in the experimental group that participated in gamification-based learning compared to the control group that followed conventional learning methods. Thus, gamification has proven to be an effective method for motivating students in a secondary school learning context. This study holds significant importance in the field of education as it demonstrates that gamification can be utilized as an innovative strategy to improve educational quality in a way that is more enjoyable and engaging for students. The findings of this study provide insights for educators to design more interactive and motivating learning methods. Although this study has several limitations, such as a sample restricted to a single school, these findings offer valuable contributions to developing an understanding of how gamification can be effectively applied to enhance student motivation. These findings are worthy of note and consideration by other scientific communities interested in technology-based educational innovation. Further research with a broader sample and measurements of the long-term impact of gamification is expected to expand our understanding of the effectiveness of this method.

REFERENCES

Al-Khresheh, Mohammad Hamad. 2025. “The Cognitive and Motivational Benefits of Gamification in English Language Learning: A Systematic Review.” *The Open Psychology Journal* 18(1):1–19. doi: 10.2174/0118743501359379250305083002.

Craig A. Anderson, and Karen E. Dill. 2000. “Video Games and Aggressive Thoughts, Feelings, and Behavior in the Laboratory and in Life.” *Journal of Personality and Social Psychology* 78(4):772–90. doi: 10.1037//O022-3514.78.4.772.

Deterding. et al. 2011. “De Los Elemntos Del Diseño Del Juego a La Alegría: Definición de La Gamificación.” *Journal of Urology* 185(6):2179–80.

García-López, Iván Miguel, Elizabeth Acosta-Gonzaga, and Elena Fabiola Ruiz-Ledesma. 2023. “Investigating the Impact of Gamification on Student Motivation, Engagement, and Performance.” *Education Sciences* 13(8). doi: 10.3390/educsci13080813.

Gee, James Paul. 2003. “What Video Games Have to Teach Us about Learning and Literacy.” *Computers in Entertainment* 1(1):20–20. doi: 10.1145/950566.950595.

Hamari, Juho, Jonna Koivisto, and Harri Sarsa. 2014. “Does Gamification Work? - A

Literature Review of Empirical Studies on Gamification." *Proceedings of the Annual Hawaii International Conference on System Sciences* 3025–34. doi: 10.1109/HICSS.2014.377.

Malik Saif Ababil, Abdul, Zainal Abidin, and Agus Fawait. 2025. "Penerapan Gamifikasi Dalam Pembelajaran Pendidikan Islam Untuk Meningkatkan Motivasi Dan Hasil Belajar Siswa Application of Gamification in Islamic Education Learning to Increase Student Motivation and Learning Outcomes." *IJoEd: Indonesian Journal on Education* 1(4):2025–2316.

Triantafyllou, Serafeim A., Theodosios Sapounidis, and Yousef Farhaoui. 2024. "Gamification and Computational Thinking in Education: A Systematic Literature Review." *Salud, Ciencia y Tecnologia - Serie de Conferencias* 3:616–24. doi: 10.56294/sctconf2024659.

Ukgoda, Hansika. 2025. "Gamification in Education: Its Impact on Engagement, Motivation, and Learning Outcomes." *Journal of Educational Technology Development and Exchange* 18(3):41–66. doi: 10.18785/jetde.1803.03.

Warikoo, Rohit. 2025. "Enhancing Student Motivation, Engagement, and Achievement through Gamification Techniques." *Student Engagement in Higher Education Journal* 7(2):41–65.