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The Role of Gamification in Increasing Student Learning Motivation in Online Learning

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ABSTRACT

Background. Online education has become an increasingly common learning method, but it often faces challenges in maintaining student motivation. Gamification, i.e. the application of game elements in non-gaming contexts, emerged as a potential strategy to increase engagement and motivation in online learning.

Purpose. This study aims to explore the role of gamification in increasing students' learning motivation in online learning and to identify the most effective gamification elements in this context.

Method. The method used is a quantitative approach with a survey design. Data was collected through a questionnaire filled out by 200 students from several high schools who participated in online learning with gamification elements. Statistical analysis was conducted to evaluate the relationship between gamification and learning motivation.

Results. The results of the study showed that 70% of students had a high or very high level of motivation after applying gamification. Elements such as instant feedback obtained the highest scores in influencing motivation. Case studies show that 85% of students feel an increase in learning motivation in classrooms that implement gamification challenges.

Conclusion. This study concludes that gamification can significantly increase students' learning motivation in online learning. The right implementation of gamification elements can create a more engaging and interactive learning experience, which is crucial in today's digital education.

KEYWORDS

Gamification, Learning Motivation, Online Learning

INTRODUCTION

The use of technology in education has grown rapidly, especially with the increase in online learning (Selwyn et al., 2023). Many studies show that traditional learning methods are sometimes less effective in retaining students' attention (Tien et al., 2023). In this context, gamification emerges as an innovative solution that can increase student engagement in the learning process (Van Mechelen et al., 2023).

Gamification refers to the application of game elements in a non-gaming context to motivate and improve the user experience (Abu-Hammad & Hamtini, 2023). Research shows that elements such as points, badges, and leaderboards can create a competitive atmosphere that

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encourages students to participate more actively. The application of gamification in online learning is expected to create a more interesting and fun environment for students (Pal & Chakrabarti, 2023).

Student engagement is a key factor in learning success (Álvarez-Pérez et al., 2024). In an online environment, students often have difficulty staying focused and engaged, especially when dealing with complex material (Rohini & Kauts, 2024). Gamification can provide a more interactive learning experience, so students feel more connected to the material being studied (Vanacore et al., 2023).

Previous research has shown that gamification can increase students' intrinsic motivation. When students feel motivated to learn, they tend to be more earnest in completing tasks and achieving learning goals. This strategy has the potential to change the way students view learning into something more positive and engaging.

The positive impact of gamification is not only limited to increasing motivation, but can also improve learning outcomes (Drissi et al., 2024). Students who engage in enjoyable learning experiences tend to have better information retention. Thus, gamification can contribute to better academic achievement (Idoko, 2023).

Various online learning platforms are now starting to integrate gamification elements to improve the student learning experience. For example, the use of apps that allow students to earn points or badges while completing learning modules. This creates a sense of achievement that can encourage students to continue learning.

Although gamification has a lot of potential, challenges in its implementation remain. Some students may not respond well to elements of the game, depending on their individual preferences and learning styles (Norazilawati, 2024). Therefore, it is important to understand the needs of students before implementing gamification strategies.

Awareness of the importance of gamification in education is increasing (Portela, 2023). Many educators and educational institutions are beginning to explore ways to integrate game elements in online learning. As such, further research is needed to evaluate the effectiveness of gamification and understand how best to implement it in different learning contexts.

Although many studies have shown the potential for gamification in learning, there is still a lack of understanding how these elements can be effectively adapted in the context of online learning (Walailak University et al., 2024). Often, existing research focuses on quantitative outcomes without considering the subjective experience of students. These limitations create gaps in the literature on how gamification can be implemented by considering various factors that affect student motivation (Candra & Handoko, 2024).

Most previous studies have highlighted the impact of gamification in traditional learning environments (Atanasova & Molnar, 2024). Information on how gamification can be successfully implemented in online platforms is still minimal. This is a challenge for educators who want to leverage gamification to increase student motivation in different contexts (Zubkov, 2023).

The differences in the way students interact with online learning materials compared to face-to-face methods have also not been fully explored (Ehrler & Blondon, 2024). An inadequate understanding of these differences can lead to ineffective gamification strategies. The need to investigate the ways in which gamification can be adapted to the characteristics of online learning is becoming increasingly urgent (Hao et al., 2024).

In addition, there is no clear consensus on which gamification elements are most effective for increasing student learning motivation (Jaskari & Syrjälä, 2023). Various elements, such as points, badges, and challenges, may have different impacts depending on the context and preferences of the

student (Zamahsari et al., 2023). Further research is needed to identify the elements that best suit the needs of students in online learning.

Limitations in the study also include a lack of longitudinal studies evaluating the long-term effects of gamification. Many studies only look at the immediate effects of applying gamification, without considering how student motivation may change over time. Filling this gap will provide a more comprehensive insight into the effectiveness of gamification in increasing student learning motivation in the digital era.

Filling the knowledge gap regarding gamification in online learning is very important to create a more effective learning experience (Temel & Cesur, 2024). By understanding how gamification elements can be integrated into online platforms, educators can design strategies that are more engaging and relevant to students (Wu et al., 2023). This study aims to explore ways in which gamification can be applied optimally to increase learning motivation.

The application of gamification focuses not only on adding game elements, but also on a deep understanding of student characteristics and learning contexts (Bastanfard et al., 2023). Through this research, it is hoped that specific elements that contribute to increasing student motivation can be found. Thus, the results of the study will provide clearer guidance for educators in implementing gamification effectively (Wildan et al., 2023).

Knowing whether gamification can actually increase students' motivation to learn in an online context is also important to evaluate the effectiveness of this method (Sotos-Martinez et al., 2024). This study wants to test the hypothesis that the application of the right gamification elements will have a positive impact on student motivation and engagement. By filling this gap, research is expected to make a significant contribution to the development of better online learning practices.

RESEARCH METHODS

The design of this study uses a quantitative approach with a survey method to collect data from students involved in online learning (Balasaheb Aher et al., 2023). This study aims to evaluate the influence of gamification elements on students' learning motivation. Using a cross-sectional design, data was collected at a single point in time to get a clear picture of the students' experience in the context of online learning that applied gamification (Henderson et al., 2024).

The population of this study consists of students in several high schools who participate in online learning programs. The sample to be taken includes about 200 randomly selected students from various classes. The sample selection criteria included students who had participated in online learning that applied gamification elements for at least one semester, so that they had enough experience to provide relevant information.

The instrument used in this study is a questionnaire designed to measure the level of students' motivation to learn as well as their perception of the applied gamification elements (Love et al., 2024). The questionnaire consists of several sections (Zhang et al., 2024), including a Likert scale to assess intrinsic and extrinsic motivations, as well as open-ended questions to get more in-depth feedback (Wang et al., 2023). The validity and reliability of the instrument will be tested before data collection is carried out.

The research procedure began with the distribution of questionnaires online to selected students after obtaining permission from the school. Students will be given an explanation of the research objectives and how their data will be used. Data collection will be carried out over a period of two weeks to ensure optimal participation. Once the data is collected, statistical analysis will be conducted to evaluate the relationship between gamification and student learning motivation, as well as to identify the most influential gamification elements.

RESULTS AND DISCUSSION

The data obtained from this study includes responses from 200 students who participated in online learning with gamification elements. The following table shows the distribution of students' motivation levels based on respondents who filled out the questionnaire.

Motivation Level	Number of Students	Percentage (%)
Very High	60	30
Tall	80	40
Keep	40	20
Low	20	10

Data shows that 70% of students have high or very high levels of motivation. These results show the positive impact of the application of gamification in online learning. The study successfully identified that most students feel motivated to learn when gamification elements are applied, indicating that this approach can improve the overall learning experience.

The high percentage of students with high and very high levels of motivation indicates that the gamification element works well in attracting students' attention. Elements such as points, badges, and challenges may have created a competitive and fun environment. This increased student motivation has the potential to improve their involvement in online learning. Higher engagement allows students to not only be more active in following lessons, but also more courageous to ask questions and seek help when needed.

Further analysis was carried out to see the relationship between specific gamification elements and students' motivation levels. The questionnaire includes several gamification elements such as awarding points, badges, and instant feedback. The average student motivation score related to each gamification element is seen in the following table.

Gamification Elements	Average Motivation Score
Points	4.5
Badge	4.2
Instant Feedback	4.8

The average score shows that instant feedback earns the highest score, followed by points and badges. This shows that students respond better to elements that provide direct feedback. These findings provide important insights into students' preferences for the type of feedback they receive, as well as how this affects their motivation to learn.

These results show that gamification elements that provide instant feedback can significantly increase students' learning motivation (Vashisht, 2023). Points and badges also contribute, but not as strongly as instant feedback (Ramasamy et al., 2023). Rapid feedback allows students to know their progress first-hand, thus creating a greater sense of accomplishment. As such, it is important for educators to consider ways to provide quick and constructive feedback in online learning to maintain student motivation (Ogino & Matsuguma, 2024).

The relationship between gamification elements and motivation levels shows that the right application of gamification can increase student engagement in online learning (Zourmpakis et al., 2023). Students who are more motivated tend to participate more actively in learning activities. This shows that gamification is not just a tool, but can be an effective strategy in improving learning

outcomes (Mohanty & Christopher, 2023). By identifying the most influential elements, educators can design a learning experience that is more targeted and tailored to students' needs.

One of the case studies observed was a math class that applied gamification with elements of weekly challenges. In this class, students are given additional tasks that can be completed to earn points and badges. The results of this class showed that 85% of students reported an increase in learning motivation after implementing this strategy. This case study provides a real picture of how gamification can be applied in specific contexts and provide positive outcomes for students.

The application of gamification in mathematics classes shows that the challenges given can create a more competitive and fun learning atmosphere. Students feel more excited to complete assignments when there are clear incentives. This success shows that gamification can be adapted to a wide range of subjects, not just limited to specific contexts. By utilizing game elements, educators can increase students' desire to learn, as well as create a more interactive learning experience.

The relationship between case studies and overall research results shows that gamification can be a powerful tool in increasing student learning motivation (Sotos-Martínez et al., 2023). These findings provide empirical evidence that the right gamification elements can improve the learning experience. With a better understanding of how gamification works, educators can design more effective strategies for online learning (Othman et al., 2023). The implications of these results point to the need for further research to explore the different elements of gamification and how they can be implemented in different educational contexts (Siricharoen, 2023).

The results of the study show that the application of gamification in online learning significantly increases students' learning motivation. Data indicates that 70% of students have high or very high levels of motivation after being exposed to gamification elements such as points, badges, and instant feedback. A case study in a math class showed that 85% of students reported an increase in motivation after implementing weekly challenges. These findings highlight the importance of gamification elements in creating a more engaging and interactive learning experience.

The results of this study are in line with previous research that shows that gamification can increase student motivation and engagement. However, this study is different because of its focus on the context of online learning and the use of specific gamification elements. Many previous studies have placed more emphasis on traditional classroom environments, while this study provides insight into how gamification can be adapted for fully online learning. This opens up new opportunities to explore how gamification can be utilized in various educational contexts.

The results of this study indicate that gamification is not only a trend in education, but also an effective strategy to increase students' learning motivation. This discovery reflects the need to adapt teaching methods to be more relevant to today's generation of students growing up with technology (Ansar & George, 2023). The application of gamification elements can be considered as a response to the challenges faced in online learning, where student engagement is often a major issue (Hidayat et al., 2023).

The implications of the results of this study are very significant for educators and curriculum developers. Understanding that gamification can increase student motivation, educational institutions are advised to integrate gamification elements in their online learning designs (Zairon et al., 2023). This can not only increase student engagement, but it can also contribute to better learning outcomes. This approach can also help create a more positive learning environment, where students feel more motivated and engaged.

The results of this study reflect how students' motivation can be affected by the way they interact with the learning material. Gamification elements that provide instant feedback and

incentives clearly allow students to feel greater accomplishment. When students feel motivated and engaged, they tend to be more active in the learning process. These feelings may also be triggered by the need to compete and gain recognition, which is part of human nature that is often overlooked in traditional learning.

The next step is to conduct further research to explore the different elements of gamification and their impact in varied learning contexts. Additionally, longitudinal research can provide insights into the long-term impact of gamification on student motivation and learning outcomes. Educators are also expected to share their best practices and experiences in implementing gamification, so as to create a mutually supportive learning community. Thus, gamification can be an integral part of a broader learning strategy in the digital education era.

CONCLUSION

This study found that the application of gamification in online learning significantly increased students' learning motivation. As many as 70% of students reported high or very high levels of motivation after being exposed to gamification elements. A case study showing that 85% of students in math classes experience an increase in motivation is also an important finding. These results are different from previous studies that focus more on the effect of gamification in the context of face-to-face learning.

These findings confirm that gamification can serve as an effective tool to increase student engagement in online learning. This study provides empirical evidence that this approach can create a more engaging and interactive learning atmosphere, which is indispensable in an educational context that is increasingly dependent on technology.

The value of this study lies in the emphasis on the context of online learning and the use of specific gamification elements. This research contributes new insights into how gamification can be adapted in a digital environment to increase students' motivation to learn. By identifying the most influential elements, this study provides practical guidance for educators in designing more effective learning experiences.

The contribution of this research also includes the development of instruments that can be used to evaluate the impact of gamification in the context of education. This enriches the existing literature and can be a reference for future research that wants to explore other aspects of gamification and learning motivation.

The limitations of this study lie in the limited number of samples and focus on one type of gamification element. The study only included students from a few high schools, which may not be representative of the overall student population. In addition, this study has not explored the long-term impact of the application of gamification on student motivation and learning outcomes.

The direction of further research is suggested to include a wider and more diverse sample and explore other gamification elements. Future research may also use longitudinal designs to evaluate how gamification affects student motivation in the long term. Thus, this study can provide a deeper and more comprehensive understanding of the role of gamification in education.

AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.
Author 2: Conceptualization; Data curation; In-vestigation.
Author 3: Data curation; Investigation.

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