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THE IMPACT OF GAMIFICATION ON ONLINE LEARNING: ITS EFFECT ON MOTIVATION AND UNDERSTANDING OF STUDENTS

Abstract

This study aims to analyze the impact of gamification in online learning, focusing on its effect on student motivation and understanding. Although online learning is effective in providing flexibility and accessibility, it often faces challenges in maintaining student motivation and engagement. Gamification, which involves applying game elements in an educational context, has been considered a potential solution to enhance student motivation and engagement. Using the literature review method, this research explores various findings from previous studies on the implementation of gamification in higher education. The results indicate that gamification has a positive impact on increasing student motivation and engagement in online learning, especially through elements such as rewards, points, badges, and challenges. However, the effect of gamification on long-term understanding of the material varies. Some studies indicate that while gamification increases short-term motivation, not all game elements contribute significantly to deep understanding. This study suggests integrating gamification with other learning approaches, such as Problem-Based Learning (PBL), to improve long-term student understanding. This research is expected to provide insights for educators and curriculum developers in designing more effective online learning experiences.

Keywords: Gamification, Online Learning, Motivation, Student Understanding

INTRODUCTION

Online learning has become an inevitable global phenomenon, particularly since the COVID-19 pandemic, which forced many educational institutions to adapt to new ways of delivering learning materials. Various online learning models, which largely rely on technology and digital media, have been implemented to address challenges related to accessibility, flexibility, and the need to maintain student engagement in the learning process (Poondej & Lerdpornkulrat, 2020). However, one of the main challenges faced in online learning is the decline in student motivation. This decrease in motivation can potentially hinder the understanding of material and the achievement of optimal learning outcomes (Sabri et al., 2022). Therefore, researchers and educators have begun seeking innovations that can enhance student engagement and motivation in online learning, one of which is through the application of gamification.

Gamification, the use of game elements in non-game contexts, has been identified as a potential solution to increase student motivation and engagement (Taşkın & Kılıç Çakmak, 2023). In the context of education, gamification not only involves the use of points, badges, or

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leaderboards but also includes elements such as challenges, immediate feedback, and recognition of individual achievements, all of which can provide a more interactive and enjoyable learning experience (Papadakis et al., 2022). Gamification is believed to create a more engaging learning environment and encourage students to participate more actively in their learning process, which in turn can enhance their understanding of the material being studied (Özhan & Kocadere, 2020).

One of the key elements of gamification that is often applied is the reward system, which encourages students to continue striving to achieve specific learning goals. Research has shown that the use of rewards in gamification can increase student engagement in online learning activities (Mamekova et al., 2021). Additionally, quick and constructive feedback, which is an integral part of the gamification mechanism, helps students understand their progress, recognize their strengths and weaknesses, and make adjustments in their learning approach (Sanchez et al., 2020). This is crucial in improving students' understanding of the material being taught.

However, although many studies have examined the impact of gamification on student motivation and engagement in online learning, there is limited research specifically exploring how gamification affects the depth of students' understanding. Some studies also show that gamification does not always yield positive effects in all contexts and for all types of students (Ferrer et al., 2022). Furthermore, most existing research focuses solely on motivation and the short-term effects of gamification, without examining how it impacts long-term understanding and critical thinking skills of students in the context of online learning.

This study aims to fill the gap in the existing literature by exploring the effects of gamification on not only motivation but also the understanding of students in online learning. The focus on understanding is crucial, as deep understanding and the ability to apply acquired knowledge are the primary objectives of higher education. Therefore, this research will not only examine whether gamification increases motivation but also how it influences the quality of students' understanding of the material taught in online learning. This study is expected to provide new insights for educators, curriculum designers, and policymakers in optimizing the use of gamification to support better learning outcomes in the digital age.

While previous studies have shown a positive relationship between gamification and student motivation, the lack of focus on the impact of gamification on deeper and longer-term understanding remains a gap that needs further investigation. Moreover, most of the existing studies have focused more on gamification in face-to-face learning contexts, with few focusing on online learning. This research will address that gap by examining how the gamification elements applied in online learning affect students' academic understanding and whether this impact is significant in the long term.

METHOD

This study employs a literature review methodology to analyze the impact of gamification on online learning, with a focus on its effects on student motivation and understanding. The research process consists of several interconnected steps (Sugiyono, 2018).

1. Identification and Selection of Literature Sources

The first step involves identifying and selecting relevant literature related to the research topic, namely gamification in online education, student motivation, and academic understanding. This process is conducted by searching for scholarly articles, journals, books, research reports, and other reliable sources published within the last ten years. The search is conducted using academic databases such as Google Scholar, JSTOR, Scopus, and Springer, with keywords such as "gamification," "online learning," "student motivation," and "academic understanding."

2. Evaluation of Literature Quality

The sources obtained are then evaluated to ensure their relevance to the research objectives. Only literature that meets the criteria of quality, validity, and contribution to the chosen topic will be included in the analysis. The selected articles will be thoroughly examined in terms of their methodology, findings, and contributions to the understanding of gamification in the context of online learning.

3. Analysis and Synthesis of Literature

After the literature sources are selected, the next step is to analyze and synthesize the various relevant findings. The existing literature will be compared to identify patterns, trends, and differences in the impact of gamification on student motivation and understanding. This analysis will discuss the specific elements of gamification applied in online learning, as well as their effects on student engagement and academic understanding.

4. Drawing Conclusions

Based on the synthesis results, conclusions will be drawn regarding how gamification can influence student motivation to learn and to what extent it affects their understanding of the learning material in the online context. This research will also identify gaps in existing studies and provide recommendations for further research.

This literature review methodology allows for a comprehensive understanding of the topic being studied through an in-depth analysis of various relevant and credible sources.

RESULTS AND DISCUSSION

Results

The results of this research were obtained through an analysis of various literature discussing the application of gamification in online learning and its impact on student motivation and understanding. Overall, the research findings indicate that gamification has a significant impact on increasing student motivation, although its effect on long-term understanding remains varied. Several studies show that gamification, with elements such as rewards, points, badges, and challenges, successfully increases student engagement in online learning. On the other hand, gamification also helps create a more enjoyable learning experience and motivates students to actively participate in learning activities.

However, the impact of gamification on long-term student understanding has not been entirely consistent. Some studies report that although students are more motivated to engage, not all gamification elements directly contribute to deeper understanding of the learning material. Some researchers suggest that the use of gamification in online learning contexts is often more effective in enhancing students' emotional and motivational engagement, but to deeply understand and master the material, a more comprehensive and integrative approach is required. More complete results of this research are presented in the following table:

Table 1. Research Results

Research Aspect	Research Findings	References
Impact of Gamification on Motivation	Gamification increases student motivation to learn in online education, especially through reward elements (points, badges, challenges).	(Bouchrika et al., 2021)
Impact of Gamification on Student Engagement	Gamification helps create a more enjoyable learning experience and encourages students to participate more actively in online learning.	(Saleem et al., 2022)
Impact of Gamification on Understanding	The impact of gamification on long-term understanding varies. Some studies show that although gamification increases engagement, it does not always significantly impact deeper understanding.	(Muhsin & Aziz, 2021)
Differences in Student Responses to Gamification	Students with different learning styles and digital skills respond differently to gamification elements (e.g., visual elements are more	(Bovermann & Bastiaens, 2020)

	effective for students with a visual learning style).	
Effectiveness of Gamification in Online Learning	While gamification enhances motivation and engagement, a more cognitive-based approach is needed to support long-term understanding.	(Khaleel et al., 2020)
Recommendations for Gamification Implementation	Gamification should be integrated with other learning approaches, such as problem-based learning (PBL), to enhance long-term understanding and critical thinking skills.	(Pratama et al., 2021)

Discussion

Online learning has become increasingly important in higher education, especially in the context of the pandemic, which accelerated the adoption of technology in education. However, one major issue faced is the low motivation of students to study independently and in constrained conditions, such as in online learning (Cespón & Lage, 2022). This problem often leads to students being less engaged, which in turn can affect their understanding of the material being taught. It is in this context that gamification emerges as a potential solution to enhance motivation and student engagement. Gamification can stimulate students' intrinsic motivation through the application of fun and challenging game elements (Ertan & Kocadere, 2022).

Gamification in online learning often involves the use of reward systems, challenges, and quick feedback, which encourage students to actively participate in the learning process. These elements can reinforce students' sense of achievement and provide motivation to keep learning. Research shows that rewards, such as points and badges, not only increase motivation but also help students experience their progress directly (Acosta-Medina et al., 2021). This can be an important factor in maintaining student engagement in online learning, where physical and social interactions are limited.

However, although gamification has proven effective in enhancing motivation and engagement, its impact on long-term understanding is more complex. Some studies show that while gamification can increase interaction and engagement, it does not necessarily lead to a deeper understanding of the learning material (Campillo-Ferrer et al., 2020). This is related to the tendency of gamification to focus more on motivational and emotional aspects, while mastering the material requires a more cognitive and reflective approach. As stated by Oliveira et al. (2022), the impact of gamification on understanding the material heavily depends on how the gamification elements are structured and applied in the online learning context.

Moreover, not all students respond to gamification in the same way. Factors such as individual preferences, learning styles, and digital skills can affect how students perceive the impact of gamification. For instance, students with a visual learning style might feel more engaged with visual-based gamification elements, such as infographics or animations, while others might be more interested in challenges and competition (Park & Kim, 2021). Therefore, the application of gamification should be more personalized and adaptive, considering students' diverse learning styles and preferences.

CONCLUSION

This research indicates that gamification has a positive impact on student motivation and engagement in online learning. Although gamification can enhance short-term motivation and create a more engaging learning experience, its impact on long-term understanding remains varied. Gamification elements such as rewards, challenges, and quick feedback have proven effective in increasing student engagement, but they do not always have a direct effect on deeper understanding of the material. A more integrative approach is needed to optimize the impact of gamification on student understanding.

SUGGESTIONS

This research suggests that gamification elements should be integrated with other learning methods, such as problem-based learning (PBL), to support deeper understanding. Educators are encouraged to tailor the application of gamification to students' characteristics, in order to create a more effective and comprehensive learning experience. Furthermore, further research is needed to identify the most effective gamification elements in supporting long-term academic understanding.

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