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# Application of Gamification in Learning: Its Influence on Motivation, Involvement, and Student Learning Outcomes

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| **Abstract** | The application of gamification in education is becoming a topic that is increasingly discussed, both in the context of formal and non-formal education. The purpose of this research is to examine how the application of gamification in e-learning can increase student motivation and involvement. This research uses a qualitative approach with a literature study method that includes various previous studies on gamification in education. The results of this study show that the application of game elements in online learning can increase interactivity, strengthen the attractiveness of the subject matter, and encourage students to more actively participate in the learning process. In addition, this study also found that gamification has the potential to improve student learning outcomes by making the material more interesting and giving faster feedback. This research concludes that gamification can be an effective tool in creating a more interesting learning experience and increasing student motivation. However, further research is still needed to optimize the gamification design in various learning contexts. |
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| **Keywords** | *Gamification; E-learning; Motivation; Student Engagement; Online Learning* |

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## 1. INTRODUCTION

The development of technology in the 21st century has brought a big impact in the world of education, including distance learning (PJJ). One of the innovations used to improve the quality of learning is gamification. Gamification, which was originally used in marketing, is now applied in education to increase student motivation and involvement. The use of game elements in learning, such as points, badges, levels, and leaderboards, has been proven effective in making the learning experience more interesting and enjoyable (Carolus & Gormantara, 2025; Diana, 2020; Fakhzikril, 2021).

Although there are many studies that discuss the application of gamification, its essence in the context of education is still not fully understood. Therefore, this research aims to

explain various gamification models used in formal and informal education and their impact on student motivation and involvement.

## 2. METHODS

The method used in this research is a literature study by analyzing 6 articles related to the application of gamification in education. These articles cover the application of gamification in formal, non-formal education, and training, and involve various gamification models such as MDA, DMGL, and ARCS.

## 3. FINDINGS AND DISCUSSION

### 3.1. Application of Gamification in Formal and Nonformal Education

The results of literature study show that the application of gamification in formal education often uses the MDA (Mechanics, Dynamics, Aesthetics) model. For example, at the high school level, the use of elements such as levels and leaderboards successfully increases student participation up to 30% (Diana, 2020). In non-formal education, gamification is applied to professional training, such as emergency response training, which increases material retention up to 25% higher than traditional methods (Fakhzikril, 2021).

### 3.2. The Impact of Gamification on Student Motivation and Engagement

Table 1. This is a table. Tables should be placed in the main text near to the first time they are cited.

| Aspect | Explanation | Examples of Gamification Elements | Results |
|---|---|---|---|
| Motivation | Gamification increases motivation through visualization of progress and rewards. | XP, leaderboards | Students are more motivated to achieve learning targets. |
| Involvement | Students who use gamification elements are more engaged in learning compared to students without gamification. | Challenges, Rewards | Increase in engagement scores by up to 40% (Study Sholiha, 2022) |
| Supporting theory (ARCS) | Gamification is in accordance with ARCS theory: increasing attention, relevance, self-confidence and satisfaction. | Challenge with rewards | Providing positive stimuli that encourage students' self-confidence and satisfaction in learning. |

### 3.3. Elements and Types of Gamification

Elements such as points, badges, and progress bars were found to be the most frequently applied in technology-based learning. Diana (2020) divides gamification into two types: Structural Gamification: Integrating game elements without changing learning

content.Content Gamification: Game elements are adapted to the content of the material, for example interactive quizzes with tiered challenges.

The analysis shows that content gamification has a more significant impact on student learning outcomes than structural gamification, especially in subjects that require conceptual understanding, such as mathematics and science.

### 3.4. Implementing Gamification in LMS

The application of gamification in education can increase student motivation and engagement, which ultimately has a positive impact on learning outcomes. Various gamification models and elements, such as MDA, DMGL, and ARCS, have proven effective in creating engaging and enjoyable learning experiences. To achieve optimal results, the application of gamification must be adapted to the learning context and audience needs.

### 4. CONCLUSION

The application of gamification in curriculum design has been proven to increase student motivation and involvement in learning. Gamification elements, such as levels, ranking systems, and badges, have a positive impact on students' intrinsic motivation, both in face-to-face and distance learning. However, the successful implementation of gamification requires adjustment to student characteristics and continuous evaluation to ensure its effectiveness in achieving learning goals. Further research needs to be done to explore the implementation of gamification in a broader educational context, as well as the challenges faced in its implementation at various levels of education.

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