

## **Engaging Students Through Gamification: A Study of Its Effectiveness in Higher Education**

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### **Abstract**

In today's tech-centric society, gamification and game-based learning effectively develop learning and soft skills through collaborative gameplay. A significant challenge in higher education is low student participation due to fear, shyness, or anxiety. This study evaluated the impact of gamification on students' interest, motivation, and engagement in the classroom. An intervention with 118 Diploma and Degree students at Universiti Sultan Azlan Shah employed gamification applications like ClassDojo. The comprehensive methodology focused on qualitative data collection and descriptive analysis to support the study's premise. Post-teaching surveys assessed the impact on learning behavior. Findings from Google Forms surveys indicated a significant positive effect, boosting interest, motivation, and engagement, and improving learning outcomes. Students found this approach interesting, enjoyable, and stimulating, enhancing their interest in the subject. These results highlight gamification's positive role in teaching and learning, offering insights into students' perspectives on its influence on their educational experience.

**Keywords:** Gamification, Game-based learning, Teaching and learning, Higher education

### **Introduction**

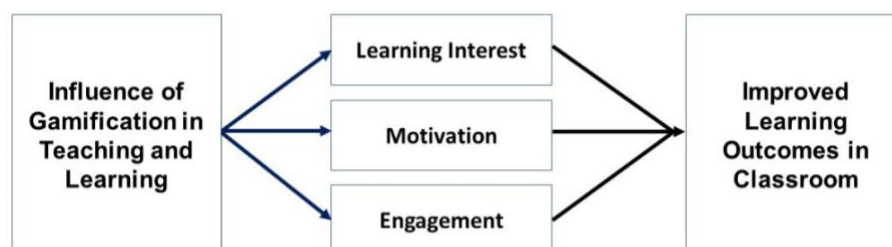
As 21st-century learning skills continue to be essential in education, gamification provides teachers with a means to design lessons that promote critical thinking, creativity, collaboration, and communication (Retherford, 2020). Gamification incorporates basic game elements and can take various forms, but in the classroom, it follows specific rules: maintaining scores, setting challenges, providing rewards, incorporating digital games, and implementing rankings and levels (Angelova, 2017). Through games, students can become motivated, emotionally positive, and independent (Rahmani, 2020). Although gamification is more digital than non-digital, its core principle is active student involvement and participation (Maloney, 2019). In a gamified learning environment, students fully engage and take an active role in their learning. Games are designed to reflect real-world principles, enabling students to learn decision-making and problem-solving skills.

Many students struggle with motivation and enjoyment in traditional classroom settings (Altun & Yassin, 2022). Even those who start with potential often become distracted and lose interest. Teachers attempt to adopt new methods to make lessons engaging and inclusive, but this is a challenging task not every teacher can achieve.

In recent years, teaching methods in higher education have evolved to create fun and engaging learning environments (Ibharim et al., 2015). In the digital era, particularly after the COVID-19 pandemic, students are increasingly exposed to various technologies and require gamified learning approaches that provide fun and meaningful engagement while enhancing their language skills. Thus, incorporating gamification into the learning process can meet students' expectations.

Students tend to adapt better to game-based learning activities, which help them grasp concepts more effectively. The key benefit of gamification is the increased attentiveness and interest it generates among students, leading to clearer and improved learning outcomes (Altun & Yassin, 2022).

Additionally, a study by Chans and Castro (2021) reveals that gamification increases student motivation and engagement, improves attitudes, and enhances student grades. It boosts students' confidence and fosters a motivated atmosphere where students are curious to learn and interact during classes. Simultaneously, teachers find it easier to deliver their material. The study focuses on the emotional dimensions of the learning experience, noting that students experience greater enjoyment and excitement, which in turn boosts their effort in the course (Chans & Castro, 2021). Building on this, the present study will explore how gamification influences teaching and learning in higher education, specifically examining its effects on students' interest, motivation, and engagement. Figure 1 below demonstrates how gamification enhances these factors, ultimately contributing to better learning outcomes in the classroom.



*Figure 1. Influence of gamification on learning interest, motivation and engagement towards improved learning outcomes*

In higher education settings, traditional teaching methods often struggle to fully engage students and maintain their motivation throughout the learning process. As educators seek innovative approaches to enhance student participation and learning outcomes, gamification has emerged as a promising strategy. However, the effectiveness of gamification in engaging students and improving educational outcomes in higher education remains underexplored. Therefore, this study aims to investigate the effectiveness of gamification as a tool for enhancing student engagement, motivation, and learning outcomes in higher education contexts.

### *Gamification*

Gamification serves to engage individuals, motivate actions, foster learning, and address problems (Kapp, 2016). By facilitating a smoother adaptation to the learning process, it enhances students' understanding and clarity. Furthermore, gamification cultivates self-directed learning abilities and equips students with essential skills for their future careers (Altun & Yassin, 2022). Fundamentally, gamification is a methodological approach that integrates game design elements into non-game environments (Deterding et al., 2011). Although other educational methods, such as game-based learning and serious games, also incorporate playful features, they differ in purpose and application from gamification. A variety of games, including digital and online video games, tabletop games, outdoor activities, and educational games, can be employed to achieve educational objectives. While many contemporary applications of gamification are digital, its scope extends beyond digital technology (Deterding et al., 2011).

### *Learning Interest*

In education, students' learning interest refers to their natural tendency to engage with a particular subject, allowing them to connect with it easily. When students are interested in a topic, learning about it becomes easy and enjoyable. High learning interest significantly influences the success of teaching and learning activities (Triarisanti, 2019). Moreover, learning interest in schools refers to students' enthusiasm and curiosity towards their subjects and educational activities. When students have a high level of interest, they are more likely to engage deeply with the material, find enjoyment in learning, and achieve better academic outcomes (Triarisanti, 2019). Fostering this interest is crucial for effective teaching and learning. Techniques such as gamification, interactive lessons, and hands-on activities can significantly enhance students' learning interest by making the educational experience more engaging and relevant to their lives (Hayikaleng et al., 2016). Therefore, understanding how gamification impacts students' learning interest in the classroom and their respective subjects is essential.

### *Motivation*

Motivation is a crucial element in learning, as it drives students to excel in their education. To boost student motivation in the classroom, incorporating fun and exciting learning experiences through gamification is an effective strategy (Hayikaleng et al., 2016). Motivation is a key factor in student success and academic achievement. It drives students to engage with their studies, strive for excellence, and persist through challenges. High levels of motivation can lead to better academic performance, increased participation, and a more positive attitude towards learning (Altun & Yassin, 2022). Strategies to enhance motivation include creating a supportive and stimulating learning environment, offering relevant and interesting content, providing positive reinforcement, and incorporating engaging methods such as gamification (Chans & Castro, 2021). By fostering motivation, educators can help students achieve their full potential and develop a lifelong love for learning.

### *Engagement*

An effective learning environment hinges on student engagement. Disengagement in classroom activities is a significant factor contributing to poor performance (Mekki et al., 2022). Gamification effectively addresses this issue by engaging students with the learning material.

By incorporating elements such as points and reward systems, gamification motivates students to excel in classroom activities (Bagheri et al., 2019). This approach enhances their focus and strengthens their connection with the subject matter. This problem statement outlines the gap in current research despite the growing interest in gamification, there is a need for empirical evidence to assess its impact specifically within the higher education environment.

### *Integrating Gamification in the Classroom*

Traditional teaching methods in higher education, such as lecturing and frontal teaching, primarily involve one-way communication from the lecturer to the students, lacking interaction and critical thinking stimulation (Rajšp et al., 2017). Educators in higher education often face the challenge of maintaining student engagement and interest in learning activities. Many students resist participation due to shyness, fear of making mistakes, and low self-confidence, particularly among diploma or first-year students. Strategies like incorporating competition or role-playing instead of direct instruction can enhance lesson engagement, requiring active participation from students (Kamiluddin, 2019; Ng et al., 2022). Research indicates that students are more likely to experience improved learning outcomes when they are motivated and their learning preferences are accommodated (Mufidah, 2016). Digital game-based learning has been shown to alleviate learning anxiety and improve classroom achievement (Pusztai, 2021). Utilizing digital applications in classroom teaching enhances motivation, interactivity, and provides quicker and more accurate feedback on curriculum understanding (Iverson, 2019). These tools support both group work and individual learning experiences.

Gamification is a valuable approach to fostering positive attitudes among students in the classroom. It is essential for students to have an interest in the subject matter and the motivation to participate actively in learning tasks to ensure effective learning outcomes (Kovácsné, 2021). Educators must create a comfortable learning environment where students feel encouraged to participate without excessive stress or anxiety. In Malaysian higher learning institutions, gamification has been successfully employed by educators to enhance teaching pedagogies and increase student motivation and interest in the learning process (Qing & Halim, 2021). With the advent of the pandemic, educators have been exposed to various digital applications suitable for teaching and learning. Some popular tools among educators in schools and higher learning institutions include Kahoot, Quizizz, Quizlet, and Wordwall.

### *ClassDojo*

ClassDojo is an online gamification platform designed to help educators promote and track students' engagement, participation, behavior, helpfulness, and teamwork. The tool rewards students with virtual points for demonstrating positive behavior or completing specific tasks during class. Each student is given an avatar, which they can personalize to their liking. ClassDojo allows teachers to foster a fun and motivating learning environment by using rewards and points to encourage students. Educators also have the flexibility to create custom tasks and criteria based on their classroom needs. Moreover, ClassDojo supports collaborative learning by awarding points for group work assignments (Brown, 2021; Benhadj et al., 2019).

### **Methodology**

A methodology serves as a framework for executing all necessary actions to collect data, enabling researchers to achieve desired results in an academic study. Additionally, it guides researchers in selecting the most appropriate method for their study. For instance, employing

questionnaire surveys is a valuable approach to gather reliable qualitative data and support the study's topic. Questionnaire surveys involve systematically collecting statistical information about the attributes, attitudes, or behaviors of a population through a structured set of questions. Hence, feedback obtained from student questionnaires is crucial for this study. A questionnaire survey was conducted, comprising specific questions aimed at validating the paper's premise. The survey was administered to 170 undergraduate students from the Faculty of Management and Information Technology (FMIT) at Universiti Sultan Azlan Shah (USAS), located in Kuala Kangsar, Perak. Out of the 170 students, 118 responded to the 15 questions posed to them. These questions were designed to assess students' learning interest, motivation, and engagement with gamification applications such as ClassDojo, which was incorporated into classroom lessons. Descriptive analysis was used to analyzed the data received.

### *Research Participants*

The participants in this research consisted of 170 students enrolled in the undergraduate program at FMIT, including both Diploma and Degree students, particularly from the Management department. They were chosen based on their engagement with gamification applications like ClassDojo during their lessons, as facilitated by their lecturers.

### *Data Collection and Instrument*

The data collection instrument used in this research was highly practical and efficient. The method of data collection plays a crucial role in ensuring the academic integrity and impartiality of a study. To fulfil the objectives of this paper, a questionnaire survey comprising fifteen questions was developed and distributed among students via Google Forms. This digital platform proved to be incredibly valuable for collecting data, as it allowed for seamless administration and was accessible to students in their respective classrooms.

## **Result and Discussion**

In this study, the effect of gamification on teaching and learning was evaluated across three dimensions: 1) learning interest, 2) motivation, and 3) engagement. Among the 118 students involved in the research, 36 were males (30.6%) and 82 were females (69.5%). The age distribution was as follows: 19-20 years old (54.2%), 21-22 years old (27.1%), 23-24 years old (17.8%), and above 25 years old (2.5%). Of the total respondents, 69.5% were Diploma students, while 31.4% were Degree students. Tables 1, 2, and 3 provide detailed demographic data on the participants' gender, age, and program enrolment respectively.

Table 1. Frequency Distribution of Respondents by Gender

Gender	Frequency	Percentage (%)
Male	36	36.5
Female	82	69.5
Total	118	100

Table 2. Frequency Distribution of Respondents by Age

Age	Frequency	Percentage (%)
19 - 20 years old	64	54.2
21 - 22 years old	32	27.1
23 - 24 years old	21	17.8
Above 25 years old	3	2.5
Total	118	100

Table 3. Frequency Distribution of Respondents by Program

Programme	Frequency	Percentage (%)
Diploma	82	69.5
Degree	36	36.5
Total	118	100

Additionally, the respondents' feedback is summarized in Table 4. Participants rated their agreement or disagreement with various descriptors related to each dimension on a 4-point Likert scale (strongly disagree, disagree, agree, strongly agree). The results for each dimension are discussed in detail in the following sections. The findings indicate that the majority of students perceive gamification as having a positive impact on their learning interest, motivation, and engagement, thereby enhancing their overall learning outcomes.

Table 4. Summarized result of the questionnaire

Questionnaire Items		Strongly disagree		Disagree		Agree		Strongly Agree	
		Frequency	(%)	Frequency	(%)	Frequency	(%)	Frequency	(%)
Learning Interest									
L1	Gamification increases my interest in the classroom	3	2.5	1	0.8	80	67.8	34	28.8
L2	I enjoy the course subject with gamification	2	1.7	2	1.7	74	62.7	40	33.9
L3	I always look forward to my class with gamification	2	1.7	2	1.7	86	72.9	28	23.7
L4	Gamification helps improve my learning performance	2	1.7	3	2.5	79	66.9	34	28.8
L5	Gamification increases my curiosity to explore the subject	2	1.7	2	1.7	78	66.1	36	30.5
Motivation									
M1	Gamification motivates me to share my answers when using gamification	2	1.7	3	2.5	91	77.1	22	18.6
M2	Gamification encourages me to participate actively in class	2	1.7	5	4.2	78	66.1	33	28.0
M3	Gamification makes me want to improve my subject matter proficiency	3	2.5	3	2.5	82	69.5	30	25.4
M4	Gamification makes me feel more optimistic towards the subject	2	1.7	1	0.8	82	69.5	33	28.0
M5	Gamification makes me want to finish my subject homework on time	2	1.7	6	5.1	75	63.6	35	29.7
Engagement									
E1	Gamification makes the lesson time pass quickly when using gamification in the classroom	0	0	1	0.8	84	71.2	33	28.0
E2	Reward and point system keep me engaged throughout the lesson	2	1.7	3	2.5	83	70.3	30	25.4
E3	I connect well with my peers and lecturers during the activities conducted	2	1.7	2	1.7	84	71.2	30	25.4
E4	Gamification helps me maintain absolute focus during the lesson when using gamification	3	2.5	3	2.5	82	69.5	30	25.4
E5	Gamification enhances my desire to do well in the activities	2	1.7	3	2.5	81	68.6	32	27.1

Table 4 presents the results of students' feedback on the three dimensions under investigation: learning interest, motivation, and engagement. The data indicates that gamification positively influences these aspects of student behavior, as the percentages of “strongly agree” and “agree” responses surpass those of “disagree” and “strongly disagree”.

For the dimension of learning interest, 62.7% to 72.9% of respondents agreed with statements L1 to L5, while 23.7% to 33.9% strongly agreed. This demonstrates that the respondents believe gamified learning activities significantly enhance their interest in their subjects, making lessons more enjoyable, sparking curiosity, and improving their overall learning experience. Only a small fraction, 11 respondents (1.7% to 2.5%), strongly disagreed, and 10 respondents disagreed with these statements.

Regarding students' motivation (items M1 to M5), 63.7% to 77.1% of respondents agreed that gamification motivates them to participate in class and strive for academic success. Additionally, 18.6% to 29.7% strongly agreed that gamification fosters optimism and motivates them to enhance their subject proficiency. A minimal number of respondents, 11 (1.7% to 2.5%), strongly disagreed, and 18 (0.8% to 5.1%) disagreed with the motivational descriptors.

In terms of student engagement (items E1 to E5), 68.6% to 71.2% of students agreed, and 25.4% to 28% strongly agreed that gamification enhances engagement and maintains focus during lessons. Respondents also felt that gamification strengthens their connections with peers and lecturers. Only 9 respondents (1.7% to 2.5%) strongly disagreed, and 12 respondents (0.8% to 2.5%) disagreed with these engagement descriptors. Overall, the results indicate that implementing gamification significantly positively impacts students' attitudes toward classroom lessons in terms of learning interest, motivation, and engagement. Thus, there is strong evidence to suggest that gamification positively correlates with improved learning outcomes in the classroom.

## **Conclusion**

The findings suggest that incorporating gamification in the classroom can significantly improve teaching and learning outcomes by boosting students' learning interest, motivation, and engagement. However, it is important to note that these conclusions are drawn from the use of only one gamification tool, among many available. Moreover, the scope of this research is limited to students from one faculty (FMIT), one department (Management), and from one higher education institution (USAS). Therefore, future studies should consider involving a larger and more diverse group of students from various higher education institutions and different programs to better compare the effectiveness of gamification in teaching and learning. Further research is recommended to identify additional gamification tools that could enhance the learning process. It is also suggested to investigate new mechanics and applications associated with emerging gamification technologies, such as artificial intelligence (AI), to further improve students' learning behaviors.

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