



Educational Gamification for The Enhancement of Student Motivation

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Abstract

Gamification is a method used to support the learning process in a non-game environment. The aim of this study is to explore how to implement gamification in education to increase students' learning motivation, the most effective elements in increasing student learning motivation in educational contexts, and students' experiences in interacting with educational games that affect student learning motivation. The participants were 25 junior school students who had experience using educational games for learning. Data from questionnaires and interviews were collected to determine students' perceptions of their experiences in using educational games. Self-determination theory (SDT) was used to evaluate students' motivation to learn English. The results show that gamification has the potential to increase students' interest and engagement in learning English, which in turn increases students' motivation to participate in learning. Gamification creates a fun learning experience for students. Intrinsic and extrinsic motivation also emerged from within students during gamified learning. In this study, students have a positive attitude toward the use of educational gamification in the classroom.

Keywords: Gamification, Motivation, Self-determination theory

Introduction

Currently, gamification is a technology used in educational environments to support the learning process. This is one of the learning techniques that is increasingly used. In fact, the use of games in English language teaching is not a new phenomenon. It has long been recognized as a solution to low motivation and engagement in learning among students. The gamification of learning is becoming more and more common as the twenty-first-century approaches since educators and scholars are seeing its potential uses. (Zhang & Crawford, 2023). Research has previously explored the application of gamification in the field of education. (Hartt et al., 2020) show the potential of game-based learning in higher education based on the exploratory study. Overall, students preferred and participated more in gamified lectures. In gamified lectures, participants reported greater enjoyment. Research shows that game-based learning has the potential to motivate and encourage students. In line (Adnyani et al., 2022) reveal through the application of gamification when games are used in the classroom, students not only enjoy the learning process but also do better because of more motivation. By providing positive feedback, gamification tries to increase students motivation and interest in the classes while also encouraging greater engagement, collaboration, and enjoyment in the learning process. (Kaya & Ercag, 2023). furthermore, why gamification is used to motivate students in learning.

Gamified learning is a highly recognized phenomenon in the current era and has the ability to offer a fun and engaging educational experience for learners. This is because the various elements (dynamics and mechanics) in a gamified environment can increase learners' motivation and interest in English (Zhou et al., 2017). Gamification itself, defined as "the use of game design elements in non-game contexts," has created significant interest and attention in research and practice in recent years, with education being a key issue in gamification research (Sailer & Homner, 2020). Gamification of learning refers to the use of game design elements and game mechanics to make learning experience more engaging and game-like (Dicheva et al., 2018a). By utilizing game elements, gamification for academic purposes allows teachers to create more effective design learning experiences. Applying gamification as an educational method in schools is not only beneficial to engage students in tasks, but also to motivate them (Sadeghi et al., 2022a). Gamification is recognized as one of the most interesting, fun, and successful LESL methods (Dehghanzadeh et al., 2021). Students can find fun and enjoyment in learning when adding the element of play in the learning process so that they feel that learning is fun and not a compulsion (Dinata, 2021). Additionally, the

process of incorporating game elements into a specific subject to make it more interesting, simple to learn, and innovative is known as "gamification."

Motivation itself is a key factor in learning process. As the primary goal of education, it is essential to encourage learners to pay attention and engage with the material. The effort and need to achieve a goal with a positive attitude toward language acquisition are referred to as motivation (Ulfa & Bania, 2019). In a study by Zarzycka-Piskorz (2016 as cited Idris et al., 2020), In the context of education, motivation includes the desire to achieve in the face of competition. Additionally, it establishes a desire for in-depth knowledge of the subject and helps to stimulate curiosity about the purpose of an activity that prompts knowledge revision and reinforcement. Motivation is the state in which one is inspired or encouraged to act by a variety of factors, both internal and external. (Nadia et al., 2021). In language learning, there are two types of motivation, as defined by a study on student motivation. Firstly, According to (Ryan & Deci, 2000), intrinsic motivation is essentially and naturally present in every human being and drives their desire to create, solve problems, explore and most importantly learn. They argue that contextual circumstances can ignite or subdue intrinsic motivational elements. On the other hand, extrinsic motivation refers to learning that is driven by outside forces, such as the desire to pass an exam or avoid dropping out of school (Dornyei, 1994; Xing et al., 2023). In the context of gamification, intrinsic motivation is the drive from within to engage in learning. Meanwhile, extrinsic motivation, according to (Ryan & Deci, 2000) arises when a person works because they are more interested in factors outside of themselves than the activity itself (e.g., getting good grades, completing tasks to get rewards and benefits). (Mohammed & Ozdamli, 2021) Through gamification elements such as points, levels, badges, leaderboards, and feedback students are interested in gamified learning where these elements are extrinsic motivation. This extrinsic motivation can also drive intrinsic motivation over time.

Apart from that, the use of gamification in learning is considered more than traditional learning. (García-López et al., 2023) demonstrated how the use of gamification apps in the classroom, such as "gamified teaching methods (GTM)". Students' interest in the subject matter has grown as a result of gamified teaching methods (GTM). Comparing students who participated in GTM with students who received "conventional teaching methods (CTM)," students who participated in GTM showed higher levels of competence and more enthusiasm for learning. In addition, students using gamified teaching methods showed high enthusiasm and enjoyment in learning. In another study (Chapman & Rich, 2018) that show gamification can be way more impactful than traditional course design. By including game elements such

as points, leaderboards, and achievements/badges, it can influence students in many different aspects. Starting with, points are used to provide informal feedback and quantify progress. A leaderboard is a list that displays participants' positions for immediate feedback. (Werbach and Hunter, 2012). Finally, badges represent predicted results for people (Abramovich et al., 2013). They are used for a variety of targets, including generating goals and explanations, describing players who have had similar experiences, and providing them the status to assert their rights.

Although gamification is becoming increasingly important in education, a Recent gamification study (Sadeghi et al., 2022b) emphasizes the benefits in vocabulary acquisition. Gamification can motivate students to learn new words. A beneficial influence on language learners' vocabulary development was discovered. In this context, educational gamification refers to the use of game-like elements in educational settings to promote engagement, motivation, and learning (Dicheva et al., 2018b). In addition, playing games is believed to increase engagement and productivity. This strategy has the potential to transform education by making learning more interesting, immersive, and motivating for students. This paper aimed to explore the implementation of gamification in education to enhance student learning motivation, the most effective elements of gamification in improving student motivation in an educational context, and how students' experiences in interacting with educational games affect their motivation

Method

This study is a case study. Use descriptive case study according to Yin (2014, p. 318) is a case study to describes something phenomenon ("case") in real-world contexts and answers research questions that centre on the "how" type of questions in a situation. researchers investigated the use of educational gamification in increasing student motivation. Participants consist of junior high school students who experienced the use of gamification in learning. The teacher asks students to use games that have been selected. Collecting data from questionnaires and interviews to determine students' perceptions of their experience of gamification. Data analysis uses three stages, namely data display, data reduction, and data conclusion.

Finding

Questionnaire Results

Table 1. students' Perception of learning motivation with educational gamification

No	Items	Student who answered
1.	Gamification makes learning easier	7 students
2.	Through gamification learning more fun	8 students
3.	motivated because of the gamification element	3 students
4.	Gamification provides a lot of learning inspiration for students	1 student
5.	By gamification, Students can learn with enjoyment	1 students
6.	gamification attracts students' attention	5 students

As can be seen in the table above, most students consider educational gamification as a motivating factor in their learning experience. Some respondents mentioned that gamification makes learning easier. Students also find that gamification adds fun to the learning process, making it more interesting. gamification elements such as awards, and leaderboards contribute to their motivation. The novelty of gamification attracts attention, as mentioned by some respondents. The new and different approach to learning through gamification serves as a magnet, drawing students into the material. In conclusion, the analysis shows that gamification of education positively affects student motivation by making learning fun, accessible, and engaging. The interactive and competitive elements, coupled with the novelty of this approach, contribute to a more positive and motivating learning experience.

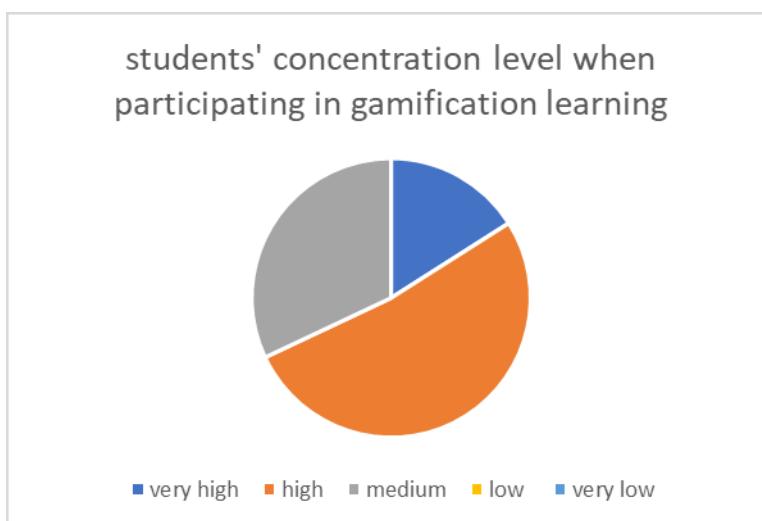


Figure 1. students' concentration level when participating in gamification learning

Students' level of concentration when participating in gamified learning varies. 13 students or 52% of respondents had high levels of concentration, 8 students, or 32% of respondents had medium levels of concentration and 4 students, or 16% of respondents had very high levels of concentration when participating in gamified learning. This distribution provides insight into how gamification affects student focus and engagement levels. The fact that more than half of the respondents reported high levels of concentration suggests that gamification was effective in attracting and maintaining their attention. This is explained by how gamified learning is engaging and interesting. The presence of a significant number of students with medium concentration levels suggests that while gamification is engaging for most students, there are some students whose concentration levels may not be as pronounced. The 16% of students who reported very high levels of concentration suggest that for a minority of students, gamification goes beyond engagement and actively contributes to a highly focused learning experience. Some of these students may find the gamification elements very stimulating and conducive to maintaining their attention.



Figure 2. students' perceptions of gamification of learning helping them achieve learning objectives

All students agreed that gamification of learning helped them achieve their learning objectives. Gamification here is essential to keep students motivated and focus their attention on the learning objectives. When students find learning more interesting and engaging through gamification, they tend to be more motivated to achieve the learning objectives.

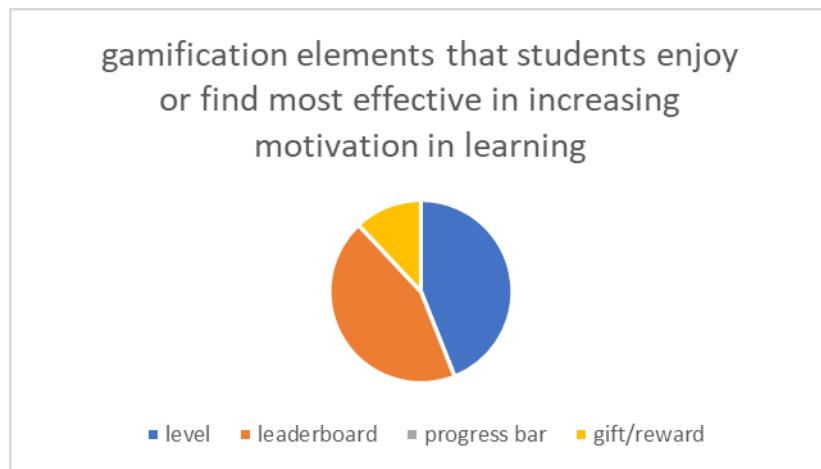


Figure 3. gamification elements that students enjoy or find most effective in increasing motivation in learning

More than a third of the respondents (44%) chose leaderboards as the most effective gamification element. This shows that leaderboards are a strong motivator for most students. Leaderboards provide a competitive element that spurs students to perform better and take the top spot, creating both internal and external motivation. An equally large number of students (44%) selected levels as an effective gamification element. This selection suggests that increasing the level of difficulty or achieving a certain level provides a motivational boost for most students. Progression through levels adds a dimension of challenge and achievement in the learning context. 12% of students selected gift/reward as an effective gamification element. This selection highlights the importance of recognition and rewards in motivating a minority of students. Rewards can provide additional incentives for achievement and add a positive element to the learning experience.

Table 2. reason the element chosen by the student is considered the most motivating or the most effective

No	Elements		
	Level	Leaderboard	Reward
1.	because the level encourages me to move forward	because the leaderboard is very useful	because learning will be more fun if use reward
2.	Because with the level, we compete to be at the highest level.	Because by leaderboard I can see where I am and it motivates me to move to the top	Gamification can boost my motivation through rewards, positive competition, and an engaging and interactive learning environment.
3.	Because with the level element, I become more	because on the leaderboard we can find	Because the rewards motivate me to answer

	interested in learning.	out our score among other people	correctly to get the rewards
4.	Because it's more exciting with levels	Because with the leaderboard I feel motivated	
5.	Because by level increases motivation in learning	Because it makes one competitive but competes in a healthy way and also competes in learning	
6.	Because the level is a reference for how much I understand the material that has been explained, I know how much I need to study to achieve the target I want.	It boosts my competitive spirit	
7.	As time goes on, the difficulty level gets higher and that makes it more focused.	It makes me passionate about learning	
8.	By level It's not boring during the lesson, adds enthusiasm to learning	Because of these elements, I became more eager to get high points.	
9.	This element makes me actively involved in learning	because I can feel competitive with my friends	
10.	By level, I feel challenged	Because it motivates us to try to improve our ranking.	
11.	Because level makes me excited to learn	Because I can see where I am and am motivated to catch up with my friends	

Based on the explanations given by the students as to why they consider certain elements to be the most motivating or effective in gamification, it can be concluded that the level element encourages students to move forward, creating a sense of progress. The level of difficulty increasing over time was seen as a motivational factor that kept students focused and engaged. Many students also stated that the leaderboard motivated them through healthy competition. The ability to see their position relative to others creates a competitive spirit, increasing motivation to achieve higher rankings. Finally, with the reward element, it creates an interactive and engaging learning environment. This positive learning atmosphere contributes to increased motivation.

Table 3. students' perceptions about the comparison of learning using gamification methods with conventional methods

No	Items	Students who answered
1.	By gamification learning more fun than the traditional method	14 students
2.	students become more focused and easier to understand the lesson with gamification	5 students
3.	traditional needs to be fully integrated with technology	2 students
4.	Gamification uses varied game elements; it attracts my attention more than the traditional method	1 student
5.	become more enthusiastic with the gamification method.	1 student
6.	With gamification more effective	1 student
7.	When using the traditional method students feel nervous about the questions on the paper and not confident to get a perfect score	1 student

Students' perceptions of the comparison of learning using gamification methods with conventional methods reveal insights into the differences they perceive. Students mentioned that gamification is perceived as more fun, engaging, and exciting compared to traditional methods. This fun factor is seen as a key motivator to continue engaging in learning. There is also a perception among students that learning is faster and easier to understand with gamification. The interactive nature of gamification methods may contribute to a more efficient absorption of information. Some students suggested that traditional methods need to be fully integrated with technology. This emphasizes the recognition that gamification often involves technological elements that contribute to a more dynamic and interactive learning experience. The use of varied game elements in gamification is recognized to attract attention. Students felt that gamification captured their interest more effectively, encouraging a higher level of engagement with the learning material. Enthusiasm was highlighted as a difference when using gamification. Students expressed being more enthusiastic and engaged when learning through gamification methods, creating a positive and motivated learning environment. Students also reported that they felt less nervous and more confident when using gamification compared to traditional methods. This suggests that the gamification approach can reduce performance pressure and create a more comfortable learning atmosphere.

Interview results

1. Why do you enjoy using gamification during learning?

Student 1

"Because when I play games, I will be encouraged to do tasks and achieve goals. By using game elements such as points, levels, and rewards, gamification can motivate me to learn with more enthusiasm. you could say gamification is like a seasoning that can make learning more exciting and fun"

Student 2

"I enjoy it because it makes learning fun and the learning is more interesting. By using gamification, learning will also be more interactive. So I think the use of gamification not only increases the effectiveness of learning but also makes the learning process more fun and interesting, so I enjoy it."

Student 3

"I enjoy using gamification in learning because it makes learning fun and exciting. "

Based on the interview results above, all students stated that the use of gamification makes learning more exciting and fun. This reflects the view that fun learning can increase student engagement and make them more enthusiastic. One student also highlighted that the use of gamification not only makes learning more fun but also increases interactivity. This shows that gamification is not only accepted as entertainment but also as an effective learning strategy.

2. In what ways can gamification increase your motivation?

Student 1

"When I successfully complete a task or reach a certain level, I will get a reward or recognition that makes me feel proud and motivated to keep going. In addition, gamification can also make learning more competitive with the leaderboard or ranking. We can compete with our friends and get excited to reach the top position"

Student 2

"I like gamification because it makes learning more exciting and challenging. You can get prizes and recognition (if you win) so it can motivate you to keep learning."

Student 3

"If I see and know that there are game elements such as leaderboards, achievements, and rewards, it makes me more enthusiastic to follow the lessons. Not only that, gamification can

also increase my motivation because I want to get those achievements and rank up on the leaderboard. If I manage to get a reward, it feels like I got a special gift, so my motivation is even higher."

The interviews above highlight the competitive nature introduced by gamification, such as leaderboards. The element of competition, especially when competing with friends, adds a social aspect to learning, making it more engaging and fostering a sense of fun. rewards and the desire to rank higher also act as a strong driving force for ongoing motivation.

3. Explain why you feel using gamification in English learning makes it easier for you to achieve your learning goals.

Student 1

"By using gamification, I can receive learning easily and not boring. So I enjoy learning English. And if I answer wrong, it makes me challenged to find out where I went wrong and find the right answer."

Student 2

"Using gamification in learning English makes it easier to achieve goals because there are challenges and rewards, so it is more enthusiastic about learning. It feels playful so it's not boring to learn English. Also, there is healthy competition so it is more enthusiastic, you can see your progress until where"

Student 3

"In learning English, I feel that gamification makes it easier for me to achieve my learning goals because there are many features that make me more comfortable learning. For example, if there is a repetition feature with increasing levels, I can learn gradually and not immediately bombarded with a lot of information. Also, if there are interactive features like games or quizzes, I can be more actively involved and understand new concepts more easily. So, with gamification, I feel more motivated and achieve my goals in learning English faster."

Based on the interview results above, gamification creates a fun learning environment, so it is not boring to learn English. The fun aspect implies that the learning process is perceived as enjoyable and not like a chore, thus contributing to a positive attitude toward achieving learning goals. In addition, the healthy competition in gamified learning introduces a self-monitoring aspect where students can track their progress. The ability to see personal improvement fosters a sense of achievement and makes it easier for students to work towards their learning goals. Overall, gamification increases motivation, which leads to faster

goal achievement. The combination of convenience-enhancing features, gradual learning, and active engagement contribute to a positive and motivated learning experience.

DISCUSSION

The application of gamification has caught the interest of numerous researchers, prompting them to explore its implementation across diverse contexts. *Gamification* is defined as the use of game design *elements* in *non-game contexts* (Deterding et al., 2011). Level of difficulty, badges, points, leaderboards, rewards, avatars, and progress bars are a few of the gamification element's mechanisms that can be utilized separately or in combination with one another. With its alternative framework, it provides a way to enhance students' interest and engagement in the learning process. Instructor interest in it is growing because of its ability to promote motivation and behavioral changes in learning contexts.

For evaluating students' motivation and engagement in the learning process, self-determination theory is a widely accepted paradigm. The Self Determination Theory (SDT), first presented by Ryan and Deci (2000), is a useful method for assessing motivation in people. According to (Ryan & Deci, 2000), people are motivated to fulfill three fundamental needs namely autonomy (the ability to make decisions independently), competence (sense of mastery/ability to solve problems), and relatedness (the ability to socialize). Intrinsic motivation leads to an inner drive to engage in learning. Whereas external motivation leads to the use of elements such as rewards, and points that motivate them. Students can be introduced to a subject and ultimately develop their intrinsic motivation to engage in it by using external motivators such as points and rewards.

This study found that the average student is familiar with learning using gamification. Students also feel more motivated by educational gamification. educational gamification also creates a fun learning experience for students. They feel more motivated and don't feel like learning is a burden, as they can learn while playing and enjoying the process. This suggests that gamification increases students' intrinsic motivation, which in turn motivates them to put in effort, participate and explore because they are curious, rather than motivated by rewards. Learning will be more motivated when students are having fun. A more interactive environment that encourages active engagement can be generated by integrating elements of a game into the educational process. By turning learning into more of a game than a task, this engagement helps to increase motivation. As per the results of the interview, students enjoy and consider gamification to be fun. Gamification is like seasoning which can make learning more exciting and enjoyable as explained by the participant

"Because when I play games, I will be encouraged to carry out tasks and achieve goals, right? By using game elements such as points, levels, and rewards, gamification can motivate me to learn more enthusiastically. "You could say that gamification is like seasoning that can make learning more exciting and enjoyable".

Based on the above statement, student motivation is influenced by gamification elements such as points, levels, and rewards. In this case, gamification elements relate to students' extrinsic motivation during the learning process. The fact that highly motivated students will contribute more to the social participation system in more competitive groups, giving rise to the SDT need for relatedness. Most students will prefer to participate competitively and are more likely to be motivated to show off their achievements. Moreover, by encouraging competitiveness among students, gamification increases their drive to succeed.

Regarding the concentration of participants when learning using gamification takes place, 16% of students answered very high, 52% answered high, and 32% answered medium. This proves that on average, students take learning seriously when using gamification, not just as a game. This suggests that gamification elements support students' autonomy by allowing them to concentrate on developing the skills they value most, while allowing them to experience mastery and recognition of those skills.

This is related to goal support. The questionnaire results show that Gamification helps students to achieve learning goals. (Gamification, which was originally only used for specific learning, turned into a motivator element to achieve academic goals, which develops the spirit of competitiveness, referring to one of the SDT needs, namely competence. To achieve learning goals, gamification encourages students to create learning activities, ensures their continuity, and provides them with guidance. Gamification also challenges students to learn English again and arouses their curiosity. As one of the statements expressed by one of the students during the interview

"By using Gamification, I can receive learning easily and not boring. So, it makes me happy to learn English. And if I answer wrong, I am challenged to find out where I went wrong and find the right answer".

According to students, the element they enjoy most or is most effective in increasing motivation with 44% answering level, 44% of participants answering leaderboard, and 12% answering gift/reward. Participants who chose level as a motivational element reasoned that the presence of the level element made them feel challenged and could increase their enthusiasm in learning. Through this gamification element, students can place themselves as

players who must complete a level that will advance to the next level after successfully completing a task or activity. Learners who chose the leaderboard as a motivating element reasoned that it can create a sense of competition or rivalry in playing and more enthusiasm to get high points. This means that leaderboards can increase learners' interest in the lesson, enhance the competitive spirit in the classroom, foster a sense of autonomy and competence among learners, and inspire learners to participate more in the learning process. The students are encouraged to evaluate their own performance in relation to their peers by using the leaderboard, which creates a healthy competitive atmosphere. Apart from motivating students to try harder, this also encourages social interaction and teamwork as they compete to outperform each other. The students are therefore inspired to try harder and are also encouraged to interact and collaborate with others. Participants who chose the gift/reward element as a motivating element believed that learning was more fun if the gamification included gifts. Gamification with this reward element increases participants' attention, performance, and makes the learning environment more fun and exciting. Giving students gamification rewards such as points can inspire them by giving them a sense of accomplishment. Earning points gives students a sense of accomplishment, so gamification can motivate them to keep learning to earn additional rewards. With the positive attitude of students towards the gamification element, it is hoped that over time it will strengthen their intrinsic motivation and maintain their interest in the lesson, not just the game. As explained by a student in an interview

“When I successfully complete a task or reach a certain level, I will get a reward or recognition that makes me feel proud and motivated to continue moving forward. Apart from that, gamification can also make learning more competitive with a leaderboard or ranking. We can compete with friends and be enthusiastic about reaching the top position.”

When compared to the method without gamification or the traditional method, the average difference is that students think that using the gamification method is more interesting because it does not get bored quickly, if using the traditional method makes learning more boring. By using the gamification method, students are also more focused on understanding the lesson compared to using traditional methods. If using the method without gamification I feel nervous about the questions on the paper and lack confidence to get a perfect score.

Gamification here plays an important role in increasing students' motivation to learn English. One of them is an increase in intrinsic motivation, their desire to learn and achieve.

They feel actively involved in the learning process through engaging game elements, such as levels, leaderboards, and rewards. This encourages them to keep improving. Collaboration and competition in play Gamification in education also allows students to work together in teams or compete with their classmates to achieve learning goals. It is seen that gamification encourages better collaboration among students and creates a healthy competitive spirit.

Overall, gamification in English learning can increase student motivation, reduce boredom, and improve student engagement and concentration. Good gamification elements, such as levels, leaderboards, and rewards, can stimulate motivation.

Conclusion

The result of the research showed that students who engage in gamified learning feel more motivated by it. Gamification creates a fun learning experience for students, making education seem more like play and less like work. Gamification stimulates students' intrinsic motivation, encouraging them to engage in exploration, effort and participation driven by curiosity rather than reward.

Gamification elements such as points, levels, and rewards influence students' extrinsic motivation during the learning process. Gamification also fosters autonomy and competence, fosters student competition and increases their motivation to succeed. In addition, gamification fosters relatedness where students who feel motivated will tend to contribute more to the social participation system when they are in a more competitive group. Gamification helps students to achieve learning goals, increases their curiosity, and challenges them to learn.

Overall, gamification in English learning can increase student motivation, reduce boredom, and increase student engagement and concentration. Good gamification elements, such as levels, leaderboards and rewards, can stimulate motivation.

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