

# *Gamification's Effect on Academic Motivation and Progress*

Sherly Zixuan Yang<sup>1,a,\*</sup>

<sup>1</sup>*Basis International School Shenzhen, Guangdong, 518000, China*

*a. email: SherlyZixuan.yang11983-bisz@basischina.com*

*\*corresponding author*

**Abstract:** In reality, more and more students found it hard to participate or engage actively in academic learning, and this lead to the decline of academic performance. In order to increase the role and effort that students put in their learning progress, motivation have to be highly enhanced. The main purpose of this study is to enable students to better find motivation to learn, to enter the ideal university and to achieve future goals. To better motivate students to learn, gamification has to cooperate with academic concepts. This research is more for the benefit of society, once people no longer feel bored through the help of gamification, the efficiency of work and all aspects will be greatly improved. Through in-depth investigation of gamification, we can achieve achievements in various fields, especially academic motivation. Therefore, this research can better help students to achieve one's goal and enhance oneself.

**Keywords:** Motivation, Academic performance, Education, Gamification

## 1. Introduction

The most common problem encountered by students is learning. Many struggled to comprehend or to improve academic performance. Students often have questions: Why is learning so boring? Why can't I learn so effectively like other people? The causes of these problems cannot be avoided. People's actions, behaviors, and thoughts are closely related to motivation, whether it is extrinsic or intrinsic. Motivation prompts us to complete a goal or thing. But often, students can't find their motivation to learn. Why should they learn? In many parents' minds, often a talent who learns well has the opportunity to contact better people and be on a better platform, so being admitted to a good university has become the motivation for many students to learn. But for some ordinary students, they cannot think of the goal as the original intention of their efforts. Therefore we also need a simple, fun, and portable way to make students full of motivation to learn, and that way can be achieved through gamification.

Many students are faced with a huge problem: how to improve academic performance and efficiency? It may seem to many people that learning requires sufficient patience, perseverance and persistence, but persistence and progress are often closely related to motivation. Academics have a crucial impact on students, while motivation can greatly impact academic performance and improvement [1]. Students that got more intrinsically motivated effect positively on their academic improvement, while they performed even better when experiencing this progress [1]. Therefore, there is a positive correlation between motivation and academic performance. Moreover, academic performance directly affects students' future. According to various data, students that perform higher

GPA's at school tend to go to better colleges while having a higher possibility of getting accepted by desired universities. Therefore, the above shows the impact of motivation on academics and the importance of academics to students. In addition, researchers and educators want to help students solve problems at the root cause, so that they have higher motivation and interest to learn. So how to improve students' motivation? The answer is gamification. By definition, gamification is a way of influencing one's behavior by applying game elements through badges, rankings, levels, and points [2]. Through gamification, students are able to perform better academically by pursuing passion and interest through competition, exploration, and challenges [2]. This article aims to explore the relationship between gamification and academic motivation and progress.

## **2. Method**

In this review, the research method based on searching in the database. Google Scholar is the main channel of evidence. This research focused on keywords such as "gamification", "academic performance", "academic achievement", "motivation", and "progress and advance". The screening criteria: (1) Studies that include gamification; (2) only English peer-reviewed articles are selected; (3) articles with a time span of nearly 10-20 years; (4) another way of research based on designed experiments. The experiment need to divide people into two groups through random selection, one group would learn the same information through gamification (receiving points and badges after they complete a certain assignment), while another group will just purely learn the same thing without receiving any points and badges. In the end, we will measure the academic performance and rate of studying per week of the two groups, so we can make sure that better academic performance isn't affected by any factors. Through this experiment, the group with a higher rate of studying can indicate the fact that they are more motivated to learn, thus learning more. A academic performance can reveal the improvements and progress of the students.

## **3. General Literature Review**

### **3.1. Gamification**

The origin of gamification was first introduced in 1980 through a developed project named MUDI. MUDI was defined as "a text-based system on the university's computer network," which later gave inspiration and insights into other games [3]. However, the word gamification has different meanings. Tom Malone was the one that first studied video games, and he argued that children could learn through the process of gamification [3]. After founding gamification and its relationship with academic learning and performance, gamification began to play a huge role in multiple aspects as people feel more satisfied and motivated through this process [4]. Gamification refers to "the use of game elements in non-game context" [5]. It can be in forms such as badges, leaderboards, levels, and points [3]. For example, an online learning platform named Khan academy uses gamification through badges and points [6]. Once students finish watching a video or article, it will add corresponding points while jumping on to the next section (either answering a question or another video to watch). Therefore through gamification, students can fill a sense of satisfaction after watching those videos and receiving those points, thus likely to get motivated to learn more [7].

### **3.2. Gamification as the Motivation for Academic**

Gamification is able to provide a fun daily routine in a non-game context, allowing students to view learning or academics as games. In this way, students can focus on the interesting part of the "game" instead of the vapidness of learning [3,8]. Therefore, it can act as motivation as students no longer

get bored with pure learning. Gamification can be in various forms, as stated in the definition, forms such as badges, points, and leaderboards motivate students to dig into the learning process [4,9]. According to the studies, badges were most useful for motivating students, which resulted in significant improvement [7,10]. However, due to forms such as leaderboards, students are more likely to compete with each other. Therefore competition also plays a key role in gamification. Moreover, gamification not only motivates students in terms of competitiveness and interest, it also has rewarding systems. Just as mentioned before, once students complete a task, rewards in the form of points and badges allow students to gain a sense of satisfaction, thus motivating them to continue the process of learning. Motivation can be a key determining factor in students' academic performance. It can alter the participation, amount of effort, and attention that students put into their academic work [11]. Therefore teachers and educators try to enhance students' persistence and performance through increasing motivation and its positive impact on the role of student's learning. Gamification's effect on learning performance can also be attained from other aspects such as exploration, progression loops, and teamwork [12]. Not only do points and levels allow students to engage better, but when students see various courses and topics that are available, their curiosity and desire to explore would further encourage them to dig into the process of learning [12]. Progression Loops allows students to gain satisfaction as the levels get harder and harder. And the increased challenge allows the students to overcome difficulties, thus progressing them from specialist to master [12]. Teamwork also allows students to unite in a concerted effort, marching towards a common goal, leading to active engagement and a strong desire to win the "game" [12].

### **3.3. Competition, Age and Gender's Influence on Motivation**

The form of leaderboards and levels in gamification creates competition between the students and other students, and between students and themselves. According to Murayama and Elliot, competition can be divided into both interpersonal and intrapersonal [13]. Interpersonal competition focus on competing over others, while intrapersonal means competing against oneself (between past and present). Competition plays a key role in gamification, and it helps with increasing one's motivation to complete a certain task. However, if competition is missed out, students would receive a negative effect as their engagement and satisfaction decrease [14]. In addition, competition can be influenced by various factors. For example, different age groups and gender can influence the extent of competition. According to experiments, women are less competitive than men. However, women's competitiveness changes greatly as their ages vary, while men's competitiveness kept consistent [15]. According to a previous study, the researchers discovered that female students are 35% as competitive as male students. Other factors, such as social interaction, recognition, and culture, can also impact the outcomes of an individual's pattern of game usage [15].

### **3.4. Examples of Gamification**

One prominent example of gamification would be Kahoot. Kahoot is a "free online platform" that contains more than 30 million users [16]. Kahoot allows students to participate in activities in class and to check students' understanding of knowledge. Usually, the teacher would assign a game PIN so that students are allowed to join. Kahoot has two modes: individual or group. Therefore students can choose whether to cooperate with their friends or work by themselves. Kahoot would apply various questions that teachers assign, and students have to answer those questions based on time and accuracy. Kahoot's form of gamification mostly composes of a scoreboard [16]. Whenever students finish answering a question, a ranking of the top 5 will be shown so that students can know where they're at. The scoreboard may motivate students to participate actively. When they see their scores become higher, they would gain a sense of satisfaction. The form of gamification in Kahoot can also

trigger competition between students, groups, and individuals [16]. Many students provide positive feedback in accessing Kahoot, as it allows them to gain motivation and interest to learn [16]. According to data, 100 percent of the students responded with a positive attitude toward Kahoot [17]. Most of the students reflected that they find Kahoot interesting and fun, while they can help with missing lectures and concepts [17]. Therefore Kahoot allows students to higher their academic performance and review their learned concepts (check understanding). Gamification does not only include learning from an academic perspective, but it also includes learning from health, fitness, and cate [18,19]. For example, there's an APP named KEEP. KEEP provides lectures and methods of fitness, such as Yoga and jump hold. People can exercise when they are watching the sample video, while goal setting and tracking allow people to keep track of their accomplishments and current progress. When people finish watching a video or accomplish a certain task, the APP would give corresponding points or trophies to meet people's satisfaction needs. Another factor that allows people to become motivated is the inductor. When people exercise with the video, the APP can track participants' movement and whether they achieved the standard. If the participants did the movement correctly, then it will pop out: Perfect! This allows the individuals to feel motivated as they gain a sense of confidence, satisfaction, and pride in their behavior. Therefore, there is definitely a link between APP and real world motivation [20].

### **3.5. Gamification's Design for Education**

Gamification can influence education and motivation in five main principles: 1. Goal orientation. 2. Achievement. 3. Reinforcement. 4. Competition. 5. Fun orientation [21]. Those principles allow gamification to work to its best advantage, stimulating students to engage in learning. Gamification can also increase students's confidence by giving them easier approaches to solving problems [22]. By boosting their confidence, students can be better motivated, become more energetic and expectation for their academic progress. Due to the lack of interest and engagement of students in academic learning, gamification can intensify and strengthen teaching methods by "facilitating learning, improving participation and expanding knowledge" [23]. Therefore students can improve their learning skills by facing challenges, cooperating with other individuals or groups, competition and enjoyment [24]. Gamification can grab students' attention by making it "game-like," so students can feel themselves playing games as the knowledge creeps silently into their minds. Thus through the process of gamification, students can both play and learn, however full of energy and passion (motivated).

### **4. Implications**

Gamification has contributed significantly to future research implications, providing new perspectives for students to use games to do things they would otherwise find boring or do not want to do. Therefore, gamification not only improves the efficiency and love of students' learning, but also brings more motivation and passion to various fields such as sports health, living habits, and work. Students who want to learn can use gamification to motivate themselves to continue learning. People who want to lose weight can stick to and achieve their goals through gamification. Gamification would integrate into multiple aspects in the future: companies can also use gamification to greatly improve people's fun, interest and efficiency, APPS can use gamification to motivate people to keep fit and stay healthy.

### **5. Conclusion**

According to this article, the original intention of gamification is to increase motivation, so for the hypotheses, gamification can greatly improve the efficiency and motivation of people to do things.

However, this research also has relative shortcomings, such as the lack of investigation of the defects of gamification and the dynamic changes caused by external factors. I think the biggest problem is the measurement of power. Some data cannot determine whether other factors have changed or whether the power itself has changed, and the power is connected to too many other influences, so it is difficult to judge whether it is motivation itself and whether gamification can have this effect. The results of this study show that gamification increases motivation, satisfaction, and competition in the form of leaderboards, points, and rankings. According to various studies, gamification does end up with a positive result and an increase in motivation, leading to better academic performance. Age, gender, and culture can also influence students' competitiveness and motivation, while gamification can be designed in a way that meets people's desire for satisfaction and enjoyment.

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