# The Effects Of Instant Feedback Sysrem On Course Interest And Academic Achievement In Gamification Learning

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## Abstract

The research was carried out to examine the impact of the feedback system on participants' interest and academic achievement in the gamification learning. Gamification learning experiments were conducted for two classes of students (90 participants in total) throughout a semester, and multiple feedback time intervals were used to test participants' interest and academic achievements during this process. It turns out that more instant feedbacks lead to better achievements. Instant feedbacks act as promotions for learners' thinking of problem-solving. Meanwhile, feedbacks help the learners avoid being interfered by other irrelevant content, which helps them build on their interest in the learning contents more easily. The experiment reveals that the instant feedback system helps increase learners' course interest and academic achievement.

**Key words:** Instant Feedback System, Gamification Learning, Course Interest, Academic Achievement

## 1. Purpose of gamification learning

Gamification plays an active role in the field of education, for gamification learning has the advantages of immersive experience, specific feedback, sharable and improvable skills as well as continuous learning fun. Learning is hard work for most people, so a huge education system and a complex reward and punishment system have been built to facilitate students to receive education. If students can learn like playing games, they will get addicted to learning and exploring. Animals train their predation capability through playing, but modern highly civilized humans cannot do it, so in order to achieve this goal, the process of learning knowledge and skills needs to be gamified.

Jane McGonigal raised a number of valuable ideas in her book Reality Is Broken. One of them is that games more conform to human nature, while reality cannot satisfy but even violate it. For example, games encourage players to explore and make challenges. To this end, a lot of incentives are designed so that players can learn and try by the computer all day and even play games while sleeping.

Many practices in modern education violate human nature, with irreversible damage. Students are naturally fond of exploring and trying and interested in everything, who often ask a lot of unexpected questions, while most adults have no such traits. Human creativity derives from constant questioning and exploring, so if everything is a matter of course, there would be no new motive, exploring or creation.

## 2. Importance of Instant feedback system in gamification learning

### 2.1 Gamification learning

Gamification means that non-game affairs are redesigned in a way of game thinking. To put it simply, all non-game problems in work and life are solved with game mechanics and tools so that all boring and difficult things can become interesting and easy as games. The essence of game is the application of motivation theory in non-game scenarios, while gamification learning is the vivid application of motivation theory in learning.

General gamification learning copies the game system, regardless of whether it is suitable for the current theme or whether it has fun, which just adds Points, Badges and Levels (PBL system) and put the coat of game on the theme activity, so this is not really gamified.

### 2.2 Instant Feedback system

Successful game mechanics must have a specific goal, clear and rational rules, intuitive instant feedback mechanism as well as fair incentives, any of which is necessary. This article focuses on the feedback mechanism.

In the game EA Sports, players have to make a decision every 1-2 seconds and get feedback every 7-10 seconds, so in order to maintain the flow state, it is important for them to keep aware that their behavior has an impact on the outcome. The mental flow is one of the main reasons why gamification learning is more motivating than non-gamification learning. A feedback mechanism is established at the beginning of the game to help the player learn how the game works and progresses, and many video games do so. In order to learn the game rules and control their actions, players must first have a simple understanding of the game. After they get enough feedback and really understand the basics of the game, they can enter the next level. Another important point when the feedback is given is that it should be more resultative. The feedback form itself should be related to the condition or behavior that results in it.

Any operation result in the game will be immediately displayed in a visualized and digitized way. Each time the number on the head of the monster, the sound effect of the move, the red word that causes the damage and the blue word that adds magic is chopped, they provide players with the most intuitive and instant feedback. Instant feedback provides players with a sense of controllability, while in real life, the process of learning does not allow students to see the growth of

value of accumulated knowledge and there is no obvious reward effect after the correct answer is given, so it lacks incentives for continuous learning.

In traditional learning, students often lack attention and feedback from educators. For example, after an exam, students may have to wait until the next day or even for a week before they know whether they are right. Due to continuous and rapid feedback from the surrounding environment to their behavior, their brain will keep highly excited for a longer period of time and at the same time treat the affair that causes feedback as a high priority. After all, this was written in human genes in the era of hunting. It is easy to understand and implement, so instant feedback is critical for most gamification learning at present. Therefore, it is the key for students to keep motivated and interested that they can get answers and feedback immediately when they have a question about anything.

## 3. Experiment of Instant feedback system implementation in gamification learning

### 3.1 Instant Feedback system design

In university learning, students often know their scores at the end of each semester, so students lack continuous incentives for learning due to long feedback of academic achievement. In order to promote their interest and effect in the learning process, a Instant feedback system is designed during the teaching process of game planning in the second year. The instant feedback system consists of three modules, namely score module, role module and reward module. Students follow this instant feedback system and hope to get 100 points from these three modules.
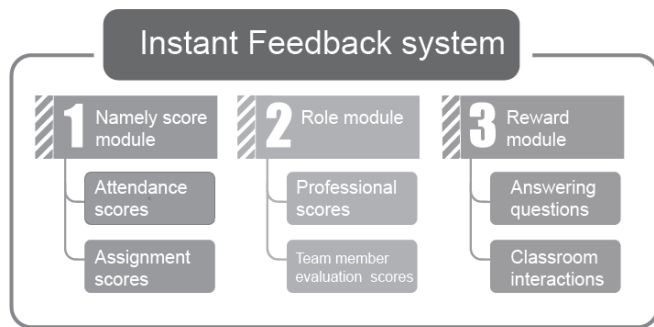


Fig.1 The Instant Feedback system Design

In the score module, the point count includes attendance scores and assignment scores. Weekly attendance leads to certain basic scores, and students can clearly count their basic scores every week, so perfect attendance can guarantee "qualified" scores of this course. Assignment scores refer to those of each assignment, which is published by the teacher to the students within three days so that they can calculate their course scores according to the assignment scores and calculation ratio. Throughout the learning course, students can constantly see the increase in their scores and keep aware that it is an achievable goal to get their satisfactory scores.

In the role module, the point count includes professional scores and team member evaluation scores. The assignment is expected to develop teamwork skills, so each team consists of four students, and different tasks means different professional scores. Team members give evaluation scores each other.

In the reward module, the points include reward scores for answering questions and participating in classroom interactions.

### 3.2 Experiment process

The experiment was carried out in two classes at the same time, 45 students in each class, and the course last 12 weeks, 4 lessons per week. Class 01 implemented this instant feedback system throughout the whole course learning, while Class 02 used the traditional course teaching mode.

In the experiment process, the attendance rate, head-raising rate, question-answering rate and interaction-participating rate of the two classes of students were counted through the surveillance video so as to compare the different learning interest of students under feedback teaching mode and traditional teaching mode.

Based on the time and quality of assignment submittal as well as the number of awards for competition, the differences between the students under feedback teaching mode and traditional teaching mode were compared and analyzed.
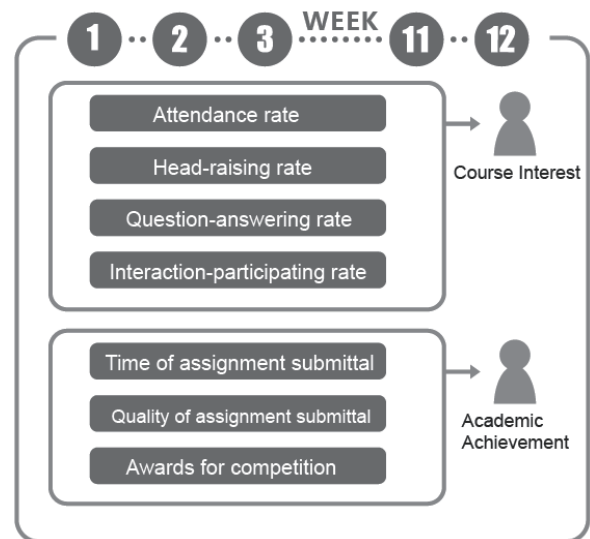


Fig. 2 Experiment Process

### 3.3 Experiment results

Table 1 shows the analysis data of learning interest of students. Class 01 students have an attendance rate of 100%, a class head-raising rate of 96%, a question-answering rate of 35%, and an interaction-participating rate of 47%. Class 02 students have an attendance rate of 96%, a class head-raising rate of 81%, a question-answering rate of 27%, and an interaction-participating rate of 38%.

TABLE 1
SHOWS THE ANALYSIS DATA OF LEARNING INTEREST OF STUDENTS

| Items | Class | |
|---|---|---|
| | Class 01 | Class 02 |
| Attendance Rate | 100% | 96% |
| Head-raising Rate | 96% | 81% |
| Ruestion-answering Rate | 35% | 27% |
| Interaction-participating Rate | 47% | 38% |

It is concluded from the above data comparison that Class 01 students have higher learning interest than Class 02 students.

TABLE 2
THE ANALYSIS DATA OF ACADEMIC ACHIEVEMENT OF STUDENTS

| Items | | Class | |
|---|---|---|---|
| | | Class 01 | Class 02 |
| Time of assignment submittal | Three days | 20% | 7% |
| | Two days | 14% | 5% |
| | Submit late | 0% | 1% |
| Quality of assignment submittal | excellent | 35% | 21% |
| | good | 53% | 56% |
| | qualified | 12% | 23% |
| Awards for competition | | 3 | 0 |

Table 2 shows the analysis data of academic achievement of students. For the time of assignment submittal, 20% of Class 01 students are three days ahead of the specified time, 15% are two days ahead, and 0% submit late. For the assignment scores, 50% of Class 01 students are "excellent", 35% are "good", and 15% are "qualified". There are three awards for the participation in the competition. It is concluded from the above data comparison that Class 01 students have higher scores in the learning course than Class 02 students.

**Conclusion**

It is proved by the data results of experiment of the instant feedback system designed based on the course content in the university curriculum that the instant feedback system has a positive impact on learning interest and academic achievement, which also show the important role of instant feedback system in gamification learning. An effective instant feedback system helps students strengthen self-directed learning and improve learning outcomes. If the game mechanics consistent with human nature are used for education, students will be more concentrated on learning and their learning efficiency will be greatly improved. As a result, creativity will not be curbed, but more time and energy will be spent on the education of creativity. The design of gamification learning should focus on behaviorism and have a frame based on the learning of subject content so that different instant feedback systems can be designed to strengthen the incentives, add points, badges, levels, titles, etc. and combine gamification with actual application scenarios so as to greatly improve the learning interest and academic achievement of students.

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