



Exploration On The Impact Of Gamification Evaluation On Positive Emotional Engagement Attitude And Academic Performance Of Computer Majors In Online Learning

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ABSTRACT

In China, many educators and scholars pay great attention to the evaluation of online learning for computer science students. In the process of online learning for students, their positive emotional engagement attitude has also become an important component that cannot be ignored. Purpose: The summative evaluation based on testing cannot meet the needs of comprehensive development evaluation for computer science students. In order to comprehensively and scientifically evaluate students' process development and improve their learning enthusiasm through evaluation, this article analyzed the important role of gamification evaluation in student development evaluation. Method: Gamification evaluation is to allow students to accept, digest, understand, and absorb knowledge on their own during the process of playing games. It is of great help in cultivating students' good habits of lifelong learning and conscious learning. In gamification evaluation, students can conduct practical evaluations and discover problems and loopholes themselves, so as to identify and fill in gaps. Using gamification evaluation as a means, this article analyzed its impact on students' positive emotional engagement attitude and academic performance in online learning, and explored how to use gamification evaluation to improve students' computer learning performance. Conclusion: The experiment in this article showed that only 9 and 8 students were very engaged in the traditional and experimental groups before the experiment, respectively. After the experiment, 7 and 29 students were very engaged in the traditional and experimental groups, respectively. After the experiment, it was found that the highest scores for boys and girls in the traditional group were 60.2 and 57.9, respectively; the highest scores for boys and girls in the experimental group were 76.3 and 72.2, respectively. It can be found that the gamification evaluation of the experimental group not only improves students' positive emotional engagement attitude, but also improves their academic performance. It is very meaningful to apply gamification evaluation to online learning in the experiment.

Keywords: Gamification Evaluation, Computer Science Students, Positive Emotional Engagement Attitude, Academic Performance

1. Introduction

The traditional evaluation methods do not have enough attraction for students and do not fully stimulate their learning enthusiasm, which leads to students often feeling too bored while studying, thereby reducing their learning efficiency. This is a problem that many teachers face when conducting evaluations. Due to the single evaluation by teachers, students cannot achieve comprehensive development and their own cognition is not scientific enough. Therefore, despite the great efforts made by teachers, students are not appreciative and cannot achieve the desired results. The traditional one-way input evaluation only targets students' scores, but

in order to master various aspects of students, it is necessary to have sufficient interaction between students and teachers in the evaluation. When gamification evaluation is put into practice in online learning, students would improve themselves and discover their shortcomings through the interaction of thinking and logic. In gamification evaluation, students are regarded as the main evaluators, enabling them to better utilize their learning time and improve their learning outcomes. Gamification evaluation has become a new trend. Gamification evaluation has characteristics such as situational, interesting, humanistic, and immersive. Only by having a clear understanding of the essence, characteristics, and core elements of gamification evaluation can teachers effectively improve students' positive emotional engagement and academic performance.

Gamification evaluation has a positive promoting effect on learning effectiveness and students' learning motivation. Alshammari Mohammad T found that gamification is often considered a promising solution for traditional electronic learning systems, combining game elements and mechanisms to enhance students' learning motivation, engagement, and ability. However, most current studies lack a careful and thorough experimental evaluation of the effectiveness of gamification, which is usually applied to adult scientific learning, making it difficult to generalize research results to other learning fields [1]. Toda Armando M observed that gamification has been widely applied in the field of education and has become a trend. However, gamification still lacks a formal definition to support the design and analysis of gamification strategies. He analyzed the game elements used in the gamification evaluation environment and detailed and extended the classification method [2]. The purpose of Woolwin Sarah was to determine whether implementing non numerical forms of gamification evaluation methods has a positive impact on the motivation and knowledge retention of the target audience. He found that gamification has a positive impact on students' learning motivation and knowledge retention [3]. Deslauriers Louis found that in the large-scale enrollment of computer science students' introductory courses, students in the active classroom learn more, but their perception of learning, although positive, is lower than that of peers in the passive environment. He discussed strategies that teachers can use at the beginning of the semester to improve students' response to actively participating in the classroom [4]. Matthew Roy believed that problem-solving skills are considered an important component of learning programming in beginner computer programming courses. He introduced a game to improve problem-solving skills for beginner computer students in programming introductory courses. This game helps most students understand programming concepts, structures, and problem-solving strategies. In addition, the game supports students' cognitive participation, harvest, and emotional participation in intellectual property courses [5]. The above scholars believed that gamification evaluation is an effective method that can maximize students' initiative and enthusiasm. How to stimulate students' learning enthusiasm and improve their academic performance through gamification evaluation is an important entry point for current research on the impact of gamification evaluation on students' learning attitude and academic performance.

The online learning evaluation of computer major students is mainly dominated by summative evaluation, which is mainly used in traditional closed book exams, and the types of questions are mostly standardized. The focus of the exam is still on the memory of knowledge, targeted understanding and analysis, and there is little use of assessment forms such as gamification evaluation [6-7]. The traditional evaluation based on exam scores cannot effectively stimulate students' learning enthusiasm. Therefore, it is necessary to conduct a gamification evaluation of students' overall situation as an important entry point for the reform of computer science education. To improve the teaching quality of computer science, the most important thing is to carry out evaluation reform. Only through evaluation methods that can continuously stimulate students' learning enthusiasm can the "water course" problem that appears among computer science students be fundamentally solved, thereby stimulating students' learning motivation and interest, and enabling them to better play their role. Gamification evaluation emphasizes the integration of game elements and game design techniques into student evaluation to optimize students' learning experience and enhance their participation, so that students can truly become masters of learning.

2. Gamification Evaluation Strategy

In the new round of basic education curriculum reform, it advocates comprehensive and harmonious education, and uses new concepts to re evaluate students' online learning. It reflects the modernization of curriculum content and advocates for interesting learning, fully showcasing multi-dimensional curriculum values such as knowledge and skills, processes and methods, emotional attitudes and values, innovative spirit and practical ability [8-9]. There are various ways to conduct gamification evaluations, with varying scales and contents. The execution of gamification evaluations can be combined with teaching, and formative and summative evaluations can also be conducted after teaching. Strictly speaking, gamification evaluation does not have a fixed pattern. Its content is determined by the course, and its manifestations are diverse.

2.1 Gamification Evaluation of Dynamic Interactive Activities Based on Devices

The gamification evaluation of dynamic interactive activities based on devices includes exploratory learning evaluation, experiential learning evaluation, collaborative learning evaluation, and problem-solving learning evaluation. A common feature of these four learning evaluation activities is the formation of group collaborative learning. There is continuous interaction between learners and learning resources, mainly

through communication, discussion, and questioning through mobile devices and communities. For experiential learning evaluation, collaborative learning evaluation, and other interactive activities that may trigger group cooperative behavior, constructing a community oriented evaluation method is not only the basis for “social” communication and sharing among online learners, but also the basis for various evaluation methods [10].

‘Social’ is the most important aspect of gamification evaluation, and many games rely mainly on multiplayer teaming. Creating a community in online learning requires communication between online learning subjects, which is also a crucial point. It not only provides a space for learners and mentors to communicate, ask questions, and answer questions, but also provides a display space for the level and badge obtained by learners after completing online learning tasks [11]. This is not only a recognition of learners’ grades, but also a motivation to work hard and strive for higher rankings. So, the most crucial point is that everyone has their own characters, and they can gain more fun through levels, rankings, and other methods. This is also why “leaderboards” are added to this game, and appropriate online socializing can enhance their emotions and sense of belonging [12-13]. When conducting gamification evaluations, attention should be paid to cultivating students’ sense of belonging, and good interpersonal relationships can be established through group cooperation. Gamification evaluation is shown in Figure 1.

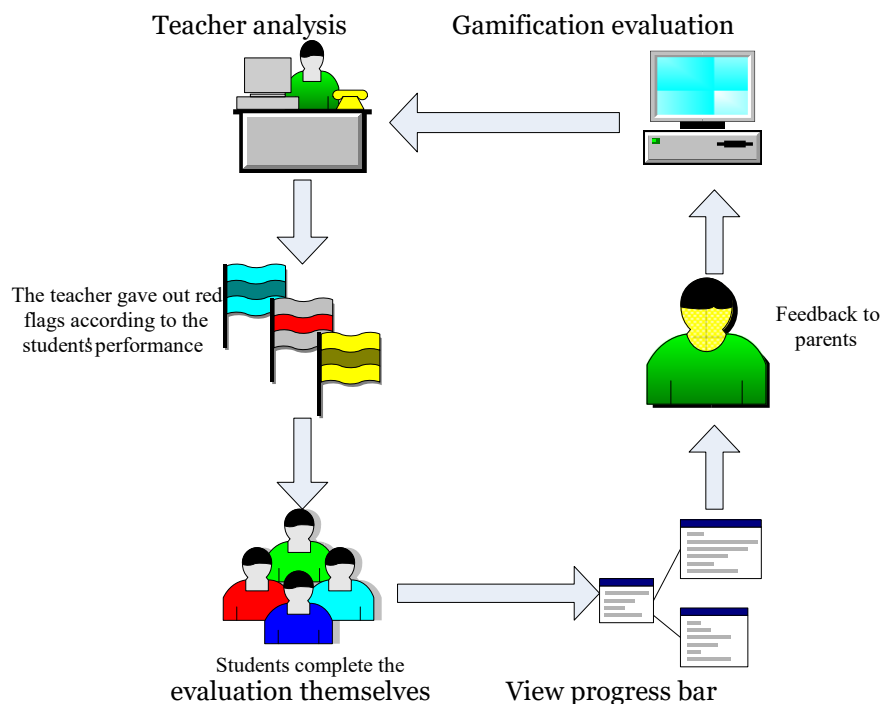


Figure 1. Gamification evaluation

In Figure 1, gamification evaluation can refer to the settings of the task “progress bar” in the game. For example, whether the task is completed, the degree of completion, and the quality can be fed back to learners through the progress bar. This evaluation can not only guide learners’ learning plans and adjust reflection and exploration methods in a timely manner when the quality of task completion needs to be improved, but also provide immediate feedback on task completion and stimulate learning motivation. In online learning activities, mobile devices can fully present this mechanism in games. When learners are performing learning tasks, adding progress bar elements can display and feedback learners’ progress in real time. Both the mentor and the student themselves can clearly feel the progress of the learning process and estimate the time required to complete the task.

2.2 Gamification Evaluation of Device Based Static Learning Activities

While using mobile phones to carry out self-learning (autonomous learning) and online listening (imparting learning), individual learning can also be achieved through “progress bar”, “reward” and “instant feedback”. In traditional classroom and class evaluations, teachers find it difficult to conduct hierarchical evaluations based on the abilities of each student, resulting in some students being unable to keep up with the progress. However, some students believe that the task is too simple and not challenging, resulting in a gradual loss of interest in learning. A more ideal approach is gamification evaluation, which can adjust the difficulty of learning based on the accuracy of students’ recent problem-solving, thereby gaining knowledge and a sense of achievement in problem-solving. In the process of completing tasks, it can also clarify the next learning goal. At the same time, gamification evaluation would also make corresponding adjustments to students based on their recent learning situation, in order to avoid the phenomenon of being unable to complete learning tasks

due to being too difficult. In the individual's learning process, it is necessary to establish a challenging, rewarding, and sustainable learning motivation. The gamification evaluation strategy includes game elements such as target tasks, level enhancement, and medal rewards. In the evaluation, appropriate difficulty settings should be made for each task based on students' knowledge and skills to ensure the overall evaluation process [14-15]. Moderate game challenges can stimulate learners' persistence in online learning and ensure learning continuity by constructing a "task completion" mechanism. By obtaining actual medals after completing each task, their sense of achievement can be enhanced [16-17]. It should be noted that the level of reward is determined based on the completion level of the task, in order to ensure that there is a difference between the speed and quality of task completion.

3. Problems with Traditional Evaluation Methods and the Effectiveness of Gamification Evaluation

This article focused on 150 students and 50 computer teachers majoring in computer science in a certain university, and conducted an online computer network course. Before the experiment begins, people tested the consistency of the participants. 150 students were divided into two groups, each consisting of 75 students, with 50 boys and 25 girls in each group (with more boys majoring in computer science). Two groups were subjected to traditional online score evaluation (traditional group) and gamification evaluation (experimental group), and six online unit tests were conducted over a period of 12 weeks.

3.1 Problems in Traditional Classroom Student Process Evaluation

China has attached great importance to quality education for a long time. In the 21st century, the question of what kind of people China should cultivate has become a focus of attention for educators, and the evaluation of students is particularly important. However, there are still many problems in traditional evaluation methods.

(1) Single participant in evaluation

According to the requirements of the National Basic Education Curriculum Reform Guidelines, the evaluation of students should achieve diversification of evaluation subjects, and teachers, parents, and students themselves should all participate in student evaluation. Classroom teaching is a process of bilateral activities between teachers and students. Classroom teaching evaluation should not be solely based on teachers, but should involve multiple subjects. However, there is a phenomenon of a single evaluation subject in actual classroom teaching evaluation. The participants in the evaluation are shown in Table 1.

Table 1. Participants in the evaluation

Evaluation subject	Students	Percentage %
Teachers	106	70.7%
Parents	5	3.3%
Student himself	15	10%
Classmate	21	14%
School leaders	3	2%

In Table 1, out of 150 students, 106 students stated that their evaluations were usually conducted through teachers, accounting for 70.7% of the total; 5 students expressed that the evaluation was conducted through parents, accounting for 3.3% of the total; 21 students expressed that the evaluation was conducted through classmates, accounting for 14% of the total. It can be seen that the main body of student evaluation was mostly teachers.

(2) Single evaluation content

When evaluating computer major students, teachers often complete the evaluation through exams. This method of evaluation is favored by evaluators due to its short time and high efficiency, and has always held a dominant position. However, this approach largely distorts the original intention of evaluation, making it a mechanized and formalized behavior. Each teacher's evaluation method is similar, and the results are also similar. They have not fundamentally identified the problems that students have in their learning, and the evaluation effect is not satisfactory. In practical evaluation, teachers often overemphasize students' grades and believe that grades are the true abilities of students, neglecting other aspects. This evaluation method is obviously unscientific.

Blindly emphasizing grades and evaluating them would overlook students' other abilities, which is not in line with the requirements of modern education to cultivate students. In the classroom evaluation of teachers, there is also a lack of evaluation of students' emotional attitudes and values. The survey results on whether the evaluation content in traditional evaluation methods is mainly based on scores are shown in Table 2.

Table 2. Is the evaluation content mainly based on scores

Frequency	Teachers	Percentage%
All	21	42%
Often	25	50%
Moderate	3	6%
Occasionally	1	2%
Never	0	0%

In Table 2, 21 teachers stated that they all used scores to evaluate students' learning performance, accounting for 42%; 25 teachers stated that they often used scores to evaluate students' learning performance, accounting for 50%; no teacher ever evaluated students' learning performance without using scores. It can be seen that most teachers often use score evaluation, with only 2% of teachers occasionally using scores to evaluate students' homework.

People cannot completely deny the existence value of scores, nor can they believe that using scores for evaluation is completely wrong, because scores can still reflect students' mastery of knowledge to some extent, and it has a certain degree of credibility and reference value. However, scores do not represent everything. They are just a measurement standard, so teachers should not generalize about students and use scores as the only criterion for measuring their quality. Scores only reflect students' mastery of a certain knowledge point during a certain period, and they cannot provide a comprehensive evaluation of students. This also goes against the educational concept advocated by the new curriculum reform, and the level of scores can be influenced by various factors.

3.2 Effectiveness of Gamification Evaluation

Due to the traditional evaluation testing mainly focusing on textbook knowledge and the serious testing environment, it is easy to generate testing anxiety. Moreover, the content of the exam is mostly disconnected from real life, requiring students to memorize a large amount of knowledge and concepts to pass. Especially for students with poor computer practical skills, relying solely on test scores often makes it difficult to obtain an objective and comprehensive evaluation of them. Therefore, the use of various evaluation methods, especially gamification evaluation methods that are more suitable for computer learning characteristics, has been put on the agenda. Gamification evaluation is developed from the principles of game evaluation, activity course evaluation, situational evaluation, and expressive evaluation, and emphasizes the integration of teaching and evaluation in the current reform trend.

(1) Cultivation of initiative

The initiative of learning requires students to learn, and its essence is that students have positive learning motivation. Active learning is purposeful, selective, planned and controlled. Students' learning is aimed at meeting their cognitive needs. In learning activities, students can have a clear understanding of the key points and difficulties of the curriculum according to the learning objectives proposed by the teacher, and then determine what knowledge they want to master in the activities. However, in learning activities, knowledge is diverse and cannot be learned entirely, which requires selectivity in the learning content. In the selection process, the relationship between the knowledge points taught and the current level of students should be considered, and the guiding role of teachers in learning activities should be emphasized. Students need to determine their learning methods based on teaching activities, such as actively acquiring knowledge or passively accepting knowledge, exploratory or cooperative, etc. The comparison of initiative between the traditional group and the experimental group in the six tests is shown in Figure 2.

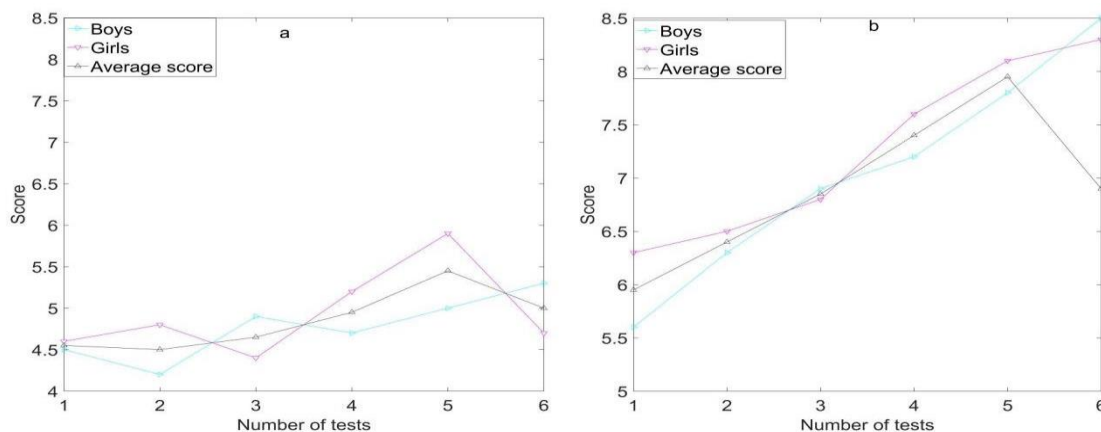


Figure 2. Comparison of initiative between the traditional group and the experimental group

(a) Initiative of traditional groups**(b) Initiative of the experimental group**

Figure 2 (a) shows that in the first test, the initiative scores of boys and girls in the traditional group were 4.5 and 4.6, respectively; in the third test, the initiative scores of boys and girls in the traditional group were 4.9 and 4.4, respectively; in the 6th test, the initiative scores of boys and girls in the traditional group were 5.3 and 4.7, respectively. The lowest and highest initiative scores of boys were 4.2 and 5.3, respectively. The lowest and highest initiative scores of girls were 4.4 and 5.9, respectively.

Figure 2 (b) shows the rating of the experimental group. It was found that in the first test, the initiative scores of boys and girls in the experimental group were 5.6 and 6.3, respectively; in the third test, the initiative scores of boys and girls in the experimental group were 6.9 and 6.8, respectively; in the 6th test, the initiative scores of the experimental group boys and girls were 8.5 and 8.3, respectively.

The occurrence of passive learning activities is also passively carried out under the leadership of students' receptive learning, while neglecting the process of allowing students to actively explore knowledge. In fact, students are a dynamic participant who constantly review and evaluate their learning process and results. The best state of active learning for students is to enable them to actively, purposefully, and systematically acquire knowledge.

(2) Interest comparison

If the evaluation of learning tasks is to be designed as gamification, then it must reflect the characteristics of the game: it must have a clear purpose and rules, and must put forward requirements for students to solve difficulties and challenges; it also needs to provide timely rewards to students, as game oriented behavior can lead to an experience that can bring joy to students. When designing, methods such as setting target levels, task coherence, determining the order of task completion, especially progressive tasks, corresponding task to target levels, and providing timely feedback to students during the task completion process can be used. This can better motivate students to overcome difficulties and challenges. The center of gamification evaluation is to enable students to find joy in the learning process and make the evaluation process interesting, thereby attracting them to computer courses and generating interest in learning. The learning interests of different groups of boys and girls in the six tests are shown in Figure 3.

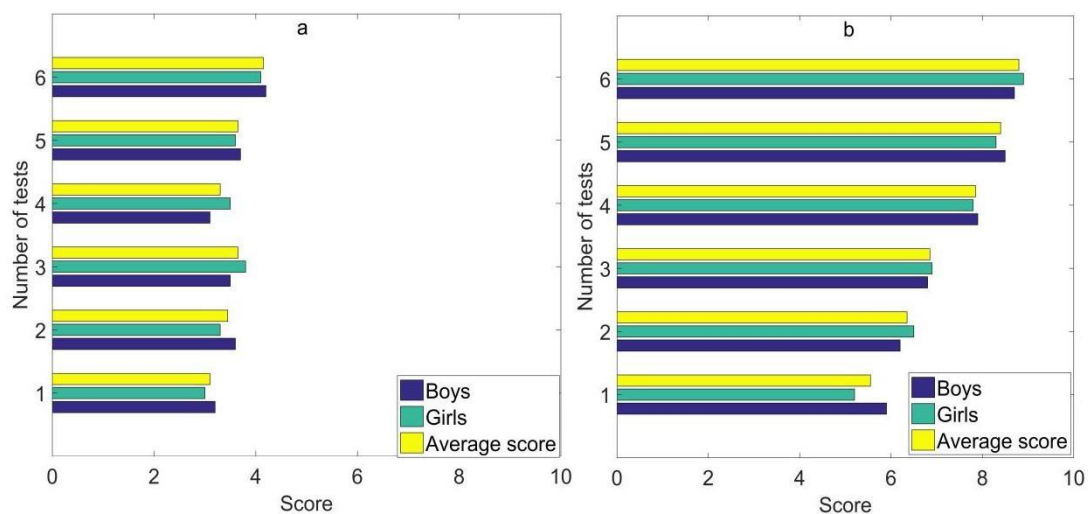


Figure 3. Learning interests of different groups of boys and girls

(a) The learning interests of boys and girls in the traditional group

(b) The learning interests of male and female students in the experimental group Figure 3 (a) shows that in the first test, the learning interest scores of the traditional group of boys and girls were 3.2 and 3, respectively; in the third test, the learning interest scores of the traditional group of boys and girls were 3.5 and 3.8, respectively; in the 6th test, the learning interest scores of the traditional group of boys and girls were 4.2 and 4.1, respectively. The highest average score for boys and girls was only 4.15, which was during the 6th test.

Figure 3 (b) shows that in the first test, the learning interest scores of the experimental group of boys and girls were 5.9 and 5.2, respectively. At this time, although the learning interest scores of the experimental group of boys and girls were not very high, they exceeded the learning interest scores of the traditional group of boys and girls. In the third test, the learning interest scores of boys and girls in the experimental group were 6.8 and 6.9, respectively; in the 6th test, the learning interest scores of the experimental group boys and girls were 8.7 and 8.9 respectively. The highest average score for boys and girls was 8.8.

(3) Stimulating positive emotional engagement attitude

Through gamification learning evaluation, students not only acquire knowledge, but also open the door to knowledge, constantly deepening their understanding of themselves. After experiencing the process of knowledge generation, students would have a good emotional experience, and they would believe that knowledge allows them to experience the emotional joy brought by learning. In positive emotional engagement, students can obtain a pleasant sense of happiness, which would spontaneously stimulate their desire for knowledge. Their emotional experience would also become richer. They can feel their progress, and they can't wait to share the joy gained in the evaluation process with others.

Effectively engaging in learning activities can also provide students with a positive emotional experience while maintaining their internal driving force, thereby becoming more proactive in the learning process. However, the generation of positive emotions is also related to teachers' emotions, teaching content, etc. Therefore, it is necessary for teachers to study students' initiative during the teaching process. This article measured the state of positive emotions from dimensions such as learning satisfaction, learning confidence, and positive attitude. The positive emotions of students in different groups over the past 12 weeks are shown in Figure 4.

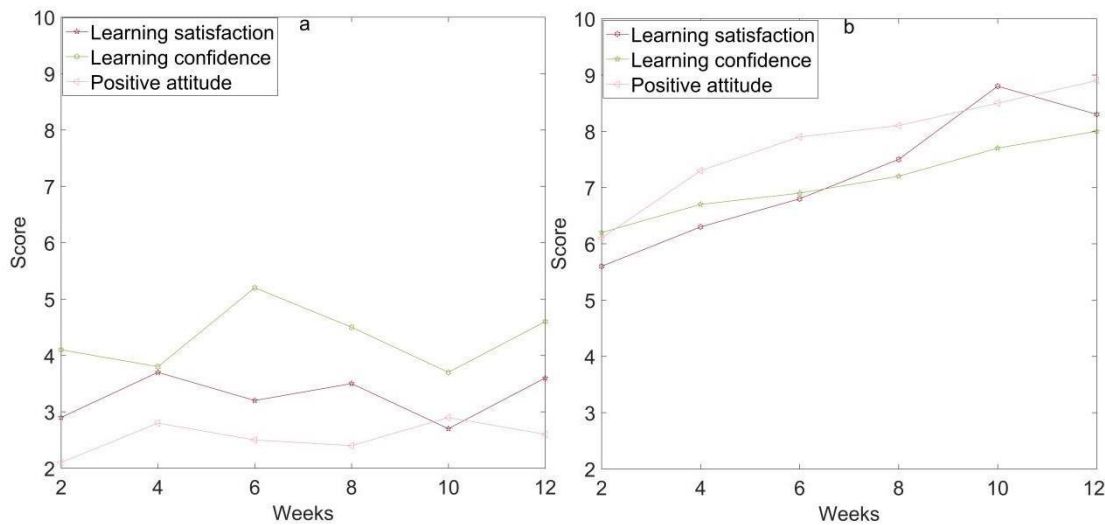


Figure 4. Positive emotions of students in different groups

(a) Positive emotions of traditional group students

(b) Positive emotions of experimental group students

Figure 4 (a) shows that in the second week, the scores of learning satisfaction, learning confidence, and positive attitude of the traditional group of students were 2.9 points, 4.1 points, and 2.1 points, respectively. At week 12, the scores of learning satisfaction, learning confidence, and positive attitude for the traditional group of students were 3.6, 4.6, and 2.6, respectively. The highest scores for learning satisfaction, learning confidence, and positive attitude were 3.7, 5.2, and 2.9, respectively.

Figure 4 (b) shows that in the second week, the scores of learning satisfaction, learning confidence, and positive attitude of the experimental group students were 5.6 points, 6.2 points, and 6.1 points, respectively. At the 12th week, the scores of learning satisfaction, learning confidence, and positive attitude of the experimental group students were 8.3 points, 8.0 points, and 8.9 points, respectively. The highest scores for learning satisfaction, learning confidence, and positive attitude were 8.8, 8.0, and 8.9, respectively.

Next, an analysis was conducted on the level of student engagement. The level of engagement of the two groups of students before the experiment is shown in Table 3.

Table 3. Degree of investment before the experiment

Degree of investment	Traditional Group	Experimental group
Very dedicated	9	8
Relatively invested	11	10
In general	17	21
Unable to invest	38	36

In Table 3, before conducting the experiment, only 9 students in the traditional group and 8

students in the experimental group were very engaged, respectively; there were only 11 and 10 students in the two groups who were more engaged, while there were 38 and 36 students in the two groups who were unable to engage. It can be analyzed that most of the two groups of students before the experiment were unable to engage in learning, indicating that the experimental data is more scientific. \ The degree of investment after the experiment is shown in Table 4.

Table 4. Degree of investment after the experiment

Degree of investment	Traditional Group	Experimental group
Very dedicated	7	29
Relatively invested	12	25
In general	19	13
Unable to invest	37	8

In Table 4, after the experiment, there were 7 and 29 highly engaged students in the traditional and experimental groups, respectively. At this time, the level of engagement of students in the experimental group was significantly higher than that of students in the traditional experimental group. After the experiment, there were 37 and 8 students in the traditional and experimental groups who were unable to participate, respectively. In the traditional evaluation process, most evaluations were conducted on a semester by semester basis. The difficulty of teaching evaluation is how to stimulate students' continuous participation and ultimately achieve the unity of talent cultivation and curriculum objectives by completing one task after another. In gamification evaluation design, a huge challenge can be transformed into an easily controllable step, which can be achieved through the elements of gamification systems. Most gamification evaluations include medals and rankings, which is also the characteristic of gamification evaluations. Students evaluate their progress based on indicators such as the number of tasks completed, distance from the goal, character development, and degree of progress. Using this gamification evaluation method can greatly help improve students' collaborative ability. Timely feedback can also give students a better sense of control. It enhances the individual experience of each participant and encourages them to break away from stereotypical thinking. By reducing the fear of failure that hinders innovation, it can enable them to have different interests and skills, and cultivate their confidence and optimistic attitude.

(4) Gamification evaluation stimulates learning motivation

Gamification evaluation can bring positive psychological experiences to learners, such as immersion and flow experience, and place learners in a positive learning attitude, which can make them happy and effective in learning. The level of willingness to participate before the experiment is shown in Table 5.

Table 5. Degree of willingness to participate before the experiment

Willingness level	Traditional Group	Experimental group
Very willing	7	6
Relatively willing	5	8
In general	29	26
Unwilling	34	35

In Table 5, before conducting the experiment, only 7 and 6 students from the traditional and experimental groups were very willing to participate in the study, respectively; there were only 5 and 8 willing students in the two groups, while there were 34 and 35 unwilling students in the two groups. It can be analyzed that most of the two groups of students before the experiment showed low willingness to participate in learning. The willingness to participate after the experiment is shown in Table 6.

Table 6. Degree of willingness to participate after the experiment

Willingness level	Traditional Group	Experimental group
Very willing	4	40
Relatively willing	7	15
In general	18	13
Unwilling	46	7

In Table 6, after the experiment, there were 4 and 40 students in the traditional and experimental groups who were very willing, respectively. After the experiment, there were 46 and 7 students in the traditional and experimental groups who were unwilling, respectively. It can be seen that the evaluation method of the

experimental group significantly improved students' willingness to participate, while the willingness level of the traditional group was lower.

(5) Comparison of academic performance

In the classroom, it is important to attach importance to the training of theoretical knowledge, which requires experienced teachers to guide and summarize their original teaching skills. With students as the main role, gamification evaluation methods are adopted to strengthen students' sense of active participation and improve their learning efficiency. Practice is the best proof, especially for computer majors that focus on practical operations, and gamification evaluation can effectively promote students' computer grades. The academic performance of different groups of boys and girls is shown in Figure 5.

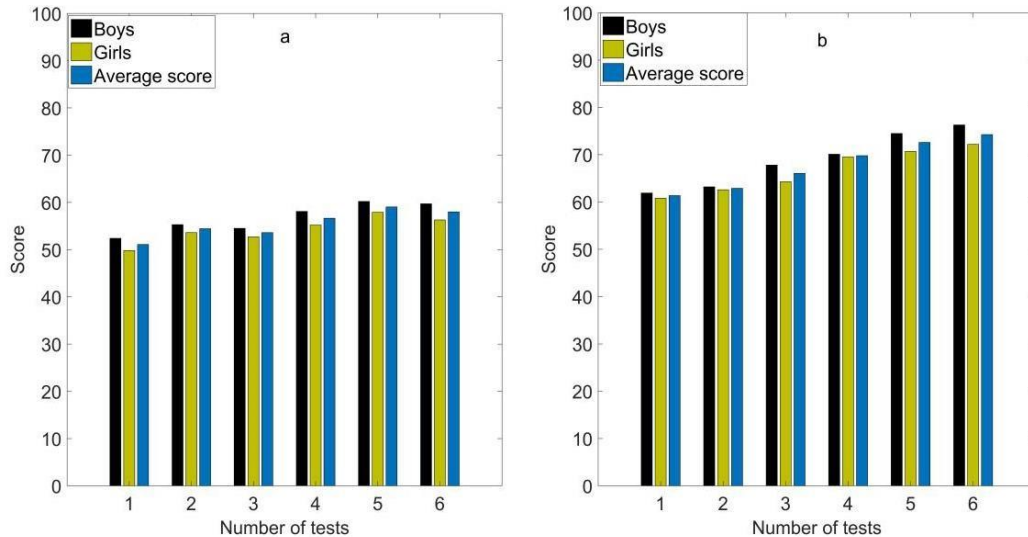


Figure 5. Academic performance of boys and girls in different groups

- (a) Academic performance of boys and girls in the traditional group
- (b) Academic performance of boys and girls in the experimental group

Figure 5 (a) shows that in the first test, the scores of boys and girls in the traditional group were 52.4 and 49.8, respectively; in the 6th test, the scores of boys and girls in the traditional group were 59.7 and 56.3, respectively; the highest scores for boys and girls in the traditional group were 60.2 and 57.9, respectively.

Figure 5 (b) shows that in the first test, the scores of boys and girls in the experimental group were 61.9 and 60.8, respectively; in the 6th test, the boys and girls in the experimental group scored 76.3 points and 72.2 points respectively; the highest scores for boys and girls in the experimental group were 76.3 and 72.2, respectively.

The characteristic of gamification evaluation is the organic combination of various evaluation methods. Students can hear both the teacher's explanation of knowledge points and the teacher's explanation of logical cases in the classroom. Students can treat all difficulties as a game and incorporate themselves into a small story, then use this story to solve various difficulties in the game. Using this interesting method to assess can make students fall in love with the evaluation process, and they would also determine their own level based on the number of passes and the quality of the passes.

4. Conclusions

Online learning and gamification evaluation have both been important methods in promoting educational reform in recent years, aiming to help computer science students grow better in the new environment. When conducting various educational evaluation activities, it is necessary to have a thorough understanding of the combination of evaluation and learning. This article took the perspective of online learning activities as the starting point, and combined game elements to conduct gamification evaluation of students. This article utilized gamification evaluation to enhance learners' learning experience and optimized the evaluation of online learning activities. In the experiment, it was found that traditional evaluation methods not only have a very single evaluation subject and content, but also cannot mobilize students' positive emotions. Gamification evaluation can not only stimulate students' willingness to participate in learning, but also improve their computer performance. In the future, the perspective of evaluation can be shifted from learning tools and software to gamification evaluation itself, and updated and more constructive related theories can be provided. Therefore, research in this direction should be pursued in the future.

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