

The Impact of Gamification Teaching Methods on Elementary Students' Learning Interest: A Case Study Based on History Class

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Abstract. With the progress and updates in modern learning theories and educational teaching methods, in April 2018, the OECD published the report "Teachers as Designers of Learning Environments: The Importance of Innovative Teaching Approaches," which proposed the "5C" framework of innovative teaching methods, providing a framework for teachers to transform their teaching. Innovative teaching methods have formed six major groups, and this article mainly discusses "gamification teaching" as one of them. This article primarily analyzes the background, main steps, key characteristics, as well as the benefits and possible negative impacts of gamification teaching on instruction and student learning. Through case analysis of gamification teaching in elementary history lessons, the article concludes the impact of gamification teaching on enhancing students' interest in learning. Finally, it summarizes the most influential aspects of gamification teaching on enhancing students' interest in learning, aiming to contribute to the exploration of the impact of gamification teaching on basic education through case studies. In the future, with the development and improvement of gamified learning theory, gamified teaching will become more tailored to students' individual traits and better meet their personal developmental needs. As competency-based education becomes more widely promoted in countries around the world, gamified teaching will play a more significant role in enhancing students' learning interests. With the promotion of gamified teaching, incorporating a wider range of knowledge and deeper levels of learning in basic education will be more easily achievable.

Keywords: Innovative Pedagogy, gamification learning, case study, primary education.

1. Introduction

The use of gamification in innovative teaching methods can promote students' interest in learning and enhance the effectiveness of teaching. Play holds an important role in children's learning, and supports intellectual, emotional and social well-being [1]. Research has shown how play, among other things, can improve memory and stimulate the growth of the cerebral cortex, provide avenues for learner engagement in academic tasks, contribute to language development, and promote creative problem-solving and reasoning.

The main limitations of this study are twofold. Firstly, the duration of the professor's lectures was not sufficient to achieve a cyclical effect in guiding the students, and the students may not have had a full perception of the overall teaching. Secondly, the content of this teaching was limited, and the available gamification teaching methods were limited, which may not fully reflect the characteristics of gamification teaching [2].

The research objective of this study is to teach history lessons to elementary students through gamified teaching, and to examine whether gamified teaching can effectively enhance students' interest in learning knowledge that is often considered dull and boring. The study aims to identify the impact of gamified teaching on enhancing students' interest in learning [3].

2. The Application of Gamification in Primary School

2.1. The Steps of Gamification Teaching Method in Primary Schools

Gamification teaching, as a group of innovative teaching methods, aligns with the "5C" framework of innovative teaching approaches. At the same time, it is based on the basic framework of innovative teaching methods and responds to the new requirements of content, methods, and learning outcomes for students in the modern era. Therefore, when using innovative teaching methods like gamified teaching in contemporary education, teachers should consider the practical situation and the specific level of students' acceptance. However, as a new teaching approach, gamification teaching has its own basic steps that need to be followed. These steps have a decisive impact on the ultimate effectiveness of gamification teaching [4]. The steps of gamification teaching can be summarized as follows.

At first, teachers need to design gamification learning objectives. Determine clear learning objectives and transform them into a gamification format, so that students have a clear understanding of what achievements they need to reach. Then create a gamification learning environment. Build a challenging and interactive learning environment by using game elements, such as points, leaderboards or role-playing, to stimulate students' interest and engagement. Design gamification learning tasks: Convert learning content into meaningful and challenging tasks, encourage students to actively participate, and provide rewards and feedback mechanisms to enhance learning motivation [5]. Then provide gamification learning support, offer appropriate guidance and support to students, ensuring that they can understand and master the knowledge during the gamification learning process, and address any confusion or difficulties that may arise. After that, evaluate learning outcomes, using appropriate assessment methods to evaluate students' learning outcomes, including gamification performance, knowledge acquisition, and skill development, in order to make timely adjustments and improvements to gamification teaching strategies. These steps can be adjusted according to students' specific feedback and teaching effectiveness.

2.2. Typical Characteristics of Gamification Teaching Methods

As a form of innovative teaching method, gamification teaching differs significantly from traditional teaching methods. The differences between gamification teaching and traditional teaching also contribute to the distinctive features of gamification teaching and strongly influence its effectiveness. Gamification teaching has the following characteristics.

First, the gamification teaching can increase learning motivation, gamification teaching stimulates students' interest and active participation by introducing game elements and competitive mechanisms, enhancing their learning motivation. It can also get creation of positive learning experiences, gamification teaching provides an interactive and challenging learning environment, allowing students to enjoy a sense of accomplishment and fun during the learning process, enhancing their learning experiences. It can also provide personalized learning [6]. Gamification teaching can monitor and evaluate students' game performance and progress in real-time, providing personalized learning paths and support based on their individual needs and levels. The gamification learning also emphasise cooperation and competition. Gamification teaching promotes communication and collaboration among students through cooperative and competitive mechanisms, fostering a spirit of teamwork and competition. Gamification teaching also can.

Timely feedback provision: Gamification teaching often includes real-time feedback mechanisms, allowing students to immediately understand their performance and progress, enabling them to make necessary adjustments and improvements. The gamification teaching can also enhance sustainability of learning. By setting gamification goals and reward mechanisms, gamification teaching enhances students' learning motivation and persistence, helping them develop positive learning habits.

In summary, gamification teaching improves students' learning motivation and engagement, promotes their comprehensive development through the creation of positive learning experiences, personalized learning, and an emphasis on cooperation and competition.

2.3. The Advantages and Disadvantages of Gamification Teaching in Primary School

2.3.1. The advantages of gamification teaching in primary school

Gamification makes learning fun and engaging, motivating students to actively participate and strive for better performance. The interactive and immersive nature of gamified learning helps students retain information and concepts more effectively. Gamification facilitates a more interactive and personalized learning experience by adapting to individual student needs and preferences. Gamified learning encourages collaboration and teamwork, promoting the development of social skills and cooperative behavior among students [7]. Gamification provides instant feedback to students, allowing them to assess their progress and make necessary adjustments to their learning strategies.

2.3.2. The disadvantages of gamification teaching in primary school

Excessive focus on rewards and competition may lead to a shallow understanding of the subject matter, as students may prioritize short-term achievements over long-term learning goals. In some cases, the incorporation of game elements may distract students from the main learning objectives, shifting their focus solely to the game aspect. Designing and implementing gamified learning experiences can be time-consuming for teachers, requiring careful planning and preparation. Not all students may respond equally well to gamification, as individual preferences and learning styles vary [8]. Some students may find it less motivating or engaging. Gamification often relies on the use of technology and digital tools, which may pose challenges for schools with limited resources or inadequate infrastructure.

3. Gamification Design in Primary School History Classroom

3.1. Design of Teaching Objectives in Gamified History Classroom

First, enhance students' understanding of the chronological sequence of Chinese historical changes. By learning historical changes, students can gain an understanding of the development and changes in human society. This will help them better comprehend social structures, political systems, and economic development, thus enhancing their sensitivity and understanding of social issues. And promote students' awareness of significant historical events and important historical figures. By understanding historical events and figures, students can better grasp their own social and cultural background. They can learn moral and ethical concepts from history and develop a sense of identity with their own culture and values. Then increase students' interest in learning history. When students are interested in history, they will proactively learn and explore historical knowledge. They actively participate in discussions, read relevant materials, and actively seek out more learning opportunities. This initiative helps improve learning effectiveness and depth. Additionally, students who are interested in history often reflect on the causes, effects, and significance of historical events. They think about historical questions from different perspectives and understand how to weigh different historical viewpoints. This critical thinking ability will benefit them in other subjects and in real life situations. Enhance students' ability for comprehensive and critical thinking. Strengthen students' ability to correlate historical figures with their respective historical periods. When students are able to correlate historical figures with their respective time periods, they gain a coherent understanding of historical development and changes. They can place specific historical events and individuals within a broader historical context, leading to a better understanding of their significance and impact. Furthermore, when students are able to associate historical figures with their time periods, they can effectively argue historical viewpoints and engage in critical thinking. They can compare the decision-making and actions of historical figures from different time periods, evaluate and compare the underlying reasons and consequences, thus forming more profound historical perspectives. Moreover, correlating historical figures with their respective time periods helps students interpret historical events and phenomena more accurately. They can compare and analyze the challenges faced

by historical figures in different time periods, identify common patterns and trends, and provide better explanations for historical development and changes.

3.2. Design of Teaching Procedure in Gamified History Classroom

3.2.1. Introduce student roles

Before the lesson begins, inform students that they will be playing the role of young archaeologists. Divide students into three groups, representing three archaeological teams. Their task for today is to excavate different artifacts and investigate their historical periods.

3.2.2. Explain the game rules

(1) Place a cardboard box on the teacher's desk, which will serve as the excavation site for the three archaeological teams.

(2) At the start of the game, each of the three teams will receive a set of dynasty cards representing different historical periods in China, such as Xia, Shang, Western Zhou, Eastern Zhou, Qin, Han, Three Kingdoms, Jin, Northern and Southern Dynasties, Sui, Tang, Song, Yuan, Ming, Qing, totaling fifteen dynasty cards.

(3) One student from each team takes turns coming to the front of the class and plays a game of Rock-Paper-Scissors with the teacher. If they win, it means a successful excavation, and they can choose one card from the cardboard box. They then return to their group and discuss the identity of the historical figure on the card and the corresponding dynasty.

(4) After reaching a conclusion, one student represents the group and uses the dynasty card to write down the historical figure corresponding to the given clues. If the figure is correct, they earn one point. If both the figure and the corresponding dynasty are correct, they earn two points.

(5) In the end, the group with the highest total points receives a reward.

3.2.3. Considerations during Implementation

Maintain good classroom order, ensuring a conducive learning environment during discussions and games. Provide appropriate hints to guide students towards correct guesses and explorations. Encourage group discussions and promote cooperative learning among students. Pay attention to students who are not actively participating in discussions and encourage their active involvement in learning.

3.3. Design of Teaching Effect Feedback in Gamification History Lesson

For classroom feedback, immediate feedback is the most direct approach. Therefore, we should first focus on the real-time feedback in the classroom. Provide students with immediate feedback on their performance during gamified activities, highlighting correct answers or explaining misconceptions. Then, implement a system for students to track their progress and achievements within the gamified learning experience. This can include visual progress bars, badges, or levels. Encourage students to provide feedback to their peers during group activities or presentations, promoting a collaborative learning environment. Offer individualized feedback to students, pointing out areas of improvement, recognizing strengths, and providing guidance for further learning. Include opportunities for students to reflect on their own learning progress and set personal goals. This can be done through self-assessment quizzes or reflection exercises [9].

The design of teaching objectives, teaching procedures, and teaching effect feedback in gamified history classrooms should align with the overall goals of history education while incorporating game elements to enhance engagement, motivation, and learning outcomes.

4. Reflection and Summary of Gamification Design in Primary School History Classroom

4.1. Student Interview Record

In order to assess the teaching effectiveness, we conducted interviews with several students after the completion of the teaching process. Our aim was to directly understand their perception of gamified education and gather their feedback on their learning experience. Student A said “The game of the small archaeological team led by our teacher was a completely new experience for me. Previously, when we learned history, our main method of learning was through memorization and recitation. It was the first time for me to realize that I could learn history while playing a game. It's much more interesting than the traditional learning methods we used before.” “In the game of the small archaeological team, our group earned first place and ultimately received a reward from the teacher. I was very happy about it. When the game started, I was the first one to go up and play Rock-Paper-Scissors with the teacher. I won against the teacher on my first try and won an opportunity for our group to choose a clue from the box. I picked a picture of a big sword. After discussing with my groupmates, we concluded that the big sword represented the brave and skilled Three Kingdoms hero, Guan Yu. We identified him as a historical figure from the Three Kingdoms period and I confidently shared our answer on the blackboard, earning us two points. If given the chance, I would love to play this game again. There are still many historical figures and knowledge to explore.” Student B said. Student C thought that the game was quite challenging for me because she didn't have much interest in history before, and her knowledge of historical figures and Chinese dynasties was limited. So, at first, she didn't want to participate in the game. However, the teacher came by and encouraged her to join the discussion with her groupmates. She listened to the ideas and contributions from other students in the group and learned historical knowledge that I wasn't aware of before. Later on, she also contributed to earning a point for our group. Although their didn't become the first-place winner in the end, she was still happy because she learned to seek knowledge from my classmates and friends, things she didn't know before. She also discovered the interesting aspects of history. When she goes home, she planned to study history from books on her own and strove to help their group achieve higher scores in the next game. Student D said: “I feel that this game was too difficult for me. I'm not good at history, and I don't usually enjoy reading history books. Although this game allowed me to learn some knowledge, I answered the questions incorrectly when helping my team. Even though my teammates in the group didn't blame me, I still feel very guilty. If I had answered correctly, we might have won the game.”

4.2. Teaching Process Reflection

In this teaching process, the key step is to engage students by establishing a story context and setting roles for them. This approach effectively connects students' individual thinking with the classroom, thereby leading them to actively participate in the educational game. However, some students may not actively receive the story context information during the introduction stage, which can weaken the subsequent teaching effects and vary the level of their participation in the following activities compared to other students.

For students, learning history through the simulation of excavating artifacts is novel and more engaging compared to the traditional approach of textbook-based learning. Novel learning methods align more with students' expectations, arousing their curiosity and anticipation. This, in turn, increases their interest in acquiring knowledge, ultimately enhancing their motivation for learning. Additionally, forming groups within the class to create three simulated archaeology teams promotes cooperative learning among students within their respective groups. Competition between the three groups stimulates teamwork and the desire for independent exploration. The knowledge of historical figures and their corresponding timeline discovered by students through their independent exploration is likely to leave a more lasting impression than if taught directly by the teacher.

However, during the process of educational gaming, some students may have insufficient understanding of the knowledge and struggle to complete the task of matching historical events with their respective time periods.

To address the shortcomings encountered during the teaching process, teachers should actively guide students to participate in the game and pay close attention to their progress. If there are difficult knowledge-related questions, teachers can encourage students to ask questions and find solutions. Prior to the course, adequate preparation should be made through preliminary knowledge explanations. Furthermore, providing targeted assistance such as having one or two teaching assistants can help ensure the effectiveness of the classroom.

4.3. Analysis of the Impact of Gamification Teaching on Student Engagement

If the effectiveness and attractiveness of a game lie in its ability to engage students, the educational value of the game should combine the gaming experience, learning principles, and relevant content. The game mechanics and emotional elements should be directly or indirectly incorporated into teaching and curriculum design, following the concept of minimally embedded integration, such as special badges, a sense of immediate goals embedded in narratives, and role-playing, to achieve the educational application of games, such as video games, education games.

"Gamification teaching" posits that games can attract students' interest and promote learning primarily through two types of teaching elements: mechanics elements, such as timely feedback, badges and goals, engagement, progressive challenges, and emotional elements, such as story and identity, cooperation and competition. In this teaching case, the teacher attempts to create a more attractive learning context to enhance students' desire to learn, and constructs a challenge and rule framework with elements of competition and cooperation [10]. Within this framework, students are propelled by competitive mechanisms. Combined with the natural affinity that adolescents have for games, they will actively engage in exploring and assimilating knowledge during this process. During the game, there was a cooperative learning relationship among group members, and the tasks of discussing and learning together served as the driving force. Acquiring knowledge from classmates in the same group was also a key point to experience in the process of combining gaming and learning [11]. At the same time, it is inevitable that some students may not willingly participate actively in the game activities. Apart from the teacher's active guidance, mutual motivation and encouragement among classmates in the same group can also enhance students' interest in learning.

5. Conclusion

The gamification design in a primary school history classroom involves incorporating game elements into the teaching process to enhance student engagement and learning outcomes. It is important to reflect on the teaching process and gather feedback from students to identify areas for improvement and assess the impact of gamification on student engagement. By analyzing the data collected, teachers can make informed decisions regarding adjustments and enhancements to the gamified activities. The ultimate goal is to create an interactive and effective learning environment where students actively participate, enjoy the learning process, and develop a deeper understanding of historical concepts. The main significance of the case study presented in this article lies in understanding how gamification teaching can enhance students' interest in the subject matter itself and their engagement in the process of exploring challenging knowledge. By analyzing students' performance in the classroom, it provides valuable insights and references for improving educational game design and organizing classroom activities when using educational games in teaching.

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