

# Games-Based Learning: Exploring New Models of Education in the Digital Age

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**Abstract:** In recent years, with the continuous development of information technology, Games-Based Learning has attracted more and more attention. From the early concept of Games-Based education to the current practice and exploration of Games-Based Learning, Games-Based Learning has experienced the evolution from “games” to “education”. At present, society is in the digital age, and with the continuous development of emerging technologies such as 5G, big data and artificial intelligence, education will face unprecedented changes. As a new educational concept and model, Games-Based Learning is increasingly being applied in the field of education due to its advantages of liveliness, interactivity, and immersive experience. This paper takes the Ministry of Education’s “14th Five-Year Plan” on the deployment of education information work as an opportunity to focus on the application of Games-Based Learning in the field of education to analyze and think.

**Keywords:** Games-Based Learning; Education in the Digital Age; New Model Exploration

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## 1. Games-Based Learning

Games-Based Learning, that is, learning in the way of games, drives learners’ learning motivation through “play”, guides them to change from passive “learning” to active “playing”, and enables them to constantly obtain a sense of accomplishment and satisfaction in the world of games. As early as the 1980s, foreign scholars began to integrate games into the teaching process and carried out relevant research. However, the research on Games-Based Learning in China started relatively late. Since 2000, domestic scholars began to pay attention to the application of Games-Based Learning in the field of education, and carried out a series of application practices in the field of education.

With the continuous development of information technology, our country has tried to introduce Games-Based Learning into classroom teaching. In May 2017, the General Office of the Ministry of Education issued the Notice on Actively Carrying out the Pilot Work of Games-Based Learning in ordinary institutions of higher Learning (hereinafter referred to as the Notice), which requires universities to actively explore the application model of Games-Based Learning and regard it as an important starting point for improving the quality of education and teaching, promoting curriculum reform, and cultivating students’ innovative spirit and practical ability.

As a new educational concept and model, Games-Based Learning carries out educational activities through Games-Based teaching, Games-Based experiment and Games-Based management. Specifically, it includes: using various digital game elements into classroom teaching to stimulate students’ interest in learning, using task-driven, feedback mechanism and achievement system to design and organize game activities related to teaching content, using a variety of digital tools and a variety of learning channels to help students build their own knowledge system, carrying out process evaluation and final evaluation for students in various ways, promoting the growth of students through psychological counseling and behavioral intervention.

## 2. A Practical Exploration of Games-Based Learning in the Field of Education

Games-Based Learning is a process of game design and development for the purpose of learning, which is student-centered and carries out knowledge construction and skill training in the context of games. In recent years, with the continuous development of information technology, the practice and exploration of Games-Based Learning in the field of education are also increasing.

As early as the late 1990s, some researchers began to try to apply Games-Based Learning to the field of education, but the early

attempts did not achieve the expected results. In 2004, Tom Hanson, a computer science professor and renowned game designer at the University of Los Angeles in California, first proposed the concept of “Games-Based Learning” and applied it to classroom teaching. In 2007, Nick Foley, a professor at the University of Illinois in the United States, published a paper entitled “Gamification in Education” in the Journal of Educational Research, and proposed the concept of “educational games”. In 2015, Kevin McDonald, a professor at the Massachusetts Institute of Technology, proposed the concept of “Games-Based Learning”. In June 2018, researchers at Cardiff University in the United Kingdom proposed a framework of “Games-Based Learning”, and through analyzing some existing studies in the field of education, they found that the application of Games-Based Learning strategies in education can have many positive effects. In November of the same year, researchers at the University of Edinburgh in the United Kingdom analyzed behavioral data and knowledge used by British students during their learning process to predict their future performance. In December 2018, a study from Seoul National University in South Korea found that using game-based learning teaching strategies could improve students’ math, Chinese, and English reading skills.

### **3. The Main Measures for Colleges and Universities to Carry Out Games-Based Learning**

Based on the characteristics of Games-Based Learning, when carrying out Games-Based Learning, universities can start from the following aspects: The first is to pay attention to students’ Games-Based experience. Students are the main body in teaching activities, and they tend to prefer direct interaction and experience when experiencing Games-Based Learning. Colleges and universities can organize and carry out diversified activities, such as Games-Based Competitions and Games-Based Team Cooperation, so that students can gain more sense of value and achievement in participating in Games-Based Learning activities. The second is to adopt diversified teaching methods. Colleges and universities can adopt different teaching methods according to the different needs of students. For students, Games-Based Learning can be carried out by constructing immersive learning environment, designing immersive learning activities, and carrying out innovative activities. The third is to use technology to design real and challenging tasks. Universities can use VR/AR and other technical means to design truly challenging tasks for students and provide students with a challenging and interesting learning environment, so as to stimulate students’ interest and enable them to carry out Games-Based Learning in a pleasant and challenging atmosphere. The fourth is to carry out theoretical research on Games-Based Learning. Colleges and universities can organize relevant experts and scholars to conduct research on Games-Based Learning and explore the theoretical basis and implementation path of Games-Based Learning in colleges and universities.

### **4. Advantages and Disadvantages of Games-Based Learning in Colleges and Universities**

At present, the application of Games-Based Learning in the field of education is mainly concentrated in the field of university education, which is mainly due to the natural advantages of universities to carry out Games-Based Learning. On the one hand, colleges and universities have a professional team of game talents, and a large number of related courses and venue resources; On the other hand, universities have rich practical experience in carrying out Games-Based Learning. Therefore, colleges and universities can give full play to their own advantages and combine the existing resources and experience to carry out gamification learning practice.

However, there are some shortcomings in the exploration of Games-Based Learning. First of all, the application of Games-Based Learning in the field of higher education is still in the initial stage, and the relevant researches are still relatively few. Secondly, at present, the research on Games-Based Learning has not formed a complete system, which mainly focusing on theoretical research; Finally, Games-Based Learning is mainly carried out online in current universities, which has certain limitations. In the future, with the continuous development of information technology and its deepening influence on education and teaching, more high-quality Games-Based Learning resources will emerge in the field of higher education, which will promote the better development of Games-Based Learning in the field of higher education.

### **5. The Practical Exploration and Thinking of Games-Based Learning in Colleges and Universities**

In recent years, Games-Based Learning has been paid more and more attention and applied in college education. Well-known universities in China, such as Tsinghua University, Peking University, Fudan University, Shanghai Jiao Tong University and Zhejiang University, have carried out practical exploration of Games-Based Learning. For example, Tsinghua University has set up courses such as Artificial Intelligence, Digital Learning and Design, Introduction to Data Science, and introduced Games-Based teaching tools and resources into its teaching and paid attention to training students’ independent learning ability and teamwork spirit, which has achieved good teaching effect; Peking University has set up courses such as Mathematical Modeling and Mathematical Thinking

Training, which integrate the ideas and methods of Games-Based Learning, stimulate students' learning interest and innovative thinking through Games-Based teaching methods, and improve students' independent learning ability and team cooperation ability.

## 6. Conclusion and Outlook

With the development of information technology, Games-Based Learning has become a new model of education in the digital age. This paper focuses on the practical exploration of Games-Based Learning in the field of education, and conducts an in-depth study of the main measures, advantages and disadvantages and practical exploration and reflection of Games-Based Learning in universities.

Although there are some shortcomings in Games-Based Learning, it has great potential in improving learners' enthusiasm and participation, and improving teaching effect. Therefore, we should continue to explore and practice Games-Based Learning to respond to the new challenges of education in the digital age. First of all, we should further study and improve the theoretical system of Games-Based Learning to provide a more solid theoretical foundation for Games-Based Learning, which includes studying theoretical models, mechanisms and methods of Games-Based Learning. Secondly, we should strengthen the practice and exploration of Games-Based Learning to cope with the learning needs of different disciplines and different levels, which includes studying how Games-Based Learning can be applied to different fields such as basic education, vocational education, and higher education. Thirdly, we should strengthen the interaction between research and practice of Games-Based Learning to promote the healthy development of Games-Based Learning, which includes strengthening the combination of theoretical research and practical exploration, and strengthening exchanges and cooperation at home and abroad. In general, as a new model of education in the digital age, Games-Based Learning has great potential and broad prospects for development. We should promote the healthy development of Games-Based Learning with a more open vision, more innovative thinking and more pragmatic measures, and make greater contributions to building a high-quality education system.

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