

Construction of an Universal Innovation and Entrepreneurship Curriculum Teaching System Based on the Concept of Digital OBE

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Abstract: *With the advent of the digital era, traditional education models are gradually being replaced by digital education. The construction of a universal Creativity and Entrepreneurship curriculum teaching system based on the digital OBE (Outcome Based Education) concept is an educational reform based on digital technology. This aims to meet the talent cultivation needs and actual educational needs of future society. The digital OBE teaching concept emphasizes practice and innovation. Through a systematic and personalized teaching system, it cultivates students' practical abilities and professional qualities, and improves their ability to adapt to social needs and career development. Research showed that digital OBE teaching was more outstanding in innovation, practice, personalization, and other aspects compared to traditional teaching, which helped to improve the quality of education and the overall learning quality of students. Therefore, the construction of a universal Creativity and Entrepreneurship curriculum teaching system based on the digital OBE concept was a sustainable and effective innovation in the education system, which had important practical significance and strategic value.*

Keywords: *Digital OBE, Universal Innovation, Innovative Course Teaching, Entrepreneurship Course Teaching*

1. Preface

In recent years, with the rapid development of the global economy and the continuous progress of technology, Creativity and Entrepreneurship have become important forces leading economic development. At the same time, education is also facing the challenges of globalization, digitization, and excellence. The application of digital OBE concepts to cultivate talents who can adapt to future social and market demands is increasingly receiving attention and attention from the education industry [1-2]. The digital OBE concept focuses on students' learning outcomes and emphasizes the development goals of lifelong learning, vocational training, and self-realization, aiming to provide students with a more practical, adaptable, and personalized education system [3-4]. In this context, the construction of a universal Creativity and Entrepreneurship curriculum teaching system has become a hot issue in the current education field.

Research on how to build a universal Creativity and Entrepreneurship curriculum teaching system has been carried out worldwide. Dorland A M developed a conceptual model of Universal Work-integrated Learning (UWIL) by making use of the research on entrepreneurship and management. In this context, entrepreneurship and management research are relevant because the rapid introduction of UWIL had transformative impacts at the levels of individuals (such as students, teachers), organizations (such as processes), and learning ecosystems (such as partners, policy makers) [5]. Wang L believed that in response to the national requirements for cultivating the Creativity and Entrepreneurship abilities of college students, universities needed to promote Creativity and Entrepreneurship in management, teaching, and other aspects. He believed that the Creativity and Entrepreneurship curriculum system should not only fully meet the development needs of students, but also meet the actual social effects. This required fully considering the adaptability of Creativity and Entrepreneurship courses to professional courses, as well as fully utilizing the teaching environment and resources [6]. Yang J constructed an innovative training teaching model and elaborated on its support system to address the issues of weak teaching staff, lack of practical links, and separation of curriculum and innovation in the Creativity and Entrepreneurship training courses for college students. In this teaching mode, theoretical knowledge could be transformed into practical engineering through

training courses, and some technological innovations could be carried out based on practical engineering applications [7]. In terms of theory, the research of these scholars provides support. However, in actual teaching, further exploration is needed.

This article would explore the relationship between the concept of digital OBE and the teaching system of universal Creativity and Entrepreneurship courses, combined with the current education situation in China, and explore the construction methods and implementation paths of the teaching system of universal Creativity and Entrepreneurship courses. Through the analysis and comparative study of practical cases, the aim was to provide new ideas and methods for the reform of higher education and teaching, and promote the healthy development of China's Creativity and Entrepreneurship education.

2. Application of Digital OBE Concept in Creativity and Entrepreneurship Education

2.1 Overview of Digital OBE

Digital OBE refers to the integration of OBE concepts and principles with digital technology to achieve more efficient, flexible, and personalized teaching and learning experiences [8-9]. OBE is an educational philosophy and method based on learning objectives and outcomes. This aims to cultivate students' mastery of the necessary knowledge and skills to solve complex problems in real life and career. Digital technology provides a more flexible and adaptable teaching method, such as online learning management system, virtual reality, artificial intelligence, etc., to support and promote students to achieve better educational results under OBE [10-11]. Digital OBE can provide better personalized learning and evaluation methods, better support the quality and effectiveness of education, and provide students with a richer learning experience. The digital OBE flowchart is shown in Figure 1:

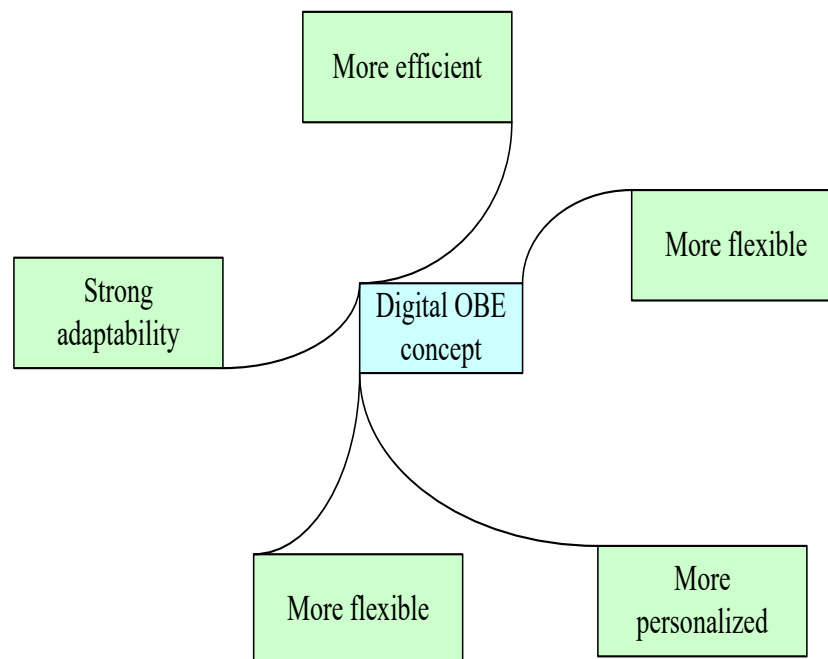


Figure 1: Digital OBE flowchart

2.2 Integration of Creativity and Entrepreneurship Education and Digital OBE Concept

The integration of Creativity and Entrepreneurship education and digital OBE concepts helps to improve students' comprehensive quality and practical application abilities, thereby cultivating innovative and entrepreneurial talents that meet social needs [12-13], as shown in Figure 2.

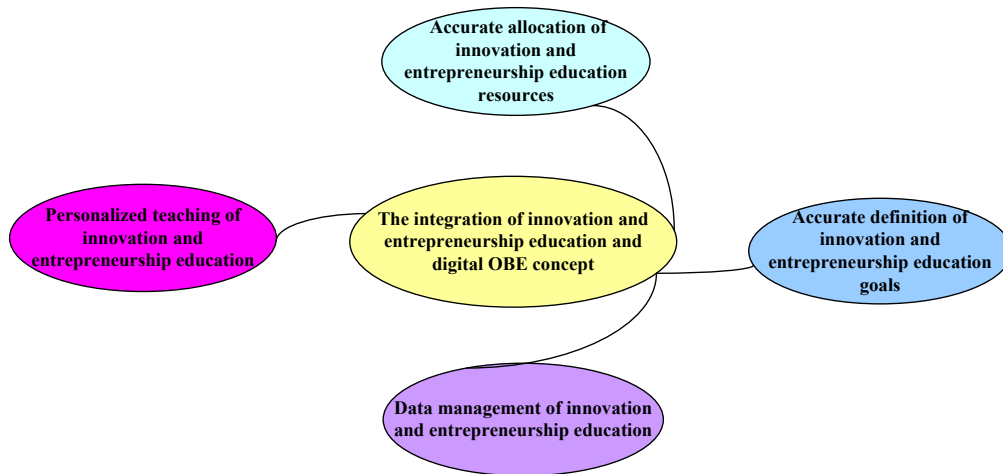


Figure 2: Integration of Creativity and Entrepreneurship education and digital OBE concept

1) The precise definition of Creativity and Entrepreneurship education goals: By refining the definition of each learning goal, it can ensure that students have goals in Creativity and Entrepreneurship education, and enhance their creativity and creativity.

2) Accurate allocation of Creativity and Entrepreneurship education resources: Through innovative OBE digital means, schools can more accurately allocate teaching resources, ensure teaching effectiveness, and improve the educational quality of Creativity and Entrepreneurship education [14-15].

3) Personalized teaching of Creativity and Entrepreneurship education: Digital OBE plays a crucial role in Creativity and Entrepreneurship education, thus enabling personalized teaching methods, customized curriculum design, and enhancing students' learning experience.

4) The data-driven management of Creativity and Entrepreneurship education: The application of OBE digital means is of great significance for the data-driven management of Creativity and Entrepreneurship education. Schools can see the advantages and disadvantages of Creativity and Entrepreneurship education from the data, and use this to develop more effective teaching strategies.

2.3 Specific Application of Digital OBE Concept in Creativity and Entrepreneurship Education

Digital OBE has many specific applications in Creativity and Entrepreneurship education, including setting Creativity and Entrepreneurship education goals, formulating Creativity and Entrepreneurship teaching plans, allocating Creativity and Entrepreneurship teaching resources, and evaluating Creativity and Entrepreneurship teaching [16-17]. The following is the specific formula for the application of digital OBE in Creativity and Entrepreneurship education:

By using digital OBE methods, specific educational goals are set for Creativity and Entrepreneurship education, and corresponding relationships between goals and evaluation indicators are established. S aims to establish a structural system of Creativity and Entrepreneurship education goals from the four levels of purpose, design, practice, and feedback, making it a sustainable development education model, expressed as follows:

$$S = \frac{1}{n} \sum_n^1 S_i \quad (1)$$

Combining the characteristics of curriculum design and the core concept of Creativity and Entrepreneurship education, the application of digital OBE in the development of Creativity and Entrepreneurship teaching plans can track and analyze the learning outcomes of each student, and adjust the teaching plan in detail based on student growth. D^2 can decompose educational goals layer by layer, set minimum actions to achieve goals, and plan evaluation time and methods, thereby achieving the teaching effect of Creativity and Entrepreneurship education:

$$D^2 = \frac{1}{n} \sum_{i=1}^n (s_i - s) \quad (2)$$

In terms of the allocation of Creativity and Entrepreneurship teaching resources, digital OBE can achieve the goal of traceability, recyclability, and reconstruction of educational resources by collecting and integrating various types of Creativity and Entrepreneurship teaching resources. This not only enhances students' learning interest, but also helps them better carry out academic and career planning [18-19].

$$A = D_2 - S \quad (3)$$

In terms of Creativity and Entrepreneurship teaching evaluation, digital OBE can achieve quantitative evaluation and feedback of student learning outcomes, and provide the development of more reasonable teaching methods and plans. Digital OBE can help students better understand their learning situation and response measures through data collection, analysis, and feedback, thereby improving their Creativity and Entrepreneurship abilities [20].

3. Experiment on Constructing a Universal Creativity and Entrepreneurship Curriculum Teaching System Based on the Digital OBE Concept

3.1 Experimental Purpose

The purpose of this experiment is to explore the construction of a universal Creativity and Entrepreneurship curriculum teaching system based on the concept of digital OBE, and to verify the effectiveness of this teaching system. The universal Creativity and Entrepreneurship curriculum teaching system based on the digital OBE concept is a new type of teaching system that mainly cultivates students' comprehensive abilities through the application of digital technology and the cultivation of Creativity and Entrepreneurship abilities to meet the development needs of future society.

3.2 Evaluation

The universal Creativity and Entrepreneurship curriculum teaching system of the digital OBE concept mainly consists of three aspects: the application of digital technology, the cultivation of innovative thinking, and the cultivation of entrepreneurial ability. Among them, the application of digital technology involves fields such as artificial intelligence, big data analysis, and the Internet of Things. The cultivation of innovative thinking includes problem-solving and creative design, while the cultivation of entrepreneurial ability is related to business model design, marketing, and other aspects.

This experiment selected undergraduate students as the research subjects and set the experimental time for one semester. The experimental group adopted the universal Creativity and Entrepreneurship curriculum teaching system teaching method based on the digital OBE concept, while the control group adopted the traditional curriculum teaching method and conducted a comparative study on the two sets of data.

3.3 Results

Through statistical analysis of experimental data, the results show that the universal Creativity and Entrepreneurship curriculum teaching system based on the digital OBE concept does have significant advantages. As shown in Table 1 and Figure 3, the numerical data comparison of student grades between the experimental group and the control group is shown:

Table 1: Comparison of initial scores between experimental group and control group students

Group	N	Average value	Standard deviation
Experimental group	50	75.2	6.3
Control group	50	73.5	6.7

The average value in Table 1 referred to the average score of the initial scores of each group of samples. The initial average score of the experimental group was 75.2 points, while the control group was 73.5 points. The standard deviation represents the degree of dispersion of the group of samples. The standard deviation of the experimental group was 6.3 points, while the standard deviation of the control group was 6.7 points. This indicated that the distribution of sample scores in the experimental group was relatively concentrated.

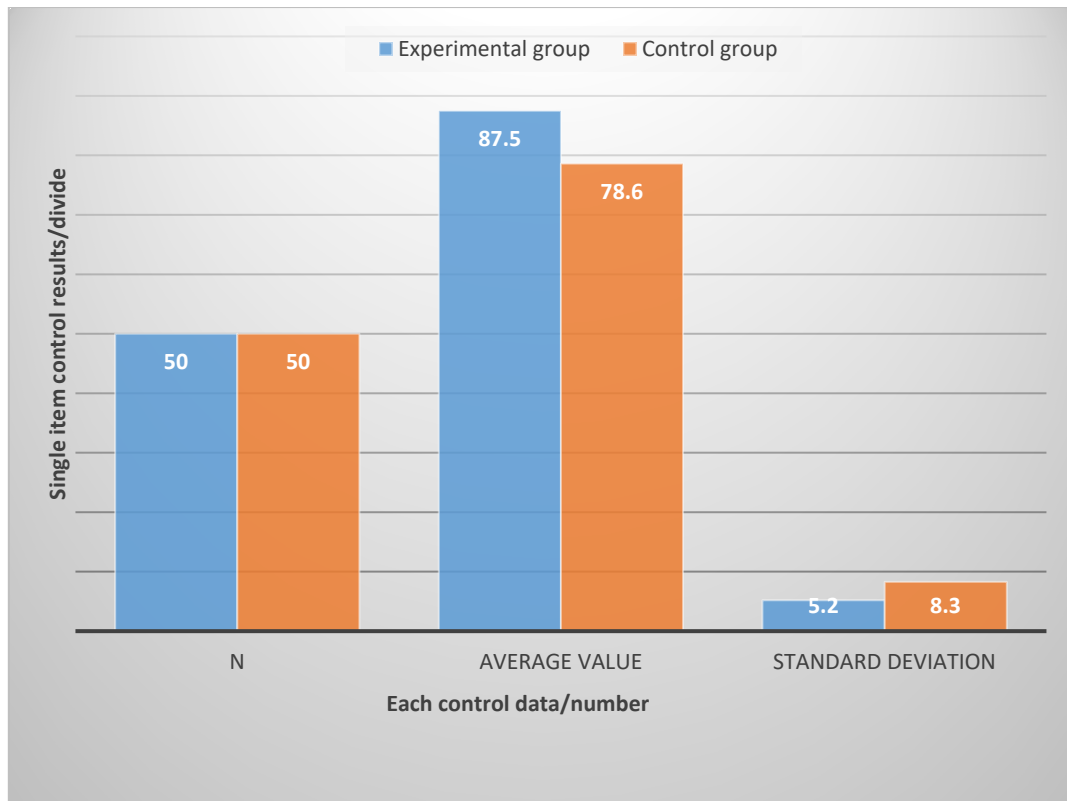


Figure 3: Comparison of students' grades between the experimental group and the control group

The average value in Figure 3 referred to the average score of students in each group after the experiment. The average score of the experimental group was 87.5 points, while the average score of the control group was 78.6 points. The average scores of the two groups showed a more significant difference compared to Table 1. The standard deviation still represented the degree of dispersion of the group of samples. The standard deviation of the experimental group was 5.2 points, while the standard deviation of the control group was 8.3 points, indicating that the scores of the students in the experimental group were relatively close and the degree of dispersion was relatively small.

3.4 Results

In summary, the results of this experiment showed that the universal Creativity and Entrepreneurship curriculum teaching system based on the digital OBE concept could effectively improve students' academic performance and meet the needs of future social development. At the same time, the application of digital technology, the cultivation of innovative thinking, and the cultivation of entrepreneurial ability could also improve students' comprehensive quality and future employment ability.

4. Results and Discussion on the Construction of a Universal Creativity and Entrepreneurship Curriculum Teaching System Based on the Digital OBE Concept

4.1 Introduction

The construction of a universal Creativity and Entrepreneurship curriculum teaching system based on the digital OBE concept is an important measure to meet the needs of economic development and talent cultivation in the current digital era. The concept of digital OBE is an educational concept in which students achieve established goals through systematic design and scientific diagnosis based on reality. Integrating it into curriculum teaching in the field of Creativity and Entrepreneurship can promote the comprehensive improvement of students' innovative thinking, practical ability, and entrepreneurial literacy. The current traditional teaching system is no longer sufficient to assist students, making it difficult to adapt to the rapidly changing social needs and personalized career planning. The application of digital OBE concept can better achieve personalized and customized education, making

up for the shortcomings of the traditional teaching system. Therefore, it is of great significance to strengthen the application of digital OBE concepts in the field of Creativity and Entrepreneurship curriculum teaching in the digital era.

4.2 Evaluation and Results

The application of digital OBE concept, with the help of advanced technological means and practical cases, has better achieved the combination of Creativity and Entrepreneurship teaching and practical application. By establishing a digital teaching platform, students can receive richer and more practical learning content and teaching experience. In the teaching system of the digital OBE concept, Creativity and Entrepreneurship are the focus of students' learning. Even in traditional subjects, it is possible to guide and cultivate students' innovation and practical abilities through setting projects, cases, practices, and other methods. More importantly, the concept of digital OBE can also enable personalized development of education. Different students have different needs and plans. Through digital technology, guidance and evaluation can be customized and personalized. Therefore, the application of digital OBE concept in the curriculum teaching system can better meet the personalized needs of students and improve the quality of education, which has important driving significance for talent cultivation in the new era, as shown in Figure 4:

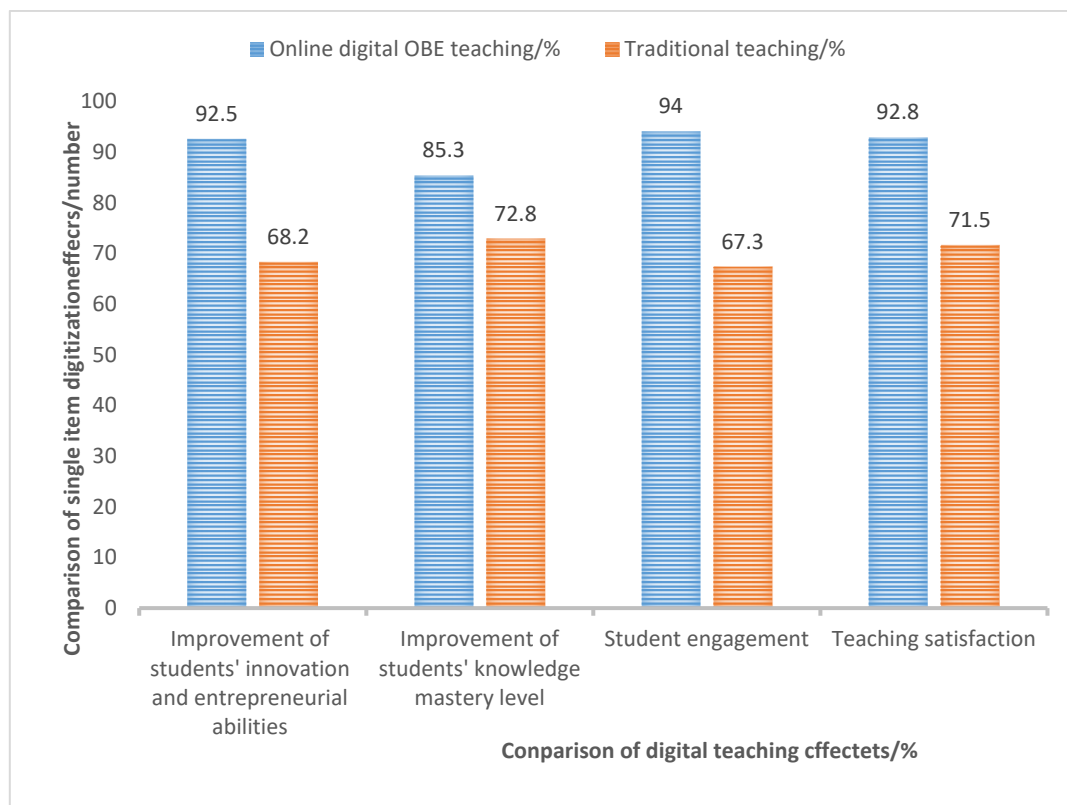


Figure 4: Comparison of teaching effectiveness between digital OBE concept and traditional teaching

As shown in Figure 4, the comparison between online digital OBE teaching and traditional teaching shows that digital OBE teaching was more significant than traditional teaching in improving students' Creativity and Entrepreneurship abilities, improving students' knowledge mastery, student participation, and teaching satisfaction. Among them, digital OBE teaching could effectively enhance students' entrepreneurial and innovative abilities, which was 23.5% higher than traditional teaching. In addition, student participation in digital OBE teaching was 26.7% higher than traditional teaching, and teaching satisfaction was 21.3% higher than traditional teaching. In digital OBE teaching, the support of digital technology and the improvement of the Creativity and Entrepreneurship curriculum teaching system provided students with a better learning experience, which strengthened their practicality and innovation, and enhanced their educational quality and professional abilities. Therefore, the implementation of digital OBE teaching in education reform increasingly became an important trend in modern education.

4.3 Strategy

The establishment of a universal Creativity and Entrepreneurship curriculum teaching system based on the digital OBE concept requires attention to the following strategies:

1) Improving digital teaching platforms: Digital OBE teaching requires effective platforms and technical support, which can be achieved through mature online education platforms or self-developed customized platforms.

2) Creating more practical projects and cases: The concept of digital OBE requires students to be based on reality, so it is necessary to create projects and cases in course teaching to achieve more practical results.

3) Strengthening students' practical and innovative abilities: Digital OBE education emphasizes the cultivation of practical and innovative thinking abilities. Therefore, in the teaching system, attention should be paid to cultivating students' hands-on ability, practical experience, and innovative ability.

4) Strengthening teacher training and guidance: Curriculum teachers in digital OBE teaching need to possess more comprehensive, professional, and open qualities in order to better guide and guide students' learning and thinking. Therefore, it is necessary to provide relevant training and guidance to teachers.

In the establishment of the Creativity and Entrepreneurship curriculum teaching system based on the digital OBE concept, it is necessary to comprehensively apply the above strategies, achieve customized training effects of digital education through systematic and continuous education management and monitoring, and cultivate more high-quality, innovative, and practical talents that adapt to the new era.

5. Conclusions

The construction of a universal Creativity and Entrepreneurship curriculum teaching system based on the concept of digital OBE can better achieve educational goals in innovation, practice, personalization, and other aspects, thus helping to cultivate high-quality talents with innovation and practical abilities. Specifically, the application of digital technology can improve the quality and effectiveness of course teaching, which plays an important role in promoting the cultivation of talents who need to adapt to the changes of the times and social needs. Moreover, the educational experience of digital OBE teaching is more diverse and diverse, which can stimulate students' learning interest and Creativity and Entrepreneurship potential. At the same time, it is also more practical and vocational skills, making it easier for students to better adapt to future career development and social needs.

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