College Students' Innovation and Entrepreneurship Simulation System Based on Virtual Reality Technology

Yong Guan1,*

1Shandong polytechnic college, Shandong Jining, 272100

*Corresponding author email: huangdandang1@163.com

Abstract. The rapid development of modern information economy and the ups and downs of mass entrepreneurship have put forward higher requirements for innovation and entrepreneurship education. In view of the current situation and shortcomings of innovation and entrepreneurship education, a virtual city system based on virtual reality technology is proposed as a practical training platform for college students' innovation and entrepreneurship. The platform provides basic functions such as resource supply, production, management, and consulting services. College students, as citizens of a virtual city, engage in various creative, production, and management activities. Teachers guide college students' innovation and entrepreneurship activities in accordance with the goals of urban development. Based on this, a series of courses have been developed to systematically train university students' innovative and entrepreneurial abilities. This paper mainly studies the simulation system of college students' innovation and entrepreneurship based on virtual reality technology. This article has conducted simulation research on virtual reality innovation and entrepreneurship of Chinese college students, and conducted data surveys. The amount of science and technology talent introduction and cultivation has increased, but the growth rate is slow and the number of R & D personnel is relatively small. There are 700,000 technical personnel, including 9,000 scientific and technological activity personnel, and only 7,000 R & D personnel. By 2019, the number will increase to 980,000 professional and technical personnel, 198,000 scientific and technological activity personnel, and 150,000 research and development personnel. However, the overall growth rate has slowed down, and the number of R & D personnel has been relatively small.

Keywords: Virtual Reality Technology, College Students, Innovation and Entrepreneurship, Simulation Research

1. Introduction
Virtual reality (VR) is based on computer technology and combines related science and technology to create a digital analog environment that is very similar to the real environment in terms of sight, hearing and touch\textsuperscript{[3]}. Objects interact with each other to create feelings and experiences in a real environment\textsuperscript{[2]}. VR has three main functions: Imagination, Interaction, and Immersion, which are called 3I functions\textsuperscript{[3]}. As an important form of emerging educational technology, virtual reality technology will be increasingly used in the learning process. However, research shows two trends: one study shows that VR technology can greatly stimulate student learning, while the other study does not significantly promote student learning\textsuperscript{[4]}. Inadequate research perspectives have led researchers and educators to think about two practical questions: First, will the use of VR technology in entrepreneurship produce better results? Second, how to use VR technology in entrepreneurship to get better results? At present, the innovation and entrepreneurship education of Chinese universities is mainly through innovation and entrepreneurship competitions, lectures on innovation and entrepreneurship, and innovation and entrepreneurship internships\textsuperscript{[5]}. However, due to the lack of a powerful learning platform, some results have been achieved, and the relevant teaching content is systematic and in-depth, which has hindered the development of innovation and entrepreneurship education. How to integrate innovation and entrepreneurship through the university talent education process has become a common problem facing universities in the country. The key to solving this problem is to create a sustainable innovation and entrepreneurship training platform. The development of virtual reality technology provides a practical training platform for university students' innovation and initiative, and at the same time provides a broader, more systematic, scientific innovation and entrepreneurship education for university students. The purpose of this article is to discuss the use of virtual reality technology to create a learning platform for college students' innovation and initiative\textsuperscript{[6-7]}.

The research related to the optimization of the virtual entrepreneur system combines the research results of previous scholars based on the entrepreneurial science and technology theory and complex system theory. Therefore, the possible novelty of this article is reflected in the following two aspects\textsuperscript{[8-9]}.

First, the research method is new. According to the existing research, most scholars only focus on static descriptive research, but few empirical studies. Most empirical studies use traditional OLS regression methods. Technical entrepreneurship is a dynamic result of the overall operation of the entrepreneur system, not a combination of simple elements. The OLS regression method has strong applications in phenomenon selection, but if we investigate regional science and technology entrepreneurship. The system has built-in mechanisms and may have some limitations. Based on the theory of complex adaptive system, this article explores the regional science and technology entrepreneurship system through simulation experiments. The research method is relatively new\textsuperscript{[10]}.

Second, the design of the experimental scheme is different from previous research. Most business innovation strategy simulation studies will consider the impact of a single factor on the system when designing the simulation scheme. In fact, technology will have many effects on the entrepreneurial system. Therefore, based on the design of single-factor shocks, this article also prepares multidisciplinary shocks to study the impact of policy portfolios on technology entrepreneurship systems\textsuperscript{[11]}.

2. Method
2.1. Calculation Method of Effect Cost

The effect value is an indicator that reflects the strength of the experimental effect or the relative strength of the variable and is not affected (or the effect is not as good as the sample size). Fundamentally analyze the difference effect value to study the difference of the effect of VR technology on the learning effect in different learning design environments. Because the number of studies included is small and the sample size involved is small, the value of Hedges (hereinafter referred to as the g-value) is used as the effect cost index. The data selected to evaluate the effect of each study are: 1) the average of the experimental group and the control group, the average SD and the sample size N; 2) the average of the exercise group and the control group. T value and sample size N. When a study contributes more than one effect size in an analysis, it leads to statistical dependence, which can lead to overall effect bias. Therefore, when there are many independent variables in the literature to be analyzed, only one of them is used to calculate the impact value. Therefore, the learning effect of the students in this article was selected as the only dependent variable. Some of the literature to be included in the analysis uses multiple forms to assess the impact of virtual entrepreneurship on college students. In addition, in some studies, the effects of both immediate and delayed tests are given. In order to avoid the bias caused by double calculation and consider the balance of sample size, this document has selected the deferred test effect data of two meta-analysis conditions.

2.2. Virtual Innovation and Entrepreneurial Design Method

The core of entrepreneurial innovation skills training is the establishment of an entrepreneurial team and the selection of partners that combine "business + communication". Virtual innovation and corporate design should reflect this function, while taking into account student adoption and usage habits. In the design of e-books, there is a program of user experience components, including five elements of value, reliability, availability, desirability and adaptability. With reference to this framework, this study argues that virtual innovation and corporate design must adhere to three basic principles.

(1) Interaction principle

To reflect the interconnections between many entities, market operations should be treated as a link, as a profit, and to collaborate in competition.

(2) Openness principle

On the one hand, students from various disciplines and even schools are required to participate in the same task at the same time, and official communication channels are established by strengthening remote communication. On the other hand, students of different levels can participate effectively in this task.

(3) Professionalism

The Innovation and Entrepreneurship course is the last course for students after they leave school, and they are prepared before they start work. Business models in different fields vary widely. Therefore, innovation and entrepreneurship education courses should be based on a true industry
foundation and improve student management skills in a more realistic work environment. Highly abstract work simulations are no longer applicable to entrepreneurial education.

This research inherits the advantages of various business decision simulation systems, and aims to develop a simulated business system with a binary competition scheme. The content of this system covers the theoretical knowledge and practical perspectives of all aspects of business management. Lecturers should have experience implementing supportive operations based on various disciplines such as company strategic management, production process management, marketing channel management, and accounting. The software can complete the entire simulation process. During the simulation, students must integrate the theoretical knowledge they have learned and translate it into work skills. When a decision or failure is detected in a simulated operation, teachers should help students analyze and optimize their decision-making scenarios. Whether it is theoretical knowledge or industry experience, these contents cannot be taught separately in the classroom; the design of the knowledge module can provide a guidance menu for teachers and students to help them find problems and learn while simulating the workflow. Therefore, it effectively combines experience and learning.

3. Experiment

3.1. Experiments on Designing Core Functions of Virtual University Student Innovation and Entrepreneurship Platform

Virtual university student innovation and entrepreneurship platforms are different from traditional single-subject simulation training systems (such as advanced commercial bank simulation systems, accounting simulation systems, and single-function virtual laboratories in most university laboratories). Highly comprehensive and autonomous. Comprehensive information means that the platform has all the functions of a traditional unified simulation system. In this environment, acquiring skills through autonomous activities is the biggest difference between the platform and traditional training systems. It is important to extend the "authenticity" of the platform to the "virtual world" and create a realistic extended image, or to create a "virtual world" based on the logical connection of reality. For universities, the best option for this virtual world is a "virtual city", because cities are the main venue for modern economic activity and it is easier to simulate the competitive environment of cities. Conduct purposeful autonomy, innovation and entrepreneurship activities, which will provide students with a very effective platform for innovation and entrepreneurship. Building such a virtual city platform in a university has natural advantages. First, universities can facilitate offline management of virtual city residents. China has an average of 20,000 students per university. This is enough to meet various economic activities in the virtual city, but the price of offline management will not increase significantly, and it can fully guarantee the development of the platform's education and training functions. Second, universities can use campus LAN infrastructure, so you don't have to worry about bandwidth limitations in virtual city design, graphics, sound, animation, and more. Used to enrich its functionality.

3.2. Virtual College Student Innovation and Active Platform Test Experiment

After the virtual city system can access the Internet, every new student entering the school must register in the virtual city. City coins. Health values and city coins can be exchanged for specific price comparisons (specific price comparisons are determined and allocated for development purposes by
appropriate city management agencies). The value of life represents the strength of vitality of citizens. The higher the value of life, the greater the vitality, and the more able to engage in high-intensity and high-value-added work. Engaging in some work in the virtual city will require the candidate to have a corresponding level of vitality. For example, to apply for a high-level civil servant, the citizen may be required to have a vitality of 2000P. Citizens primarily use Citycoins to measure wealth, payment methods, storage methods, and media sharing. Every citizen creates and provides related goods and services around the various needs of virtual city life to make money from the city. You can exchange city money for life and buy other goods and services. After registration, the cost of living for each citizen will be reduced by 1P per day. In the case of environmental pollution or negative impacts, the cost of living will decrease. The extent of the reduction is determined by the city's appropriate management agency and it seeks citizens in urban advisory services. If citizens visit the virtual city at least once a day and do some basic communication activities, they can get 1P of health benefits every day. Assessing each citizen's ability to innovate and conduct business depends on the city currency he ultimately earns.

4. Discuss

4.1. Experimental Results and Analysis

Based on the analysis of virtual entrepreneur theory and simulation practice, combined with relevant research results and experience of establishing a high-level virtual entrepreneur system, this article establishes a six-dimensional entrepreneurial policy framework for the entrepreneur system and obtains it in different dimensions. Made progress. See Table 1.

First, entrepreneurial skills. For entrepreneurs' entrepreneurial skills, Zhong Ying implements propaganda plans from three aspects of entrepreneurship education, entrepreneurship education, and entrepreneurship consulting, formulates entrepreneurial entrepreneur policies, improves entrepreneurial entrepreneurial skills, and enhances scientific and technological entrepreneurship.

Second, in terms of venture capital. To this extent, entrepreneurship policy is a government effort to strengthen financial support for technology entrepreneurs. There are four main areas: the creation of various funds, such as venture capital funds, venture capital funds, and venture capital guarantee funds; and the improvement of venture capital financing mechanisms, such as guarantee and exit mechanisms; VC and PE, technology banks, technology insurance, and other various Application and support of financial institutions: Strengthen risk investment and financing services such as hypothetical investment and financing platforms.

Third, entrepreneurial culture. From Asma Valley to Tel Aviv and Singapore in Israel, every region has a deep entrepreneurial culture. Therefore, in order to form and develop a good entrepreneurial culture, the government's related entrepreneurial policies should aim to create an entrepreneurial environment, establish an entrepreneurial model, strengthen entrepreneurial propaganda, and promote entrepreneurial exchanges.

Fourth, scientific and technological personnel. The simulation experience of this paper and the experience of establishing foreign advanced regions have proved the importance of scientific and technological talents to the regional scientific and technological entrepreneurship system. Therefore,
entrepreneurial policies related to scientific and technological talents also include four incentive measures, namely mobility policy, income policy, labor law and social security.

Fifth, technical support. This aspect of the science and technology entrepreneurship policy system aims to provide technical support to technology entrepreneurs. Therefore, entrepreneurs in this field should formulate a four-pronged policy to establish a science park, promote technology transfer, protect intellectual property rights, and increase public spending. Sixth, entrepreneurial risk. Technological entrepreneurs face different risks in the process of entrepreneurship. Therefore, entrepreneurial policies should reduce the risks of technological entrepreneurship. Therefore, it is necessary to formulate entrepreneurial subsidy policies to help enterprises grow and grow and implement tax incentives to ensure corporate profits. Adequate market access policies to reduce barriers to entry, improve bankruptcy laws, and protect startups from bankruptcy.

Table 1. Technology entrepreneurship policy system

| Policy system dimension | Advancing project |
|-------------------------|-------------------|
| Entrepreneurial skills  | 1. Entrepreneurship education  
                          | 2. Entrepreneurship training  
                          | 3. Business consulting |
| Venture capital         | 1. Set up various funds such as venture capital funds, venture capital funds, venture capital funds, etc.  
                          | 2. Improve venture investment and financing mechanisms, such as guarantee mechanisms, exit mechanisms, etc. |
| Entrepreneurial culture | 1. Creating Entrepreneurship  
                          | 2. Establish a typical entrepreneurship  
                          | 3. Strengthen entrepreneurship promotion |
| Science and Technology Talent | 1. Population policy  
                             | 2. Income policy  
                             | 3. Social Security |

The application and training of scientific and technological personnel have increased, but the growth rate is slow, and the number of R & D personnel is relatively small. There are 700,000 employees, including 9,000 scientific and technical personnel and 7,000 R & D personnel. By 1999, there were 980,000 professional and technical personnel, 198,000 scientific and technological personnel, and 150,000 scientific and technological development personnel. However, the overall
growth rate has slowed and the number of R & D personnel is relatively small. As shown in Figure 1.

![Figure 1. Changes in technology talent](image)

4.2. Optimization Measures of Virtual Entrepreneurship System

(1) Upgrade the "industry-university-research" cooperation mechanism to promote the transfer of scientific and technological achievements

Improve the "industry-industry-research" collaboration mechanism to improve the level of cooperation between enterprises and effective research institutions, accelerate the transfer of new technologies, new knowledge and new ideas between enterprises and schools, research institutions and enterprises, and improve the system. The level of technical knowledge in each discipline. This article demonstrates Simulation Scheme 6 and Simulation Scheme 9, which promote the transfer of scientific and technological achievements and can help improve the overall level of technology entrepreneurs in the region. We need to develop the "industry-university-research" cooperation mechanism from the following three aspects:

First, it is recommended that scientific research institutes, universities and enterprises adopt multiple "industry-university-research" cooperation models. From the perspective of cooperative relations, the main modes of industry-university-research cooperation are: inter-school industry-university-research cooperation, bilateral financial consortium cooperation, multilateral financial consortium cooperation and mediation coordination modes. Thanks to policy leadership, Qiaofu encourages universities and research institutions to adopt multiple cooperation models to expand cooperation between schools and enterprises according to the actual needs of both parties.

Second, it is recommended that the two parties cooperate in different ways. The form of industry-university-research cooperation includes joint research institutes, research institutes and laboratories, creation of science and technology parks, foundations, business schools, and independent joint research and technical training to create high-tech enterprises in universities. With the help of various forms of cooperation, the technological achievements of universities and research institutions can be transferred to enterprises, and the innovation of universities and research institutions can be restored.
Third, strengthen government leadership and promotion. The government manages cooperation between universities and businesses through appropriate policy tools. The government provides various degrees of rewards for the achievements of the "industry-university-research" cooperation through fiscal means, and levies or exempts taxes on the joint creation of schools and enterprises.

(2) Constructing a science and technology entrepreneurial park and implementing the park's business model

The Science Park is an entrepreneurial platform that integrates science and technology into entrepreneurial resources, talents, technology, and infrastructure. Make a full contribution to the technology entrepreneurship compensation function of a particular community. Therefore, try to establish a science and technology entrepreneurial community, implement the park entrepreneurial model, and promote regional science and technology entrepreneurship.

First, relying on various types of losers, accelerators, etc. in the region, establish a science and technology entrepreneurial community (park) that can provide supporting services for various entrepreneurial subjects, and form an organic technology entrepreneurial network.

The second is to develop a service system for science and technology entrepreneurship communities and attract various technology entrepreneurs to enter the park.

5. Conclusion

This article analyzes the creation of a virtual university student innovation and entrepreneurship training platform, the main functions required by the platform, and how the platform operates. It is believed that the creation of such a platform system will not be as novel, weird, and exciting as a virtual reality game. The platform should be based on providing services to students and developing their innovation and entrepreneurial skills, which is best suited for the virtual city format, and should include basic functions such as resources, production, management and consulting services. The business provides the necessary resources and specifications. College students (citizens) acquire relevant skills through the creation and autonomy of virtual cities. In this platform system, teachers must shoulder the dual responsibilities of teaching and learning, actively monitor students' innovation and entrepreneurship on the platform, provide timely guidance on issues, and develop a series of courses and teaching materials. With a supportive learning platform, innovation and entrepreneurship education in Chinese universities will undoubtedly rise to a new level of standardization, systematization and science.

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