Innovative Approaches to Entrepreneurship Education for College Students through Information Technology

Haibin Peng[1*]

Heilongjiang University of Technology, Jixi, Heilongjiang, 158100, China, haibinpeng5@aol.com

Corresponding author: Haibin Peng, haibinpeng5@aol.com

Abstract. In order to improve the effect of college students' innovation and entrepreneurship education, this paper analyzes college students' innovation and entrepreneurship education combined with information technology, and introduces the bounded rational duopoly game model into the field of entrepreneurship. Moreover, this paper establishes a discrete dynamic model of the bounded rational investment game to describe this phenomenon of college students' innovation and entrepreneurship investment. In addition, this paper uses the stability criterion to analyze the stability of the fixed point of the model respectively, and establishes a continuous dynamic model of the bounded rational duopoly game for the investment of a certain project by innovative and entrepreneurial investors of college students. The experimental research results show that the research model of college students' innovation and entrepreneurship education based on information technology proposed in this paper can effectively promote the development of college students' innovation and entrepreneurship education.

Keywords: information technology; college students; innovation and entrepreneurship; education research

DOI: https://doi.org/10.14733/cadaps.2023.S9.96-113

1 INTRODUCTION

Correct values of life and unswerving ideals and beliefs are important spiritual pillars in the human inner world, and play an important guiding and motivating role in human survival and development. From the perspective of innovation and entrepreneurship education, the practical significance of innovation and entrepreneurship education for college students can be enhanced by fully integrating the ideological and political education of college students into education [1]. From the perspective of ideological and political education of college students, in the long-term teaching research and practical work, colleges and universities have gradually established a relatively complete ideological and political education system, which also plays an important role and significance in the cultivation of talents in higher education. In the stage of university

education, strengthening the ideological and political education for college students can not only give full play to the ideals and beliefs of college students, but also help college students to form their own unique values of innovation and entrepreneurship [2].

With the continuous enhancement of the construction of social modernization and spiritual civilization, and the continuous promotion of the network information age, the values of college students are also undergoing significant changes. The ideas of contemporary college students are more open and inclusive. At present, college students at this stage pay more attention to the development of their individuality and the realization of their self-worth [3]. Therefore, for the education of college students, we need to pay attention to the cultivation of comprehensive quality and strengthen the education in innovation and entrepreneurship, so as to provide comprehensive talents with sound personality and innovation and entrepreneurship for the development of society. However, in the actual education and teaching work, there are many factors that will restrict the realization of college students' own value, which requires the ideological and political teachers to play their leading and guiding role, so as to improve college students' own judgment ability and help them realize their own value [4]

At present, the difficulties faced by college students in employment and entrepreneurship are manifold. First, the employment situation is more severe. As we all know, the number of college graduates is on the rise every year. This is due to the gradual popularization of higher education, more and more students have enjoyed the opportunity to receive higher education, and the vigorous development of private colleges and universities has exported a large number of skilled talents to the society, leading to the difficulty of college students' employment [5]. Second, the entrepreneurial atmosphere is not optimistic. College students' entrepreneurship will be affected and restricted by various factors such as environment, technology, capital, management level, etc., and most of them have little practical experience and lack of social experience, which will inevitably lead to the inability to accurately identify market risks, which is very likely to lead to entrepreneurial failure [6]. Third, the current information environment, on the one hand, has provided new opportunities for college students' employment and entrepreneurship. Many college students rely on information technology and the Internet platform to understand the needs of the industry and actively expand their employment channels, so they have obtained good employment opportunities. Some students use the Internet to better grasp the current market development environment, laying a solid foundation for entrepreneurship, and broadening the entrepreneurship channels. However, there are a few college students who are not firm in their own ideals and beliefs and are addicted to the Internet. They not only neglect their studies and fail to improve their professional level, but also are vulnerable to some negative information on the Internet and lose their correct life direction [7].

Under the background of the information age, both concepts and technologies are updated faster. If college students want to develop in a fast-paced development environment, they obviously need to rely on their own comprehensive ability, which cannot be cultivated without high-quality education. At present, there is still much room for colleges and universities to improve the teaching guidance of college students' employment and entrepreneurship, which can be seen in several aspects [8]. First, the teaching guidance mode is backward, and many colleges and universities have outdated professional curriculum systems, which do not combine the actual development trend of the industry to carry out teaching design, but simply adjust the teaching materials or teaching models based on past experience, which makes teaching disconnected from the actual social needs; Second, the teaching staff is relatively weak. As we all know, innovation and entrepreneurship ability is first a change in concept, which changes people's behavior, so as to achieve better development. The success of innovation and entrepreneurship requires excellent professional quality, psychological quality, ability to choose information and other comprehensive abilities. However, the current level of "mass entrepreneurship and innovation" education teams in colleges and universities is uneven. Some educators do not have relevant experience in "mass entrepreneurship and innovation", while some educators have limited willingness to actively absorb

new teaching concepts and strive to learn new teaching methods, this leads to the teaching level being unable to meet the needs of "mass entrepreneurship and innovation" education under the background of rapid development of the times; Third, the innovation and practicality of employment and entrepreneurship education are insufficient. Most of the education students receive is still in oral education, and there are few opportunities and platforms for practice, which leads to the weak ability of students to output knowledge and unable to transform what they have learned into personal core competitiveness; Fourthly, personalized teaching is very limited. In the current era, student-centered teaching is a new teaching concept, which requires that teaching activities should be built around students, pay attention to students' reality, and make teaching activities show diversified development. However, in the current employment and entrepreneurship guidance of colleges and universities, there is still a one size fits all education model. One program is suitable for all students. It does not combine the differences of individual students to provide targeted teaching guidance, let alone implement hierarchical teaching and teach students in accordance with their aptitude, which leads to no effective guarantee of teaching quality [9].

The purpose of innovation and entrepreneurship education is to help students better adapt to the employment and entrepreneurship environment, so as to obtain high-quality development. Therefore, colleges and universities should combine the current market situation, actively change the teaching concept, and especially stress the cultivation of practical ability. The teaching guidance of employment and entrepreneurship is guided by the actual employment posts and entrepreneurial requirements. On the basis of the guidance, we will actively innovate teaching forms, integrate teaching resources, build a practice platform, and broaden teaching channels. For example, the introduction of micro courses in teaching, the collection, classification and screening of the amount of learning resources on the Internet, and the targeted provision of them to students for learning, so that they can quickly improve their theoretical knowledge and professional ability [10]. For example, actively broaden the training channels for students, conduct targeted cooperation with enterprises, and consolidate professional skills with specific posts. Let students sort out and consolidate their professional knowledge in a real environment, which can not only check and fill gaps, but also broaden their horizons in practice and understand more practical requirements close to social reality. So as to stimulate students' enthusiasm for learning and promote their innovation awareness and creativity [11].

The fundamental prerequisite for the success of employment and entrepreneurship is the improvement of their comprehensive quality. Therefore, educators should carry out targeted training for the comprehensive quality of college students. First, we need to have excellent professional skills, which requires the deep integration of theory and practice. In addition to striving for post practice or conducting a lot of practice in the school's training center, we can also use the skills contest platform to test and consolidate students' professional skills. Educators can also actively learn from the relevant projects and processes of the professional skills contest to carry out targeted professional teaching for students [12]; The second is to have good communication and expression ability. Educators should create more communication platforms for students, so that more students can "go out" to broaden their horizons, and improve their expression ability and adaptability in communication with the outside world [13]; Third, we should cultivate students' sense of team cooperation. One person's strength is limited. Whether it is employment or entrepreneurship, we need to strive for extensive cooperation, so there is more possibility. However, some students are not willing to actively integrate into the environment due to their own personality, which requires the guidance of educators; The fourth is to help students establish the awareness of employment and entrepreneurship. Colleges and universities need to help students establish a clear understanding of the situation of employment and entrepreneurship from the beginning of their college life, work hard to learn professional knowledge, strengthen their practical ability, and strengthen the cultivation of students' comprehensive ability. Only in this way can we not miss opportunities when they come [14].

College students are bound to enter the society and face the challenges of employment and entrepreneurship, and this process is bound to be full of various uncertainties. Therefore, employment and entrepreneurship cannot be smooth. They may experience setbacks and failures again and again, which will inevitably lead to anxiety, depression and depression among college students. Some students even lose their enthusiasm for learning and working [15]. Therefore, strengthening the psychological quality training of college students is particularly critical.

This paper analyzes the innovation and entrepreneurship education of college students combined with information technology, and improves the success rate of college students' innovation and entrepreneurship in the information age.

2 STABILITY ANALYSIS OF THE VENTURE CAPITAL GAME MODEL

2.1 Model Establishment

Over-investing in the conference will cause idle and waste of funds, while under-investment will not achieve maximum profit. Now we assume that the maximum capital limit that the enterprise can accommodate at a certain stage is K. At the same time, the utilization efficiency of different funds is also different. It is affected by factors such as whether the funds can be in place in time and the management level in the process of fund operation. β_1,β_2 represent the utilization rate of funds of formed enterprises and college students' entrepreneurial enterprises respectively. According to the production theory, it is assumed that the profit function of the enterprise is:

$$\pi = a - b\left[K - \left(\beta_1 x + \beta_2 y\right)\right]^2$$

Among them, a is the maximum profit that the enterprise can obtain, and b is the loss coefficient of insufficient funds or overflow.

The marginal profit $\frac{\partial \pi}{\partial x} = 2b\beta_1\left[K - \left(\beta_1 x + \beta_2 y\right)\right]$ of the enterprise's investment in the forming enterprise, which represents the profit change brought by the small disturbance of x. It is assumed here that the investment income of a molding enterprise is not only directly related to the amount of its investment, but also proportional to the profit brought by the investment to the enterprise. That is, the company will return investors in the form of dividends or dividends according to the amount of profit. The return on investment is γ_1. Therefore, the investment income of the forming enterprise in the nth period is $2b\beta_1 y_1 x(n)\left[K - \left(\beta_1 x(n) + \beta_2 y(n)\right)\right]$. Similarly, the side comprehensive profit of college students' entrepreneurial enterprise investment is $\frac{\partial \pi}{\partial y} = 2b\beta_2\left[K - \left(\beta_1 x + \beta_2 y\right)\right]$, and the income is $2b\beta_2\gamma_2 y(n)\left[K - \left(\beta_1 x(n) + \beta_2 y(n)\right)\right]$.

Capital has costs, such as opportunity cost of capital, time value, etc. For bank and other college students' entrepreneurial enterprises, the cost cannot be ignored, because it also includes various expenses required for the operation and operation of the entire organization. Here, the production cost function f(x)=c+dx is still used to represent the cost of capital. Among them, c represents the fixed expenditure of using the capital, and d is the cost required to use the unit capital, that is, the variable cost. We assume that the fixed expenditures of the investment in the forming enterprises and the college students' entrepreneurial enterprises are $c_1、c_2$, respectively, and the variable costs are $d_1、d_2$, respectively. Therefore, the cost function

$c_1+d_1x(n),c_2+d_2y(n)$ of the investment in the nth period of the formed enterprises and college students' entrepreneurial enterprises is obtained.

Through the above assumptions, the net profit functions of formed enterprises and college students' entrepreneurial enterprises in the n-th period are obtained as:

$$\begin{cases}\pi_n(x)=2b\beta_1\gamma_1x(n)\left[K-\left(\beta_1x(n)+\beta_2y(n)\right)\right]-\left(c_1+d_1x(n)\right)\\ \pi_n(y)=2b\beta_2\gamma_2y(n)\left[K-\left(\beta_1x(n)+\beta_2y(n)\right)\right]-\left(c_2+d_2y(n)\right)\end{cases} \quad (2.\ 1)$$

Their marginal profits in the nth period are:

$$\begin{cases}\dfrac{\partial\pi_n(x)}{\partial x}=2b\beta_1\gamma_1\left[K-\left(\beta_1x(n)+\beta_2y(n)\right)\right]-2b\beta_1^2\gamma_1x(n)-d_1\\ \dfrac{\partial\pi_n(y)}{\partial y}=2b\beta_2\gamma_2\left[K-\left(\beta_1x(n)+\beta_2y(n)\right)\right]-2b\beta_2^2\gamma_2y(n)-d_2\end{cases}$$

This paper assumes that the investor is a bounded rational adjustment process based on the local estimate of the profit margin of the previous period. The investment model is:

$$\begin{cases}x(n+1)=x(n)+\alpha_1x(n)\left\{2b\beta_1\gamma_1\left[K-\left(\beta_1x(n)+\beta_2y(n)\right)\right]-2b\beta_1^2\gamma_1x(n)-d_1\right\}\\ y(n+1)=y(n)+\alpha_2y(n)\left\{2b\beta_2\gamma_2\left[K-\left(\beta_1x(n)+\beta_2y(n)\right)\right]-2b\beta_2^2\gamma_2y(n)-d_2\right\}\end{cases} \quad (2.\ 2)$$

Among them, α_1,α_2 are positive parameters, which represent the investment adjustment rate of formed enterprises and college students' entrepreneurial enterprises respectively, that is, the ratio of converting unit income into investment.

2.2 Stability Analysis of the Model

In system (2), we set $x(n+1)=x(n),y(n+1)=y(n)$, so that its four fixed points are:

$$E_0=(0,0);E_1=\left(0,\frac{2bK\beta_2\gamma_2-d_2}{4b\beta_2^2\gamma_2}\right);E_2=\left(\frac{2bK\beta_1\gamma_1-d_1}{4b\beta_1^2\gamma_1},0\right);$$

$$E_3=\left(\frac{2bK\beta_1\beta_2\gamma_1\gamma_2-2d_1\beta_2\gamma_2+d_2\beta_1\gamma_1}{6b\beta_1^2\beta_2\gamma_1\gamma_2},\frac{2bK\beta_1\beta_2\gamma_1\gamma_2+d_1\beta_2\gamma_2-2d_2\beta_1\gamma_1}{6b\beta_1\beta_2^2\gamma_1\gamma_2}\right).$$

Obviously, E_0、E_1、E_2 are bounded equilibria, and E_3 is the Nash equilibrium point (it is easy to prove that it is the point corresponding to the zero profit margins of both formed enterprises and college students' entrepreneurial enterprises). The stability of these four fixed points is analyzed below.

The Jacobi matrix at E_0 is $J=\begin{pmatrix}1+\alpha_1\left(2bK\beta_1\gamma_1-d_1\right) & 0\\ 0 & 1+\alpha_2\left(2bK\beta_2\gamma_2-d_2\right)\end{pmatrix}$, and its two eigenvalues are $\lambda_1=1+\alpha_1\left(2bK\beta_1\gamma_1-d_1\right);\lambda_2=1+\alpha_2\left(2bK\beta_2y_2-d_2\right)$, respectively.

For the E_0 point to be stable, there must be $\lambda_1<1,\lambda_2<1$. Because the investment adjustment rates α_1,α_2 are both greater than zero, there must be $2bK\beta_1\gamma_1-d_1<0,2bK\beta_2\gamma_2-d_2<0$.

In a practical sense, E_0 represents the situation in which the investment of both the formed enterprise and the entrepreneurial enterprise of college students is 0, which can occur at the beginning of the investment, that is, the critical moment when both parties are ready to invest but have not yet invested. It can also be seen as the termination of the investment process, that is, both parties no longer invest in the enterprise.

The Jacobi matrix of $E_1=\left(0,\frac{2bK\beta_2\gamma_2-d_2}{4b\beta_2^2\gamma_2}\right)$ is $\begin{pmatrix}1+\alpha_1\left(bK\beta_1\gamma_1+\frac{d_2\beta_1\gamma_1}{2\beta_2\gamma_2}-d_1\right) & 0\\ -bK\alpha_2\beta_1\gamma_2+\frac{d_2\alpha_2\beta_1}{2\beta_2} & 1-\alpha_2\left(2bK\beta_2\gamma_2-d_2\right)\end{pmatrix}$, and its two eigenvalues are $\lambda_1=1+\alpha_1\beta_1\gamma_1\left(bK+\frac{d_2}{2\beta_2\gamma_2}-\frac{d_1}{\beta_1\gamma_1}\right),\lambda_2=1-\frac{\alpha_2}{\beta_2\gamma_2}\left(2bK-\frac{d_2}{\beta_2\gamma_2}\right)_0$. respectively.

The variable cost, capital utilization rate and return on investment of formed enterprises and college students' entrepreneurial enterprises are not much different. The maximum capital limit K that the enterprise can accommodate will be much higher than the variable cost. Therefore, it is easy to satisfy $bK+\frac{d_2}{2\beta_2\gamma_2}-\frac{d_1}{\beta_1\gamma_1}>0,2bK-\frac{d_2}{\beta_2\gamma_2}>0$. That is, $\lambda_1>1,\lambda_2<1,E_1$ is an unstable saddle point.

Point E_1 means that the investment of the formed enterprises at this time is 0, and all the investment is for the entrepreneurial enterprises of college students. In the past, for the purpose of protecting national industries, my country promulgated and implemented many policies and regulations restricting the investment of molding enterprises, creating barriers for molding enterprises to invest in China. Therefore, the investment cost d_1 of the forming enterprise will be very large at this time, and the forming enterprise will not invest, which also means that the point is stable, that is, $\lambda_1=1+\alpha_1\beta_1\gamma_1\left(bK+\frac{d_2}{2\beta_2\gamma_2}-\frac{d_1}{\beta_1\gamma_1}\right)<1,\lambda_2=1-\frac{\alpha_2}{\beta_2\gamma_2}\alpha_2\left(2bK-\frac{d_2}{\beta_2\gamma_2}\right)<1$.

This also shows that when the investment cost of the forming enterprise is controlled at $d_1>bK\beta_1\gamma_1+\frac{d_2\beta_1\gamma_1}{2\beta_2\gamma_2}$, the forming enterprise will not invest. For our country, this can create barriers to restrict the investment of forming enterprises. Forming companies always think that China is a big market, when d_1 is reduced to a certain level, it will choose to invest without

hesitation, and at this time $y=\frac{2bK\beta_2\gamma_2-d_2}{4b\beta_2^2\gamma_2}<K$, which is more in line with China's current actual situation. The funds provided by college students' entrepreneurial enterprises cannot meet the needs of enterprise development, and there is still room for investment in formed enterprises. The cost is reduced, and the molding enterprise begins to invest. At this time, $\lambda_1>1$, $\lambda_2>1$, and the E_1 point is unstable. Since E_2 and E_1 have a symmetric structure and have a similar situation to E_1, they will not be repeated here.

Theorem 1

$$When\frac{1}{12}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)$$

$$<\frac{1}{3}\alpha_1\beta_1\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)+\frac{1}{3}\alpha_2\beta_2\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)$$ The

$$-\frac{1}{12}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)<1Time,E_3Point\ stability$$

proof is as follows:

$$becauseE_3=\left(\frac{2bK\beta_1\beta_2\gamma_1\gamma_2-2d_1\beta_2\gamma_2+d_2\beta_1\gamma_1}{6b\beta_1^2\beta_2\gamma_1\gamma_2},\frac{2bK\beta_1\beta_2\gamma_1\gamma_2+d_1\beta_2\gamma_2-2d_2\beta_1\gamma_1}{6b\beta_1\beta_2^2\gamma_1\gamma_2}\right)$$

is the Nash equilibrium point of system (2), and its Jacobi matrix is:

$$\begin{pmatrix}1-\frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right) & -\frac{1}{3}\alpha_1\beta_2\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\\ -\frac{1}{3}\alpha_2\beta_1\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right) & 1-\frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)\end{pmatrix}$$

Its characteristic equation is:

$$\rho(\lambda)=\lambda^2-tr\,J\lambda+det\,J=0$$

Among them, trJ represents the trace of the Jacobi matrix, and detJ represents the determinant of the Jacobi matrix, which is expressed as follows:

$$trJ = 2 - \frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2}\right) - \frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1}\right)$$

$$det\ J = 1 - \frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2}\right) - \frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1}\right)$$

$$+ \frac{1}{3}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2}\right)\left(2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1}\right)$$

$$(trJ)^2 - 4\,det\ J = \left[\frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2}\right) - \frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1}\right)\right]^2$$

$$+ \frac{4}{9}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2}\right)\left(2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1}\right)$$

As mentioned above, the capital capacity K of the enterprise is generally large, and the variable cost of capital d_1, d_2 will not be high at this time. Therefore, it is easy to satisfy $2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2} > 0, 2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1} > 0$. Based on this premise, $(trJ)^2 - 4\,det\ J > 0$ is obtained, that is, the Jacobi matrix has real eigenvalues. According to the Jury condition, the necessary and sufficient conditions for the stability of the Nash equilibrium point E_3 are:

(1) $1 + trJ + det\ J > 0$

That is:

$$4 - \frac{4}{3}\alpha_1\beta_1\gamma_1\left(2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2}\right) - \frac{4}{3}\alpha_2\beta_2\gamma_2\left(2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1}\right)$$
$$+ \frac{1}{3}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2}\right)\left(2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1}\right) > 0 \quad (2.3)$$

(2)

$$1 - trJ + det\ J > 0$$
$$\frac{1}{3}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK - \frac{2d_1}{\beta_1\gamma_1} + \frac{d_2}{\beta_2\gamma_2}\right)\left(2bK - \frac{2d_2}{\beta_2\gamma_2} + \frac{d_1}{\beta_1\gamma_1}\right) > 0 \quad (2.4)$$

(3) $|det\ J| < 1$

That is:

$$\left|\begin{array}{l}1-\frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)-\frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)\\+\frac{1}{3}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)\end{array}\right|<1 \quad (2.5)$$

From formulas (3), (4), (5), we get:

$$\begin{array}{l}\frac{1}{12}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)\\<\frac{1}{3}\alpha_1\beta_1\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)+\frac{1}{3}\alpha_2\beta_2\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)\\-\frac{1}{12}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)<1\end{array} \quad (2.6)$$

Formula (6) is the local stable region of Nash equilibrium point E_3. In this area, the point E_3 is stable, and at this time, the formed enterprises and the college students' entrepreneurial enterprises have reached a common stable situation, and their profits are $\pi^*(x)=\frac{\left(2bK\beta_1\beta_2\gamma_1\gamma_2-2d_1\beta_2\gamma_2+d_2\beta_1\gamma_1\right)^2}{18b\beta_1^2\beta_2^2\gamma_1\gamma_2^2}-c_1;$

$\pi^*(y)=\frac{\left(2bK\beta_1\beta_2\gamma_1\gamma_2-2d_2\beta_1\gamma_1+d_1\beta_2\gamma_2\right)^2}{18b\beta_1^2\beta_2^2\gamma_1^2\gamma_2}-c_2$. The theorem is proved.

2.3 Model Stability Test

To study the stability of the system, take the parameter values as $b=4;k=6;\beta_1=\beta_2=1;\gamma_1=\gamma_2=0.4;d_1=0.9;d_2=1.1$, the stable region at the equilibrium point E_3 can be obtained, as shown in Figure 1(a). When other parameters remain unchanged, when γ_1 increases from 0.4 to 0.6, we will see a decrease in the stable region along the α_1 direction, as shown in Figure 1(b). Similarly, when other parameters remain unchanged, γ_1,γ_2 increase at the same time, so that $\gamma_1=\gamma_2=0.6$, and Figure 1(c) is obtained, and it can be seen that the stable region is further reduced. For β_1,β_2, there are also the same situations, so we won't repeat them. This shows that with the increase of $\gamma_1,\gamma_2\left(\beta_1,\beta_2\right)$, the stability region decreases, and the stability of the system also decreases. However, in the entire investment process, improving capital utilization has always been the goal of the joint efforts of both investors. This will inevitably lead to the reduction of the stable area. Therefore, if our country wants to create a stable investment environment, it is necessary for state-owned enterprises to control the return on investment at an appropriate time.

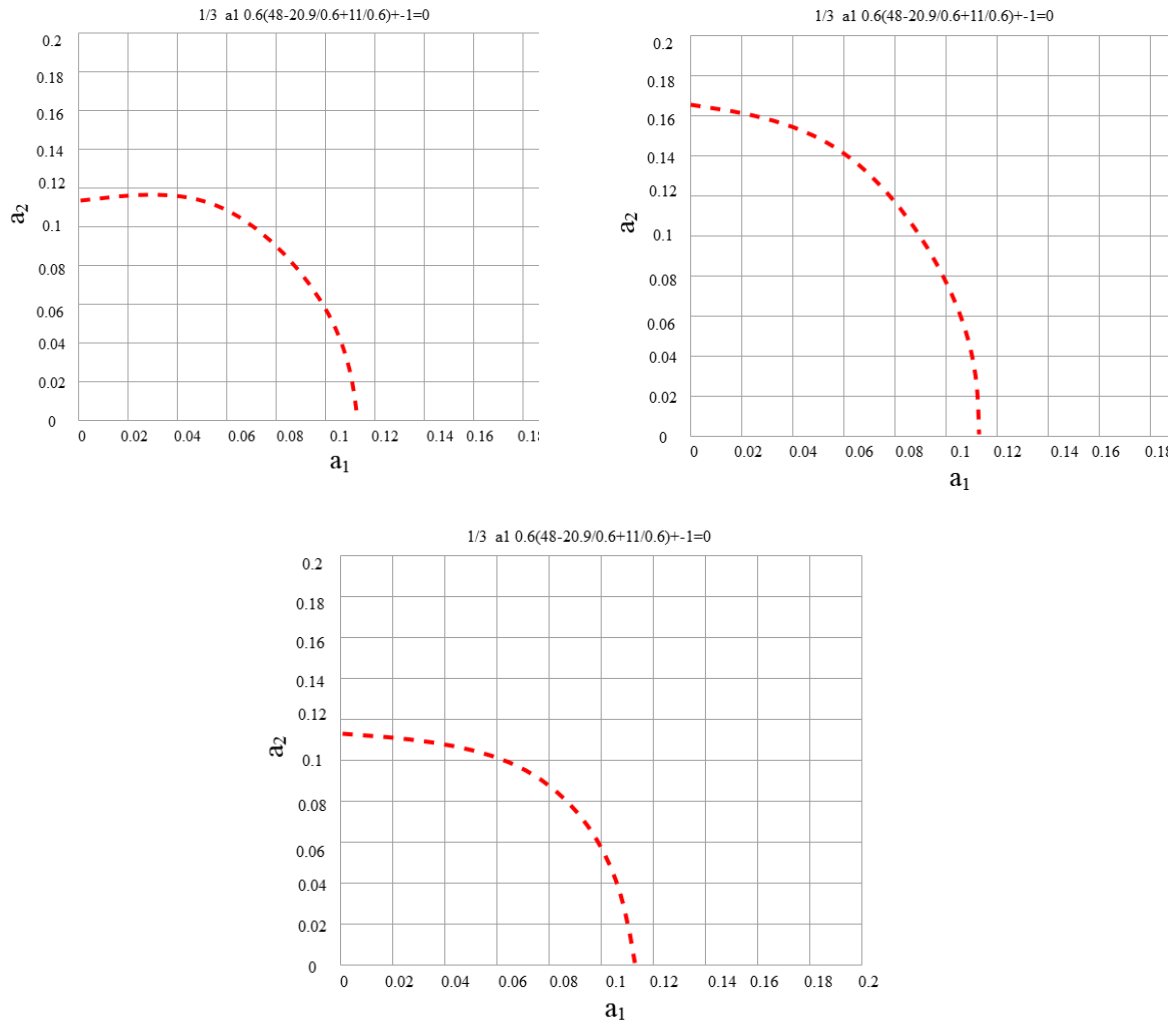


Figure 1: Stable region of equilibrium point (a) When r1=r2=0.4 , the stable region of the equilibrium point, (b) When r1=0.6 , r2=0.4 the stable region of the equilibrium point, (c) When r1=r2=0.6 , the stable region of the equilibrium point.

Since profit is the focus of investors' attention, we will study the effect of each parameter change on profit. When we take the parameter values as $b=4.0; k=6.0; \beta_1=\beta_2=1; \gamma_1=\gamma_2=0.3; \alpha_1=\alpha_2=0.1; d_1=0.9; d_2=1.1;\ c_1=1.0; c_2=0.8$.

When the initial value is $x(0)=1.5; y(0)=1.2$, the investment amount of forming enterprises and college students' entrepreneurial enterprises obtained by system (2) is substituted into system (1), and their respective profits will be obtained. Through computer simulation, the change of their profits is obtained, as shown in Figure 2.

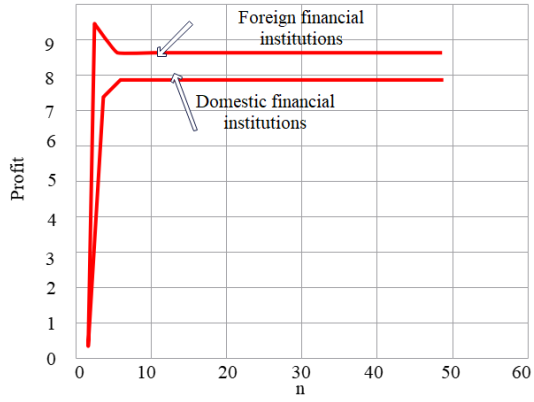
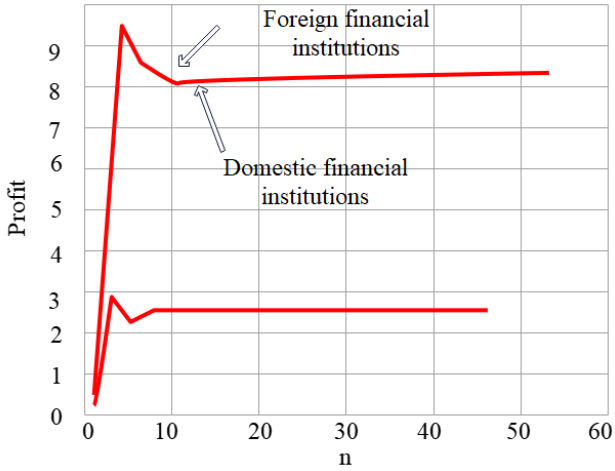
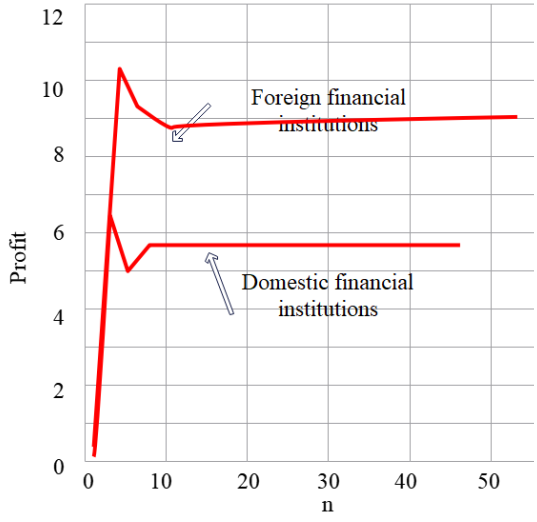


Figure 2: Profit chart of formed enterprises and college students' entrepreneurial enterprises.

When γ_2 is reduced from 0.3 to 0.2, other parameters remain unchanged, as shown in Figure 3(a). Due to the reduction of the return on investment γ_2, this will directly affect the profits of college students' entrepreneurial enterprises and reduce them. When β_2 is reduced from 1 to 0.8, and other parameters remain unchanged, Figure 3(b) is obtained. It can be seen that with the reduction of capital utilization, its own profits will also decrease, and the root cause of investors competing to improve capital utilization is also here. When α_2 is reduced to 0.02, and other parameters remain unchanged, Figure 3(c) is obtained. Although α_1、α_2 have no effect on the investment amount at the equilibrium point, its reduction will not only reduce its own early profit, but also increase the opponent's profit. Therefore, both investors will compete to increase the investment adjustment rate and increase investment. But if α_1、α_2 are too high, the system will fall into chaos. Below we focus on the impact of the investment adjustment rate on the system.





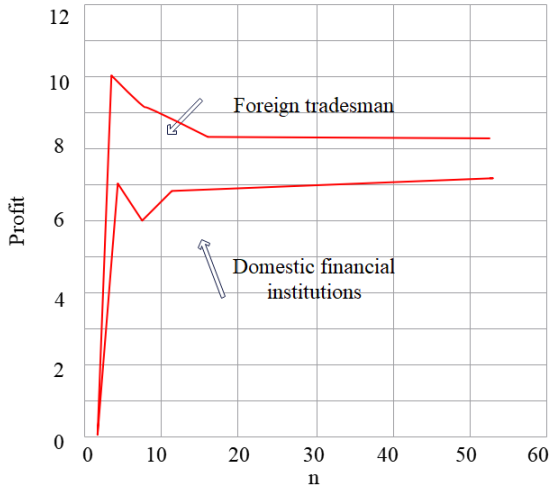


Figure 3: Profit chart of formed enterprises and college students' entrepreneurial enterprises: (a) When $r_2 = 0.2$, the profit graph of formed enterprises and college students', (b) When $\beta_2 = 0.8$, the profit graph of formed enterprises and college students' entrepreneurial enterprises, (c) When $a_2 = 0.02$, the profit graph of formed enterprises and college students' entrepreneurial enterprises.

In order to better understand the system, we take certain numerical parameters to simulate the evolution process of the system. When we take the parameter values as $b = 4.0; k = 6.0; \beta_1 = \beta_2 = 1; \gamma_1 = \gamma_2 = 0.4; \alpha_1 = 0.1; d_1 = 0.9; d_2 = 1.1$. When the initial value $x(0) = 1.5; y(0) = 1.2$, the changes of their profits and investment amount are obtained, as shown in Figure 4(a) and (b).

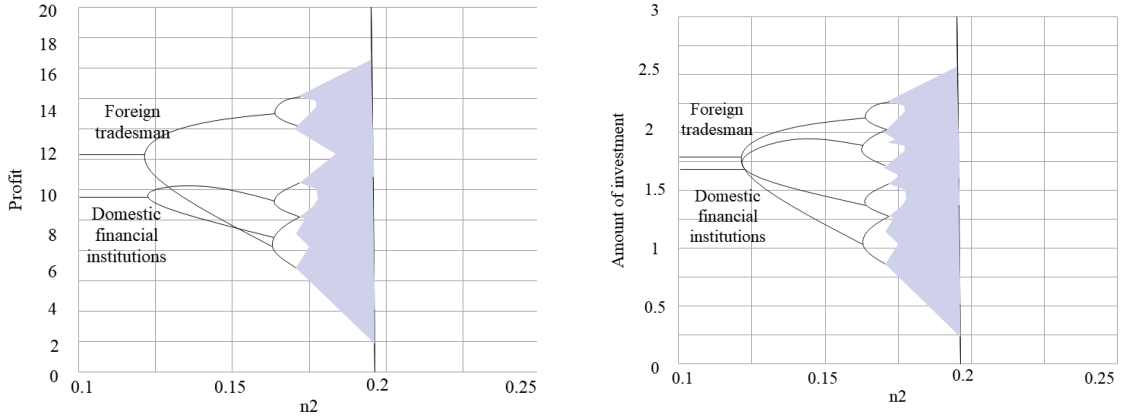


Figure 4: Changes in profit and investment: (a) Bifurcation diagram of profit trajectories between formed enterprises and college students' entrepreneurial enterprises (b) The bifurcation diagram of the investment amount trajectory of formed enterprises and college students' entrepreneurial enterprises.

2.4 Discussion on Intermittent Investment Induced Chaos

We assume that the formed enterprise and a college student start-up enterprise invest in a state-owned enterprise at the same time (concretely, it is to invest in a project of the enterprise), and it meets the following requirements:

1) x(t) represents the investment amount of the formed enterprise at a certain time t, and y(t) represents the investment amount of the college student entrepreneurial enterprise at a certain time t.

2) Since this continuous model is a continuous discrete model, the investment income of the forming enterprise at a certain time t is $2b\beta_1\gamma_1 x(t)\left[K-\left(\beta_1 x(t)+\beta_2 y(t)\right)\right]$ and the cost is $c_1+d_1x(t)$. The investment income of college students' entrepreneurial enterprises at a certain time t is $2b\beta_2\gamma_2 y(t)\left[K-\left(\beta_1 x(t)+\beta_2 y(t)\right)\right]$, and the cost is $c_2+d_2y(t)$. Through the above assumptions, the profit functions of formed enterprises and college students' entrepreneurial enterprises at a certain time t are obtained as:

$$\begin{cases}\pi_t(x)=2b\beta_1\gamma_1 x(t)\left[K-\left(\beta_1 x(t)+\beta_2 y(t)\right)\right]-\left(c_1+d_1x(t)\right)\\ \pi_t(y)=2b\beta_2\gamma_2 y(t)\left[K-\left(\beta_1 x(t)+\beta_2 y(t)\right)\right]-\left(c_2+d_2y(t)\right)\end{cases} \tag{2.7}$$

Their marginal profits at a certain time t are:

$$\begin{cases}\dfrac{\partial\pi_t(x)}{\partial x}=2b\beta_1\gamma_1\left[K-\left(\beta_1 x(t)+\beta_2 y(t)\right)\right]-2b\beta_1^2\gamma_1 x(t)-d_1\\ \dfrac{\partial\pi_t(y)}{\partial y}=2b\beta_2\gamma_2\left[K-\left(\beta_1 x(t)+\beta_2 y(t)\right)\right]-2b\beta_2^2\gamma_2 y(t)-d_2\end{cases} \tag{2.8}$$

It is still assumed that forming enterprises and college students' entrepreneurial enterprises are bounded rational adjustment processes based on the local estimation of marginal profit in the previous period. Therefore, we get the investment model of the two as:

$$\begin{cases}\dot{x}=\alpha_1 x\left\{2b\beta_1\gamma_1\left[K-\left(\beta_1 x+\beta_2 y\right)\right]-2b\beta_1{}^2\gamma_1 x-d_1\right\}\\ \dot{y}==\alpha_2 y\left\{2b\beta_2\gamma_2\left[K-\left(\beta_1 x+\beta_2 y\right)\right]-2b\beta_2^2\gamma_2 y-d_2\right\}\end{cases} \tag{2.9}$$

In the system, we set $\dot{x}=0,\dot{y}=0$, and its four singularities can be obtained as: $E_0=(0,0)$;

$$E_1=\left(0,\frac{2bK\beta_2\gamma_2-d_2}{4b\beta_2^2\gamma_2}\right);E_2=\left(\frac{2bK\beta_1\gamma_1-d_1}{4b\beta_1^2\gamma_1},0\right);$$

$$E_3=\left(\frac{2bK\beta_1\beta_2\gamma_1\gamma_2-2d_1\beta_2\gamma_2+d_2\beta_1\gamma_1}{6b\beta_1^2\beta_2\gamma_1\gamma_2},\frac{2bK\beta_1\beta_2\gamma_1\gamma_2+d_1\beta_2\gamma_2-2d_2\beta_1\gamma_1}{6b\beta_1\beta_2^2\gamma_1\gamma_2}\right).$$

It can be seen that the four singularities of the continuous model are the same as the fixed points of the discrete model, so their stability is basically similar. Point E_0 represents the situation where the investment of both the formed enterprises and the entrepreneurial enterprises of college students is 0, the point E_1 represents that only the entrepreneurial enterprises of college students

invest, and the point E_2 represents that only the formed enterprises invest alone. State-owned enterprises will become the focus of investment in formed enterprises and college students' entrepreneurial enterprises, so the situation represented by E_0、E_1、E_2 will not be stable, and the system will eventually tend to E_3 point along different trajectories. That is, the point corresponding to the point when the marginal profit of the formed enterprise and the entrepreneurial enterprise of the college students is 0. Because they will realize the maximization of profit at this time. Next, we analyze the stability of E_3.

In order to study the shape of the trajectory of the system near the equilibrium point E_3, according to the Hartman-Grobman theorem, we obtain the linear approximation system of the system as:

$$\begin{pmatrix}\dot{x}\\ \dot{y}\end{pmatrix}=\begin{pmatrix}-\frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right) & -\frac{1}{3}\alpha_1\beta_2\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right.\\ -\frac{1}{3}\alpha_2\beta_1\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right) & -\frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)\end{pmatrix}\begin{pmatrix}x\\ y\end{pmatrix}$$

Its characteristic equation is:

$$\rho(\lambda)=\lambda^2-trA\lambda+det\,A=0$$

Among them, $tr\,A$ represents the trace of the matrix, and $det\,A$ represents the determinant of the matrix.

$$tr\,A=-\frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)-\frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)$$

$$det\,A=\frac{1}{3}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)$$

$$(tr\,A)^2-4\,det\,A=\left[\frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)-\frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)\right]^2$$

$$+\frac{4}{9}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)$$

The variable cost of capital d_1,d_2 are not much different, and neither is very high. At this time, the capital capacity K of the enterprise will generally be very large, so $2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}>0$ and $2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}>0$ are generally established. Based on this premise, $(tr\,A)^2-4\,det\,A>0$ is obtained, that is, the linear approximation matrix has real eigenvalues at this time.

According to the method for judging the stability of continuous systems, when all the eigenvalues of the matrix have negative real parts, that is, $Re(\lambda_1)<0, Re(\lambda_2)<0$, the singularity is stable. Since the eigenvalues at this time are real eigenvalues, that is to say, when $trA=\lambda_1+\lambda_2<0, detA=\lambda_1\lambda_2>0$ is satisfied, the E_3 point is stable. Therefore, the stable region of the E_3 point is obtained, that is, the conditions that must be satisfied for the stability of the E_3 point:

$$\begin{cases} -\frac{2}{3}\alpha_1\beta_1\gamma_1\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)-\frac{2}{3}\alpha_2\beta_2\gamma_2\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)<0 \\ \frac{1}{3}\alpha_1\alpha_2\beta_1\beta_2\gamma_1\gamma_2\left(2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}\right)\left(2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}\right)>0 \end{cases} \quad (2.10)$$

In the practical sense, $\alpha_1,\alpha_2,\beta_1,\beta_2,\gamma_1,\gamma_2,d_1,d_2$ are all greater than zero, so formula (3) can be simplified as:

$$\begin{cases} 2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}>0 \\ 2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}>0 \\ d_1,d_2>0; 0\le\beta_1,\beta_2\le 1; \gamma_1,\gamma_2\ge 0 \end{cases} \quad (2.11)$$

As mentioned above, $2bK-\frac{2d_1}{\beta_1\gamma_1}+\frac{d_2}{\beta_2\gamma_2}>0$ and $2bK-\frac{2d_2}{\beta_2\gamma_2}+\frac{d_1}{\beta_1\gamma_1}>0$ are generally established, then condition (4) is generally satisfied. Therefore, in the case of continuous investment, the investment amount of the formed enterprise and the entrepreneurial enterprise of college students will always tend to the equilibrium point E_3, and the two parties will reach a stable win-win situation. At this time, their respective profits are:

$$\pi^*(x)=\frac{\left(2bK\beta_1\beta_2\gamma_1\gamma_2-2d_1\beta_2\gamma_2+d_2\beta_1\gamma_1\right)^2}{18b\beta_1^2\beta_2^2\gamma_1\gamma_2^2}-c_1;$$

$$\pi^*(y)=\frac{\left(2bK\beta_1\beta_2\gamma_1\gamma_2-2d_2\beta_1\gamma_1+d_1\beta_2\gamma_2\right)^2}{18b\beta_1^2\beta_2^2\gamma_1^2\gamma_2}-c_2$$

3 RESEARCH ON INNOVATION AND ENTREPRENEURSHIP EDUCATION OF COLLEGE STUDENTS BASED ON INFORMATION TECHNOLOGY

The coupling of innovation education and entrepreneurship education has the characteristics of spontaneity and stages. Spontaneity means that the coupled development of the two is achieved by the interaction between and within the two educational systems, and is formed spontaneously during the development of the two educational models. Staged means that with the development

of society and the progress of the country, the coupling of innovation and entrepreneurship education presents different characteristics and intensities at different stages of education system reform. Figure 5 shows the benign coupling system architecture of innovation and entrepreneurship education.

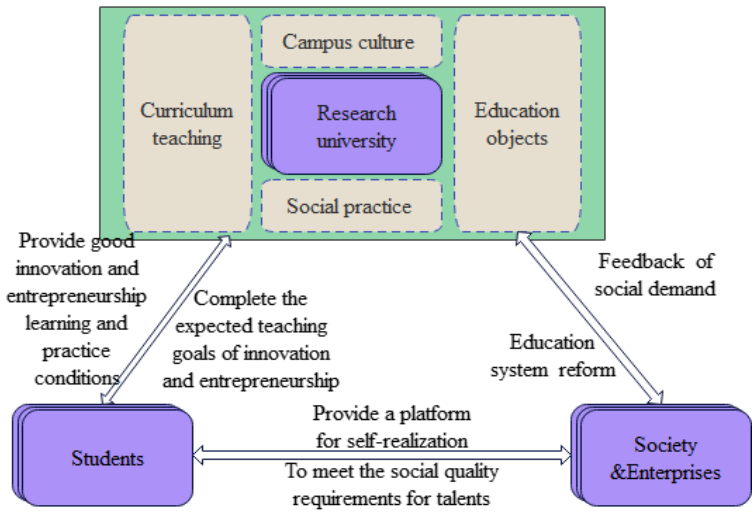


Figure 5: The benign coupling system architecture of innovation and entrepreneurship education.

According to the education evaluation, the effectiveness of the research model of college students' innovation and entrepreneurship education based on information technology proposed in this paper is verified, and the results shown in Figure 6 are obtained.

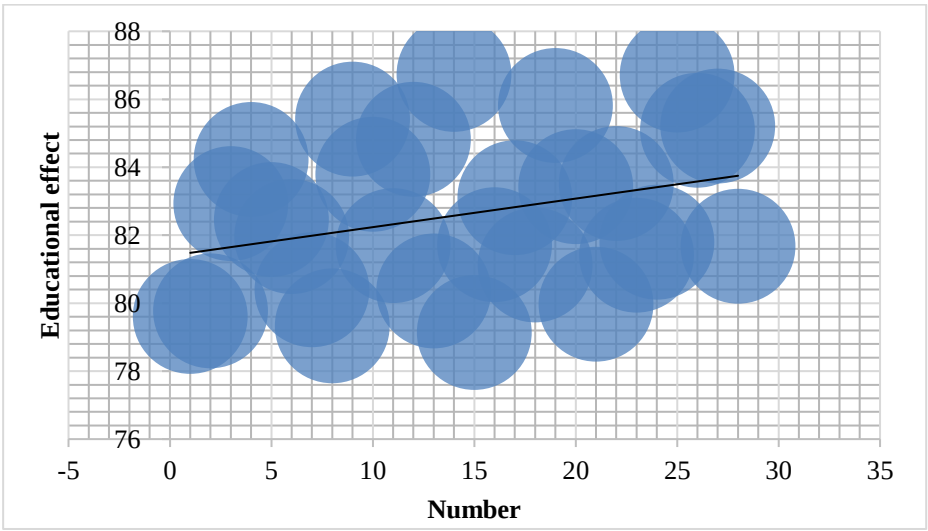


Figure 6: Validation of the research model of college students' innovation and entrepreneurship education based on information technology.

From the results in Figure 6, it can be seen that the research model of college students' innovation and entrepreneurship education based on information technology proposed in this paper can effectively promote the development of college students' innovation and entrepreneurship education.

4 CONCLUSION

With the rapid development of science and technology, scholars and experts from all walks of life pay more attention to the research and exploration of ideological and political education for college students, and have achieved certain results in the theory and teaching practice of innovation and entrepreneurship education. However, compared with countries and regions with earlier development of innovation and entrepreneurship education and relatively mature education models, innovation and entrepreneurship education carried out at the university stage is still in the primary stage of exploration and development. Moreover, the relevant theory and teaching practice of innovation and entrepreneurship education still need to learn from the successful educational experience of western developed countries. Therefore, the concept of innovation and entrepreneurship education suitable for the actual development of contemporary college students is not yet mature, and there are still many problems in the teaching of innovation and entrepreneurship education. This article combines information technology to analyze the innovation and entrepreneurship education of college students. The experimental research results show that the research model of college students' innovation and entrepreneurship education based on information technology proposed in this paper can effectively promote the development of college students' innovation and entrepreneurship education.

5 ACKNOWLEDGEMENT

2021 Heilongjiang Province Higher Education Teaching Reform General Project: Research on the Construction of "Golden Courses" in Innovation and Entrepreneurship (SJGY20210764). And, 2021 Provincial Higher Education Teaching Reform General Project: Research on the Construction of Employment and Entrepreneurship Guidance Service System (SJGY20210763).

Haibin Peng, https://orcid.org/0000-0002-2555-7388

REFERENCES

[1] Arruti, A.; Paños-Castro, J.: How do future primary education student teachers assess their entrepreneurship competences? An analysis of their self-perceptions. Journal of Entrepreneurship Education, 23(1), 2020, 1-13. https://www.abacademies.org/articles/How-do-future-primary-education-student-teachers-1528-2651-23-1-515.pdf

[2] Baskaran, A.; Chandran, V. G. R.; Ng, B. K.: Inclusive entrepreneurship, innovation and sustainable growth: Role of business incubators, academia and social enterprises in Asia. Science, Technology and Society, 24(3), 2019, 385-400. https://doi.org/10.1177/0971721819873178

[3] Chen, Y.; Albert, L. J.; Jensen, S.: Innovation farm: Teaching Artificial Intelligence through gamified social entrepreneurship in an introductory MIS course. Decision Sciences Journal of Innovative Education, 20(1), 2022, 43-56. https://doi.org/10.1111/dsji.12253

[4] Eckhardt, J. T.; Harris, C.; Chen, C.; Khoshimov, B.; Goldfarb, B.: Student regional origins and student entrepreneurship. Regional Studies, 56(6), 2022, 956-971. https://doi.org/10.1080/00343404.2021.1987408

[5] Ge, P.: The Strategy of Cultivating the Students' Innovation and Entrepreneurship Ability under the Student Association. Journal of Frontiers in Educational Research, 1(8), 2021, 26-30. https://dx.doi.org/10.20469/ijbas.4.10004-3
[6] Graham, N.; Pottie-Sherman, Y.: Higher education, international student mobility, and regional innovation in non-core regions: International student start-ups on "the rock". The Canadian Geographer/Le Géographe canadien, 66(2), 2022, 234-247. https://doi.org/10.1111/cag.12730
[7] Jixiang, Z.; Yuezhou, Z.: Research on innovation and entrepreneurship talent training model for application-oriented university under perspective of collaborative innovation. International Journal of Information and Education Technology, 9(8), 2019, 575-579. https://doi.org/10.18178/ijiet.2019.9.8.1269
[8] Malinda, M.: Effectiveness of entrepreneurship and innovation learning methods. Case study at Universitas Kristen Maranatha, Bandung, Indonesia. International Journal of Business and Administrative Studies, 4(3), 2018, 122-128.
[9] Novita, M.; Prasetyo, M. A. M.; Bashori, B.; Badarussyamsi, B.; & Nurlailisna, N.: Student Entrepreneurship Development Model at Universities in West Sumatera, Indonesia. AL-TANZIM: Jurnal Manajemen Pendidikan Islam, 6(4), 2022, 1205-1218. https://doi.org/10.33650/al-tanzim.v6i4.3394
[10] Paladino, A.: Innovation or entrepreneurship: Which comes first? Exploring the implications for higher education. Journal of Product Innovation Management, 39(4), 2022, 478-484. https://doi.org/10.1111/jpim.12637
[11] Rii, K.-B.; Choi, L.-K.; Shino, Y.; Kenta, H.; & Adianita, I. R.: Application of iLearning Education in Learning Methods for Entrepreneurship and Elementary School Student Innovation, Aptisi Transactions on Technopreneur ship (ATT), 2(2), 2020, 131-142. https://doi.org/10.34306/att.v2i2.90
[12] Saji, B. S.; Nair, A. R.: Effectiveness of innovation and entrepreneurship education in UAE higher education. Academy of Strategic Management Journal, 17(4), 2018, 1-12.
[13] Severo, E. A.; Becker, A.; Guimarães, J. C. F. D.; Rotta, C.: The teaching of innovation and environmental sustainability and its relationship with entrepreneurship in Southern Brazil. International Journal of Innovation and Learning, 25(1), 2019, 78-105. https://doi.org/10.1504/IJIL.2019.096553
[14] Syam, A.; Sudarmi, S.: Analysis of Student Entrepreneurship decision making in the Learning Prerspective. Jurnal Ad'ministrare, 6(1), 2019, 51-60. https://doi.org/10.26858/ja.v6i1.9707
[15] Zuo, L.; Gong, M.: Research on the problems and countermeasures of the cultivation of college students' innovation and entrepreneurship quality. Open Journal of Social Sciences, 8(6), 2020, 261-266. https://doi.org/10.4236/jss.2020.86023