



# Construction of Multi-dimensional Dynamic Innovation and Entrepreneurship Platform for College Students Under the Background of Big Data

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**Abstract.** Based on the school enterprise cooperation, it can bring great benefits to enterprises, opportunities to students and fresh blood to schools. At present, there are many problems in the construction of school enterprise cooperation innovation and entrepreneurship platform under the background of big data. Although the school enterprise cooperation in China is still in its infancy, it is needed by universities, enterprises and the government, especially in the western region. At present, although there are still some problems in school enterprise cooperation, we can't take it as an excuse to be complacent.

**Keywords:** Big data background · School enterprise cooperation · College students · Innovation and entrepreneurship

## 1 Introduction

With the continuous enrollment expansion of colleges and universities in China, graduates are facing many difficulties in employment. In order to solve this problem, in addition to policy guidance and creating more employment opportunities, it is of great significance to actively guide and support college students with innovation and entrepreneurship to carry out individual or team entrepreneurship. It is beneficial to create employment opportunities, improve the employment rate and improve the comprehensive quality of talents. Due to the characteristics of College Students' innovation and entrepreneurship, such as wide coverage, certain risks, lack of systematic and consistent policies, and insufficient financial support, it is necessary to conduct a systematic analysis, and then design and develop a college students' innovation and entrepreneurship experience platform [1]. Basic framework of innovation and entrepreneurship platform is shown in Fig. 1.

Tao Xingzhi once said: "the common fault of Chinese education is that people who teach with brain don't use hands, and people who don't teach with hands use brain, so they can't do anything. The strategy of China's educational revolution is the hand brain alliance. As a result, the power of both hands and brain can be incredible." This sentence of Mr. Tao tells the current situation of China's education, and also points out the way out of the dilemma of China's education "hand brain alliance".

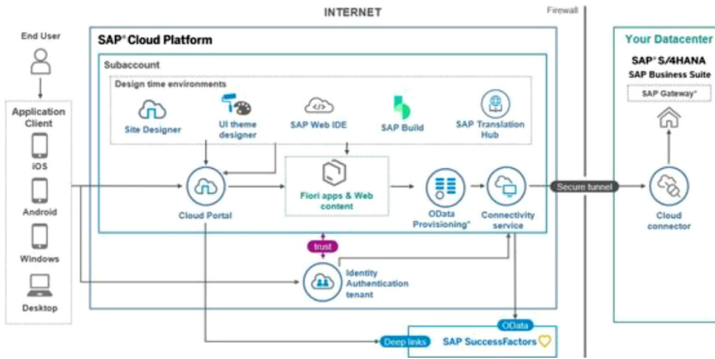


Fig. 1. Basic framework of innovation and entrepreneurship platform

## 2 Research on Innovation and Entrepreneurship Mechanism of College Students Based on Multidimensional Dynamic Innovation Model

The innovation and entrepreneurship mechanism of college students involves the government level, the social level, the university level and the enterprise level, which is a system engineering with considerable complexity. The multi-dimensional dynamic innovation model (mdmi) with multi factor integration and dynamic adjustment characteristics can be used for system analysis of the innovation and entrepreneurship mechanism of College students, The multi-dimensional dynamic innovation model can be divided into three sub levels: the first level is the entity level, which includes government entity, University entity, enterprise entity and social entity, and is in the dominant position in the whole model; the second level is the influencing factor level, which includes the elements that have great influence on the innovation and entrepreneurship mechanism of college students, and has uncertainty, The third layer is the driving layer, including the external factors that drive the innovation and entrepreneurship mechanism of college students, and the driving layer also has uncertainty.

## 3 Research on the Importance of Influencing Factors of College Students' Innovation and Entrepreneurship Based on Multivariate Support Vector Machine

The multidimensional dynamic innovation model established above analyzes the innovation and entrepreneurship mechanism of College Students under the influence of multiple factors from a qualitative point of view, An importance model of College Students' innovation and entrepreneurship influencing factors based on multivariate support vector machine is established [2]. The original SVM model is extended to binary classifier to solve the multivariate classification problem, and the multivariate classification problem is decomposed into multiple binary classification problems. In order to solve the

binary sub classification problem between class J and class k and maximize the boundary between the data, the soft marginal objective function is as follows.

$$\min_{w_j, w_k \in R^d} \frac{1}{2} \|w_j - w_k\|_2^2 + C \sum_{y_i \in \{j, k\}} \xi_i^{jk} \quad (1)$$

$$s.t. \quad \begin{aligned} y_i^{jk} f_{jk}(x_i) &\geq 1 - \xi_i^{jk} \\ \xi_i^{jk} &\geq 0 \end{aligned} \quad (2)$$

Finally, the prediction category of the sample will get the highest number of votes.

$$\tilde{y}_i = \arg \max w_j^T x_i + b_i \quad (3)$$

## 4 Data Analysis

### 4.1 College Students Should Take an Active Part in the Practice of Enterprises when they have Spare Time to Learn

University teachers should participate in the development and practice of enterprises under the condition that they have spare resources to teach, and enterprises should also choose to cultivate talents in Colleges and Universities under the condition that they can guarantee to complete their own production tasks. Only by sticking to their own position, can the cooperation between colleges and enterprises be the icing on the cake, and universities and enterprises can achieve their own goals [3].

### 4.2 First of All, Enterprises and Schools Should Sign a Confidentiality Treaty, so that Enterprises Can Provide Academic Resources for Colleges and Universities

At the same time, colleges and universities should also respect the operation of enterprises. The research results assisted by enterprises should be published with reservation after discussion with enterprises, so as to ensure the interests of enterprises and carry out school enterprise cooperation on this basis.

### 4.3 In Order to Improve the Engineering and Pertinence of the Experimental Content, the Actual Project Example is Introduced

In order to improve the efficiency of College Students' project research, we should change the previous model of College Students' scientific research on paper, combine with practical problems, improve the efficiency of College Students' project research, supplement the deficiency of classroom teaching, give full play to students' theoretical advantages, and make up for the lack of social derailment.

#### **4.4 Developing Comprehensive Training Programs**

According to the requirements of the quality and ability of applied talents, talent cultivation takes knowledge and ability as the structural standard, and can be divided into four types: academic, engineering, technical and skilled. In addition to academic type, engineering type, technical type and skill type all have a common feature application. According to the law of education and cognition, the cultivation of science practical ability is divided into three levels: basic skill level, professional ability level and comprehensive innovation and application ability level. According to the three different cultivation levels, different practical teaching contents and corresponding practical teaching links are arranged, and teaching is organized step by step. In addition, in the process of achieving the purpose of training, step by step, the use of progressive subsection to achieve the purpose of training. According to the logical sequence of cognition practice on campus comprehensive training on campus production cognition practice of off campus enterprises post training and project training on off campus enterprises, it provides and creates a good environment and conditions for the cultivation of application-oriented talents [4].

#### **4.5 Choose Appropriate Enterprise Projects and Teacher Projects**

Not all the problems encountered by enterprises are suitable for college students to study. College students should choose the appropriate difficulty and combine their own interests and advantages to ensure that they have the ability to complete the project and get the correct research results [5]. The research results can be used as graduation design, which can ensure that they have enough time and energy to invest in the research of the topic, and can also write their own research results in the form of papers to ensure that their research results will not cause waste. In this way, on the one hand, we can cultivate our own academic ability, on the other hand, we can encourage ourselves to study the subject more systematically and carefully. At the same time, we should ensure that the resources invested by schools and enterprises will not cause waste while the students are paid for their work [6].

#### **4.6 Establish Resource Sharing Platform**

Due to the influence of knowledge, environment and other factors, personal ability is always limited [7]. For example, there are nearly 50 units in manned space engineering, and about 1000 people participate in the research work. The main units and departments participating in the application system of manned space engineering are distributed in all parts of the country and all industries, including universities, scientific research institutes, and application departments of various ministries and commissions [8]. With the continuous development of manned space engineering, more and more scientific research institutes, schools and industrial departments will join the ranks of space application systems. This fully shows that “only width can accommodate people, only thickness can carry things.” Tagore said, “when we are greatly humble, we are closest to greatness.” Only by integrating all advanced scientific thoughts can we gain the strength and experience to advance. Only when we step on the shoulders of giants can we see and go further(see Fig. 2).

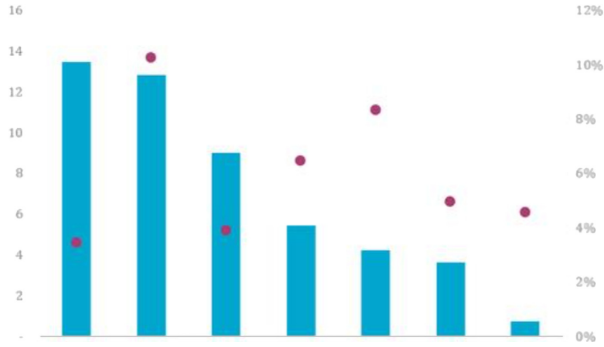


Fig. 2. Demand of students in innovation and entrepreneurship platform

## 5 The Historical Evolution of School Enterprise Cooperation in Higher Education

### 5.1 The Background of School Enterprise Cooperation in Higher Education

In the world, school enterprise cooperation is a relatively new mode of production [9]. In the 1950s, California in the United States formed the “Silicon Valley model” of high-tech complex, which combines scientific research institutions and universities, combines production and scientific research, and can quickly transform scientific research achievements into productivity or commodities. Due to the rapid development of “Silicon Valley mode”, school enterprise cooperation has opened a new process all over the world. In recent years, school enterprise cooperation has connected the production of enterprises with the research and development of universities, realizing the close combination of science and technology and economy. Especially after the global financial crisis, countries pay more attention to the improvement of independent innovation ability. In recent years, the development of school enterprise cooperation in China is relatively rapid. In the context of domestic economic restructuring and upgrading, especially in the current colleges and universities vigorously advocate entrepreneurship education, through school enterprise cooperation to achieve entrepreneurship education is welcomed by the main body of cooperation. However, as far as the development of entrepreneurship education is concerned, the effect of school enterprise cooperation is not ideal. Therefore, in order to strengthen the mechanism of school enterprise cooperation on entrepreneurship education in Colleges and universities, we must explore the internal law, development process and characteristics of school enterprise cooperation, and put forward countermeasures for the development of entrepreneurship education in China from its development stage and characteristics [10].

### 5.2 An Overview of the Development of School Enterprise Cooperation in China's Higher Education

Some scholars believe that the state proposed the development of school enterprise cooperation in 1958, which can be regarded as the origin of the cooperation between

higher education institutions and enterprises in China [11]. However, some scholars also think that this cooperative behavior is a kind of government behavior in the context of planned economy. Strictly speaking, this kind of cooperation between schools and enterprises cannot be said to be true school enterprise cooperation. From the scale of school enterprise cooperation, since the 1980s, China has only a large-scale school enterprise cooperation project [12]. On August 10, 1992, the Chinese Academy of Sciences, the national economic and Trade Commission and the National Education Commission announced that joint project of school and enterprise was jointly organized at the “first national joint development conference of industry, education and research”. This project is generally regarded as a landmark event of the development of cooperation between Chinese schools and enterprises, Most scholars think this is the real starting mark of school enterprise cooperation in China. In recent 20 years, the cooperation between school and enterprise has developed vigorously in China. This chapter draws on the factors of national economy, science and technology, education development strategy, and specific practice mode of school enterprise cooperation [13]. After analyzing and combining the stages of the process of school enterprise cooperation, the development process of the school enterprise cooperation is divided into the following stages. At the same time, combined with the development of entrepreneurship education in different periods, the characteristics and shortcomings of school enterprise cooperation are analyzed [14].

## **6 Theoretical Discussion on the Relationship Between School Enterprise Cooperation and Entrepreneurship Education in Colleges and Universities**

### **6.1 The Connotation and Characteristics of Entrepreneurship Education in Colleges and Universities**

The word “innovation” was first proposed by Schumpeter. In his works, Schumpeter explained the concept of innovation and initiated the research of innovation theory. He thinks that innovation is “the establishment of production function” and “a new combination of production means”. And the entrepreneur reorganizes the means of production to achieve new production methods can be called innovation. In Schumpeter’s view, entrepreneurs must have certain excellent quality to achieve innovation. First of all, Schumpeter proposed creativity. He believes that there is a clear difference between entrepreneurs and technical experts in traditional society. Entrepreneurs need to break the stereotypes, they need to constantly change their behavior patterns to achieve a new combination of production factors; secondly, practicality is also an indispensable part of entrepreneurs. Entrepreneurs do not engage in invention and creation, but put the existing invention and creation into practice through practice, so as to create social economic value. Third, entrepreneurs need to be opportunistic. Entrepreneurs need to capture opportunities in the changing socio-economic situation. Fourth, excellent will quality. Because the high risk of entrepreneurship itself requires entrepreneurs to have strong willpower [15].

The content of current entrepreneurial knowledge can be described from the following aspects: the excellent entrepreneurial model in today’s society, the attitude

of the society towards entrepreneurship, the support of entrepreneurship related policies and legal systems for entrepreneurial behavior, etc. It is not difficult to find that entrepreneurial knowledge has a characteristic, which is comprehensive. Secondly, although entrepreneurship is a kind of business behavior from the text, many factors should be considered to cultivate students' entrepreneurial ability, such as the special mode of entrepreneurial thinking and reasoning, insight, imagination and creative ability are important components of entrepreneurial ability. Therefore, to understand entrepreneurship from a deep level and embody innovation education, entrepreneurship education is the best practice path. Entrepreneurship education can not only optimize the knowledge structure of college students, but also help them adapt to the future innovative society, which also reflects the essential characteristics of entrepreneurship education. The characteristics of entrepreneurship education in Colleges and universities are shown in Fig. 3.

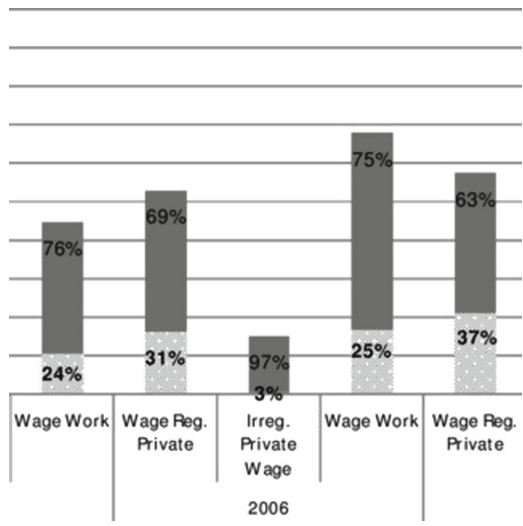


Fig. 3. Distribution of characteristics of entrepreneurship education in Colleges and Universities

### 6.2 Analysis of the Mechanism of School Enterprise Cooperation on Entrepreneurship Education in Colleges and Universities

To construct the curriculum system of entrepreneurship education based on school enterprise cooperation, the first thing to analyze is the curriculum objectives and characteristics of entrepreneurship education, and sort out the related tasks and abilities of entrepreneurship education, summarize the corresponding disciplines, and transform them into the corresponding entrepreneurship education curriculum. School enterprise cooperation investigates many problems faced by entrepreneurship education, analyzes the ability and quality requirements of entrepreneurship education with researchers in the field of entrepreneurship education and experts from various industry associations,

defines the main tasks of entrepreneurship education, formulates the training objectives of entrepreneurship education, and constructs the curriculum system oriented by entrepreneurship education. At the same time, in order to constantly meet the needs of society, enterprises and universities, we should regularly revise the talent training program, and design and develop entrepreneurship education.

Therefore, school enterprise cooperation plays an optimized mechanism in all aspects of entrepreneurship education curriculum construction in Colleges and universities. School enterprise cooperation plays a guiding role in the design of curriculum standards for entrepreneurship education. The tools and equipment needed for entrepreneurship education are inseparable from the help of enterprises. Enterprises can provide corresponding industries to help colleges and universities formulate entrepreneurship education courses, so that colleges and universities are no longer blind in the design of curriculum standards for entrepreneurship education. In the implementation of entrepreneurship curriculum, it is also inseparable from the cooperation between schools and enterprises. The guarantee of teaching resources, the construction of teaching staff, the construction of training base and other aspects are indispensable parts of the implementation of entrepreneurship education curriculum. Precisely, enterprises can provide schools with various teaching resources, entrepreneurship tutors and bases for entrepreneurship education. School enterprise cooperation can also improve the evaluation mechanism of entrepreneurship education curriculum construction. By inviting enterprise experts, schools and enterprises to participate in the evaluation of entrepreneurship education teaching methods, content, means and teaching effectiveness. Through school enterprise cooperation, the evaluation mechanism of entrepreneurship education is diversified, and the curriculum content of entrepreneurship education is more in line with the requirements of enterprise development.

### **6.3 Mechanism of School Enterprise Joint Construction of Entrepreneurship Education Practice Platform**

In order to cultivate high-quality entrepreneurial talents, colleges and universities need a high-quality entrepreneurial education practice platform. The high-quality entrepreneurship education practice platform needs high investment, but it is difficult to solve with the strength of the school itself in the case of the lack of funds in many colleges and universities. Therefore, we must mobilize the enthusiasm of enterprises to participate in the construction of entrepreneurial practice platform, and improve the construction mechanism of entrepreneurial practice platform. A fully functional entrepreneurship education practice platform needs to have the function of entrepreneurship education practice teaching, entrepreneurship skills training, and the training function of “double teacher” quality teachers. The school enterprise joint venture education practice platform has unique advantages in cultivating entrepreneurial talents. Firstly, the platform integrates the resources of schools and enterprises, realizes the reorganization of resources, and jointly cultivates entrepreneurial talents. Secondly, the entrepreneurship education practice platform simulates a genuine entrepreneurial environment for students, and organically integrates entrepreneurial theory and practice.



The training mechanism of entrepreneurship education teachers is not a simple training problem, it is a systematic project around the construction of entrepreneurship discipline, including the selection mechanism of entrepreneurship discipline leaders, the incentive mechanism of entrepreneurship teachers, the sharing mechanism of entrepreneurship teacher resources and so on. The training of entrepreneurship education teachers needs the cooperation of school and enterprise, give full play to the role of enterprise equipment and environment, organize teachers to receive training in entrepreneurship training base, and update entrepreneurship knowledge and skills. The source of entrepreneurship education teachers in Colleges and universities is not only teachers in Colleges and universities, but also enterprise experts or professional skilled talents. Therefore, the cooperation between university teachers and enterprise experts can be adopted to cultivate entrepreneurship education teachers. At the same time, we should improve the incentive mechanism for entrepreneurial teachers, stimulate the enthusiasm of university teachers, and protect the treatment of part-time teachers.

In order to improve the service quality of entrepreneurship education, colleges and universities need to establish a set of effective teacher supervision system and evaluation system. The system needs to achieve a comprehensive evaluation of the work of entrepreneurship education teachers, help entrepreneurship teachers improve their teaching, and put forward relevant suggestions. The evaluation mechanism of entrepreneurship education teachers should be different from other teachers, and its evaluation should have the following three characteristics. First, the “bottom-up” evaluation method still works, and students’ evaluation of teachers is still an indispensable part of the evaluation system of entrepreneurship teachers; second, the leading group evaluates entrepreneurship teachers through the “top-down” method; third, in addition to the above evaluation methods, through school enterprise cooperation in entrepreneurship education teaching, The teaching evaluation of entrepreneurial teachers is more important. Enterprise peers use their unique experience to judge the teaching results of entrepreneurship teachers and help teachers improve their teaching.

## 7 Conclusion

Based on the school enterprise cooperation mode, this paper analyzes the existing problems and development trend of College Students’ innovation and entrepreneurship activities from multiple perspectives by using multi-dimensional dynamic innovation model (mdmi), and constructs a college students’ innovation and entrepreneurship experience platform, which has good performance. The importance of influencing factors of College Students’ innovation and entrepreneurship is analyzed by using multiple support vector machine algorithm, The platform is stable, practical and functional, which can better meet the requirements of university innovation and entrepreneurship experience platform.

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