

Research on Complex Adaptive Characteristics of Entrepreneurship Education Ecosystem based on CAS Theory

Ming Yang

Chongqing College of Electronic Engineering, Chongqing 401331, China

270562627@qq.com

Abstract. The construction of an innovative country requires innovative laborers. As an institution for cultivating vocational talents, by analyzing the problems of entrepreneurship education in higher vocational colleges, according to the theoretical characteristics of CAS, the content of establishing an entrepreneurial education system in higher vocational colleges is proposed To build a system of innovation and entrepreneurship for students in higher vocational colleges, to cultivate innovative professional talents adapted to the development of the times, and to meet the development needs of the new era. This article promotes the research and development of entrepreneurship education in higher vocational colleges in China, to cultivate high-skilled professionals in science and technology, and contribute to Chinese economic construction.

Keywords: CAS; Higher Vocational Colleges; Entrepreneurship Education.

1. Introduction

The Complex Adaptive System (CAS) theory was formally proposed by Professor John Holland of the United States in 1994. The basic idea can be expressed as: adaptation produces complexity. The theory consists of two aspects, micro and macro. At the micro level, the subject often satisfies the stimulus-response model in the interaction with other subjects or the environment. They adjust their behavior rules according to the environment's feedback on their own behavior, reflecting their adaptability. At the macro level, a very complex system is formed by many adaptive subjects. A single subject develops to varying degrees when interacting with other subjects or the environment, reflecting the complex evolutionary processes such as differentiation and emergence in the macro system. In the perspective of this complex science, the entrepreneurial education system of vocational college students is undoubtedly a type of CAS. Because of CAS theory, it provides scientific quantitative methods and tools for the study of entrepreneurship education system for students. The problem of entrepreneurship education system for higher vocational college students also gives CAS theory more theoretical value and social background. With the gradual progress of research, incorporating the research on the university students' self-employment education system into the basic theoretical framework of CAS has also become the focus of common concern of many scholars, governments, education departments and universities. The embedding of the theory and the new features presented need further discussion. The promotion of entrepreneurship education is the first choice for higher vocational colleges to want to occupy a place in future development. Therefore, a major task facing higher vocational colleges is to establish a sound and complete entrepreneurial education system, find scientific and effective countermeasures, and carry out systematic and comprehensive research. At present, China's entrepreneurship education is highly valued, curriculum construction has begun to take shape, entrepreneurial activities are also very rich, talent training has achieved initial results, and school-enterprise cooperation has been closely integrated. However, due to the late start of development, entrepreneurship education in higher vocational colleges should face up to the existing problems in the development process, including the shortcomings of education goals, teaching systems, teacher teams, practice platforms, guarantee systems, evaluation systems, and public service systems. There is still room for improvement. This thesis analyzes the problems of entrepreneurship education in higher vocational colleges, proposes the content of higher vocational entrepreneurship education system based on CAS theory, and tries to build a set of scientific, reasonable, systematic, and practical based on CAS theory. The entrepreneurial education system in China actively promotes the research and development of entrepreneurship education in higher vocational colleges in China.

2. Basic Model of CAS Theory

2.1 The "Stimulus-response" Model of Adaptive Subjects

In complex adaptive systems, the basic behavior of the subject should follow the "stimulus-response" model. Each subject's execution system contains three aspects: the detector, effector, and rules. The detector is used to receive external stimuli, and is responsible for receiving and processing the output information. It is the condition of the subject's existence and reflects the subject's ability to receive information from the external environment. The effector is the function of the subject, responsible for generating output information and responding to the internal state update in a timely manner, to a certain extent reflecting the subject's ability to act on the environment. The rules reflect the ability to process the information received by the probe, and determine the stimulus factors and the content of the response.

2.2 The "echo" Model of Complex Adaptive Systems

Information processing and its diversity for systems composed of complex adaptive systems. Based on the individual evolution process, the concepts of "resource" and "location" have been added to the echo model of complex adaptive systems. Holland unified, organic, and intrinsically combines macro and micro, integrating individual evolution and overall system evolution. This is another characteristic of CAS theory.

3. Problems in Entrepreneurship Education in Higher Vocational Colleges

3.1 From the Perspective of the Social Environment, the Problems of the Management System, Guarantee System, and Evaluation System

The connotation and theoretical understanding of entrepreneurship education are incomplete, and some college managers' education concepts cannot keep pace with the times, and they have not really grasped the necessity, importance and urgency of entrepreneurship education. Entrepreneurship education; some of the policies introduced cannot be fully integrated, the functional departments do not fully cooperate, each department independently conducts its own entrepreneurial education, there is no unified planning and team, there is no complete set of related systems to support, and there is not enough motivation Promote students' entrepreneurial enthusiasm; entrepreneurship education in colleges and universities has not been completely integrated with entrepreneurial organizations and institutions in the society. Organizations and institutions in the society have established good cooperation platforms for schools, governments, and enterprises, and provide policy information consulting services and Professional skills training, colleges and universities do not make full use of resource integration, and increase integration with the government and enterprises; the lack of a comprehensive evaluation system for entrepreneurship education and entrepreneurial quality, resulting in minimal impact on entrepreneurship education, and the popularity is relatively low.

3.2 From the Perspective of Higher Vocational Colleges, the Problems of Teaching System, Teacher Team, Entrepreneurship Education Model, and Supporting Mechanism

The teaching system of entrepreneurship education is not perfect, and the curriculum structure is unreasonable. Entrepreneurship education courses in most universities are managed by the Academic Affairs Office, Youth League Committee, Admissions and Employment Department, Youth League Committee. They are organized and implemented in the form of compulsory or elective courses. The effect is not very good, the curriculum is not very targeted, and various trainings are organized. Classes, lectures, and reports enhance students' entrepreneurial awareness and cannot meet the actual needs of college students' entrepreneurship; entrepreneurship education in most colleges and universities is not included in the talent training system, and entrepreneurship education is not connected with professional education and the degree of integration is not high.

The number of teachers in entrepreneurship education is scarce, and the level of teachers is uneven. Entrepreneurship teachers in most vocational colleges in China are part-time teachers. The employment commissioners of various colleges and the employment management staff of the administrative department have a relatively good grasp of entrepreneurship policies. They lack the knowledge and awareness of innovation and entrepreneurship, rich practical experience and experience, and companies. Closely related adherence.

Entrepreneurship education model needs to be perfected. The entrepreneurial education model in China is affected by the traditional teaching model and lacks independence, pertinence and systematisms. Many schools' entrepreneurial education is at the stage of learning and exploration, and a stable and mature entrepreneurial education model has not been formed. Teacher training and supporting policies have not been fully in place., Cannot meet the needs of different types of students for entrepreneurial education; lack of overall planning and design of entrepreneurial education model.

3.3 Look at the Problems of Entrepreneurial Quality, Entrepreneurial Consciousness, Entrepreneurial Knowledge, and Entrepreneurial Ability from the Vocational College Students

Students lack entrepreneurial qualities. Good entrepreneurial quality is the main condition for successful entrepreneurship. The quality of students in various universities affects the effect of entrepreneurship education. The entrepreneurial consciousness governs entrepreneurial behaviors of some entrepreneurs. Some students lack entrepreneurial enthusiasm and do not have good professional ethics. Social responsibility; entrepreneurial knowledge determines the way of thinking of entrepreneurs. Without good knowledge of business management, professional technical knowledge, laws and regulations, even with the help of all parties, with their own enterprises, the enterprises are not energetic and ultimately fail. The entrepreneurial ability directly affects the effectiveness of finding entrepreneurial activities, and lacks scientific and technological innovation ability, opportunity identification ability, and interpersonal communication ability.

4. Construction of Higher Vocational Innovation and Entrepreneurship Talent Training System based on CAS Theory

4.1 Constructing an Innovative and Entrepreneurial Ability Training System Capable of Combining Professional Learning

In the course of teaching, firstly select high-level teachers inside and outside the school to complete the teaching tasks of the theory of innovation and entrepreneurship. In the teaching content, the company is closely integrated with the use of enterprise cases to jointly develop teaching materials. At the same time, organize a strong faculty team to guide higher vocational students to participate in innovation and entrepreneurship activities, especially to encourage participation in innovation and entrepreneurship practice competitions. Establish a professional training plan that meets the needs of reality, by advocating personalized education, establishing independent innovation and entrepreneurship institutions, establishing professionally integrated innovation classes, continuously improving personnel training methods, and establishing a multi-level and three-dimensional long-term operating mechanism for innovation and entrepreneurship education, Promote the improvement of the quality of talent training, and cultivate more adaptable and skilled talents.

4.2 Create a Complete Theoretical Learning System

The theoretical knowledge of innovation and entrepreneurship is the foundation and necessity for advancing the education of innovation and entrepreneurship. According to the knowledge, ability and quality requirements necessary for innovation and entrepreneurship, a comprehensive training system of "theory-simulation training-entrepreneurship combat" has been developed layer by layer.

On the subject of theoretical teaching, courses such as "thinking innovation and development", "innovation, creation, and change" are targeted at first-year students, with the aim of enhancing the cultivation of innovative thinking and methods; ", SYB Entrepreneurship Training Course ", " From Non-Business Plan to Business Plan ", " Interpersonal Communication and Communication Skills ", etc. to cultivate students' basic business knowledge and spiritual training;" Integrated Innovation and Application Innovation ", "Entrepreneur's Law" aims to develop student product innovation and business skills. To ensure students' systematic innovation and entrepreneurship education from the moment they enter the university campus, to clarify entrepreneurial motivation, stimulate innovation and entrepreneurial enthusiasm, and cultivate innovative entrepreneurship, and lay the necessary theoretical foundation for innovation and entrepreneurship simulation and actual combat.

4.3 Innovation and Entrepreneurship Simulation Practice Platform

Simulating innovation and entrepreneurship is an initial attempt to combine innovation and entrepreneurship knowledge with innovation and entrepreneurship practices, and is a practice simulation activity that can effectively reduce the risks of innovation and entrepreneurship. First, the trainees can use their own resources to engage in innovation and entrepreneurship simulation activities; they can also use school resources to conduct business training, management, marketing and other activities to simulate the implementation process of innovation and entrepreneurship projects; secondly, they can provide students with basic innovation and entrepreneurship simulation training centers to provide students with basic Real simulation training environment; you can also consider providing a low-cost platform such as opening a store on Taobao, so as to achieve "integration between reality and reality", and build a virtual innovation and entrepreneurship comprehensive platform that is close to practice. The ability of vocational students to practice innovation and entrepreneurship; finally, to give full play to the leading role of vocational skills competition in vocational colleges, to turn the simulation of students' innovation and entrepreneurship practice into a preview of innovation and entrepreneurship practice, and to improve the success rate of innovation and entrepreneurship implementation.

5. Summary

In summary, based on the characteristics of the CAS theory, and in light of the problems that arise in entrepreneurship education in higher vocational colleges, the contents of the entrepreneurship education system need to be constructed briefly to form a systematic, complete, and stable system, and finally form a set of training Cheats for entrepreneurial success of vocational college students. In the future, specific research on system construction models, methods, and other methods will be conducted based on CAS theory, to revitalize the entrepreneurial education of higher vocational colleges in China and stimulate greater economic development benefits.

Acknowledgements

The authors gratefully acknowledge the financial support from Chongqing College of Electronic Engineering Research on the operation mechanism of the ecosystem of Higher Vocational entrepreneurship education based on CAS Theory (XJSK201910).

References

- [1]. Chen Min, Yao Shiming. Mining and Fusion——Research on Innovation and Entrepreneurship Education System of Vocational College Students Based on CAS Theory [J]. Value Engineering, 2018 (29): 286-288.

- [2]. Chen Min. Preliminary Exploration on the Construction of Entrepreneurship Education System in Higher Vocational Colleges Based on CAS Theory [J]. Value Engineering, 2016 (36): 280-284.
- [3]. Duan Xuhui. Research on University Students' Self-employment Support System Based on CAS Theory [D]. China University of Geosciences, 2015.
- [4]. Chen Yu. The Theory and Application of Complex Adaptive System (CAS)—— Origin, Content and Enlightenment [J]. Journal of System Dialectics, 2011 (4): 35-39.