

Construction of Teacher Training System for Innovation and Entrepreneurship



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Education from the Perspective of Synergy Theory

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Abstract: Teacher training is an important way to cultivate teachers' innovation and entrepreneurship teaching ability. The essential problem to be solved at present is to improve the quality of teacher training and enhance the effectiveness. Building a multi-dimensional training system is the key to improving the effectiveness of training. Based on the connotation and principle of synergy theory and the needs of innovative talent training objectives, we should build a collaborative and effective training system that includes six aspects: training management system, training subject, trained subject, training content, training method, and training evaluation, so as to accurately improve the innovation and entrepreneurship education ability of college teachers.

Keywords: innovation and entrepreneurship education ability; training; synergy; innovation and entrepreneurship education

1. Introduction

Teachers are the main force of innovation and entrepreneurship education, whose ability is directly related to the development of innovation and entrepreneurship education and the cultivation of the talents. To deepen the reform of innovation and entrepreneurship education, strengthening the construction of teachers' education capabilities is an indispensable and important initiative. Universities should continue to strengthen the relevant teaching capacity and quality training of teachers, and establish a goal-oriented training model for innovation and entrepreneurship instructors. A comprehensive training system plays an important role in improving teachers' creative consciousness, enriching their teaching methods, improving their classroom teaching and entrepreneurship practice competence, but the present training for the teachers is still not efficient in the organization and management, resource sharing and practical application. Therefore, a more effective teacher training system to improve the precision and effectiveness of training should be established based on the characteristics of new era and the actual demand of the innovation and entrepreneurship education in colleges and universities.

2. The Synergy Theory is Highly Compatible with the Innovation and Entrepreneurship Education Ability

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Training of College Teachers

Physicist Harken proposed a new and influential theory called synergy theory, which mainly studies how an open system far away from equilibrium can spontaneously present an ordered structure in time, space and function through its internal synergy in the case of material or energy exchange with the outside world. It mainly includes three parts: synergy effect, servo principle and self-organization principle. The idea of synergy theory is an inevitable requirement for the development of modern management, and its method can be widely applied to the management of social organizations and groups, and provide a new perspective and approach for the study of the evolution of organizations (Zhiyuan, 2012).

The importance of innovation and entrepreneurship education determines the importance of teachers' innovation and entrepreneurship education ability training. Exploration and analysis based on the perspective of synergy theory can help to better understand the synergy, diversity and extensibility of innovation and entrepreneurship education capacity training, and form multi-force to help the orderly development of training. Synergetic theory covers multiple disciplines to study the essential characteristics of its common existence and has wide applicability. It provides a new thinking paradigm and theoretical horizon for training work by embedding synergetic theory into training work, which is of great practical significance for training work.

According to the synergetic theory, the connotation of synergetic effect refers to the collective effect or

enhancement effect generated by the interaction of multiple subsystems in a complex system. Whether the synergetic effect can be effectively shown depends on the synergetic effect of subsystems in the whole system. If the synergetic effect is well achieved, the effect of $1+1>2$ can be produced. On the contrary, it will affect the function of the subsystem and make the whole system in a chaotic state. College teachers' innovation and entrepreneurship education ability training is faced with complex groups, whose recognition and understanding of innovation and entrepreneurship education concept and the mastery of innovation and entrepreneurship teaching design principle and method are different. In addition, this training job still has shortcomings in the internal division of labor, inter-organizational coordination and overall function realization, and is faced with such problems as organizational segregation, resource decentralization and system fragmentation (Chen, 2022). To some extent, it has a "two skins" phenomenon due to the separation from the professional education. In this case, the important task of the training of college teachers' innovation and entrepreneurship education ability is to coordinate the relationship between the subsystems, gather the strength of the subsystems, and form a reasonable innovation and entrepreneurship education.

The complex and open system expounded by synergetic theory coincides with the education and training system of innovation and entrepreneurship. According to the synergetic theory, the prerequisite for a system to change from disorder to order is its openness. The system should be kept open. Only through the exchange of material, energy and information with the external environment can the vitality of the system be maintained, so that it can develop in an orderly direction. The training system of innovation and entrepreneurship education ability is also a complex and open system. The complexity lies in the fact that it is composed of three elements: human, organization and environment, and each element is embedded with multiple secondary elements, showing a nonlinear structure. Openness lies in the fact that it can make the whole system perfect and improve the system in an orderly direction in the process of receiving, sorting and conveying information.

Based on the servo principle of synergetic theory, it is the order parameter that plays a decisive role in the evolution of the system. The order parameter influences the collective cooperative behavior of system elements from one phase transition state to another, thus bringing to the system changes from scratch. In the system, besides the order variable, other variables that have influence on the system but do not constitute decisive factors are state variables (Haken, 1988). The concept of order variable explains how the system undergoes phase transition at the critical point and how it dominates the system to produce a new phase transition state, providing a new theoretical basis and research perspective for modern management practice. Therefore, in the entrepreneurship education in innovation ability training, we need determine, among the

many influencing factors, the factors that are the major or minor, inevitable or accidental, essential or non essential, and find the decisive order parameter. Through regulation and management, we coordinate the external parameters and improve the internal coordination, constantly strengthening and highlighting the order parameter that we want, so that we can effectively control the evolution direction of the whole system, and ensure the orderly development of training.

3. Construction of a Collaborative System for Training College Teachers' Innovation and Entrepreneurship Education Ability

3.1 Coordination of management systems

To do a good job in the training of innovation and entrepreneurship education ability, it is necessary to establish a multi-layer linkage management system consisting of educational competent departments, universities and functional departments, schools and teaching and research offices. Each department should perform its own function and do its best. Among them, education authorities should play the role of organization, leadership and coordination, do a good job in the top-level design of training, issue policy documents and guidelines, and be responsible for the guidance, supervision and evaluation of colleges and universities. Colleges and universities should carry out the main responsibility of implementing innovation and entrepreneurship education, actively implement the arrangements of the higher education authorities, formulate practical training programs based on the actual situation of the school, integrate resources inside and outside the school, build various platforms for improving the innovation and entrepreneurship education ability of college teachers, establish a sharing and sharing mechanism for training resources, and urge relevant departments and secondary colleges throughout the school to organize the implementation. The Party and government leaders of each school should supervise and urge the teaching and research office and teachers to actively participate in the training at all levels and do a good job of tracking and guidance, specifically implement the training task of innovation and entrepreneurship education, and ensure that the training work is practical and detailed. In a word, it is necessary to fully integrate relevant subjects, link vertically and horizontally, and jointly manage to form a resultant force.

3.2 Coordination of subjects

The evolution of organizational system from disorder to order is the result of the synergy between many subsystems. Therefore, the training subject should rely on a variety of effective subsystems instead of a single subsystem (Liu, 2022). The first is the administrative departments or training centers at the national and provincial levels. The training content mainly covers the basic concepts, top-level design and policy documents of innovation and entrepreneurship education, and the trained subjects are mainly university-level leaders and key teachers of innovation and entrepreneurship. The second is

the training organization at the university level, which is mainly aimed at middle-level cadres, key teachers and relevant staff of the university. The training content is mainly about the idea indoctrination and basic requirements, and to a greater extent, it is manifested as creating a good atmosphere of innovation and entrepreneurship (Wang, 2021). In such a method, we can get the effect of leading the demonstration from individual to a larger scope. Next is the training on the level of faculty, for the front-line teachers of departments, we should actively mobilize and urge teachers to participate in various kinds of innovation and entrepreneurship training, master teaching methods, organize the teaching and research section and teaching team, conduct collective class preparation and discussion on the development of a certain professional course and innovation and entrepreneurship, and promote the specific development of professional education and innovation and entrepreneurship education in the form of demonstration classes, open classes, etc. Training subjects at all levels should, on the basis of giving full play to their functional effects, strengthen functional complementarity, coordination and cooperation, and jointly help teachers improve their innovation and entrepreneurship education ability.

3.3 Coordination of trained subjects

Teachers are the key to promoting innovation and entrepreneurship education in an all-round way, as well as the main aspect of contradiction. To solve complex problems, we should focus on the main contradictions and the main aspects of the contradictions, but we should not ignore the minor contradictions and the minor aspects of the contradictions. Only by integrating and coordinating all contradictions from the perspective of system integrity can we maximize the system benefits. The ability training of innovation and entrepreneurship education should not only target the first-line professional teachers, but should cover the leaders of the university and secondary colleges, relevant functional departments and relevant staff more widely. They are an integral part of the training community. To comprehensively promote innovation and entrepreneurship education, first of all, leaders at all levels should be fully aware of the importance of innovation and entrepreneurship education, so as to encourage and support front-line teachers to carry out teaching reform from the aspects of policies, personnel and funds. Leaders of specific departments in charge of innovation and entrepreneurship education and teaching staff in charge of innovation and entrepreneurship education in various schools should correctly understand the connotation and significance of innovation and entrepreneurship education, and understand specific policies and measures, so as to better serve the work of front-line teachers.

3.4 Coordination of training content

Generally speaking, The main contents of the innovation and entrepreneurship education ability training include classroom teaching and entrepreneurship practice. Classroom teaching mainly include helping students to improve their innovative pioneering consciousness and

thinking, set goals and objectives, decide on the teaching design, incorporate the innovation and entrepreneurship education into the professional education skill, and make innovation and entrepreneurship education evaluation. The pioneering practice mainly includes simulation training, start-ups incubation cultivation and so on (Xu, 2020). Among them, innovative thinking and consciousness is the premise and important foundation of innovation and entrepreneurship education. If a professional teacher understands and grasps the methods and skills of innovation and entrepreneurship education, but has insufficient awareness of innovation and entrepreneurship, it is also difficult to integrate innovation and entrepreneurship thinking into classroom teaching, let alone the guidance of students' entrepreneurship practice. The improvement of the core quality of college teachers must serve the ultimate goal of cultivating innovative talents. Therefore, college teachers not only need to improve their professional quality, but also need have the consciousness and thinking of innovation and entrepreneurship. In the training work, we should focus on improving teachers' innovation and entrepreneurship literacy, carry out training on innovation and entrepreneurship consciousness and thinking, and promote teachers' innovation and entrepreneurship literacy through special training on innovation spirit and entrepreneurship. Teachers are encouraged to take an active part in guiding students' entrepreneurial practice, and improve their awareness and ability of innovation and entrepreneurship through incubation bases and enterprise practice.

3.5 Coordination of training methods

With the help of contemporary new media technology and digital economy, the training methods present the characteristics of diversity, convenience and so on (Wang, 2017). There are mainly the following synergies: online and offline synergies, pre-job and on-job synergies, on-campus and off-campus synergies, typical experience sharing and interaction synergies, project incubation and incubation and mass entrepreneurship competition synergies, expert reports and entrepreneurial information guidance synergies, etc. According to the synergy theory, the behavior of a system is not the superposition of the actions of various subsystems, but the cooperative effect of the interaction, regulation and organization of multiple subsystems. Based on this principle and driven by the idea of innovation and entrepreneurship education, a systematic and continuous training model integrating teaching, learning, creation and competition should be constructed.

At the same time, we should pay attention to the actual needs and individual characteristics of teachers in a timely manner, combine the efficacy characteristics of various training methods, choose appropriate ways to cooperate, design a closed-loop behavior training process for the training object, realize the self perfection and operation of the system, complete the evolution from disorder to order, and constantly improve teachers' innovation and entrepreneurship education ability. teachers' innovation and entrepreneurship education ability.

3.6 Coordination of training and assessment

Assessment is a necessary measure and an important guarantee to check the quality of work. Training assessment should achieve the coordination of training objects, assessment standards and assessment methods (Cheng, 2021). The collaboration of trained subject refers to the assessment of both the training of the training subject and the learning of the trainees. The key point is to assess whether the students' innovation and entrepreneurship ability has been effectively improved. The synergy of assessment standards refers to the assessment of the satisfaction of the training subjects to the trainees, and the full consideration of the trainees' sense of achievement in knowledge and skill acquisition. Collaboration of assessment means that the trainees assess and evaluate the trainers, based on the assessment of the trainees' mastery and application of training content. That is, whether innovative and entrepreneurial thinking is used in classroom teaching and practical teaching to help personnel training, and what is the effect of classroom education and practical education. The assessment mechanism should focus on application as the goal, guide teachers to apply the training content to the follow-up teaching practice, and apply what they have learned.

4. Conclusion

The innovation and entrepreneurship education ability of college teachers is related to the realization of the national innovation and entrepreneurship talent training goal, and training is an important means to improve teachers' innovation and entrepreneurship ability. To do a good job in innovation and entrepreneurship education and training, we must consider the systematicness and synergy of the work as a whole, and form a comprehensive and sustainable multi-dimensional collaborative mechanism in management mechanism, training subject, trained subject, training content, training method and training assessment, so as to deepen college teachers' understanding and recognition of the concept of innovation and entrepreneurship education, improve teachers' ability to design innovative teaching, guide entrepreneurship practice, tap innovative elements to ensure that innovation and entrepreneurship education takes root and gets results.

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Conflict of Interest

The authors declare that they have no conflicts of interest to this work.

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