ISSN: 2688-9323

Exploration of Innovation and Entrepreneurship Talent Cultivation based on SIT Theory

-- Taking the Micro-profession of Innovation and Entrepreneurship Management in Inner Mongolia University of Technology as an Example

Dongmei Li[1, a], Peipei Song[1], Zhao Xing[1], Wenli Zhang[2], Li Cheng[1], and Wu Yue[1]

[1] Inner Mongolia University of Technology University Students' Innovation and Entrepreneurship Center, Hohhot 010051, China

[2] Innovation and Entrepreneurship Guidance Institute, Beijing 100000, China

[a]601037258@qq.com

Abstract

The cultivation of innovation and entrepreneurship talents is not only an inevitable demand to help the development of science and technology, but also an important support for the implementation of the strategy of developing the country through science and education, the strategy of strengthening the country through talents and the strategy of innovation-driven development. The application of Systematic Innovation Thinking (SIT) theory in the field of innovation and entrepreneurship talent cultivation in colleges and universities can accelerate the process and quality of innovation and entrepreneurship talent cultivation. Taking SIT theory as a guide, we construct the competence model of innovation and entrepreneurship talents, and through the micro-professional construction case of "Innovation and Entrepreneurship Management", we provide reference experience for local universities in innovation and entrepreneurship talents cultivation in terms of cultivation goal, teacher team, curriculum system, teaching form and assessment method. At the same time, it also points out the pain points of innovation and entrepreneurship education in colleges and universities.

Keywords

SIT Theory; Innovation and Entrepreneurship Management; Microprofessional.

1. Introduction

With the implementation of the national innovation-driven development strategy and the rapid development of the economy and industrial upgrading, the social demand for innovation and entrepreneurship talents is increasing. Exploring the cultivation of innovation and entrepreneurship talents is not only an inevitable demand to help the development of science and technology, but also an important support for the implementation of the strategy of developing the country through science and education, the strategy of strengthening the country through talents and the strategy of innovation-driven development [1]. The state attaches great importance to innovation and entrepreneurship education, and has issued a series of policy documents to encourage colleges and universities to open innovation and entrepreneurship courses to cultivate talents with innovative spirit and practical ability. However, in terms of its underlying logic, innovation and entrepreneurship talent cultivation is a systematic project. In recent years, many scholars and colleges and universities have studied the cultivation of innovative and entrepreneurial talents from various perspectives, such as

ISSN: 2688-9323

deepening education reform, collaborative educating mechanism, curriculum system construction, practice platform construction, policy support and incentives, faculty construction, promotion of industry-teaching fusion, competitions and project-driven, promotion of achievement transformation, and cultural atmosphere creation, and have achieved certain results. However, looking at the talent cultivation mode and its effectiveness, there are still problems such as irrational cultivation mode, mismatch of cultivation activities, fragmentation of cultivation field, insufficient cultivation of practical ability, limitation of practical teaching, and imperfect safeguard system in many colleges and universities. The promotion and application of Systematic Innovation Thinking (SIT) in the field of talent cultivation in colleges and universities can better promote the process and effectiveness of innovation and entrepreneurship talent cultivation.

2. SIT Theory

SIT theory, or Systematic Inventive Thinking, is a theory of thinking that originated in Israel in the mid-1990s. It is derived from Genrich Altshuller's TRIZ engineering and is a practical approach to creativity, innovation and problem solving. This theory focuses on what innovative solutions have in common rather than what is different. It has been found that despite the diversity of innovative products and services, they all share the same principles, characteristics, and even some of the same patterns, i.e., the same patterns of technological evolution and principles of invention can be learned from each other in different technological domains. another key concept of the SIT theory is "Thinking Inside the Box," which means defining Another key concept in SIT theory is "thinking inside the box," which means defining problems and boundaries. Another key concept in SIT theory is "thinking inside the box," which means defining the problem and its boundaries. In the process of problem solving, we must first define the scope of resources available for solving the problem, and then utilize these resources to efficiently search for a solution. In addition to Thinking Inside the Box, SIT theory includes four other core steps, namely, disassembly, correlation, reorganization, and evaluation. Together, these steps constitute a complete innovation process designed to help people break the constraints of traditional thinking, discover new solutions, and realize innovation.

In conclusion, SIT theory is a powerful and practical innovation tool, which we can use as a theoretical basis for the teaching reform of innovation and entrepreneurship education, providing students with systematic training in innovation and entrepreneurship knowledge and skills, so that students can be equipped with the competence characteristics expected of innovation and entrepreneurship talents, and be able to look at the problem from a new perspective, discover potential solutions, and promote the development of innovation.

3. Competency Characteristics Expected of Innovative and Entrepreneurial Talentsliterature References

3.1. Systematic Thinking

To be able to utilize the systematic thinking method of SIT theory, to regard the innovation and entrepreneurship process as a whole system, to consider the various links and factors therein, and to take into account the interactions and relationships among them, so as to understand the innovation and entrepreneurship process comprehensively and deeply, and to improve the scientificity and effectiveness of decision-making.

3.2. Creative Thinking

Ability to break the boundaries of traditional thinking patterns, think from multiple perspectives, apply innovative thinking, and utilize different knowledge and experience to come up with new and unique innovative and entrepreneurial ideas and solutions.Two or more.

ISSN: 2688-9323

3.3. Problem Solving Capability

Ability to react quickly and get to the root cause of problems by applying problem solving methods and tools of SIT theory to effectively identify and solve problems and challenges.

3.4. Capacity for Interdisciplinary Integration

Be able to cross the knowledge and skills of different disciplinary fields, draw on and integrate the knowledge and skills of different fields with each other, and provide new ideas and programs for innovation and entrepreneurship.

In addition to the above four characteristics, innovation and entrepreneurship talents should also possess keen market insights, strong teamwork and communication skills, risk identification and response skills, and continuous learning and self-improvement skills.

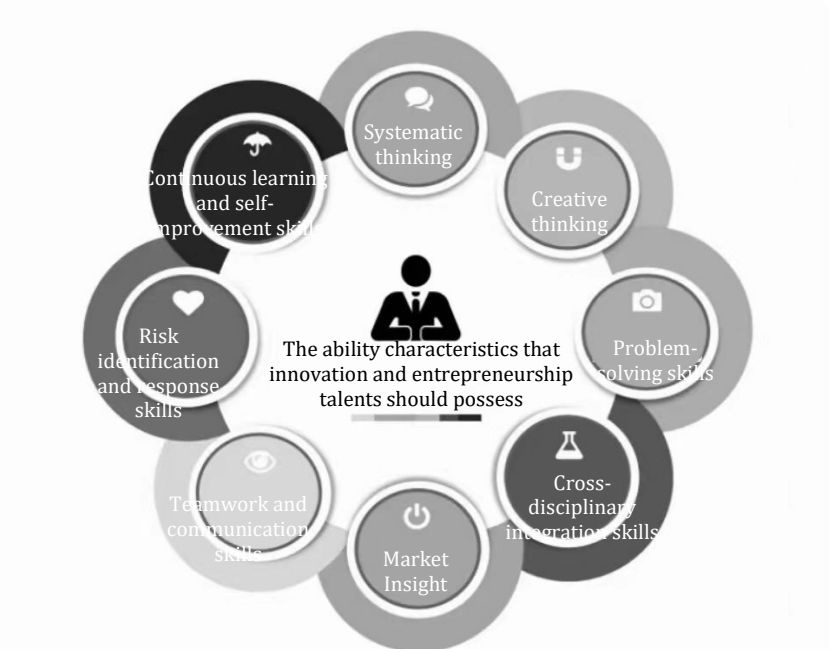

Figure 1. Innovation and Entrepreneurship Talent Competency Model

4. Exploration and Practice of Micro-professional Construction of Innovation and Entrepreneurship Management

Inner Mongolia University of Technology attaches great importance to the cultivation of high-quality innovative talents, and constantly deepens the education and teaching reform and innovates the mechanism of talent cultivation. 2023, based on the positioning of the university and the comprehensive advantages of the disciplines, the university initiated the construction of micro-specialties in order to comprehensively push forward the construction of the "four new", and to promote the cross-fertilization of disciplines and specialties as well as the development of the deep fusion of science, education and industry. After sufficient research, docking and preparation, the micro-profession of "Chuangcheng - Innovation and Entrepreneurship Management", which is a cooperation between the university and enterprises, has become the first batch of micro-professions approved by the university and the first micro-profession that has been officially opened for classes. The micro-professional is guided by SIT theory, integrates and gathers high-quality resources both inside and outside the university, clarifies the target orientation of talent cultivation, scientifically sets up the curriculum system, selects specialized teachers, and elaborately designs the overall teaching process and evaluation methods, so as to build a platform for the cultivation of interdisciplinary and high-quality innovative talents for the students.

ISSN: 2688-9323

4.1. Training Objective

(1) Understand and recognize the characteristics and patterns of the demand for innovation and entrepreneurship talents in society and its industry development.

(2) Possess basic innovation and entrepreneurship literacy and knowledge reserves, and be able to comprehensively utilize innovation and entrepreneurship theories, methods and tools, combine with industrial needs and market reality, apply systematic thinking to carry out innovation and entrepreneurship practice, put their ideas into practice, and complete design programs such as product prototyping.

(3) Be familiar with innovation and entrepreneurship related policies and relevant laws and regulations such as finance, intellectual property rights, company law, etc., and have the ability to deal with complex issues in the process of innovation and entrepreneurship.

(4) Possess sharp market insight, risk identification and response ability, strong interpersonal communication, teamwork, business negotiation, public relations management, and continuous learning and self-improvement.

4.2. Teachers

The university has cooperated with Beijing Innovation and Entrepreneurship Guidance Institute to carry out the construction of the micro-professional program of "Chuangcheng-Innovation and Entrepreneurship Management". The chief designers of the teaching system of both sides have many years of experience in dual-creation education and practical experience, and the teaching faculty consists of front-line practical experts from enterprises and professional teachers from universities who have rich practical experience and profound theoretical knowledge. At the same time, well-known entrepreneurs and successful entrepreneurs are regularly invited to give lectures at the university to provide students with a wider range of practical experience and innovative and entrepreneurial ideas.

4.3. Curriculum

Table 1. Micro-professional curriculum system

Course Modules	Main Contents	Point
From Idea to Action-Innovation and Entrepreneurship Practice Program	Creative thinking and innovative projects, team building, business plans, business models, etc.	2.5
From College Student to Professional - Introduction to and Enhancement of Professionalism	Business etiquette, communication management, time management, business writing, etc.	2.5
From Work to Product-Artificial Intelligence and Product Innovation Design	Artificial Intelligence and Product Innovation Design	1.5
From Stranger to Trust - Integrated Marketing Practice	Integrated Marketing Practices	2.5
From Idea to Success - Enterprise General Management Practice	Intellectual Property, Statement Interpretation and Financial Management, Legal Basics, etc.	1
From Idea to Action-Innovation and Entrepreneurship Practice Program	Innovation and Entrepreneurship Practices	3

On the basis of innovation and entrepreneurship projects, following the SIT theory, with the goal of improving the quality of talent training, and in accordance with the principle and logic of guiding students to integrate the knowledge learned in micro-professionalism with their professional knowledge, and gradually complete the systematic practical training of "discovering needs, forming teams, writing project plans, innovation practice, mode exploration, future planning", we set up the "5+1" course system (five core course modules + one project practice) and finally achieve the talent training goals through the whole industry-university-research-use integrated project system. Logic set "5+1" course system (five core course modules + one project practice), and through the whole industry-university-research-use integration project system to complete the entire talent training process, and ultimately realize the micro-professional talent training goals.

ISSN: 2688-9323

4.4. Form of Instruction

Micro-professional teaching is carried out in a combination of online and offline methods. To ensure that the training objectives are reached, offline is the main focus, with emphasis on students' personalized development and practical ability enhancement. Offline teaching adopts a small class system and project-based team learning; online makes full use of Internet technology to realize various forms of distance teaching, such as webcasting, recording courses, online Q&A, etc., to meet the personalized needs of students in terms of time, place and mode. Throughout the teaching process, teachers accompany students to realize the "5 1s", i.e. to find a team partner, to get to know a group of dual-creation mentors, to participate in an innovative project, to experience a dual-creation competition, and to complete a life design.

In addition to the above teaching methods, the micro-professional program creates opportunities to lead students into enterprises, laboratories, communities, etc. to carry out problem-oriented practical teaching and cultivate students' practical application ability.

4.5. Assessment Methods

Micro-professionalism follows a competence-oriented approach, emphasizes process and results, and adopts diversified assessment methods. Combining the microspecialization courses with practical problems, setting tasks with practicality, and assessing and evaluating the achievement of students' final learning objectives through students' practical operation, group reporting and presentation of results.

5. Some Reflections

The micro-specialty of "Chuangcheng--Innovation and Entrepreneurship Management" has carried out positive and beneficial exploration in innovation and entrepreneurship talent cultivation based on the positioning of talent cultivation objectives of the university, comprehensive disciplinary advantages, and active adaptation to the needs of new technologies, new business forms, new modes and new industries. However, in the process of practice, it is found that there are obvious pain points in the process of innovation and entrepreneurship talent cultivation in colleges and universities.

5.1. Low Coverage of Beneficiary Students

Standing on the height of national strategy, innovation and entrepreneurship education should be the same as curriculum ideological education, which is the education that all teachers participate and all students benefit. Although colleges and universities have included innovation and entrepreneurship education in general education in their talent cultivation programs, most of them are theoretical lectures, which are not well combined with real problems. Coupled with the problem of awareness and consciousness, there is a general lack of specialized dual-creation teachers, so the training benefits are small.

5.2. Cross-fertilization Implementation Difficulties

Cross-integration is the foundation of cultivating innovative talents, but because of the original classification of disciplines and faculties and departments, as well as insufficient efforts to build the system to ensure the construction of the system, resulting in an incomplete system of cross-integration of disciplines, the implementation of the path of innovation and entrepreneurship in the process of cultivation of talents is not clear, and the habit and awareness of single-discipline teaching of many teachers is heavy, and at the same time, the phenomenon of guiding the students' innovation and entrepreneurship practice with the thinking of discipline scientific research is also more common.

ISSN: 2688-9323

5.3. Artificial Intelligence Integration into Teaching and Learning is Missing

With the rapid development of Artificial Intelligence (AI), integrating it into the overall teaching and learning process, which can enable students to keep pace with the development of the times, but also guide them to use AI rationally, has become an issue that must be explored in depth. However, in the actual teaching process, some teachers and students have some confusion about how to use AI correctly, and even individual teachers are resistant to the use of AI by students, and they are bent on stopping it, so they can't well guide students to think critically about the information provided by AI, not to mention that they can't guide students to understand AI correctly from the perspective of the value of human intelligence, which is not conducive to the development of students' critical thinking, innovation ability and humanistic literacy.

6. Conclusion

Innovation and entrepreneurship talent training is an important guarantee of the demand for talents by new quality productivity, and is an important mission of talent training in colleges and universities. The innovation and entrepreneurship talent training system based on SIT theory can provide students with systematic innovation and entrepreneurship knowledge and skill training, so that they have the characteristics that innovation and entrepreneurship talents should have. Through the project-based teaching and practice to lay a solid foundation for the future road of innovation and entrepreneurship, to better meet the national demand for talents.

Acknowledgments

Key Project of Education and Teaching Reform of Inner Mongolia University of Technology in 2023: Research on Ecological Construction and Implementation Path of Innovation and Entrepreneurship Education in Local Engineering Colleges and Universities (2023114).

References

[1] Yanqing Lu.Creating the best undergraduate Exploring the road of independent cultivation of top innovative talents [J]. China Higher Education,2024,(4):20-23.

[2] Anlei JING,Haitao ZHOU,SHI Yue.Promoting the integrated selection and education of top innovative talents [J]. Educational Research,2024,(4):17-26.

[3] Zhenghua Wang. Exploration of higher vocational teachers' teaching innovation ability based on SIT theory [J]. Innovation and Entrepreneurship Theory Research and Practice,2018,3:9-12.

[4] YanLing,WangYao. Initial exploration and practice of applied undergraduate engineering cost micro-professional construction [J]. Research on Higher Engineering Education,2023,6:34-41.

[5] Chunming Xia, Xiaoyi Jin,Xiaojun Wang ,et al. Research and exploration of micro-professional construction in local universities under the background of new engineering disciplines [J]. Research on higher engineering education,2023,2:11-18.

[6] Shuyang Zhang, Changjiang Liu, QianYu, et al. "Cross" and "Fusion"-Exploration of Micro-professional Construction in SAC[J]. Journal of Higher Education,2023,22:94-97.