Journal of Education and Educational Research
ISSN: 2957-9465 | Vol. 2, No. 1, 2023

Research on the construction path of multi-dimensional collaborative cultivation system for innovative and entrepreneurial talents in regional colleges and universities

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Abstract: Based on the current problems existing in the cultivation of innovative and entrepreneurial talents in regional colleges and universities, such as lagged educational concepts, lagging development of educational models, lack of entrepreneurial teaching platform, and imperfect security system, this paper tries to build the innovation and entrepreneurship talent training system from six aspects including enhancing school-enterprise cooperation, optimizing curriculum system, reforming assessment methods, strengthening platform construction, construction of teaching staff, and practical training, and puts forward measures like strengthening organizational security and financial support, establishing evaluation mechanism, and creating a good atmosphere, in order to provide reference for the innovation and entrepreneurship talent cultivation of regional colleges and universities.

Keywords: Regional colleges and universities; Innovation and entrepreneurship education; Multi-dimensional collaborative cultivation system.

1. Introduction

In 2021, the General Office of the State Council issued the Guiding Opinions on Further Supporting the Innovation and Entrepreneurship of College Students, which clearly stated that "young students are the fresh force of mass entrepreneurship and innovation, colleges and universities should focus on the innovation and entrepreneurship education throughout the whole process of talent cultivation", the cultivation of innovation and entrepreneurial talents has become one of the important tasks of colleges and universities. Innovative and entrepreneurial talents cultivation is not only to improve talents' quality, but also to cultivate talents with innovative spirit and meet the needs of social and economic development through in-depth integration of production, education and research. In the existing innovation and entrepreneurship education system, there exists some problems, such as the lack of enterprise participation, large proportion of teachers teaching theoretically, and the lack of social practice [1]. It is necessary for colleges and universities to constantly improve the talent cultivation mechanism based on social needs. It is suggested to cultivate innovative and entrepreneurial talents through perfecting the cultivation scheme, strengthening collaborative education, improving the innovation and entrepreneurship curriculum system, increasing students' innovation awareness.

2. Problems in the cultivation of innovative and entrepreneurial talents in regional colleges and universities

2.1. The concept of innovation and entrepreneurship education is lagged

At the beginning of the innovation and entrepreneurship education, limited by the level of regional economic development, development conditions and other factors, regional colleges and universities aimed more in the training of "professional talents for enterprises" The teaching form was mainly theoretical teaching, and the teaching content more focused on specialized courses and basic courses of economics and management. The overall understanding of entrepreneurship education concepts, methods and paths remained in the micro perspective which resulted in that students' reception is narrow and cannot meet the social demand for innovative and entrepreneurial talents.

2.2. The development of entrepreneurship education model lags behind

Innovation has become the core competitiveness of enterprises in the new era. The demand for innovative talents has increased, and the capabilities required for innovative talents have also changed. Regional colleges and universities have not timely sorted out the new needs of enterprises for entrepreneurial talents in the new era, adjust the entrepreneurial education model, or integrate the unique spirit of different industries, industry technology, qualified teachers and other resources in the new era into the entrepreneurial talent cultivation process, resulting in students' weak entrepreneurial spirit, lack of entrepreneurial awareness and entrepreneurial ability.

2.3. Lack of entrepreneurship teaching platform

Due to the restrictions of funds, resources and other conditions in regional colleges and universities, software and hardware equipment are not sufficient for enough entrepreneurial teaching platform. The number of practice bases on campus is small, and there is disconnect with the actual production of enterprises. The innovation and entrepreneurship platform based on the production line is absent and the innovation and entrepreneurship education is mainly based on theoretical teaching. In addition, with the accelerating industrial transformation, technology and equipment upgrading, enterprises are not so willing to accept intern students, as the profit is not certain, and also time and funds are needed to invested. Thus, students don't have access to platforms to improve their innovation and entrepreneurship ability.

2.4. Inadequate guarantee system for entrepreneurship education

As traditional teaching resources do not meet the requirements of cultivating students' entrepreneurial ability and diversified development, students are not active in entrepreneurial activities, which hinders the cultivation of students' innovative thinking and entrepreneurial ability. In addition, the imperfect guarantee and incentive system leads to the low enthusiasm of teachers to participate in entrepreneurship education. Most teachers in regional university innovation and entrepreneurship lack enterprise practice experience, and the teaching content is not comprehensive. Most colleges and universities do not reflect the workload of innovation and entrepreneurship education in the assessment of teachers, which results in low enthusiasm of teachers [2-3].

3. Construction of multi-dimensional collaborative innovation and entrepreneurial talent cultivation system in regional colleges and universities

3.1. Strengthen innovation and entrepreneurship cooperation and vigorously promote collaborative education

(1) It is suggested to promote the cultivation of innovative and entrepreneurial talents through actively exploring off-campus resources, sharing resources in different majors, disciplines and colleges, contacting cooperative enterprises, strengthening collaborative innovation between industry, university and research. .

(2) The cooperation with high-level universities, enterprises, institutions and research institutes at home and abroad in running schools, employment of high-level engineering experts from industrial enterprises as guidance teachers for innovation and entrepreneurship, case-based research training, task-based team development and practice in enterprises should be enhanced. .

(3) Great efforts should be made in connection with the local government and entrepreneurship incubation base, jointly building the mass entrepreneurship space between universities and local governments, the organic combination of the transformation of innovation and entrepreneurship education achievements and the allocation of social resources, a green channel for the mature-incubated innovation and entrepreneurship teams to enter the society, and providing support, protection and services for students' innovation and entrepreneurship practice.

(4) Improvement of internationalization level of innovation and entrepreneurship education is needed by introducing foreign high-quality resources, expanding international cooperation, encouraging and supporting students to visit overseas, participate in international academic conferences and exchanges, etc.

3.2. Optimize the innovation and entrepreneurship curriculum system and deepen the education and teaching reform

(1) For students at different levels, guided teaching and training will be carried out step by step, and the whole process of innovation and entrepreneurship education will be divided into four main stages: entrepreneurship enlightenment education, entrepreneurship basic training, professional comprehensive training and entrepreneurship comprehensive practice. A systematic and complete entrepreneurship comprehensive simulation training course system will be constructed according to different stages, levels and goals.

(2) It is suggested to establish an innovation and entrepreneurship education system to promote the organic integration of professional education and innovation and entrepreneurship education. Teachers and teaching teams should be encouraged to carry out teaching reform in the ways of excavating innovation and entrepreneurship educational resources around research methods, discipline frontiers, entrepreneurship foundation, innovation and entrepreneurship guidance. Colleges could design innovation and entrepreneurship management courses and set credits to the courses, following setting up entrepreneurship public elective courses. As a progressive, organic-connected and characteristic curriculum group of innovation and entrepreneurship education is established, students are expected to master the basic knowledge of entrepreneurship, and improve the quality and ability of entrepreneurship. At the same time, by making full use of online and offline resource, various innovation and entrepreneurship training could be held to guide students to broaden their horizons and improve their innovation and entrepreneurship ability, such as lectures, reports, visits, etc.

(3) Teaching methods of innovation and entrepreneurship education should be reformed vigorously by widely carrying out heuristic, discussion, case, interactive teaching, scene simulation, role playing and other teaching methods, exploring and implementing small-class teaching, etc. During the teaching process, the incorporation of the latest international cutting-edge achievements, development of students' critical and creative thinking, organic combination of concept guidance, knowledge teaching and skill training, should be emphasized to stimulate students' innovation and entrepreneurship inspiration.

3.3. Reform the assessment method and improve the innovation and entrepreneurship ability

(1) Incentive credits for innovation and entrepreneurship could be set up, and the credit accumulation and conversion

system for innovation and entrepreneurship should be further explored. Students' innovation experiments, papers, patents and independent entrepreneurship could be converted into "innovation and entrepreneurship elective course credits", "quality development course credits", "cultural and quality education elective course credits" or professional elective course credits.

(2) The student registration management system is suggested to improved. Students who participate in innovation and entrepreneurship practice and obtain awards or invention patents can apply for professional transfer. Also, it would be better for students to have more choices and autonomy in innovation and entrepreneurship knowledge learning, ability training, quality development and other aspects.

(3) Regional colleges and universities should actively explore the management and operation mode of non-standard answer examination, promote the reform of formative evaluation and assessment methods to eliminate the accumulated disadvantages of "high scores but low skills". At the same time, attention should be paid to the examination of students' innovative ability to analysis and solve problems. Staring with the pilot reform of curriculum examination, it is essential to form a diversified, scientific, reasonable and operable examination form to promote innovation and entrepreneurship education.

3.4. Strengthen the construction of innovation and entrepreneurship platform and improve carrier capacity

(1) Regional colleges and universities should provide students with a good innovation & practice platform and space. It's proposed to establish an innovation and entrepreneurship practice training center that is open to all teachers and students on campus and provides comprehensive services for innovation and entrepreneurship research and practice, to actively provide facilities, places for the development of students' innovation and entrepreneurship activities, and to offer comprehensive services such as consultation, guidance, organization, contact, docking, etc.

(2) While accelerating the establishment of the virtual simulation experiment teaching center, the opening and sharing of the experiment center and the virtual simulation experiment teaching center for the innovation and entrepreneurship practice teaching of the whole school should be gradually realized. At the same time, we should further strengthen the cooperation between scientific research institutions and enterprises to build platforms such as mass entrepreneurship space and entrepreneurship incubation base, and improve the function of entrepreneurship incubation service, leading to the seamless docking of college students' innovation projects from research to application, innovation to entrepreneurship, and on-campus to off-campus.

(3) Regional colleges and universities should provide social support platform for students' innovation and entrepreneurship by integrating the resources of innovation and entrepreneurship education on and off-campus, establishing the practice base of innovation and entrepreneurship education off-campus with industry characteristics. At the same time, the college should strengthen the contact and cooperation with relevant enterprises, and set up entrepreneurship projects that can be implemented under the guidance of innovation and entrepreneurship education teachers.

(4) We should explore the construction of innovation and entrepreneurship service platform offering policy publicity, information consultation, activity exchange, project application, enterprise registration, resource docking and other services for innovation and entrepreneurship, as a link or bridge for communication and cooperation inside and outside the school, so as to promote the implementation and transformation of innovation and entrepreneurship achievements, and make innovation and entrepreneurship better serve social needs.

3.5. Strengthen the construction of teaching staff and improve the teaching ability of innovation and entrepreneurship

(1) On the basis of the existing teaching staff, regional colleges and universities should actively promote the construction of the teaching staff of innovation and entrepreneurship education. A group of experts with theoretical knowledge and rich experience in innovation and entrepreneurship practice could be selected or introduced to undertake the teaching tasks, while at least one teacher should be arranged for each specialty to work on innovation and entrepreneurship education teaching. The aim is to build a team with reasonable organization through external introduction and internal training, and of which teachers are with great practical teaching ability and rich experiences in innovation and entrepreneurship activities.

(2) We should improve the incentive mechanism for teachers to participate in innovation and entrepreneurship education, clarify their responsibilities for innovation and entrepreneurship education, and improve the criteria for professional and technical job evaluation and performance evaluation. Besides, it's important to encourage full-time teachers to participate in social innovation and entrepreneurship practice, carry out theoretical and case studies on entrepreneurship education, which is beneficial for comprehensively improving teachers' awareness, spirit, personality, experience and ability of innovation and entrepreneurship.

(3) It is suggested to strengthen the diversified construction of teachers and improve the whole-process and multi-channel training system based on the quality model. With the focus on cultivating students' critical and creative thinking, various forms of teaching training should carry out to improve teachers' awareness and ability of innovation and entrepreneurship education. The measures as follows can be taken: establishing an assessment method suitable for the innovation and entrepreneurship education reform, supporting teachers to carry out research and practice of innovation and entrepreneurship education in combination with professional teaching, and encouraging teachers to participate in the guidance of college students' innovation and entrepreneurship activities.

(4) Colleges and universities should gradually expand the proportion of teachers' temporary training in large and medium-sized enterprises, and establish a full-time and part-time innovation and entrepreneurship education team. It is proposed to formulate part-time teacher management standards, hire outstanding talents from all walks of life as industrial teachers or enterprise professors (experts) to teach or guide innovation and entrepreneurship courses, and establish a pool of talented supervisors.

3.6. Participate in various entrepreneurial activities and strengthen practical training of innovation and entrepreneurship

(1) Students should greatly be encouraged to build teams of cross-grades, cross-disciplinary and cross-specialties to participate in the "Undergraduate Innovation and Entrepreneurship Training Plan", the "Challenge Cup" National Undergraduate Extracurricular Academic Science and Technology Works Competition and Entrepreneurship Plan Competition, the "Internet plus" Undergraduate Innovation and Entrepreneurship Competition and other long-term mechanisms of innovation and entrepreneurship competitions and special competitions at all levels, which could promote innovation and entrepreneurship teaching through the competitions. Also, colleges and universities should deepen the implementation of college students' innovation and entrepreneurship training programs and expand the innovation funding programs, to cultivate students' original innovation spirit. In addition, it's necessary for the transformation of innovation achievements into entrepreneurship projects to explore the form of collaborative innovative education and the linkage mechanism of innovation and entrepreneurship.

(2) Colleges and universities should actively strive for the support of provincial and municipal governments and industrial enterprises to get access to project docking, landing and transformation, intellectual property transactions, project financing, production and business sites, incubation services, aiming to improve the success rate of innovation and entrepreneurship incubation, and achieving industrialization. Entrepreneurship special activities, such as "entrepreneurship class", "entrepreneurship forum", "entrepreneurship exchange seminar" could be regularly organized by inviting entrepreneurs from all walks of life to introduce entrepreneurship knowledge and entrepreneurship experience, which would directly stimulate students' passion for innovation and entrepreneurship, and broaden their entrepreneurial vision.

(3) Regional colleges and universities are required to enhance the construction of joint cultivation bases for graduate students with enterprises, research institutes and local governments, and set up a series of special training and comprehensive training for innovation and entrepreneurship to improve students' practical ability. Special support could be given to undergraduate students for joining the teachers' scientific research team to get the basic scientific research training, acting as assistants, or junior members, so as to promote close contact and effective cooperation between teachers and students, and create an ecological environment for innovation and entrepreneurship education where teachers and students work together.

4. Operation guarantee measures of multi-dimensional collaborative innovation and entrepreneurial talent cultivation system in regional colleges and universities

4.1. Strengthen organizational guarantee

Regional colleges and universities are advised to establish a leading organization for innovation and entrepreneurship education and practice, which is responsible for comprehensively implementing the spirit and requirements of the national, provincial, municipal and school documents on innovation and entrepreneurship education, studying and deploying innovation and entrepreneurship education and practice reform measures, guiding and coordinating the work related to innovation and entrepreneurship education in schools, approving the work system of innovation and entrepreneurship education in schools, guiding the reform of innovation and entrepreneurship education curriculum system, talent training programs and teaching staff construction. We should coordinate innovation and entrepreneurship educational resources, standardize and manage the work of the innovation and entrepreneurship training center, build a platform for innovation and entrepreneurship projects and achievements transformation, evaluate the effectiveness of innovation and entrepreneurship education in schools, and decide on innovation and entrepreneurship education and other important matters.

4.2. Strengthen financial support

The "Special Fund for Innovation and Entrepreneurship Education" could be set up to provide financial support for innovation and entrepreneurship education activities such as teacher recruitment, teaching organization, student activities, entrepreneurship incubation, to largely guarantee the smooth implementation of the activities. University students' innovation and entrepreneurship scholarships and excellent project award funds are suggested to set up on the basis of effectively integrating the resources of the government, enterprises, society and alumni, together with formulating the fund management regulations, so as to effectively support the innovation and entrepreneurship of excellent students. In addition, regional colleges and universities could strive for government grants, corporate and individual donations to set up start-up funds and guidance funds for the promotion, incubation and industrialization of student entrepreneurship projects.

4.3. Establish evaluation mechanism

It is required to formulate detailed rules for the implementation of innovation and entrepreneurship education, improve relevant policy documents, implement various measures, to fully mobilize the enthusiasm and creativity of teachers and students in the school, and ensure the smooth development of innovation and entrepreneurship education. An effective management model and evaluation mechanism should be established to encourage and guide teachers to attach importance to innovation and entrepreneurship education. Regional colleges and universities should highlight the important position of innovation and entrepreneurship in the formulation of development plans, the construction of teaching staff, the cultivation of innovative talents, and the construction of practice platforms. The teacher's guidance on innovation and entrepreneurship should be included in the teaching evaluation system to fully mobilize the enthusiasm and initiative of teachers and students to participate in innovation and practice activities. The implementation of innovation and entrepreneurship education reform and measures should be regularly supervised, and the work performance counts as an important part of the work assessment. It is also an encouraging measure to periodically select excellent innovation and entrepreneurship projects, commend excellent innovation and entrepreneurship instructors to attract teachers actively to

participate in the guidance of innovation and entrepreneurship activities.

4.4. Create a good atmosphere

Publicity about innovation and entrepreneurship should be enhanced to create a good atmosphere., Regional colleges and universities could actively invite scientific and technological experts, well-known scholars, enterprise elites, entrepreneurship pioneers, etc. to hold innovation and entrepreneurship lectures. College students' awareness of and enthusiasm for innovation and entrepreneurship would be stimulated during experts interpret the situation of innovation and entrepreneurship, tell and impart innovation and entrepreneurship knowledge, and share innovation and entrepreneurship experience. At the same time, the student incentive mechanism should be improved to give play to the leading role of the the typically excellently excellent college students of innovation and entrepreneurship. We could actively select the typical students with outstanding achievements in the field of innovation and entrepreneurship, and vigorously publicize the typically advanced deeds of innovation and entrepreneurship through the form of story-sharing meetings.

5. Conclusion

Multi-dimensional collaborative innovation and entrepreneurial talent cultivation is not only a model in China's current education, but also an important guarantee for cultivating high-level, comprehensive and practical talents [4]. At a time when the employment situation is relatively severe, it is significant for meeting the needs of social and economic development to form a virtuous circle of collaborative education and cultivate talents with professional quality and innovative spirit through fully tapping the advantages and characteristics of regional colleges and universities, and making use of local and enterprise advantages.

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