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Research on the Construction of Entrepreneurship Course Clusters for Students in Agriculture and Forestry Universities

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Abstract: Curriculum construction is the key factor in determining the quality of education. The innovation and entrepreneurship course clusters have effectively upgraded entrepreneurship courses in terms of talent cultivation, resource integration, and educational practice. In response to the existing problems and difficulties in the construction of entrepreneurship course clusters in agricultural and forestry universities, suggestions and measures are proposed from macro-, meso-, and micro-level perspectives to reach a consensus on entrepreneurship education, construct interdisciplinary course clusters, and improve the quality and effect of education implementation. This provides a reference for agricultural and forestry universities to construct high-quality entrepreneurship course clusters.

Keywords: Agricultural and forestry universities; University students; Entrepreneurship education; Entrepreneurship course; Course clusters

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1. Introduction

Deepening the reform of innovation and entrepreneurship education in universities is necessary for advancing the national innovation-driven strategy and enhancing graduate employment quality. Offering entrepreneurship courses supplements standard curricula and meets societal needs for innovative talents. As the education reform progresses, standalone entrepreneurship courses can no longer satisfy contemporary higher education needs or students' desire to solve complex problems. Therefore, constructing entrepreneurship course clusters is essential.

2. Current state of research on entrepreneurship course clusters

The primary difference between standalone entrepreneurship courses and course clusters lies in the comprehensive integration of teaching resources throughout the learning journey [1]. Existing research suggests that these course clusters should have certain characteristics [2].

2.1. Theoretical research on entrepreneurship course clusters

2.1.1. Course settings based on university type

Different types of universities emphasize different aspects in the construction of entrepreneurship course clusters [3]. Research universities primarily promote entrepreneurship through activities or competitions, teaching universities focus on integrating classroom teaching and practical activities with scientific research,

while vocational universities guide students toward direct entrepreneurial practice.

2.1.2. Course settings based on the learning stage

There have been scholarly arguments about differentiating entrepreneurship courses and activities based on the different entrepreneurial awareness, knowledge, and abilities required by society [4]. General entrepreneurship courses focus on raising awareness and are more suited to lower-grade undergraduates [5]. Specialized courses integrate entrepreneurial thinking and methodology into professional teaching, while practical courses emphasize team-based and project-based trial-and-error exploration, suited for upper-grade students who have received professional education.

2.2. Practical exploration of entrepreneurship course clusters

Tsinghua University's entrepreneurship education course cluster has distinctive characteristics, centered on subject courses and supplemented by activity-based courses and entrepreneurial practice courses. It complements businesses, academic institutions, and local governments, forming a robust course ecosystem. Universities like Peking University, Zhejiang University, and Shanghai Jiaotong University have established Schools of Innovation and Entrepreneurship, collaborating with businesses to set up innovation and entrepreneurship funds and thus providing students with startup funding and incubation services. The Northwestern Agricultural and Forestry University and others have adopted similar measures, offering a series of courses covering both the theory and practice of innovation and entrepreneurship.

3. Problems and challenges in the construction of entrepreneurship course clusters in agricultural and forestry universities

Compared to science and engineering and comprehensive universities, agricultural universities differ in terms of student backgrounds, professional characteristics, teachers' thinking patterns, social resource networks, and campus culture.

3.1. Lack of understanding of entrepreneurship education among teachers and students

Agriculture is a relatively traditional and conservative industry, and most students in agricultural universities come from rural areas [6]. Teachers and students have a relatively narrow and conservative understanding of entrepreneurship education. They have a one-sided understanding of the significance of entrepreneurship education and downplay its role in cultivating entrepreneurial thinking, transforming knowledge outcomes, and enhancing learning in professional courses.

3.2. Ineffective link between entrepreneurship education and professional education

Entrepreneurship education and professional education in agricultural universities often exist as two separate parts. Entrepreneurship courses are often separated from the professional curriculum system, taking the form of public electives or general education courses. Entrepreneurship education is treated as a branch of professional education, thereby separating it from specialized education. This makes it difficult for students to combine professional knowledge with entrepreneurial knowledge, thus hindering them from integrating what they have learned in the course.

3.3. Rigid entrepreneurship course system

The setup of entrepreneurship course clusters in agricultural and forestry universities is highly homogenous and lacks distinctive features. A homogenized education model cannot fit the differentiated positioning of universities nor serve the personalized needs of talent cultivation for innovation and entrepreneurship. Due to the separation of professional courses, emerging disciplines, and entrepreneurship education, students

from different majors find it difficult to appreciate the relevance of entrepreneurship courses to their majors, thus creating confusion when choosing courses [7].

4. Directions for the construction of entrepreneurship course clusters in agricultural universities

The construction of entrepreneurship course clusters is a systematic and long-term project. In order to establish high-quality course clusters from a meso-level perspective, it is necessary to carry out the corresponding work from both macro- and micro-level perspectives.

4.1. Establish a universal consensus on entrepreneurship education from a macro-level perspective

4.1.1. Enhance the perception of entrepreneurship education

It is vital to view entrepreneurship education not only as a fast track to becoming an entrepreneur but also as a tool for fostering skills and critical thinking. The curriculum should progress systematically, combining broad applicability with focused learning, and creating a multidimensional, tiered, and phased course structure [8].

4.1.2. Boost entrepreneurship education awareness

Agricultural and forestry universities need to move beyond the one-sided views of entrepreneurship education. By establishing comprehensive promotional platforms and placing equal importance on entrepreneurship and professional courses, we can foster a deeper understanding across the campus and encourage innovative applications of learned knowledge [9].

4.2. Construct a cross-disciplinary entrepreneurship education course cluster from a meso-level perspective

4.2.1. Strengthen the integration of entrepreneurship education and professional education

Universities can enhance talent training by integrating entrepreneurial elements into their course planning, content, and teaching, making it central to their curricula. They should construct a tiered system, blending professional and entrepreneurial education and fostering a cross-disciplinary education environment throughout the institution [10]. This approach widens the applicability of entrepreneurship courses and encourages interdisciplinary collaboration among students and teachers.

4.2.2. Highlight the characteristics of agricultural disciplines

It is necessary to highlight the advantages and standing of agricultural-related majors according to the distinctive characteristics of agricultural and forestry universities. At the same time, entrepreneurship courses should be offered in combination with the cross-fertilization of relevant majors, based on the advantages of comprehensive agricultural and forestry universities. Combining with humanities and science and engineering disciplines can further permeate intellectual and management entrepreneurship ideas, respectively, constructing a scientifically reasonable systematic course cluster.

4.3. Improve the quality and effectiveness of implementing entrepreneurship education from a micro-level perspective

4.3.1. Continuously improve course content and design

Improving teaching methods and strategies as well as using a variety of teaching methods such as case teaching, team projects, and simulated business environments may aid in the cultivation of students' innovative thinking, teamwork, and practical operation skills. The course content and design of entrepreneurship education should be continuously evaluated and updated to ensure that it meets market and student demands.

4.3.2. Strengthen the construction of the teaching team

It is imperative to cultivate teachers' entrepreneurship literacy and teaching ability as well as provide relevant training and exchange opportunities. Teachers should be encouraged to participate in innovation and entrepreneurship projects and practices to enhance their practical experience and thus expand case sharing. It is also necessary to enhance the ability and level of professional teachers and entrepreneurship mentors in entrepreneurship consultation, guidance, and support, so as to help students solve problems and improve entrepreneurship plans.

4.3.3. Strengthen practical interaction among students

We can improve the participation of students in innovative and entrepreneurial exploration practices through team cooperation and project-based practices as well as enhance their innovative and entrepreneurial thinking and abilities through practical experience. Promoting the sharing and cooperation of resources inside and outside the school as well as building an entrepreneurial ecosystem may also be beneficial. By integrating resources, we can provide rich opportunities for entrepreneurial practice, including but not limited to social surveys, internships, innovative and entrepreneurial competitions, roadshows, *etc*.

5. Discussion and conclusion

Facing the needs of future agricultural development, agricultural universities should focus on talent training; establish close cooperation with enterprises, government, social organizations, *etc*.; create an innovation and entrepreneurship ecosystem; cultivate awareness of social issues among students and promote social change; guide students in combining innovation and entrepreneurship with social responsibility; form collaborations to solve agricultural and rural issues; promote the sustainable development of agriculture and rural areas; and create value for farmers, rural areas, and agriculture.

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