

Research on the Innovation and Entrepreneurship Education Model of Local Agricultural Colleges under the Background of Rural Revitalization: A Case Study of Anhui Agricultural University

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Abstract: Under the background of the in-depth advancement of the rural revitalization strategy, local agricultural colleges bear the core mission of cultivating innovative talents who understand and love agriculture. Taking Anhui Agricultural University as the research object, this paper analyzes the “five-level platform, four-dimensional system, and three-party collaboration” innovation and entrepreneurship education model constructed by the university. Through approaches such as competition incubation, integration of industry and education, and mutual promotion of ideological and innovative education, the model provides talent support for agricultural modernization. The research shows that this model has effectively addressed the pain points in agricultural education, such as the shortage of practical platforms, the disconnection between industry and education, and the weak sense of innovation, through mechanisms including maker space incubation projects, the extension of scientific and technological services to rural areas, and the feedback of discipline competitions to teaching.

Keywords: Rural revitalization; Innovation and entrepreneurship education; Agricultural colleges; Integration of industry and education

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1. Introduction

The core driving force of rural revitalization lies in the dual-wheel drive of talents and technology. With the acceleration of the agricultural modernization process, problems in the “micro-fields” of agricultural production (such as the research and development of special agricultural machinery, the cultivation of characteristic crops,

and the operation of small-scale cooperatives) have become increasingly prominent, and there is an urgent need for high-quality talents with “micro-innovation” capabilities. As the main base for outputting agriculture-related talents, local agricultural colleges need to integrate innovation and entrepreneurship education into the entire talent cultivation chain to break through the bottlenecks in traditional agricultural education, such as the shortage of practical platforms, the weak integration of industry and education, and the insufficient innovative literacy. Based on the school-running tradition of the “Dabie Mountain Road” and guided by serving the regional rural revitalization, Anhui Agricultural University has constructed a distinctive innovation and entrepreneurship education system. In the past five years, its students have won 10 national gold awards in national competitions such as the “Challenge Cup” and “Internet Plus,” incubated 35 start-up enterprises, and its technical services have covered 24 counties and districts in Anhui Province, becoming a typical model of innovation and entrepreneurship education in agricultural and forestry universities. By deconstructing the model logic and practical paths of Anhui Agricultural University, this paper provides a reference for similar colleges and universities ^[1].

2. The practical framework of innovation and entrepreneurship education Model at Anhui Agricultural University

Anhui Agricultural University, guided by the concept of “integration of thinking and innovation, collaboration between professionalism and innovation, and linkage between industry and education”, has constructed a three-dimensional support model of “platform – system – mechanism” (**Table 1**).

Table 1. Three dimensions of the innovation and entrepreneurship education model at Anhui Agricultural University

Dimension	Specific Measures	Implementation Carriers
Platform Level	Five-level Progressive Practical Platform	Maker Space + Science and Technology Courtyard + Enterprise Base
System Level	Four-dimensional Integration of Curriculum-Competition-Incubation-Service	“Xingnong Cup” Competition + Farming and Reading Education
Mechanism Level	Tripartite Collaborative Education among University-Enterprise-Locality	Government Projects + Enterprise Topics + Rural Practice

2.1. Building a five-level practical platform to connect the “Classroom-Farmland” chain

2.1.1. Maker space drives technology marketization

A 2,000-square-meter maker space for college students has been built, providing full-chain services including “entrepreneurship training, project incubation, and market connection.” For example, relying on this space, the team led by Wu Fei from the innovative experimental class of biology transformed the technology of “termite symbiotic bacteria microbial fungicide” into a startup project. This project won the national special prize in the “Challenge Cup” competition, was promoted to more than 200 cooperatives, and realized green prevention and control of plant diseases. The space has incubated 60 projects in total, among which 35 have registered companies, and agricultural-related projects account for over 80%.

2.1.2. Science and technology courtyards promote localized services

Drawing on the experience of the “Farmer Academician Science and Technology Service Station” of Yunnan Agricultural University, science and technology courtyards have been set up in the major wheat-producing areas of northern Anhui and the tea-growing areas of southern Anhui. Teachers and students reside there to carry out “field classrooms.” For instance, the team from the School of Resources and Environment developed a “straw returning corn seeder” at the Fuyang Science and Technology Courtyard, which solved the seeding problem caused by straw returning. This technology has been promoted to 13.44 million mu of farmland, helping farmers increase their income by 1.071 billion yuan ^[2].

2.2. Four-dimensional integration to cultivate “Innovation and Entrepreneurship-Oriented” new agricultural talents

2.2.1. Integrating “Micro-Innovation” literacy courses

Courses such as Agricultural Micro-Technology Innovation and Entrepreneurship Training have been offered. These courses strengthen the teaching design of technologies in “micro-fields” such as the transformation of characteristic agricultural machinery and organic planting, to meet the literacy needs of agricultural makers as “micro-innovation developers and popularizers.” At the same time, the ideological and political element of “Red Dream-Building” is integrated into the courses. For example, Zhou Guo’an, a volunteer of the Western Program, investigated the pain points of farmers during his teaching support in Guizhou. After returning to school, he developed agricultural machinery and won the gold award in the “Internet Plus” competition.

2.2.2. Promoting innovation and incubating projects through competitions

A four-level competition mechanism covering “college-university-province-nation” has been established. High-quality projects are selected through competitions such as the “Xingnong Cup” and “Challenge Cup.” In the 2022 “Challenge Cup” Anhui Provincial Competition, 5 projects won the gold award, including Guardian in Fungi and Colorful Agriculture for Prosperity, both of which focus on the resource utilization of agricultural waste. The competition projects are deeply connected to the needs of rural areas, and 90% of the winning teams have settled in the maker space for continuous incubation ^[3].

2.3. Building an education ecosystem through university-enterprise-government collaboration

2.3.1. Interdisciplinary integration

Jointly with the School of Economics and Management, the School of Agriculture, and other institutions, interdisciplinary courses such as “Agricultural Big Data” and “Rural Brand Design” have been launched to meet the demand for interdisciplinary talents in rural revitalization. For example, the Yan Jiaxian Class of Fujian Agriculture and Forestry University has set up 10 interdisciplinary courses, including “Rural Aesthetics” and “Cooperative Economy.” This model is borrowed to enhance students’ ability in multi-functional agricultural development.

2.3.2. Sinking of industry-education resources

Enterprise collaboration: Jointly build practical bases with such enterprises as Quanyin Hi-Tech, Wanken Group, and Laoxiangji, and invite corporate mentors to guide the digital upgrading of agricultural machinery. Government linkage: Undertake county-level rural revitalization planning projects. For instance, the team of the

Tourism Management major designed a “tea-tourism integration” route for Jinzhai County, driving an average annual increase of 24,000 yuan in farmers’ income.

3. Practical framework of innovation and entrepreneurship education model of Anhui Agricultural University

3.1. Significant improvement in the quality of talent supply

In the past three years, the participation rate of students in innovation and entrepreneurship has increased from 32% to 78%, and the proportion of graduates employed in agriculture-related enterprises has exceeded 50%. In 2025, the university won 2 national special awards in the “Three Innovations Competition” (National College Students’ Innovation and Entrepreneurship Competition), setting a new historical record. A group of “rural makers” has emerged among graduates. For example, Zhao Zongxiang, an inheritor of intangible cultural heritage (flower arrangement), founded Hefei Qialiu Branch Flower Art Co., Ltd., serving more than 1,500 farmer households.

3.2. Sustained release of the effectiveness of technology-assisted agriculture

A closed loop of “technological services – standard output – talent supply” has been formed. In terms of technology transformation, 20 patents for new pesticides, intelligent agricultural machinery and other products have been developed and promoted to 5 provinces. In terms of standard formulation, 3 provincial local standards, such as the Technical Regulations for the Production and Processing of Ecological Pu’er Tea, have been jointly formulated with tea enterprises to help improve the quality of agricultural products. In terms of on-site talent placement, an average of 200 students are stationed at the base to provide services each year; for example, the Tea College of Yunnan Agricultural University has trained 890 tea farmers in Fengqing County^[4].

3.3. Model innovation points

The “maker space + ideological and political integration” dual-drive model integrates farming culture and the spirit of scientists into maker salons (such as “The Three Rural Issues of a Major Country” and “Shennong Lecture Hall”), fostering students’ sentiment of “understanding agriculture, loving rural areas, and caring for farmers.” The mutually promoting path of “micro-innovation – large industry” focuses on small cutting-edge technologies (such as transgenic cultivation of ornamental plants and intercropping management of organic tea), and amplifies benefits through the industrial chain^[5].

4. Suggestions for deepening the reform of innovation and entrepreneurship education

Although the model of Anhui Agricultural University has achieved remarkable results, it still faces challenges such as insufficient interdisciplinary curriculum integration, limited coverage of county-level practice bases, and weak sustainability of “micro-innovation” projects. Offer courses such as Development of Agricultural Micro-technologies and Operation of Small-scale Cooperatives, compile micro-technology books on “transformation of characteristic agricultural machinery” and “management of organic tea gardens”, and incorporate them into the credit system. Establish “agricultural maker workshops,” invite students of the “Leading Geese” project and rural pacesetters in getting rich to serve as mentors, and strengthen practical capabilities. Draw on the network

model of “Science and Technology Courtyard – Rural Revitalization Research Institute” of Fujian Agriculture and Forestry University, and set up workstations in 16 cities of Anhui Province to promote long-term resident practice of students. Cooperate with local governments to establish a “Rural Revitalization Venture Capital Fund,” provide financial support to high-quality projects, and introduce “AI + Agriculture” practical training projects to improve smart agriculture skills. Collaborate with leading enterprises to formulate group standards for “ecological tea gardens” and “green grain and oil,” and promote industrial upgrading through technology standardization ^[6].

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