

Research on the Problems and Countermeasures of Cultivating Talents for Rural Revitalization through the Integration of Industry and Education in Higher Vocational Education

Lingbo Zhou*, Wenting Zhou, Shasha Liu, Huizhen Li

Loudi Vocational and Technical College, Loudi 417000, Hunan, China

**Author to whom correspondence should be addressed.*

Copyright: © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: The integration of industry and education can not only give full play to the leading role of talents in rural revitalization, promote the development of social resources such as science and technology, industry, culture, education, and medical care, but also provide strong momentum for the rural revitalization strategy, and comprehensively promote rural construction in the new era. This paper analyzes the significance and problems of cultivating talents for rural revitalization through the integration of industry and education in higher vocational education, and makes a preliminary exploration on the countermeasures from three aspects: strengthening top-level design to connect education with rural areas, establishing a diversified training mechanism to meet talent needs, and innovating cooperation models to shorten the distance between schools and villages.

Keywords: Higher vocational education; Integration of industry and education; Talents for rural revitalization; Problems; Countermeasures

Online publication: 17th September 2025

1. Introduction

As an important base for talent cultivation, higher vocational colleges directly affect the development of rural agricultural industries through their strategies in curriculum system setup, talent training models, and social service provision. In the context of development in the new era, higher vocational colleges must deeply understand the internal connection between higher vocational education and rural revitalization, and take the integration of industry and education as a link to build a community of shared future for the coordinated development of schools and villages. The construction of this community can realize the coordinated development of schools and villages in fields such as talent team building, ecological protection, economic growth, education quality improvement, industrial upgrading, cultural inheritance, and social progress and

governance optimization, thereby injecting new blood, new momentum, and new technologies into rural construction and rural revitalization, and creating a new situation for high-quality rural development.

2. Significance of integrating industry and education in higher vocational education for cultivating talents for rural revitalization

2.1. Conducive to connecting education with rural areas

In the process of cultivating talents for rural revitalization, higher vocational colleges must be guided by rural needs and talent demands to cultivate more talents who are beneficial to rural development. Under the background of industry-education integration, higher vocational colleges need to continuously adjust and optimize the existing curriculum system and agriculture-related professional groups, so as to realize the connection between higher vocational education and the needs of rural development, accurately boost the rural economy, and improve the quality of education.

2.2. Conducive to improving the quality of talents

Rural revitalization cannot be separated from the support of talents. However, at present, most traditional agriculture and emerging agriculture have a huge talent demand gap. With the help of industry-education integration, higher vocational colleges can cultivate more high-quality agricultural talents who are suitable for rural conditions and familiar with the actual situation in rural areas, thus contributing to agricultural modernization and rural industrial upgrading, filling the rural talent gap, and promoting the revitalization and development of rural areas in economy, culture and other aspects^[1].

2.3. Conducive to enhancing the effect of assisting agriculture

Science and technology are the primary productive force. Deepening industry-education integration can promote the integrated development of production, education, scientific research and application. This can encourage scientific research and technical personnel to go out of laboratories and campuses, conduct research in rural frontlines, and effectively solve practical problems in agricultural production. At the same time, industry-education integration can also drive the improvement of agricultural science and technology level, promote the transformation of agricultural management models, facilitate the in-depth integration of rural primary, secondary and tertiary industries, and cultivate various new forms of agricultural industries.

2.4. Conducive to renewing the spiritual outlook of rural areas

Industry-education integration is an important link that closely connects higher vocational colleges with rural governance and social development. By deepening cooperation with rural areas in industry and policies, higher vocational colleges can explore and protect traditional farming culture and inherit intangible cultural heritage, which can further improve villagers' realms in the fields of ideology, law, morality, and humanity, thereby renewing the spiritual outlook of rural areas and promoting the prosperity and development of rural culture.

3. Problems in cultivating talents for rural revitalization through industry-education integration in higher vocational education

3.1. Imbalance between educational supply and rural demand

With the arrival of the new era, a steady stream of resources has been provided for rural revitalization. In

particular, the emergence of new industrial forms such as rural health and wellness, e-commerce, cultural tourism, and catering has further driven rural economic development. However, there is a certain imbalance between the orientation and content of talent cultivation in higher vocational education and the actual talent needs of rural areas. Some higher vocational colleges still take majors such as planting, animal husbandry, and horticulture as the main directions of agricultural education, lacking connection with the actual needs of rural development. In addition, individual higher vocational colleges blindly build a “full industry chain” professional system, which not only leads to serious “homogenization” of various majors and courses, but also makes students lose interest and focus in learning, fundamentally affecting the cultivation of agricultural talents.

3.2. Lagging training mechanisms

3.2.1. Low quality of student sources

With the popularization of education, the number of students in higher vocational colleges is increasing, but for agriculture-related majors in higher vocational colleges, the quantity and quality of student sources are unstable. On the one hand, agriculture-related majors are “dirty, hard, and tiring”, far less comfortable than other majors. On the other hand, after graduation, students majoring in agriculture often have to work in fields, far away from urban life. Eventually, agriculture-related majors are less attractive to students, which further affects the quality of talent cultivation and the talent reserve for rural revitalization^[2]. At the same time, in order to complete the enrollment quota, colleges have to accept students transferred from other majors, which further reduces the quality of talents in agriculture-related majors.

3.2.2. Problems in practical training

Since higher vocational colleges are often located in first and second-tier cities far from rural areas, it is difficult for students majoring in agriculture-related fields to participate in actual production activities. Meanwhile, some higher vocational colleges are lagging behind in the construction of relevant pilot projects, resulting in the formalization and insufficient openness of practical training for agricultural professional skills, which makes it difficult to meet the talent needs of rural areas.

3.2.3. Insufficient humanistic education

Compared with the prospects of other majors, agricultural majors lack a sound promotion system and are “inferior” in terms of treatment and working environment. Therefore, many students who choose agricultural majors will “switch” to other majors^[3]. In addition, insufficient humanistic education in the process of industry-education integration and practical training makes it difficult for students to develop affection for agriculture and land, eventually leading to a large number of agricultural talents leaving the field.

4. Effective strategies for cultivating talents for rural revitalization through industry-education integration in higher vocational education

4.1. Strengthen top-level design and connect education with rural areas

4.1.1. Based on rural needs

Higher vocational colleges should conduct in-depth research in rural markets to understand the local actual needs and development plans. Furthermore, guided by rural development, they should establish higher vocational agricultural professional groups that reflect rural industrial chains^[4]. This approach can not only help higher vocational colleges quickly adjust their professional structures and curriculum systems but also output

sufficient agricultural talents for rural revitalization, thereby facilitating the rapid completion of agricultural transformation in rural areas and increasing rural farmers' income.

4.1.2. Leveraging emotional ties to the land

Compared with “outsiders”, local people usually have the emotion expressed in the line “Why are my eyes always filled with tears? Because I love this land deeply”. At the same time, they also possess various advantages that “outsiders” do not have. Therefore, higher vocational colleges can cooperate with rural government units to sign targeted talent training contracts, absorbing more local talents into higher vocational education. In this way, they can cultivate a group of pragmatic agricultural talents who are willing to take root in the land for rural revitalization and development, thereby continuously expanding the talent team for rural development^[5].

In addition, higher vocational colleges can appoint outstanding local agricultural talents as directors of grassroots liaison stations on a township-by-township basis. This not only allows them to grasp the needs of rural development in a timely manner and actively adjust the content and direction of student training but also enables the timely transfer of advanced technologies and experiences to the fields, thus injecting strong driving force into rural development^[6].

4.1.3. Improving rural infrastructure

In the process of industry-education integration, both parties can gradually form a complete and mature industrial chain structure through long-term cooperation^[7]. Therefore, higher vocational colleges can deploy some pilot projects and equipment in rural areas to further improve rural infrastructure, thereby attracting more enterprises' attention and retention. This can achieve the goal of industry-education integration “feeding back rural development”. Meanwhile, this approach can also, to a certain extent, expand the practical training and internship platforms for agriculture-related majors in higher vocational colleges and enrich the practical abilities and experience of agricultural talents^[8].

4.2. Diversified training mechanisms to meet talent demands

4.2.1. Targeted training strategy

Different from the traditional targeted talent training, under the background of rural revitalization, the targeted training of talents in higher vocational education tends to cultivate local talents so that they can better engage in agricultural production and life. On the one hand, they have positive feelings towards the countryside and land; on the other hand, they possess basic agricultural knowledge and experience, making them more suitable for participating in rural revitalization. If non-local students or urban students are sent to the frontline of rural areas, they may have problems such as not adapting to the labor intensity and working environment, which will affect the speed of rural development^[9].

Therefore, higher vocational colleges should actively cooperate with local governments and strive for policy support such as exemption from textbooks, accommodation, and tuition fees, so as to facilitate local new professional farmers, local veterans, local rural middle school graduates and other groups to receive higher vocational education related to agriculture^[10]. At the same time, we should synchronously carry out talent training mechanisms such as targeted training, targeted employment, and targeted enrollment to attract more high-quality talents to enter higher vocational colleges, and effectively provide sufficient high-quality talent support for rural development.

4.2.2. Modern apprenticeship system

The modern apprenticeship system is a school-enterprise cooperation relationship formed in the integration of production and education^[11]. Under the background of rural revitalization, higher vocational colleges can select local agricultural-related enterprises, choose excellent and high-quality enterprises for further cooperation, give full play to the joint education force of the “dual subjects”, and jointly cultivate high-quality technical and skilled talents who meet the needs of rural revitalization. At the same time, on this basis, higher vocational colleges can also implement the “little apprentice” talent training mechanism, that is, organize students to participate in labor operations at the grassroots level of agricultural-related enterprises every semester.

The specific operation is as follows: arrange students to participate in production activities in different production groups in the form of classes, and elite employees serve as “leading masters” responsible for guiding students’ production practice and ideological education, so as to help students better familiarize themselves with agricultural-related majors and future working environments^[12]. In addition, during the non “little apprentice” period, “leading masters” can be required to take turns to carry out offline teaching and remotely guide students’ theoretical learning, so as to realize the in-depth integration of theory and practice, comprehensively improve students’ comprehensive abilities, and reserve talents for rural revitalization.

4.2.3. Order-oriented talent training mechanism

The order-oriented talent training mode is a mechanism that takes employment demand as the orientation and involves higher vocational colleges, employers, and students in collaborative education activities. In specific implementation, employers need to first clarify talent needs and standards, such as quantity, professional direction, and skill requirements, and then higher vocational colleges formulate personalized training programs based on the above content to ensure that the curriculum setting is closely in line with the actual working scenarios and post standards of enterprises. For example, for rural tourism development enterprises, characteristic courses such as tourism planning and design, and homestay operation and management are set up^[13].

At the same time, enterprises can send technical backbones to participate in theoretical and practical teaching, provide internship and training platforms, and promise to give priority to employing qualified graduates. This model not only effectively solves students’ employment problems but also provides a solid human resource support for rural industrial revitalization, realizing a win-win situation for schools, enterprises, and students.

4.3. Innovating cooperation modes to narrow the distance between villages and schools

With the introduction of the State Council’s opinions on the integration of production and education, the concept of “Rural Revitalization Industry College” was put forward^[14]. “Rural Revitalization Industry College” refers to a talent training venue with multiple functions integration, including talent training, students’ innovation and entrepreneurship, technological innovation and promotion, scientific research, and rural industrial services, which is mainly built by higher vocational colleges, based on the needs of rural revitalization, giving play to the advantages of agricultural-related enterprises, and with the help of third-party forces. Therefore, higher vocational colleges should adopt the mode of “school + township industrial base branch”, and actively contact stakeholders such as the government, enterprises, villages, villagers, and schools to clarify the obligations and responsibilities of multiple parties, so as to provide sufficient resource supply such as materials, venues, education, and more for the construction of “Rural Revitalization Industry College” in higher vocational colleges, and realize a talent training mode in which high-level theoretical education in school and diversified

skill education outside (county-level branches or cooperative enterprises) are carried out simultaneously.

Through the above approaches, not only can the integration of production and education in higher vocational colleges play a greater role in rural revitalization, drive the comprehensive development of rural economy, but also improve the scientific and rationality of talent training, and promote the implementation of the rural revitalization strategy.

In addition, on the basis of the “Rural Revitalization Industry College”, higher vocational colleges need to further give play to their own advantages and roles, take the “Rural Revitalization Industry College” as a path, regularly carry out activities such as education, science and technology, culture, and health going to the countryside, and improve and perfect the internal environment of rural revitalization. At the same time, encourage teachers majoring in e-commerce, marketing, logistics, etc. to lead students to go to the grassroots, which can not only provide practical opportunities for students but also narrow the distance between schools and rural areas and consolidate the cooperation foundation^[15].

5. Conclusion

In summary, talent is the key to rural revitalization. By deepening the integration of industry and education, higher vocational education can not only improve the talent training system and enhance the quality of talent cultivation, thereby providing a large number of high-quality professional talents for rural revitalization, but also strengthen the connection with rural industries, promote the transformation of scientific and technological achievements, and drive the development of rural industries. At the same time, it can strengthen exchanges and cooperation with rural areas, help prosper rural culture, improve the ecological environment, and achieve the goal of comprehensive rural revitalization.

Funding

2023 Excellent Youth Project of Scientific Research, Hunan Provincial Department of Education: Research and Practice on Cultivating Talents for Rural Revitalization through Industry-Education Integration in Higher Vocational Colleges (Project No.: 23B1076)

Disclosure statement

The author declares no conflict of interest.

References

- [1] Zhu J, Wang T, 2023, Research on strategies of integrating industry and education in higher vocational education to boost rural talent revitalization, *Journal of Smart Agriculture*, 3(18): 185–188.
- [2] Lyu C, 2024, Research on the mode of integrating industry and education in higher vocational education to boost rural revitalization, *Neijiang Science & Technology*, 45(6): 60–61.
- [3] Gu Y, Wu R, Guo Y, et al., 2024, Research on the path of vocational education rural industry talent training under strategy of rural revitalization, *Southern Agricultural Machinery*, 55(10): 123–126.
- [4] Guo G, Li Y, Liu Y, 2023, Problems and promotion strategies of integrating industry and education in vocational education for cultivating high-quality talents for rural revitalization, *Jiangsu Higher Vocational Education*, 23(1):

7–14.

- [5] Liang J, 2024, Research on problems and countermeasures of Jiangxi agricultural vocational colleges serving rural talent revitalization, Jiangxi Agricultural University.
- [6] Shen L, 2023, Logical starting point, key tasks and Lishui typical practice of higher vocational education empowering rural revitalization in old revolutionary base areas, In: Proceedings of 2023 Zhejiang Rural Revitalization Strategy Forum (Volume I).
- [7] Guo G, Li Y, Liu Y, 2023, Problems and promotion strategies of integrating industry and education in vocational education for cultivating high-quality talents for rural revitalization, Jiangsu Higher Vocational Education, 23(1): 7–14.
- [8] Qin X, Liu B, Zhang X, et al., 2024, Research on the path of integrating industry and education in higher vocational aquaculture major under the background of rural revitalization: a case study of integrating industry and education in Guangxi turtle and turtle industry, 2024(2): 125–127.
- [9] Huang X, 2023, Research on integrating industry and education in rural vocational education from the perspective of rural revitalization, China Fruits, 2023(10): 162–163.
- [10] Liu J, 2023, Research on the path of talent cultivation through integrating industry and education in vocational education under the background of rural revitalization, Guide to a Happy Life, 2023(27): 148–150.
- [11] Li L, Wu X, Liao C, 2023, Existing problems and countermeasures of the talent cultivation mode of integrating industry and education in e-commerce in higher vocational colleges under the background of rural revitalization strategy, 2023(7): 134–138.
- [12] Shen Y, 2023, Research on the curriculum system of integrating industry and education mode in college advertising art design major under the background of rural revitalization, Oriental Culture Weekly: 64–66.
- [13] Dai Y, 2024, Research on deepening the integration of industry and education in agricultural vocational education under the background of rural revitalization strategy, Policy & Scientific Consult, 2024(7): 174–177.
- [14] Nong L, 2023, Research on problems and countermeasures of talent cultivation in higher vocational colleges under the background of rural revitalization strategy, Guangxi University for Nationalities.
- [15] Ke Z, 2022, The logical connotation and practical path of “three teachings” reform of higher vocational education under the background of high-quality development, Journal of Guangdong Light Industry Vocational Technology College, 21(6): 39–44.

Publisher’s note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.