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Research on the Innovation Path of Agricultural Talent Training Model in Higher Vocational Colleges Driven by Digital Intelligence

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Abstract: With the continuous development of new-generation information technologies such as big data and artificial intelligence, society is accelerating its entry into the digital intelligence era. Under this situation, the agricultural industry has begun to transform and upgrade towards digital intelligence, which puts forward higher requirements for the abilities and literacy of agricultural talents: they are required to have a solid agricultural theoretical foundation and professional skills, as well as certain digital intelligence literacy and capabilities. Based on this, this paper mainly analyzes and studies the significance, problems, and paths of innovating the agricultural talent training model in higher vocational colleges driven by digital intelligence. The aim is to cultivate more new-type agricultural talents adapting to the development of the digital intelligence era to meet the needs of the transformation and upgrading of the modern agricultural industry, and to provide a reference for research and practice in related fields.

Keywords: Digital intelligence; Higher vocational colleges; Agricultural talents; Training model; Innovation path

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1. Introduction

Currently, digital intelligence has become the core driving force for promoting agricultural industrial upgrading. From traditional farming of "facing the loess and turning one's back to the sky" to intelligent production of "managing farmland with a light tap of the finger", the application of digital intelligence technology has broken the temporal and spatial constraints of traditional agricultural production, promoting the transformation of agriculture towards intelligence and intensification [1]. This transformation has gradually exposed problems such as the shortage of digital intelligent agricultural talents in the development of the agricultural industry. As an important position for talent training, higher vocational colleges should base themselves on the trend of digital intelligence, strengthen the innovation and optimization of the training model for agricultural professionals, and provide talent support for the digital intelligence transformation of the agricultural industry.

2. The important significance of innovating the agricultural talent training model in higher vocational colleges driven by digital intelligence

2.1. Adapt to the talent demand of the digital intelligence transformation of the agricultural industry

Traditional agricultural production mostly relies on experience accumulation, and the skill requirements for practitioners focus on practical aspects such as field operations and breeding management. However, with the continuous development of digital intelligent agriculture, new-generation technical means such as big data, artificial intelligence, and blockchain have gradually been applied to the "entire chain" of agricultural production and processing, giving birth to a series of new formats, such as intelligent irrigation, precision fertilization, intelligent monitoring of diseases and pests, and smart cold chain [2]. The operation of these new formats requires practitioners to have not only a solid professional foundation but also certain digital capabilities and literacy. Driven by digital intelligence, higher vocational colleges innovate the agricultural talent training model, which can promote the precise connection between education and teaching and industrial needs, and help provide solid talent support for the digital intelligence transformation of the agricultural industry.

2.2. Promote the high-quality development of agricultural education in higher vocational colleges

The development and application of digital intelligence technology provide new ideas for the reform and high-quality development of agricultural education in higher vocational colleges. On the one hand, infiltrating digital intelligence concepts, the latest industry technologies, and the latest practical research results into the entire process of agricultural professional curriculum teaching can well promote the updating and iteration of teaching content, which is conducive to ensuring that the knowledge learned by students keeps pace with the times. On the other hand, the application of digital intelligence technology can effectively promote the innovation of teaching methods. In the teaching process, teachers can use virtual simulation technology to allow students to conduct independent exploration and practice, encouraging them to carry out operational training in scenarios more in line with the actual production of the modern agricultural industry, which is conducive to better enabling students to deepen their learning in practice and effectively cultivate their professional practical abilities and digital intelligence application capabilities [3].

3. Existing problems in innovating the agricultural talent training model in higher vocational colleges driven by digital intelligence

3.1. Unreasonable curriculum system structure and insufficient integration of digital intelligence content

Driven by digital intelligence, the construction of the agricultural professional curriculum system in some higher vocational colleges has the problem of an unreasonable structure. On the one hand, in theoretical teaching, it mainly focuses on traditional planting and breeding industries, and involves relatively few technologies related to digital intelligent agriculture. Some set up knowledge related to digital intelligent agriculture as optional courses for students to choose and learn freely, which is very easy to cause the separation between digital intelligence content and traditional agricultural professional courses, making it impossible for students to construct a composite knowledge system of "agricultural knowledge + digital intelligence technology" [4]. On the other hand, in experimental teaching, some higher vocational colleges have not set up practical courses

related to digital intelligent agriculture, which is also an important reason why students' digital intelligence practical abilities are difficult to be effectively improved [5].

3.2. Lagging practical teaching conditions and insufficient support for digital intelligence scenarios

At present, the practical teaching conditions of agricultural majors in some higher vocational colleges are relatively backward, making it difficult to create good digital intelligence practical training conditions for students. Its manifestations are mainly reflected in the following aspects: First, the construction of on-campus training bases is not perfect, and there are no training rooms, such as digital intelligent precision management and intelligent monitoring of diseases and pests, which makes it difficult for students to conduct regular digital intelligence practical skill training on campus [6]. Second, the cooperation of off-campus practical bases is not extensive. Most off-campus practical bases focus on the internship of agricultural students, and it is difficult for students to be exposed to the digital intelligence production process and tools at the front line of the industry. Third, there is a disconnect between students' practical teaching content and the reality of the modern agricultural industry. Many practical contents still focus on traditional agricultural operations, lacking the integration of digital intelligence technology application, making it difficult for students' digital intelligence practical abilities to be effectively improved [7].

3.3. Insufficient literacy of the teaching staff and lack of digital intelligence teaching capabilities

On the one hand, the knowledge background of many agricultural professional teachers in higher vocational colleges is mainly traditional agricultural majors. Although they have rich professional theoretical knowledge, their understanding and application capabilities of digital intelligence technology are relatively low. It is difficult for them to skillfully use digital intelligence technology or tools to carry out teaching, nor can they guide students to conduct practical training using digital intelligence technology, resulting in low talent training quality [8]. On the other hand, the teaching methods adopted by some agricultural professional teachers in higher vocational colleges are still dominated by classroom lectures, lacking the exploration and application of new teaching models such as virtual simulation teaching and blended teaching, making it difficult to fully mobilize students' learning enthusiasm and initiative, and the final teaching effect is not ideal [9].

4. Implementation paths for innovating the agricultural talent training model in higher vocational colleges driven by digital intelligence

4.1. Accurately position training objectives and construct digital intelligence talent portraits

Driven by digital intelligence technology, higher vocational colleges need to go deep into the agricultural industry market, conduct in-depth analysis of its actual development needs, and further clarify the goals and directions of agricultural professional talent training on this basis [10]. In practice, higher vocational colleges can adopt methods such as visiting agricultural enterprises, industry chambers of commerce, and farmers' associations to fully investigate the modern agricultural market, clarify the types of digital intelligent agricultural positions and the core post capabilities required by relevant practitioners, and then establish a talent training goal of "professional core skills + digital intelligence skills + professional literacy." Guided by this

talent training goal, the teaching activities carried out by teachers can focus on the effective training of students' professional foundation, professional skills, and digital intelligence capabilities. In addition, higher vocational colleges also need to differentiate the training goals of agricultural talents. For example, for horticulture majors, they can focus on cultivating their knowledge and skills in the maintenance of intelligent greenhouses and their mastery of pest control knowledge; for animal husbandry majors, they can focus on cultivating their abilities in using intelligent breeding facilities and controlling the breeding environment, to ensure that the agricultural talent training goals are more targeted [11].

4.2. Optimize the curriculum system structure and integrate digital intelligence teaching content

To better improve the training effect of digital intelligent agricultural talents, higher vocational colleges also need to strengthen the optimization and design of the curriculum system structure, and actively integrate digital intelligence-related content into the curriculum system construction. On the one hand, higher vocational colleges can actively develop a hierarchical digital intelligent agricultural professional curriculum system. For example, set up courses such as "Fundamentals of Agricultural Information Technology" and "Introduction to Artificial Intelligence" at the basic level to cultivate students' basic digital intelligence literacy; set up courses such as "Internet of Things Application in Agriculture", "Agricultural Big Data Analysis", and "Application of Intelligent Agricultural Equipment" in combination with professional characteristics at the core level to further strengthen students' core digital intelligence skills; set up courses such as "E-commerce Operation of Agricultural Products" and "Application of Agricultural Blockchain" at the expansion level to effectively broaden students' digital intelligence application horizons [12]. On the other hand, higher vocational colleges can try to promote the digital intelligence transformation of traditional courses. For example, when explaining crop cultivation, students can be made to understand the technical application of intelligent irrigation and precision fertilization, so as to realize the organic integration of traditional courses and digital intelligence content [13].

4.3. Improve practical teaching conditions and construct digital intelligence practical scenarios

Practical teaching is an indispensable part of higher vocational colleges in cultivating high-quality and high-skilled agricultural talents. Therefore, driven by digital intelligence, higher vocational colleges should also attach importance to the optimization and improvement of practical teaching conditions. On the one hand, they should strengthen the construction of on-campus digital intelligence practical bases, increase capital investment according to actual conditions, build training venues such as smart farms and intelligent breeding training centers, and equip them with advanced practical training equipment, so as to provide students with a regular digital intelligence practical training environment [14]. On the other hand, higher vocational colleges also need to actively establish good cooperative relations with leading agricultural enterprises, digital intelligent agricultural demonstration bases, etc., jointly establish off-campus training bases, and promote enterprises to open digital intelligence production resources to schools, so that students can be exposed to real smart agricultural projects, so as to effectively improve students' agricultural professional skills and digital intelligence capabilities. In this process, agricultural professional teachers and enterprise mentors in higher vocational colleges can jointly guide students' practice to effectively ensure the effect of students' practical training [15].

4.4. Improve the literacy of the teaching staff and strengthen digital intelligence teaching capabilities

Teachers are the organizers and implementers of teaching activities, and their digital intelligence literacy and teaching capabilities directly affect the quality of talent training. Therefore, driven by digital intelligence, higher vocational colleges also need to pay attention to the cultivation of teachers' digital intelligence literacy and teaching capabilities. On the one hand, they should formulate plans for improving teachers' digital intelligence capabilities, regularly organize teachers to learn digital intelligence technology knowledge and teaching methods, or send teachers to take temporary positions in agricultural enterprises to let them go deep into the front line of digital intelligence production, accumulate practical experience, and thus improve their professional experience and digital intelligence practical teaching capabilities. On the other hand, higher vocational colleges can recruit technical backbones and researchers with an agricultural industry background and digital intelligence technical expertise from society, invite enterprise technical experts to serve as part-time teachers, further enrich the teaching staff for agricultural talent training, optimize the teacher structure, and better ensure the quality of talent training.

4.5. Improve the collaborative education mechanism and integrate multiple educational resources

It is difficult to ensure the effect of talent training relying solely on the school's own strength. Therefore, driven by digital intelligence, higher vocational colleges also need to actively integrate multiple educational resources to provide sufficient guarantees for the training of digital intelligent agricultural talents. On the one hand, higher vocational colleges can establish good cooperative relations with local government agricultural departments, rural revitalization bureaus, etc., connect with local digital intelligent agricultural development plans, participate in local agricultural technology promotion, farmer training and other projects, provide students with practical opportunities to serve rural areas, and at the same time use local agricultural industrial resources to establish industry-university-research cooperation bases, promote the transformation of digital intelligence technology achievements, and thus improve students' innovative capabilities. On the other hand, higher vocational colleges can cooperate with undergraduate colleges and scientific research institutions to share digital intelligence teaching resources and scientific research resources, invite researchers to give special lectures, guide students' scientific research projects, and carry out cross-institutional digital intelligent agricultural teaching exchange activities, so as to further optimize their own training model.

5. Conclusion

Today, when information technology is deeply integrated with people's production and life, innovating the training model of agricultural professionals in higher vocational colleges driven by digital intelligence is an important measure to adapt to the transformation and upgrading of the agricultural industry and promote the high-quality development of agricultural education in higher vocational colleges. In practice, higher vocational colleges can realize the innovation of the agricultural professional talent training model driven by digital intelligence through measures such as accurately positioning training goals and constructing digital intelligence talent portraits; optimizing the curriculum system structure and integrating digital intelligence teaching content; improving the literacy of the teaching staff and strengthening digital intelligence teaching capabilities; improving practical teaching conditions and constructing digital intelligence practical scenarios; improving the

collaborative education mechanism and integrating multiple educational resources. Thus, cultivate high-quality technical and skilled talents more adaptable to the development needs of digital intelligent agriculture, and provide a solid talent guarantee for agricultural and rural modernization.

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Disclosure statement

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