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Guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges

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Abstract

The objectives of this research were: 1) to study the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges. 2) to provide the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges. 3) to evaluate the suitability and feasibility of guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges. The population were 369 research administrators from 6 agricultural higher vocational colleges in Guangxi. Research instruments include: 1) questionnaire, 2) structured interview, and 3) evaluation form. Data analysis were by using percentage, mean, standard deviation and content analysis.

The results were found that the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects was at a medium level. Considering the results of this research aspects ranged from the highest to lowest mean were as follow: the highest mean was demand for vocational and technical talents, followed by both knowledge acquisition ability and income, both knowledge coupling ability and knowledge application ability were the lowest mean. There were 48 guidelines for education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects. The results about evaluation of the suitability and feasibility of guidelines for education administration based on agricultural technology innovation of Guangxi higher vocational colleges was at highest level.

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Keywords: Guidelines, Education administration, Agricultural technology innovation, Higher vocational colleges

Introduction

Agriculture, as the fundamental industry of the national economy, directly relates to a country's food security, economic stability, and social harmony. In the context of globalization, informatization, and sustainable development, agricultural technological innovation has emerged as a crucial force driving agricultural modernization, enhancing agricultural production efficiency, safeguarding food safety, and promoting rural economic development. (Ahmed, J. & Almeida, E. 2020) As population growth, resource scarcity, and environmental pressures intensify, traditional agricultural development models struggle to meet the diverse demands of modern society for quantity, quality, and safety of agricultural products. Agricultural modernization, as an effective approach to addressing these issues, hinges on technological innovation to transform agricultural production methods, achieving efficiency, intelligence, and sustainability. It necessitates the widespread application of modern technological tools in agricultural processes, enhancing resource utilization efficiency, mitigating environmental pollution, ensuring food safety, and elevating the added value of agricultural products. Agricultural technological innovation serves as the core driver of agricultural modernization. By leveraging advanced technologies such as gene editing, smart agricultural equipment, and agricultural big data, this innovation significantly boosts agricultural production efficiency, reduces production costs, and enhances the quality and safety of agricultural products. Furthermore, it fosters the extension and upgrading of the agricultural industrial chain, propelling rural industrial upgrading and economic development. Consequently, strengthening agricultural technological innovation is of paramount importance for safeguarding national food security, promoting farmer income growth, and realizing rural revitalization. (Ahmed, J., & Almeida, E. 2020)

Agricultural vocational education occupies a pivotal position in nurturing agricultural technical talent. Through systematic curricula, practical teaching, and industry-academia cooperation, it equips students with solid agricultural fundamentals, practical vocational skills, and forward-thinking innovative thinking. These highly skilled agricultural technicians constitute a vital force driving agricultural technological innovation, actively contributing to the transformation and application of new technologies and achievements in agricultural production frontlines. (Sephokgole, & Makgato, et.al. 2021) Agricultural vocational education not only emphasizes the cultivation of students' knowledge and skills but also focuses on transforming scientific and technological achievements into real-world productivity. Through close cooperation with enterprises and research institutions, it keeps abreast of the latest advancements and market demands in agricultural science and technology, integrating technological achievements into the teaching process to foster students' innovative consciousness and practical abilities. Additionally, it provides farmers with technological training and consulting services, empowering them to grasp new technologies and methods, thereby enhancing agricultural production efficiency and quality. (Anup Bhurtel, 2015)

Currently, the content of agricultural education is disconnected from market demands. At present, some agricultural vocational education institutions still exhibit a lag in setting educational content, failing to promptly

reflect the latest advancements and market demands in agricultural science and technology. Some curricula and teaching methods remain rooted in traditional agriculture, lacking new knowledge and skills compatible with modern agricultural science and technology and industrial development. This results in students struggling to adapt to market demands upon graduation, impacting their employability and entrepreneurial abilities. (Turulja, L. & Bajgorić, N. 2018). In conclusion, it is very important to carry out research on academic quality management of Guangxi higher vocational colleges. This study will deeply analyze the problems existing in the academic quality management of Guangxi higher vocational colleges, explore the corresponding solutions, and put forward the academic quality management guidelines with targeted and vocational characteristics. Through this research, it formulate a systematic framework for higher vocational education institutions, promotes the overall improvement of education quality, and plays an important role in promoting the sustainable development of higher vocational education. At the same time, it also hopes to provide some references for the improvement of academic quality management in higher vocational colleges.

In conclusion, agricultural vocational education constitutes an integral part of the agricultural technological innovation system. By strengthening industry-academia-research cooperation, establishing technological innovation platforms, and refining the mechanism for transforming technological achievements, it promotes the effective integration and sharing of technological innovation resources, fostering the in-depth development of agricultural technological innovation activities. Moreover, it offers talent and intellectual support for the sustainable development of the agricultural technological innovation system. Given this backdrop, investigating the impact mechanism of agricultural vocational education on agricultural technological innovation holds significant practical relevance.

Objectives

1. To study the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges.

2. To provide the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges.

3. To evaluate the suitability and feasibility of guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges.

Scope of the Research

1. Scope of Content

    1.1 Concept of Educational Administration

    1.2 Concept of Agricultural Vocational Education

    1.3 Concept of Agricultural Technology Innovation

2. Scope of Population

1. To study the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges. The population included 418 research administrators from 6 agricultural higher vocational colleges in Guangxi from 6 of Guangxi higher vocational colleges.

2. To provide the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges. The key informants in this research included 12 senior administrators of higher vocational colleges in Guangxi. The qualifications of the key informants are as follows: 1) The administrator of vocational colleges in Guangxi have been engaged in education management for 8 years or more; 2) They have the qualifications of being a researcher with expertise in terms of science and technology management very well; 3) Respondents are willing to participate in recorded semi-structured interviews; 4) Must be willing to view their interview transcripts for verification.

3. To evaluate the suitability and feasibility of guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges. The experts included 9 administrators in Guangxi. The experts' qualifications are as follows: 1) Who have been engaged in education administration in higher vocational colleges for more than 8 years, 2) Those who have corresponding technical qualifications or experience in scientific research in the field of agricultural vocational education, 3) Have a senior professional title or a doctorate degree.

Research Framework

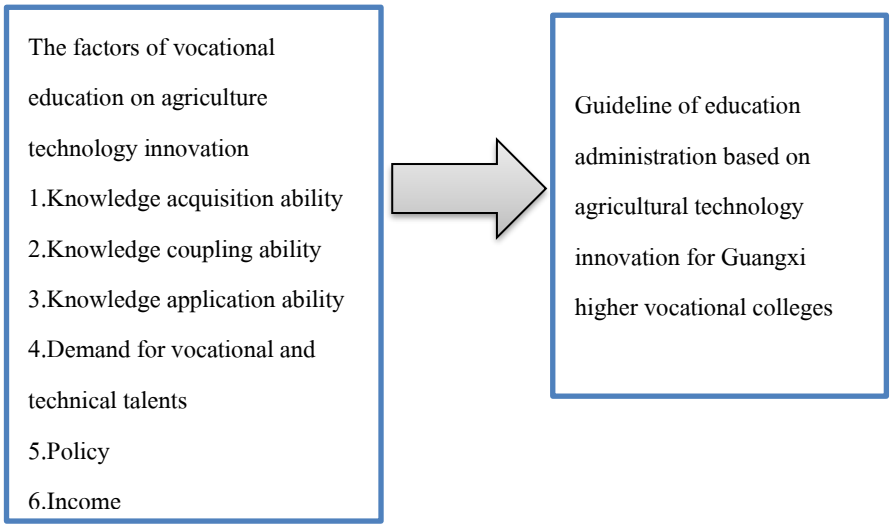

Figure 1 Research Framework

Research Methodology

Phase 1: To study the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges.

Phase 2: To provide the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges.

Phase 3: To evaluate the suitability and feasibility of guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges

This research is mixed methods research. The research method is divided into 3 steps as follows

Phase 1: To study the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges**.**

The population

The population included 418 research administrators from 6 agricultural higher vocational colleges in Guangxi from 6 of Guangxi higher vocational colleges.

Research Instruments

A questionnaire was the instrument to collect the data for objective one, to study the current situation of academic quality management of Guangxi higher vocational colleges. The questionnaire was designed based on impact agricultural technological innovation six aspects: 1) Knowledge acquisition ability, 2) Knowledge coupling ability, 3) Knowledge application ability, 4) Demand for vocational and technical talents, 5) Policy, 6) Income. The questionnaire has a reliability value of 0.912.

Data Collection Method

The researcher requested a requirement letter from the graduate school, Bansomdejchaopraya Rajabhat University, to collect the data from 418 research administrators from 6 agricultural higher vocational colleges in Guangxi from 6 of Guangxi higher vocational colleges. A total of 369 questionnaires accounted for 88.27 percent.

Data Analysis

The current situation of academic quality management of Guangxi higher vocational colleges is in six following aspects: 1) Knowledge acquisition ability, 2) Knowledge coupling ability, 3) Knowledge application ability, 4) Demand for vocational and technical talents, 5) Policy, and 6) Income. The data was analyzed by Mean and standard deviation.

Phase 2: To provide the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges.

The key informants

The key informants selected by purposive sampling, the key informants in this research included 12 senior administrators of higher vocational colleges in Guangxi. The qualifications of interviewees are as follows: 1) The administrator of vocational colleges in Guangxi have been engaged in education management for 8 years or more; 2) They have the qualifications of being a researcher with expertise in terms of science and technology management very well; 3) Respondents are willing to participate in recorded semi-structured interviews; 4) Must be willing to view their interview transcripts for verification.

Research Instruments

The instrument to collect the data for objective two, to provide the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges was a semi-structured interview, The semi-structured interview was designed based on the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six following aspects: 1) Knowledge acquisition ability, 2) Knowledge coupling ability, 3) Knowledge application ability, 4) Demand for vocational and technical talents, 5) Policy, 6) Income.

Data Collection Method

The researcher requested a requirement letter from the graduate school, Bansomdejchaopraya Rajabhat University, to interview 12 administrators from 6 higher vocational colleges in Guangxi. The researcher interviews the high-level administrators individually through an online platform or face-to-face depending on the interviewee's convenience.

Data Analysis

The semi-structured interview about guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges was analyzed by content analysis.

Phase 3: To evaluate the suitability and feasibility of guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges

The experts

The experts for evaluating the suitability and feasibility of the semi-structured interview about guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges was analyzed by content analysis were 9 experts. The experts' qualifications are as follows: 1) Who have been engaged in education administration in higher vocational colleges for more than 8 years, 2) Those who have corresponding technical qualifications or experience in scientific research in the field of agricultural vocational education, 3) Have a senior professional title or a doctorate degree.

Research Instruments

The instrument to collect the data for objective three, to evaluate the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges. The evaluation form was designed based on the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six following aspects: 1) Knowledge acquisition ability, 2) Knowledge coupling ability, 3) Knowledge application ability, 4) Demand for vocational and technical talents, 5) Policy, 6) Income.

Data Collection Method

The researcher requested a requirement letter from the graduate school, Bansomdejchaopraya Rajabhat University, to invite the expert to evaluate the suitability and feasibility of the guidelines. The researcher distributed the evaluation form to high-level administrators. A total of 9 evaluation forms.

Data Analysis

Data analysis in this research, the researcher analyzes the data by package program, as follows: The evaluation of the suitability and feasibility of the guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges was analyzed by Mean and standard deviation.

Research Findings

1. The analysis results about the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges

Table 1 The average value and standard deviation of the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects

	Academic quality management	μ	σ	level	Order
1	Knowledge acquisition ability	3.30	0.93	medium	2
2	Knowledge coupling ability	3.26	0.87	medium	5
3	Knowledge application ability	3.26	0.91	medium	5
4	Demand for vocational and technical talents	3.32	0.85	medium	1
5	Policy	3.29	0.90	medium	4
6	Income	3.30	0.91	medium	2
	Total	**3.29**	**0.71**	**medium**	

According to Table 1, the data showed that the current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects was at medium level (μ=3.29). Considering the results of this research aspects ranged from the highest to lowest mean were as follow: the highest mean was demand for vocational and technical talents (μ= 3.32), followed by both knowledge acquisition ability and income (μ= 3.30), both knowledge coupling ability and knowledge application ability were the lowest mean (μ= 3.26).

1. Knowledge acquisition ability was at a medium level. Considering the results of this research aspects ranged from the highest to lowest mean were as follow: the highest mean was administrators attach importance to optimizing the content of the resource systems and utilize big data technology to analyze the knowledge needs of agricultural practitioners for dynamic adjustment, followed by administrators regularly organize agricultural new technology training to help teachers master international cutting-edge technologies, and administrators integrate diverse resource systems to provide support for teachers and students in structuring knowledge acquisition was the lowest mean.

2. Knowledge coupling ability was at a medium level. Considering the results of this research aspects ranged from the highest to lowest mean were as follow: the highest mean was administrators pay attention to the use of systematic teaching system, and realize the visual correlation and sharing of knowledge of different agricultural disciplines through digital platforms, followed by administrators attach importance to teachers' research on the cross-integration of knowledge in agriculture and different fields, and formulate relevant incentive mechanisms, and administrators pay attention to the integration of agricultural research practice and theoretical teaching resources, and establish cross departmental collaboration mechanisms for this purpose was the lowest mean.

3. Knowledge application ability was at a medium level. Considering the results of this research aspects ranged from the highest to lowest mean were as follow: the highest mean was administrators attach importance to students' innovation achievements based on actual needs, and stimulate students through continuous innovation and entrepreneurship competitions, followed by administrators attach importance to promoting IUR collaborations in order to promote the practical productivity transformation of agricultural technological achievements, and administrators attach importance to practical teaching and technology incubation, and provide support by integrating university-enterprise resources was the lowest mean.

4. Demand for vocational and technical talents was at a medium level. Considering the results of this research aspects ranged from the highest to lowest mean were as follow: the highest mean was administrators pay attention to the technological advancement of local agricultural and develop policies to encourage teachers and students to participate in agricultural technology extension projects, followed by both administrators regard the demand for vocational and technical talents as the core orientation of talent training in agricultural higher vocational colleges, and administrators established a tracking mechanism for agricultural technology graduates. And administrators regularly analyze the trends of economic development and technological advancement, and dynamically adjust the enrollment scale and direction of agricultural technology majors was the lowest mean.

5. Policy was at a medium level. Considering the results of this research aspects ranged from the highest to lowest level were as follow: the highest mean was administrators promote industry collaboration to realize the two-way transformation of agricultural technology R&D and teaching resources, followed by administrators develop special policies to support rural students to participate in advanced agricultural technology courses, and administrators attach importance to ensuring access and equity in education for students in remote areas, and have formulated special policies for ethnic minorities was the lowest mean.

6. Income was at a medium level. Considering the results of this research aspects ranged from the highest to lowest level were as follow: the highest mean was administrators recognize that the geographic location advantages of Guangxi vocational colleges adjacent to characteristic agricultural producing areas have significantly improved the income level of employees. Both followed by administrators promote schools and enterprises to sign minimum wages guarantee agreements, and administrators narrow the geographic location income gap by formulating special policies. Administrators will incorporate graduates' the level of skill into the educational effectiveness evaluation system of higher vocational colleges to promote the improvement of the school's

educational level, and administrators pay attention to the quantitative relationship between graduates' the level of skill, industry choice and income growth, so as to establish a database of graduates' income were both the lowest mean.

2. The guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects, with a total of 48 measures: 1) 8 measures for knowledge acquisition ability, 2) 8 measures for knowledge coupling ability, 3) 7 measures for knowledge application ability, 4) 8 measures for demand for vocational and technical talents, 5) 9 measures for policy and 6) 8 measures for income.

2.1 Knowledge acquisition ability consisted of 8 measures: 1) Establish an online course resource library for agricultural technology to facilitate students' self-study. 2) Increase the purchase of agricultural science and technology books, periodicals and databases, and update resources regularly. 3) Develop a "Smart Agricultural Education" resource management platform to integrate data resources from industry, academia, research and the government. 4) Co-build courses with leading enterprises and introduce their technical standards and latest research achievements. 5) Invite experts and scholars in the agricultural field to conduct specialized training to broaden the horizons of teachers and students. 6) Organize students to participate in agricultural innovation competitions to stimulate their motivation for active learning. 7) Support teachers in participating in domestic and international agricultural technology training to enhance the advancement of teaching content. 8) Develop an agricultural technology learning APP to enable students to access knowledge anytime and anywhere.

2.2 Knowledge coupling ability consisted of 8 measures: 1) Integrate agricultural technology with information technology, management and other disciplines to offer interdisciplinary courses. 2) Organize students to participate in agricultural technology innovation projects to promote the integration of knowledge from multiple fields. 3) Encourage teachers and students to form cross-disciplinary teams to jointly solve practical agricultural problems. 4) Jointly establish industry colleges with enterprises to promote the coupling of agricultural technology, management and business knowledge. 5) Cooperate with enterprises to conduct agricultural technology research topics to promote the combination of theory and practice. 6) Regularly hold agricultural technology integration practice workshops to enhance students' collaborative abilities. 7) Assign academic and industry mentors to students to promote multi-dimensional knowledge coupling. 8) Set up an on-campus agricultural technology experience exchange forum to facilitate interactive learning between teachers and students.

2.3 Knowledge application ability consisted of 7 measures: 1) Expand the modern agricultural technology training center to simulate a real production environment. 2) Incorporate agricultural technology skill certificates into the curriculum to enhance employment competitiveness. 3) Allow students to participate in enterprise technology improvement projects to accumulate practical experience. 4) Encourage students to apply for agricultural technology patents and support the promotion and application of their achievements. 5) Regularly hold agricultural technology operation competitions to test students' application abilities. 6) Involve enterprise technicians in the design of training courses to meet industry demands. 7) Offer agricultural technology entrepreneurship courses to guide students in formulating business plans and putting them into practice.

2.4 Demand for vocational and technical talents consisted of 8 measures: 1) Based on the demands of agricultural industries in Guangxi, additional agricultural-related majors such as smart agriculture will be added. 2) Regular visits to agricultural enterprises will be conducted to analyze the shortage of technical talents and adjust the teaching plans. 3) "Order-based classes" will be jointly established with enterprises to provide targeted agricultural technical talents. 4) Agricultural vocational qualification standards will be integrated into the course content to ensure that teaching matches the positions. 5) The employment situation of graduates will be tracked to optimize the talent cultivation model. 6) Agricultural career development courses will be offered to help students clarify the direction of technical positions. 7) Specialized job fairs will be held in collaboration with agricultural enterprises to promote high-quality employment for students. 8) Comprehensive abilities in agricultural technology, management, and marketing will be emphasized for cultivation to meet the demands of various positions.

2.5 Policy consisted of 9 measures: 1) Apply for special funds for agricultural technology education, which will be used for the construction of training equipment and teaching staff. 2) Cooperate with local governments to incorporate higher vocational education into the policy system for rural revitalization. 3) Provide scientific research rewards and credit recognition to teachers and students who participate in agricultural technology research and development. 4) Introduce internal policies to encourage secondary colleges to quickly connect with enterprises for cooperation projects. 5) Promote the credit bank system to recognize students' learning achievements obtained through various channels. 6) Establish an agricultural innovation fund to support teachers and students in conducting applied research on agricultural technologies. 7) Expand the scale of targeted recruitment for agricultural technicians in townships, and increase targeted majors such as "Intelligent Agricultural Machinery Application". 8) Optimize the assessment and evaluation system, and incorporate the effectiveness of agricultural technology promotion into the performance evaluation indicators for teachers. 9) Combine the services of science and technology assistants with graduation design, and encourage students to participate in grassroots agricultural technology promotion projects.

2.6 Income consisted of 8 measures: 1) Encourage teachers and students to participate in agricultural technology research projects, and distribute the benefits proportionally. 2) Carry out social training services, providing paid technical training to farmers and enterprises. 3) Establish an agricultural technology entrepreneurship incubation base to reduce the cost of entrepreneurship. 4) Sign salary agreements with cooperative enterprises to safeguard students' rights and interests. 5) Relying on the technical advantages of the institutions, operate demonstration farms or agricultural product processing projects. 6) Provide scholarships or training subsidies to students who obtain senior vocational skills certificates. 7) Establish an agricultural technology consulting team to provide paid technical services to local governments and enterprises. 8) Introduce the alumni donation mechanism and establish an agricultural technology education development fund.

3. Evaluate the suitability and feasibility of the guidelines for academic quality management of Guangxi higher vocational colleges, shown in Table 2

Table 2 Mean and standard deviation of the evaluation of the suitability and feasibility of guidelines to education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects

	Guidelines	Suitability			Feasibility		
		$\bar{X}$	S.D	Level	$\bar{X}$	S.D	Level
1	Knowledge acquisition ability	4.61	0.22	highest	4.54	0.27	highest
2	Knowledge coupling ability	4.58	0.23	highest	4.58	0.43	highest
3	Knowledge application ability	4.60	0.29	highest	4.56	0.33	highest
4	Demand for vocational and technical talents	4.63	0.18	highest	4.61	0.39	highest
5	Policy	4.60	0.22	highest	4.57	0.29	highest
6	Income	4.63	0.31	highest	4.56	0.23	Highest
	Total	**4.61**	**0.17**	**highest**	**4.57**	**0.27**	**highest**

According to Table 2 , the suitability of guidelines for education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects. Considering the results of this research aspects ranging from the highest to lowest level were as follows: the highest level was Demand for vocational and technical talents and income, followed by knowledge acquisition ability, and knowledge coupling ability was the lowest level.

The feasibility guidelines for education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects were at the highest level. Considering the results of this research aspects ranging from the highest to lowest level were as follows: the highest level was demand for vocational and technical talents, followed by knowledge coupling ability, and knowledge acquisition ability was the lowest level.

Discussion

1. The current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects was at a medium level. Considering the results of this research aspects ranged from the highest to lowest level were as follow: the highest level was demand for vocational and technical talents, followed by knowledge acquisition ability and income, and knowledge coupling ability and knowledge application ability were both the lowest level, The current situation of education administration based on agricultural technology innovation for Guangxi higher vocational colleges is at a medium level. The analysis results show that Guangxi's higher vocational colleges lack a unified resource management platform for agricultural technology integration, making it difficult to efficiently match laboratory, training base, and enterprise resources with the needs of teachers and students. For instance, although Guangxi Agricultural Vocational and Technical University has jointly built a crop experiment station with Laos, the domestic on-campus resource coordination is still insufficient, and it is

difficult to form cross-disciplinary research teams (Zhou & Li, 2025). In addition, the construction of agricultural training bases lags behind, and some colleges and universities are short of key training resources such as cold chain logistics and intelligent agricultural equipment, which restricts the ability to incubate technologies (Deng, 2018). Although Guangxi has launched the "Dream Realization Plan for Migrant Workers" and expanded enrollment in agricultural-related majors, the implementation rate of special training financial subsidies for ethnic minority areas is less than 50%, and the performance evaluation of teachers does not include the effectiveness of agricultural technology promotion (GED, 2023). Research shows that the class hours of teachers participating in field technology guidance only account for 10% of the assessment weight, far lower than theoretical teaching (Zhong, 2024). The policy disconnection leads to a lack of motivation for teachers to go deep into rural areas, resulting in a low conversion rate of agricultural technology. Studies show that the income growth data of graduates from agricultural-related majors is missing, making it impossible to accurately match the course settings with market salary trends (Zhang et al., 2023).

2. The guidelines of education administration based on agricultural technology innovation for Guangxi higher vocational colleges. including 6 guidelines, a total of 48 measures: 8 guidelines for knowledge acquisition ability, 8 guidelines for knowledge coupling ability, 7 guidelines for knowledge application ability, 8 guidelines for demand for vocational and technical talents, 9 guidelines for policy, and 8 guidelines for income. The researcher has chosen measures to knowledge acquisition ability the reason that experts proposed this Establish an online course resource library for agricultural technology to facilitate students' self-study, Increase the purchase of agricultural science and technology books, periodicals and databases, and update resources regularly., Develop a "Smart Agricultural Education" resource management platform to integrate data resources from industry, academia, research and the government. Related to the above results, core measures include establish online course library, resource management platform, school-enterprise co-built courses, expert training, etc. Studies show that higher vocational colleges need to integrate industry resources through digital platforms to improve the efficiency of knowledge acquisition. For example, Guangxi Agricultural Vocational and Technical College has achieved cross-domain integration of agricultural technology data by constructing the "Smart Agricultural Education" resource management platform (Chen, 2019); The construction of online educational resource libraries has been proven to enhance students' autonomous learning ability (Smith, 2020); Zhang (2021) et al. pointed out that digital resource libraries and school-enterprise cooperative courses can significantly improve the knowledge update efficiency of agricultural higher vocational colleges..

3. The suitability and feasibility of guidelines to education administration based on agricultural technology innovation for Guangxi higher vocational colleges in six aspects were at the highest level with values between 4.00 and 5.00, which means guidelines to education administration based on agricultural technology innovation for Guangxi higher vocational colleges are suitable and feasible. Guidelines for demand for vocational and technical talents highest mean related to Wang & Liu (2020, p12) believes that through measures such as dynamically adjusting the enrollment scale, adding emerging majors like intelligent agriculture, and establishing "order classes" for targeted training, the technical demands of the regional agricultural industry have been precisely matched. The research of Huang (2019, p21) pointed out that vocational education needs to optimize the talent cultivation structure based on the industrial

technology gap. Through measures such as tracking the employment situation of graduates and integrating vocational qualification standards, higher vocational colleges in Guangxi have achieved a precise match between talent cultivation and job demands (Liu, 2021, p34). Furthermore, Zheng & Wang (2023, p67) believes that jointly holding special job fairs with enterprises has further promoted high-quality employment.

Recommendations

Recommendations in implementation

1. Knowledge acquisition ability should be establish an exclusive online course resource library for agricultural technology, integrate industry, academic and government data, develop an intelligent agricultural education resource management platform, and achieve cross-platform resource intercommunication..

2. Knowledge coupling ability should focus on strengthening the school-enterprise cooperation mechanism and breaking through disciplinary barriers. Integrate agricultural technology, information technology and management science to develop project-based courses, such as "Design of Smart Agricultural Systems". Organize agricultural technology innovation projects and encourage students to form cross-disciplinary teams to solve practical problems, such as the application of agricultural Internet of Things..

3. Knowledge application ability should focus on improving the coverage of training equipment and strengthen the integration of production. We will expand the modern agricultural technology training center, introduce intelligent agricultural machines, drones and other equipment to simulate the real production environment..

4. Demand for vocational and technical talents should focus on establishing a tracking mechanism for graduates. In response to the demands of Guangxi's agricultural industry, new majors such as smart agriculture and agricultural big data have been added, while lagging ones have been phased out. Jointly set up order classes with enterprises.

5. Policy should focus on policy coordination (such as rural revitalization and cohesion) and capital. We will apply for special funds for agricultural technology innovation, and promote the integration of education into the rural revitalization policy system.

6. Income should focus on entrepreneurship incubation bases and technical services for revenue generation. Establish a revenue distribution mechanism for scientific research projects to encourage teachers and students to participate in agricultural technological innovation.

Recommendations for further research

1. Expansion of research subjects; Cross-regional Comparative Research: Compare Guangxi's higher vocational colleges with those in other major agricultural provinces such as Jiangsu and Shandong to analyze the differences in policy environment, industrial foundation, and talent cultivation models among different regions, and distill replicable experiences.

2. Deepening of research content; Addressing the current shortcomings in policy implementation and incentive mechanisms, study how to establish a long-term connection mechanism between higher vocational colleges and the agricultural industry through legislation or institutional design to ensure the continuous implementation of educational management guidelines. Innovation in research methods.

3．Innovation in research methods; Utilize graduate income databases and enterprise talent demand big data to establish dynamic prediction models, provide early warnings for the supply and demand gap of agricultural technology talents, and offer real-time data support for professional adjustments and curriculum optimization

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