

Exploration on Innovation Platforms Construction for Improving the Talent Cultivation Quality of Agricultural Built Environment and Energy Engineering Major in Agricultural University

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Abstract: *Amidst the global transformation of energy structures and the acceleration of agricultural modernization, the cultivation of talents confronts unprecedented challenges and opportunities for agricultural built environment and energy engineering (ABEEE) programs at agricultural universities. This paper focuses on the role and practical pathways of innovative platform construction in enhancing the quality of talent cultivation in this field, aiming to explore an educational reform path that aligns with the development needs of the new era. Initially, the paper analyzes the current issues in ABEEE professional education at agricultural universities, including the disconnection between theory and practice, inadequate cultivation of innovation capabilities and the lack of distinct professional characteristics et al. Based on these insights, the necessity and urgency of constructing innovative platforms is emphasized in this work. It can effectively promote interdisciplinary integration, bolster practical operation skills for students, further strengthen their scientific research and innovation capabilities by establishing industry-university collaboration platforms with enhanced professional characteristics, scientific research innovation platforms, and virtual simulation teaching platforms et al. Finally, the necessary of continuously optimizing the functions and services of these innovative platforms, strengthening exchanges and cooperation with other higher education institutions are highlighted according to the current existing problems and challenges. This research can not only provide a novel perspective and thoughts for educational reform in agricultural universities, but also serves as a reference for talent cultivation model innovation in other fields.*

Keywords: Innovation platforms construction, Talent cultivation, Agricultural built environment and energy engineering (ABEEE), Agricultural university.

1. Introduction

With the rapid development of the global economy and the sustained growth of energy demand, enhance the quality of talent cultivation in agricultural built environment and energy engineering (ABEEE) major has become particularly important owing to their crucial force on supporting national energy strategies, driving sustainable economic and social development [1]. Especially in agricultural universities, the ABEEE program not only bears the responsibility of cultivating high-quality engineering and technical talents, but also need serve the urgent development needs of agricultural modernization and rural energy utilization. However, traditional teaching modes have been unable to meet the needs of cultivating innovative and compound talents under the background of new requirements for emerging engineering education construction [2]. Therefore, exploring how to enhance the quality of talent cultivation in ABEEE program through the construction of innovation platforms has become an urgent issue for agricultural universities.

In recent years, China has attached great importance to the innovation-driven development strategy. It has clearly proposed to accelerate the cultivation of innovative scientific and technological talents, promoting the connotative development of higher education. The teaching reform of ABEEE major in agricultural universities is also confronted with an urgent need for transformation and upgrading. At present, how to enable students to participate in the construction of modern agricultural energy projects directly, learning the cutting-edge technologies and management

experiences, finally, truly achieve the deep integration of industry and education has become a key direction for talent cultivation in the field of ABEEE in agricultural universities [3]. In order to adapt to this tendency, many diversified innovation platforms have been built tentatively to improve the practical and innovative abilities of students in agricultural universities, thereby enhancing the overall quality of professional talent cultivation.

Herein, the significant role of innovation platform construction in the talent cultivation of ABEEE major in agricultural university is discussed. The research analyzes the existing issues in the current talent cultivation process, and further proposes the directions that urgently in need of improvement by combining the professional characteristics of agricultural universities with the needs of social development. Through this study, it is hoped to provide some beneficial insights and suggestions for the talent cultivation of ABEEE major in agricultural universities.

2. The Deficiency and Current Situation Analysis in Talent Training

Under the background of global energy structure transitioning towards clean and low-carbon energy, agricultural universities shoulder the task of cultivating high-quality talents in ABEEE who can solve complex engineering problems in agricultural production and rural life, and possess innovative consciousness and practical abilities at the same time. However, currently, many universities still tend to adopt traditional training programs in the cultivation of talents of

ABEEE, meanwhile the professional characteristics of universities are not prominent enough to meet the ever-changing market development needs [4]. The main problems and deficiencies are showed in the following aspects.

2.1 The Training Program Does not Match the Market Demand

With the development of technology and societal progress, the technologies in the field of ABEEE are constantly upgraded. However, the professional settings and course content of some agricultural universities are updated slowly, which has made that traditional technologies are difficult to solve the problems faced by the current market, it also leads to a mismatch between talent and market demand. This mismatch not only affects the employment prospects of students but also limits the further development of the universities in this field.

2.2 Weak Practical Teaching Link

Practical teaching is an indispensable and important part of talent cultivation in the field of ABEEE, but some agricultural universities have obvious shortcomings in practical teaching section. On the one hand, laboratory construction is lagging behind, and experimental equipment is outdated, which makes it difficult to meet the needs of modern experimental teaching. Especially for experiments that require large venues, universities always difficult to provide supporting platform equipment. On the other hand, the concept of practical teaching is outdated. The practical teaching process often relies on theoretical teaching, lacking independence and systematicity, which results in ineffective improvement of practical and innovative abilities for the students.

2.3 Inadequate Teaching Staff

Teaching staff is the key to talent cultivation, but some agricultural universities have inadequate teaching staff in the field of ABEEE. On the one hand, there is a shortage of professional teachers, which makes it difficult to meet the teaching needs. On the other hand, many young teachers always start their careers after graduation and lack practical experience. Their understanding of new technologies and applications in current industrial practice is not deep enough,

which makes it difficult to integrate theoretical knowledge with industrial practice applications closely. All these phenomena affect the quality and effectiveness of teaching.

2.4 The Disconnect between Teaching Philosophy and Market Demand

The traditional teaching philosophy of agricultural universities often focuses on imparting basic knowledge and academic achievements for the students, while neglecting the cultivation their practical and innovative abilities. This teaching philosophy is clearly disconnected from current market demand, making it difficult for students to adapt to the market changes and business demands after graduation. Therefore, agricultural universities need update their teaching concepts and focus on cultivating the practical and innovative abilities of students.

2.5 Lack of Interdisciplinary Integration

ABEEE is a comprehensive major that involves multiple disciplines. It requires interdisciplinary knowledge and skills support. Especially for the rapidly evolving technologies, artificial intelligence and intelligent manufacturing dominate various new technology fields. Some agricultural universities still have significant shortcomings in interdisciplinary integration, resulting in students shows a narrow knowledge base and weak comprehensive abilities. Therefore, the agricultural universities need to strengthen the communication and cooperation with other disciplines in cultivating highly specialized engineering talents such as ABEEE, and further vigorously promote interdisciplinary integration and innovative development.

3. The Role of Innovation Platform Construction in Improving Talent Cultivation Quality

According to the shortcomings in the talent cultivation process of ABEEE major in agricultural universities, the construction of innovative platforms can alleviate and solve the problems that faced by current professional talent cultivation in multiple aspects, further improve the quality of talent cultivation. It reflects in the following aspects (as shown in Figure 1).

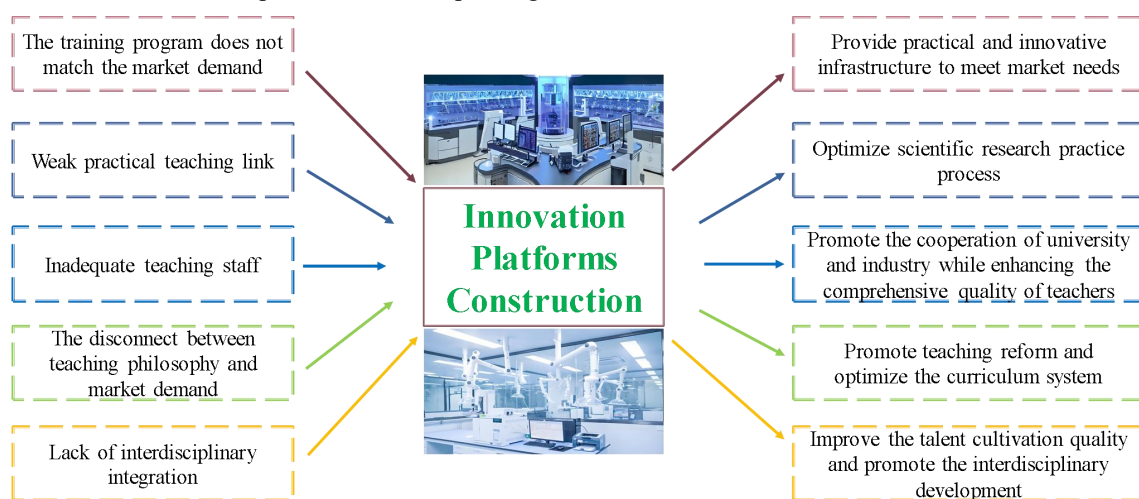


Figure 1: The key role of innovation platforms construction in improving the talent cultivation quality

3.1 Provide Practical and Innovative Infrastructure to Meet Market Needs

By investing in advanced modern agricultural experimental equipment and abundant resources, innovation platform can provide students with conditions and opportunities for hands-on operation. It helps to address the issues such as insufficient equipment and limited funding in traditional experimental teaching, enabling students to learn and practice in a more comprehensive environment. Furthermore, through the construction of diversified practice platforms, diversified forms of practice can be provided for students to meet the interests and strengths of different students, such as research-based, engineering-based, and experimental-based et al. In brief, diversified practice platform can stimulate the interest of students in learning and innovation, promoting their continuous exploration and improvement through practice.

3.2 Optimize Scientific Research Practice Process

The innovation platform encourages students to participate in scientific research projects through multiple channels, enabling them to engage in the modern agricultural energy projects directly, learn cutting-edge technology and management experience at the same time. Through the tutorial system, course work, innovation experiment and graduation design et al, students can experience the forefront of their professional fields in advance. It can encourage them to conduct original research, and enhance their ability to solve complex engineering problems. This practical approach helps students combine theoretical knowledge of ABEEE with practical applications in agricultural production, further improving their comprehensive quality.

The innovation platforms can facilitate the categorized guidance for diverse students according to their research and engineering strengths. Through assigning corresponding instructors to ensure that every student can receive adequate training and improvement in their suitable direction. This personalized guidance method can help to maximize the potential of students.

3.3 Promote the Cooperation of University and Industry While Enhancing the Comprehensive Quality of Teachers

Innovation platforms always have established close cooperative relationships with the enterprises and scientific research institutions. which can provide students with more practical opportunities and employment channels through the industry-university-research cooperation projects. This cooperation model helps cultivate the innovative thinking and practical abilities for students. Meanwhile, it can also provide more high-quality talent for enterprises. The construction of innovation platforms establishes stable joint practice bases between universities and enterprises through their cooperation. It can enable students to intern and practice in an enterprise environment, further enhance their learning fun and self-motivation. Meanwhile, the cooperation model helps students better understand the enterprise needs and market dynamics, it can improve their employment competitiveness and social adaptability. In addition, it can also promote university teachers to understand the scientific issues in the

development of modern agriculture timely through the construction of innovation platforms. The comprehensive quality of teachers can also be improved by establishing cooperation with research institutions at the forefront of agricultural discipline development all over the world [5]. By this way, the classroom teaching content can be updated constantly, which will promote the cultivation of talents that closely meet the needs of the times.

3.4 Promote Teaching Reform and Optimize the Curriculum System

The construction of innovation platforms can facilitate the continuous updating and optimization of classroom teaching content. For the students majoring in energy and power, it can help them adapt to the demands of the times and technological advancements. The establishment of innovation platforms enables them to understand the current state of industry development, new technologies and methods that emerging in domestic and international scientific and technological advancements, as well as the issues. It promotes the integration of theoretical knowledge learned with engineering practice timely, further fosters the innovative consciousness and capabilities for students, thereby enabling them to better adapt to the development of future society. Simultaneously, the construction of innovation platforms drives the improvement of teaching methods, it encourages teachers to adopt diverse teaching techniques and approaches, such as case teaching, project-based teaching, and innovative practical teaching et al, to enhance teaching effectiveness and the learning interests of students. This innovation in teaching methods can help cultivating the autonomous learning abilities and team collaboration skills for students.

3.5 Improve the Talent Cultivation Quality and Promote the Interdisciplinary Development

Through the practice and learning in innovation platforms, the comprehensive qualities of students can be significantly enhanced. These platforms not only help students acquire solid professional knowledge, but also promote them to meet diverse disciplinary knowledge during the practical applications. By combining the multidisciplinary knowledge, students can train their ability to solve the practical problems, and better adapting to the development needs of the future society. In addition, the innovation platform continuously supplies high-quality talents to relevant industrial units by establishing long-term cooperation with them. It can help enhance the reputation and influence for university, thereby attracting more high-quality students and employers. Meanwhile, through the industry-university-research cooperation models, the employment rate of students and competitiveness can also be significantly improved.

4. Conclusion

The construction of innovation platforms is an effective way to enhance the quality of talent cultivation in ABEEE major at agricultural universities. By establishing the diversified innovation platforms, the agricultural universities can significantly address issues that present in traditional teaching models. Meanwhile, improving the practical and innovative abilities of students, and cultivate more high-quality

engineering and technical talents that meet the current social development needs. In the future, agricultural universities should continue to strengthen the support and optimization of innovation platforms, aiming to promote educational reform and development in ABEEE major at agricultural universities on a broader scale. By this way, the university can provide more strong talent support for the energy strategy and agricultural modernization of our society.

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