ISSN 2663-8169 Vol. 6, Issue 8: 214-219, DOI: 10.25236/IJNDE.2024.060834

Research on the Training Model of Green Innovation and Entrepreneurship Talents in Local Undergraduate Colleges in Hebei Province

Taikun Li*, Zhonglin Kang, Shuai Li, Jiayi Zhang, Jiahui Wang, Mengyao Nie, Xujie Tang

College of Physics and Electronic Engineering, Hebei Minzu Normal University, Chengde, Hebei, 067000, China
**Corresponding author*

Abstract: *This paper takes the green innovation and entrepreneurship talent training model of local undergraduate colleges in Hebei Province as the research object, aiming to explore and analyze the design and implementation of this model. This paper compares and summarizes the practical experience of multiple local undergraduate colleges, revealing the theoretical framework, core content, and implementation strategies of the model. Research has found that effectively integrating environmental education, innovative education, and practice oriented education theories, combined with core curriculum design, interdisciplinary curriculum, practical teaching, and innovation and entrepreneurship platform construction, can significantly enhance students' innovation and practical operation abilities. This paper further analyzes the challenges and opportunities in the implementation of the model, proposes suggestions and prospects for future development, in order to provide theoretical support and practical guidance for the cultivation of green innovation and entrepreneurship talents in local undergraduate colleges.*

Keywords: *local undergraduate institutions, green innovation and entrepreneurship, talent cultivation model*

1. Introduction

With the increasingly prominent global environmental issues and the continuous promotion of sustainable development goals, green innovation and entrepreneurship are receiving increasing attention as important strategies to address global challenges and promote economic transformation. As one of the core missions of higher education, it is particularly urgent to cultivate innovative and entrepreneurial talents who can adapt to the needs of modern society. Especially in China, green development has been incorporated into the national strategic level, and promoting green technology and innovation has become a top priority in policies.

This study will focus on the training mode of green innovation and entrepreneurship talents in local undergraduate colleges in Hebei Province, aiming to deeply analyze the current situation, challenges, and possible improvement paths of colleges in cultivating students' green innovation and entrepreneurship abilities in the region. Through exploration of current educational practices and guidance of theoretical frameworks, this study aims to provide theoretical support and empirical basis for improving the educational quality and effectiveness of local undergraduate colleges in Hebei Province in the field of green innovation and entrepreneurship education.

The cultivation of green innovation and entrepreneurship talents not only involves innovation in curriculum design and teaching methods, but also requires the establishment of effective practical platforms and interdisciplinary cooperation mechanisms to cultivate students' innovative thinking, environmental awareness, and problem-solving abilities [1]. This paper will explore how to construct a green innovation and entrepreneurship talent training model that meets the requirements of the times and local characteristics on the basis of the existing education system through literature review, field research, and theoretical analysis. Meanwhile, based on this, this study will propose a series of feasible policy recommendations and educational reform measures, aiming to promote the positive contribution of local undergraduate colleges in Hebei Province in the implementation of green development strategies.

ISSN 2663-8169 Vol. 6, Issue 8: 214-219, DOI: 10.25236/IJNDE.2024.060834

In summary, this paper will explore the current situation and development trends of green innovation and entrepreneurship talent training models in local undergraduate colleges in Hebei Province from both theoretical and practical perspectives, making academic and practical contributions to promoting green technology innovation and sustainable development.

2. Literature review

2.1 Theoretical basis for cultivating green innovation and entrepreneurship talents

The theoretical basis for cultivating green innovation and entrepreneurship talents stems from the increasing attention to sustainable development and environmental protection [2]. With the deepening of global awareness of environmental issues, the traditional model of innovation and entrepreneurship education is gradually shifting towards covering environmental sustainability. This transformation not only requires students to possess traditional innovation and entrepreneurship abilities, but also requires them to play an active role in solving environmental challenges and addressing climate change. In educational theory, green innovation and entrepreneurship not only focus on the pursuit of commercial interests, but also emphasize the protection of ecosystems and the cultivation of social responsibility. This comprehensive educational model helps cultivate students to consider the triple impact of environment, society, and economy in the entrepreneurial process, promoting the implementation and promotion of sustainable development strategies.

2.2 Analysis and evaluation of relevant research results at home and abroad

There have been numerous studies both domestically and internationally exploring effective strategies and practical experiences for cultivating green innovation and entrepreneurship talents [3]. Some advanced experiences abroad have shown that interdisciplinary educational methods and participation in practical projects can significantly enhance students' abilities in environmental science, sustainable technology, and social innovation. For example, some European universities have successfully promoted cooperation between academia and industry by establishing innovation centers and ecological parks, cultivating many influential entrepreneurs and technology innovators in the field of environment.

Domestic research focuses on exploring how to integrate green concepts into traditional innovation and entrepreneurship education to address China's increasingly severe environmental problems [4]. For example, some universities have achieved certain results by offering professional courses and internship programs related to green innovation and entrepreneurship, actively guiding students to pay attention to environmental protection technology and social responsibility [5]. However, there are still problems such as insufficient teaching resources and imperfect interdisciplinary cooperation mechanisms, which restrict the in-depth development of green innovation and entrepreneurship talent cultivation.

2.3 Analysis of the current situation of green innovation and entrepreneurship talent cultivation in local undergraduate colleges in Hebei Province

Local undergraduate colleges in Hebei Province face many challenges and opportunities in cultivating green innovation and entrepreneurship talents. Although courses related to green innovation and entrepreneurship have gradually been introduced in the curriculum, such as environmental technology and management, sustainable development theory, etc., the actual teaching quality and student participation need to be further improved. The cooperation mechanism between schools has not yet been formed, and there are relatively few interdisciplinary research and practical projects, which leads to a certain lack of students' practical application ability and innovative thinking cultivation. On the other hand, as an important industrial base in China, Hebei Province's enterprises have an increasing demand for environmental protection technology and innovation, which provides a broad market and practical space for local universities to carry out green innovation and entrepreneurship education. However, how to effectively integrate local resources and promote the integration of industry, academia, and research is still an important issue that needs to be addressed at present.

In summary, through the analysis of the theoretical basis for cultivating green innovation and entrepreneurship talents, domestic and foreign research results, and the current situation of local undergraduate colleges in Hebei Province, it can be seen that green innovation and entrepreneurship

ISSN 2663-8169 Vol. 6, Issue 8: 214-219, DOI: 10.25236/IJNDE.2024.060834

education is still in its infancy in Hebei Province, facing various challenges and opportunities. In the future, it is necessary to start from multiple aspects such as curriculum design, teacher training, and practical platform construction, gradually improve the education system, and enhance students' overall competitiveness and social responsibility in the fields of green technology innovation and sustainable development.

3. Analysis of the current situation of green innovation and entrepreneurship talent cultivation in local undergraduate colleges in Hebei Province

3.1 Analysis of current curriculum setting and teaching model

Local undergraduate colleges in Hebei Province have gradually adjusted their curriculum and teaching models in cultivating green innovation and entrepreneurship talents to meet the social demand for environmental protection technology and sustainable development. The current curriculum mainly includes professional courses such as Environmental Technology and Management, Sustainable Development Theory, and Green Innovation Practice. These courses aim to cultivate students' environmental awareness and innovation ability through the combination of theoretical teaching and practical experience. However, the speed of updating course content and the closeness of practical applications still need to be further strengthened to better meet the actual needs of the industry.

In terms of teaching mode, some universities have begun to explore interdisciplinary teaching methods, such as the cooperation between the School of Engineering and the School of Environment to offer project-based courses to promote cross disciplinary integration in different academic fields. In addition, some universities have also introduced a practice oriented teaching model, which allows students to apply their learned knowledge in real environments through off campus internships, corporate cooperation projects, and other means, enhancing their practical operational and problem-solving abilities.

3.2 Construction of teaching staff

In terms of faculty construction, local undergraduate colleges in Hebei Province face certain challenges in the field of green innovation and entrepreneurship. On the one hand, although some teachers have deep academic research backgrounds in fields such as environmental science and engineering technology, there are still shortcomings in their actual teaching experience and industry background in green innovation and entrepreneurship education. On the other hand, the interdisciplinary structure of the teaching staff and the cultivation of innovative abilities also need to be further strengthened to meet the demand for cross-border cooperation and complex problem-solving skills.

Some universities have begun to supplement and improve their teaching staff by introducing external experts, industry practitioners, or establishing long-term partnerships with enterprises. This approach not only helps to update teaching content and improve practicality, but also provides students with richer industry background and practical experience.

3.3 Analysis of the current situation and influencing factors of students' participation in green innovation and entrepreneurship

The participation of students in green innovation and entrepreneurship is generally limited in local undergraduate colleges in Hebei Province. Firstly, students' understanding and interest in green innovation and entrepreneurship need to be improved. Although some schools actively promote students' attention to environmental issues through curriculum design and on campus activities, there is still room for improvement in overall participation and depth. Secondly, the influencing factors mainly include various factors such as educational background, family environment, and social cognition. Students from urban and developed areas are more likely to have access to opportunities and resources for green innovation and entrepreneurship, while students from rural and underdeveloped areas face challenges of insufficient information access and unequal opportunities.

The key to solving these problems lies in establishing a more comprehensive education system, including strengthening the popularization and practicality of green innovation and entrepreneurship education, enhancing the interdisciplinary ability of the teaching staff, and strengthening school enterprise cooperation and social resource integration, providing students with more practical

ISSN 2663-8169 Vol. 6, Issue 8: 214-219, DOI: 10.25236/IJNDE.2024.060834

opportunities and growth space. Through these efforts, local undergraduate colleges in Hebei Province can better cultivate high-quality talents with green innovation and entrepreneurship capabilities, contributing to local sustainable development.

4. Design and implementation of green innovation and entrepreneurship talent training model

4.1 Theoretical framework and principles of pattern design

The design of the green innovation and entrepreneurship talent cultivation model is based on multiple theoretical frameworks and principles, aiming to cultivate students with environmental awareness, innovation ability, and practical ability to meet the needs of modern society for sustainable development and environmental protection. First, the theoretical framework of pattern design includes environmental education theory, innovative education theory and practice oriented education philosophy. The theory of environmental education emphasizes enhancing students' awareness and sense of responsibility for environmental protection through education; Innovative education theory focuses on cultivating students' innovative thinking and problem-solving abilities; The practice oriented educational philosophy emphasizes the combination of theory and practice, cultivating students' practical operational abilities through practical experience. Second, the principles of model design include interdisciplinary integration, school enterprise cooperation, personalized development and social responsibility. The principle of interdisciplinary integration promotes the intersection of knowledge from different disciplines and cultivates students' ability for cross-border cooperation; The principle of school enterprise cooperation involves collaborating with enterprises on projects, internships, and other means to expose students to real work environments and business issues; The principle of personalized development focuses on designing personalized learning paths based on students' interests and abilities; The principle of social responsibility guides students to pay attention to social issues and sustainable development in the process of innovation and entrepreneurship.

4.2 Content and components of specific models

The specific training model for green innovation and entrepreneurship talents includes several components, such as core curriculum design, curriculum expansion, practical teaching, innovation and entrepreneurship platform construction, and personalized development. The core curriculum covers environmental technology and management, sustainable development theory, green innovation practice, etc., aiming to combine theoretical learning and practical operation. The establishment of interdisciplinary courses promotes the intersection and integration of knowledge in different academic fields, such as the project courses jointly offered by the School of Engineering and the School of Environment. The practical teaching process adopts a practice oriented teaching mode, including on campus experiments, field research, off campus internships, and enterprise cooperation projects, to help students apply their learned knowledge to solve practical problems in real environments. The construction of innovation and entrepreneurship platforms supports students in carrying out green innovation projects, providing guidance from mentors, financial support, and market docking services. Personalized development supports designing personalized learning plans and projects based on students' interests and strengths, encouraging them to explore and practice in their areas of interest.

4.3 Strategies and measures for implementing the model

In order to effectively implement the green innovation and entrepreneurship talent training model, it is necessary to start from the construction of the teaching staff and the deepening of school enterprise cooperation. In terms of teacher team building, cultivate a teacher team with experience and practical background in green innovation and entrepreneurship education, and introduce industry experts to participate in teaching, in order to enhance teachers' interdisciplinary teaching ability and practical industry experience. Emphasis should be placed on deepening school enterprise cooperation, strengthening cooperation with enterprises, conducting joint research projects, internship opportunities, and graduate employment training to ensure that students are exposed to the latest industry trends and practical work needs. We establish an evaluation and adjustment mechanism to regularly evaluate course design, teaching effectiveness, and student satisfaction, and adjust and optimize the training mode in a timely manner, and timely integrate resource support, including the integration of on campus and off campus funds, facilities, innovation and entrepreneurship platforms, etc., to provide students with sufficient resource support and development space. Emphasis should be placed on enhancing

ISSN 2663-8169 Vol. 6, Issue 8: 214-219, DOI: 10.25236/IJNDE.2024.060834

social influence, actively promoting successful cases and student achievements of green innovation and entrepreneurship talent cultivation models, in order to increase society's awareness and attention to talent cultivation in this field. Through the organic combination of these strategies and measures, the green innovation and entrepreneurship talent training model will effectively cultivate high-quality talents with modern social needs, innovative spirit, and practical abilities.

5. Conclusion

This study aims to explore and analyze the design and implementation of green innovation and entrepreneurship talent training models in local undergraduate colleges in Hebei Province. By comparing and analyzing the practical experience and effectiveness of different schools, effective training strategies and implementation suggestions are summarized. The theoretical framework and principles of education play an important guiding role. The reasonable use of environmental education, innovation education, and practice oriented educational theoretical frameworks has played an important guiding role in the design of green innovation and entrepreneurship talent training models. These theories not only enhance students' environmental awareness and innovation ability, but also strengthen their practical operation ability, which helps students better cope with challenges when facing the complex environment of modern society. This article analyzes the content and components of the model and finds that the organic combination of core curriculum design, interdisciplinary curriculum, practical teaching, innovation and entrepreneurship platform construction, and personalized development support can effectively promote students' comprehensive development. Especially in the construction of practical teaching and innovation and entrepreneurship platforms, valuable practical opportunities and entrepreneurship platforms are provided for students, strengthening their ability to solve problems and implement innovations in real environments. In the process of implementing the model, the effective use of strategies and measures such as teacher team building, deepening school enterprise cooperation, evaluation and adjustment mechanisms, resource integration and support, and enhancing social influence are key to ensuring the smooth implementation and sustainable development of the green innovation and entrepreneurship talent training model. These strategies not only strengthen the integration and sharing of resources inside and outside the school, but also enhance students' sense of social responsibility and practical ability, laying a solid foundation for their future career development. To further enhance the effectiveness of the green innovation and entrepreneurship talent training model in local undergraduate colleges in Hebei Province, it is recommended to strengthen deep cooperation with the industry, update and optimize curriculum settings, and promote the comprehensive development of innovation and entrepreneurship education. In addition, it is necessary to strengthen the training and introduction of teachers, improve the evaluation system, and actively expand international exchanges and cooperation to enhance the school's international influence in the field of green innovation.

In summary, the research and implementation of the green innovation and entrepreneurship talent training model in local undergraduate colleges in Hebei Province not only helps to enhance students' personal abilities and professional competitiveness, but also makes positive contributions to the sustainable development of the local economy and society. With the increasing demand of the society for talent innovation ability, the continuous optimization and promotion of this model will become an important direction and goal of future education development.

Acknowledgments

This work was supported by the Research and Practice Project on Innovation and Entrepreneurship Education Teaching Reform in Hebei Province (No. 2023cxcy273); Chengde Science and Technology Plan Project (No. 202303A119); University level Scientific Research Project of Hebei Minzu Normal University in 2023 (No. ST2023002); Innovation and Entrepreneurship Training Plan Project for College Students of Hebei Minzu Normal University in 2024 (Research on Green Development Model of New Energy Storage Industry Based on MCDM).

References

[1] Zheng S T. Construction of Talent-cultivation System for Undergraduates Innovation and Entrepreneurship——Based on Local Universities [J]. Journal of Xi'an University (Social Sciences Edition), 2017, (2):101-103.

ISSN 2663-8169 Vol. 6, Issue 8: 214-219, DOI: 10.25236/IJNDE.2024.060834

[2] Xiang F. Local Construction of Digital Resilience of Green Innovative Talents from the Perspective of Employment Ecology [J]. Theory and Modernization, 2024, (2):65-79.
[3] Zhang M J, Li J J, Zhou L M. Study on Spatiotemporal Characteristics and Threshold Effect of Scientific and Technological Talent Agglomeration and Green Technology Innovation [J]. Journal of Fujian Business University, 2023, (2):42-51.
[4] Wei L G. Exploration into the Path of College Students' Green Innovation and Entrepreneurship Education from the Perspective of Ecology [J]. Journal of Heilongjiang College of Education, 2018, (11):10-12.
[5] Wei L G, Jiang H. A summary of green innovation and entrepreneurship education for college students [J]. Journal of Jiamusi Vocational Institute, 2016, (11):167-168.