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The Path and Challenge of Cultivating Sustainable Development Talents in Colleges and Universities from the Perspective of Green Development

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Abstract: With the growing global awareness of environmental protection and the promotion of Sustainable Development Goals, green development has become a crucial strategic direction for national development. As the primary arena for talent cultivation, universities bear the responsibility of nurturing sustainable development professionals aligned with green development principles. This paper explores the pathways and challenges for universities in cultivating sustainable development talents from the perspective of green development. The research indicates that green development is not merely a transformation at the technological and economic levels, but also a deep integration of educational philosophies, teaching methods, and social responsibilities. Universities should adopt multidimensional measures such as curriculum reform, interdisciplinary collaboration, and social practice to cultivate versatile talents with green development awareness, innovative capabilities, and social responsibility. However, current universities still face challenges in implementing green development education, including insufficient faculty resources, outdated curriculum design, and obstacles in interdisciplinary collaboration. This paper proposes countermeasures and recommendations to address these challenges, aiming to provide theoretical support and practical references for universities in cultivating green development talents.

Keywords: green development; universities; sustainable development talents; educational reform; interdisciplinary collaboration; social responsibility

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1. Introduction

Against the backdrop of escalating global challenges including climate change, resource scarcity, and ecological degradation, green development has emerged as a pivotal pathway for sustainable socio-economic progress. As key drivers of knowledge innovation and societal advancement, universities must not only cultivate students with specialized expertise but also integrate green development principles into their curricula to nurture sustainable development talents capable of addressing global environmental issues. The pressing challenge of embedding green development concepts in higher education—while fostering environmentally conscious, innovative thinkers and socially responsible individuals—has become a critical priority in the field of education.

This thesis, from the perspective of green development, analyzes the paths and challenges faced by universities in talent cultivation, and proposes relevant policy recommendations. By analyzing the current educational models and practical experiences, this paper aims to provide theoretical support and practical guidance for the cultivation of green development talents in higher education institutions.

2. Literature review

2.1. The connotation and significance of green development education

Green development education integrates ecological civilization and sustainable development principles into the educational process, empowering students to understand and participate in green economy, green technology, and green lifestyle practices. As Tian Yongpo emphasized, this approach goes beyond knowledge transmission—it primarily cultivates students' environmental awareness, social responsibility, and innovative capabilities, preparing them to harness green development potential in future society[1].

2.2. Research on the path of green development talent training in universities

Gao Sunhua and Zhang Yang examined how universities can cultivate talents aligned with green development goals through curriculum reforms, interdisciplinary collaboration, and social practice[2]. The research demonstrates that green development education requires not only the transformation of traditional disciplines but also emphasizes interdisciplinary integration to nurture versatile professionals capable of driving green innovation across multiple fields.

2.3. Challenges in green development education

Liu Yiting et al. highlighted that during the implementation of green development education, many universities face challenges such as insufficient faculty resources, outdated green development curriculum design, and weak environmental awareness among students[3]. Furthermore, integrating green development concepts into traditional academic frameworks and establishing effective interdisciplinary collaboration mechanisms remain key challenges in current educational reforms.

2.4. International experience in global green development talent cultivation

Zhang Yuchen et al. analyzed global experiences in cultivating green development talents, with particular focus on green education practices in universities across the European Union and North America[4]. The research indicates that numerous international universities have integrated green development concepts into their academic curricula. They are fostering students' innovative and practical skills in sustainability through initiatives like establishing green development practice bases and collaborating with enterprises on green technology R&D.

3. The path of cultivating sustainable development talents in universities from the perspective of green development

3.1. Green transformation of curriculum and textbooks

In line with green development requirements, universities should optimize existing curricula, particularly in disciplines like engineering, management, and economics, by integrating sustainable development concepts. The curriculum should cover green economy, environmental protection, energy management, and ecological civilization development to cultivate students' green mindset and innovative capabilities. Furthermore, institutions should promote the development and updating of green development textbooks to ensure educational content remains aligned with current green development needs.

3.2. Interdisciplinary collaboration and green innovation

Green development requires interdisciplinary collaboration and innovation. Universities should therefore strengthen cross-disciplinary cooperation to foster integration and collaboration among students from diverse majors in the field of green development. For instance, disciplines such as environmental science, economics, sociology, and technical engineering can jointly design green development courses to help students understand and address green development challenges from multiple perspectives. Through interdisciplinary collaboration, we can cultivate versatile talents with multidimensional green innovation capabilities.

3.3. Social practice and green development projects

Higher education institutions should enhance students' green practice capabilities through social practice and green development initiatives. By collaborating with governments, enterprises, and social organizations, universities can jointly implement green projects that provide students with hands-on opportunities. These programs not only help students better understand the practical applications of green development but also cultivate their problem-solving skills. For instance, organizing students to participate in environmental protection, resource recycling, and green building projects can strengthen their sense of social responsibility and practical abilities.

3.4. Green culture and campus environment construction

Universities should cultivate students 'green values by building a green campus culture. Through environmental education programs, eco-themed lectures, and volunteer initiatives, they can enhance students' environmental awareness. By improving campus environments and promoting green buildings and renewable energy, universities can provide students with a sustainable learning and living space, thereby strengthening their commitment to and engagement in green development.

4. Challenges in cultivating sustainable development talents in universities from the perspective of green development

4.1. Insufficient faculty resources for green development education

Currently, many universities lack specialized faculty for green development education, and existing teachers have limited knowledge and teaching capabilities in this field. Although some teachers have begun teaching green development courses, the overall level still falls short. Therefore, enhancing teachers' green development education capabilities has become a critical challenge for universities in advancing green development education.

4.2. The curriculum of green development is lagging behind.

While an increasing number of universities are recognizing the importance of green development education, the establishment of green development courses remains lagging behind, particularly in traditional academic disciplines where curriculum content lacks knowledge related to green development. The challenge of effectively integrating green development concepts into existing disciplinary frameworks, as well as designing courses that align with both disciplinary characteristics and green development requirements, remains an urgent issue to address.

4.3. Barriers to interdisciplinary collaboration

When promoting interdisciplinary collaboration, universities often face challenges such as disciplinary barriers and inadequate resource allocation. Many institutions have yet to establish effective cross-disciplinary cooperation mechanisms, making collaboration among faculty members particularly difficult. Breaking down disciplinary boundaries and integrating the concept of green development into all academic disciplines remains a key challenge for universities in implementing green development education.

4.4. Enhancing students' environmental awareness

Although most college students have a certain level of environmental awareness, many of them lack a profound understanding of green development in their daily lives and fail to integrate it closely with their personal career planning. Consequently, universities still face significant challenges in cultivating students' green responsibility and innovative mindset.

5. Countermeasures and recommendations for addressing challenges

5.1. Strengthening teacher training and research on green development education

Higher education institutions should strengthen the faculty development for green development education, regularly organize teacher training and academic exchanges on green development education to enhance teachers' knowledge and teaching capabilities in this field. Additionally, universities should encourage teachers to conduct research on green development education, promoting theoretical innovation and practical applications in this area.

5.2. Optimizing curriculum design and interdisciplinary integration

Higher education institutions should accelerate the development of green development courses, particularly by integrating relevant content into traditional disciplines. Concurrently, they should promote interdisciplinary curriculum design, establish collaborative platforms for green development-related disciplines, and foster interaction and integration across different fields to cultivate well-rounded talents with sustainable development capabilities.

5.3. Establishing a green development practice platform and social collaboration

Higher education institutions should strengthen collaboration with enterprises, government agencies, and other social entities to jointly establish green development practice platforms, providing students with practical opportunities. By engaging in real-world projects, students can enhance their ability to address green development challenges and strengthen their sense of social responsibility.

5.4. Strengthening green culture construction and environmental protection education

Higher education institutions should strengthen the development of green culture by organizing diverse environmental protection activities to enhance students' environmental awareness and green values. Through campus environment construction and cultural initiatives, a green education atmosphere should be fostered, guiding students to internalize the concept of green development as personal behavioral norms.

6. Conclusion

This study examines the pathways and challenges for universities to cultivate sustainable development talents from a green development perspective. The research indicates that institutions should implement green development education through multidimensional approaches including curriculum reform, interdisciplinary collaboration, and social practice. However, practical implementation still faces constraints such as faculty shortages, outdated course structures, and barriers to cross-disciplinary cooperation. Universities should adopt targeted strategies to overcome these challenges, nurture high-quality sustainable development talents aligned with green development requirements, and contribute to global sustainable development efforts.

Disclosure statement

The author declares no conflict of interest.

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