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Research on the Cultivation Model of Construction-related Talents with the "Two Mountains Theory" as Its Core

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Abstract

This study takes the "Two Mountains Theory" as its core and focuses on the systematic innovation of the talent cultivation model for construction-related fields under the "dual carbon" goals. In response to the prominent issue of the traditional model overly emphasizing economic value while neglecting the integration of social, ecological and humanistic values, a "1+3" cultivation paradigm of "economic value foundation + multi-dimensional value symbiosis" is proposed, and a theoretical framework for the two-way transformation of "ecological capitalization - capital ecologicalization" is constructed. By integrating interdisciplinary education, ecological economics and humanistic theories, the dynamic collaborative mechanism of economic, social, ecological and humanistic values in talent cultivation is revealed, breaking through the limitation of traditional engineering education that "emphasizes technology over value". The research proposes a comprehensive value development path for carbon assets, covering multiple practical scenarios such as ecological restoration, low-carbon transformation, and humanistic inheritance. It promotes the transformation of construction-related talents from technical executors to ecological value creators, providing theoretical support and practical paradigms for ecological civilization construction and the implementation of the "dual carbon" strategy.

Keywords

Two Mountains Theory; dual carbon; training model for construction-related talents.

1. Introduction

As President Xi Jinping emphasized in the report to the 20th CPC National Congress, high-quality development is the primary task in building a modern socialist country in all respects. The achievement of carbon peak and carbon neutrality (dubbed the "dual carbon" goals), serving as an essential pathway to high-quality development, constitutes both a core driver for ecological civilization advancement and a strategic engine for transitioning toward a fully green socioeconomic system.

Scholars have conducted full research on the policy, goals, strategy, and implementation pathways of "dual carbon". Zhuang (2021) believes that China possesses a good foundation for achieving the carbon peak and carbon neutrality goals, but also faces huge challenges,

requiring advance planning. Zhang et al. (2022) propose that, in practice, it is necessary to fully recognize the contradictory conflicts between the “dual carbon” goals and industrial upgrading and their dialectical relationship of unified objectives and mutual integration, under the balance principle reasonably controlling the speed, intensity, and scope of decarbonization. Realizing the “dual carbon” goals requires a large number of high-quality relevant talents, which demands transformation of the talent cultivation system.

“Lucid waters and lush mountains are invaluable assets” (abbreviated as the “Two Mountains Theory”), as an important component of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, profoundly reveals the dialectical unity relationship between ecological environment protection and economic and social development, opening up a new realm for ecological civilization construction. Qiu (2022) demonstrates that, from the “Two Mountains Theory” to “better life”, it reflects the Chinese path of driving development with aesthetic economy. The “Two Mountains Theory” has significant guiding meaning for the cultivation of construction-oriented talents under the “dual carbon” background. Currently, research results on the “Two Mountains Theory” guiding ecological tourism, eco-welfare performance evaluation, modernization construction of ethnic township ecological governance, and other aspects are relatively abundant. Ma and Guo (2018) explored the implementation pathways of ecological tourism development. Yang and Liu (2019) demonstrated the scientific connotation and thinking ability of the “Two Mountains Theory”. Chen (2021) analyzed the ecological ethics of the “Two Mountains Theory”. Liu et al. (2023) researched the eco-welfare performance evaluation of “Two Mountains” bases. However, achievements combining the “Two Mountains Theory” with the cultivation of construction-oriented talents under the “dual carbon” background are relatively few.

This project reconstructs construction-related education based on the "Two Mountains Theory". Theoretically, the "1+3 model" has been created to break through the limitations of a single dimension. In practice, a full-chain training system, new curriculum modules, and a mechanism for integrating industry and education have been established. Drive the triple transformation of talent roles, educational logic, and governance models to support the talent standards and faculty construction for the "dual carbon" goals.

The innovation of this article lies in the pioneering interdisciplinary framework of the "Two Mountains Theory" and the concept of "Three Modernizations Synergy". The original "1+3 paradigm" breaks through a single economic dimension. Create a three-stage intelligent model of "diagnosis - optimization - prediction" to achieve dynamic analysis of value elements and precise decision-making paths, and form a quantity-driven cultivation support system.

Addressing the issue that existing cultivation models for construction-oriented talents fail to highlight social, ecological, and humanistic values, this project focuses on six core dimensions of the new “Two Mountains Theory”-centered talent cultivation paradigm under the “dual carbon” context: fundamental theory, implementation status, key components, paradigm innovation, execution pathways, and policy recommendations.

2. Current situation and existing problems in the cultivation of construction-related talents

The dual carbon strategy is beset by a three-dimensional talent gap: weak cross-disciplinary technology, delayed certification of new occupations, and a lack of focus in global response. The complex bottlenecks hinder the transformation of the system into practice, and it is urgent to break the deadlock through the collaboration between industry and education.

Existing research achievements have established a solid foundation for this project. Lin et al. (2022) preliminarily investigated talent cultivation issues in vocational colleges under the "dual carbon" context, proposing countermeasures at macro-, meso-, and micro-levels. Yang et al. (2022) addressed workforce development for the energy industry amid "dual carbon" targets and digital transformation. Chen et al. (2022) explored interdisciplinary talent cultivation models for environmental design majors within the "dual carbon" framework. Liu and Zhang (2023) , alongside Zhu Xiaofei and Lu (2023) , researched training mechanisms for new energy professionals against the "dual carbon" backdrop. Wang et al. (2023) conducted preliminary studies on talent cultivation mechanisms to serve the strategic goals of "dual carbon".

This study breaks through the limitations of single-dimensional economic cultivation of construction-related talents and innovates the "1+3 paradigm" led by the "Two Mountains Theory" : economic value foundation + symbiosis of composite value (social/ecological/humanistic), driving the socialization, ecologicalization and humanization transformation of carbon assets. There is an urgent need for three deepening measures: strengthening the connotation of ecological and economic integration, building a multi-value collaborative mechanism, and at the core, taking people's "economic achievements, happy life, and ecological satisfaction" as the new yardstick for education, to achieve a transformation from instrumental rationality to value rationality in talent cultivation.

3. Basic theoretical research on the cultivation model of construction-related talents

Driven by the dual imperatives of ecological civilization construction and the "dual carbon" strategy, theoretical research on construction-oriented talent cultivation models urgently requires transcending traditional engineering education paradigms to establish a novel theoretical framework centered on the "Two Mountains Theory" with multidisciplinary integration. This theoretical system is rooted in Marxist dialectics of nature, inheriting the philosophical core of "humans and nature as a community of life", while assimilating essential elements from classical theories such as Schultz's human capital theory and Dewey's pragmatic educational philosophy, ultimately forming a "ecological-value-prioritized, multidimensional-capability-symbiotic" epistemological paradigm.

First, there is a cognitive gap between the existing theories and the "Two Mountains Theory" : traditional theories are trapped in the binary opposition of economy and ecology and the shallow environmental cost view, lacking the two-way transformation thinking of ecological capitalization and capital ecologicalization, resulting in the absence of a core competence curriculum system and a serious disconnection from the demand for the assetization of dual carbon goals.

Second, the necessity stems from three breakthroughs: breaking through the limitations of the

traditional economic single-polarization model (ecological value has not been transformed, cross-disciplinary absence, and end-of-pipe treatment), reshaping the talent benchmark with a four-dimensional value coordinate system (G-S-E-H), and integrating ecological red lines, low-carbon technologies, and the concept of community co-governance throughout the entire cultivation chain.

The third is to construct a training framework with the core of the "Two Mountains Theory" : integrating the three paradigms of education, economics, and humanities innovation, and using the four-dimensional values of G-S-E-H to run through the curriculum system. Through the three-stage spiral ability advancement of basic technology - value transformation - leadership, a paradigm leap from ecological cognition to value creation is achieved.

4. The connotation, evaluation indicators and innovation of the talent cultivation model for construction

4.1. The connotation of the talent cultivation model for construction

The "Two Mountains Theory" reshapes the cultivation of construction-related talents into a three-dimensional collaborative paradigm of socialization, ecologicalization, and humanization. It promotes the transformation of value symbiosis through interdisciplinary integration and scene practice, cultivates the compound ability of nature, society, and culture, and supports the realization of the dual carbon goals.

4.2. Evaluation indicators for the talent cultivation model in the construction field

This evaluation system integrates machine learning and multi-dimensional value theory to construct a five-dimensional assessment framework: the technical dimension uses feature engineering to calibrate the integrity of carbon verification data and the feasibility of CCUS schemes, and combines the random forest algorithm to diagnose capability deficiencies; The economic dimension uses the dynamic DEA model to quantify the correlation between cultivation input and carbon asset appreciation, and LSTM predicts the long-term benefit trend. The social dimension measures the penetration rate of green living and the effectiveness of low-carbon communication based on network analysis. The ecological dimension relies on remote sensing technology to quantify the increment of carbon sinks and the contribution of biodiversity. The humanistic dimension analyzes the density of ethical elements through NLP and models the correlation between humanities and technological innovation with Bayesian networks. The LightGBM algorithm integrates multi-source data and optimizes weights, bidirectionally tracking the three-dimensional collaborative evolution trajectory of the comprehensive efficiency of institutions and talents in terms of "technology - value - humanity", and supporting dynamic decision-making.

4.3. "1+3" model innovation

This section constructs a "1+3" value evaluation system: economic value supports industrial optimization and ecological capital transformation, and the three values are integrated and connected to achieve the three-dimensional goals of strengthening social welfare, enhancing ecological resilience, and deepening humanistic identity. Among them, the humanistic

dimension takes the people's economic sense of achievement, life happiness, and ecological satisfaction as the core yardsticks. Machine learning technology models the nonlinear collaborative mechanism of value elements, revealing the mutual promotion law of economic value-added promoting the formation of social consensus and ecological restoration enhancing the public's sense of gain, driving the cultivation paradigm to shift from experience-oriented to systematic and precise, and ultimately anchoring the dialectical unity core of ecological protection and industrial development.

5. Countermeasures for improving the training model of construction-related talents

This project, in combination with the "Four-dimensional integrated comprehensive value theory" of carbon assets: original ecological value, derivative ecological value, integrated ecological value, and transformed ecological value, proposes a series of countermeasures to promote a new model of cultivating construction-related talents with the "Two Mountains Theory" as its core.

The first is the cultivation of talents for comprehensive value assessment of carbon assets to provide valuation support for decision-making. Core construction of four-dimensional capabilities: Re-calculation and quantification of original ecological value to support carbon sink assessment; The strong market-oriented transformation of ecological value and the empowerment of value manifestation. Integrate ecological value, refine systematic integration, and coordinate the collaboration of ecological industries. Deeply predict the ecological value of policies and control the impact of policies. Through capability integration, a multi-dimensional evaluation model is established to provide a benchmark for transactions and financing, promoting the transformation practice of the "Two Mountains".

The second is the cultivation of dual-track trading capabilities: direct trading focuses on quota circulation and cross-border response, while indirect trading specializes in financial instrument innovation and capital transformation. Integrate the "four-dimensional value" to manifest ecological capital and predict the impact of policy iterations; Talents link the market with ecological capital, driving the in-depth practice of the "Two Mountains".

The third is dual-track training in supervision and consultation: supervision focuses on compliance review and risk avoidance, while consultation specializes in the design of transformation paths and value creation. Integrate the four-dimensional value realization from ecological constraints to asset revitalization and policy response. Support enterprises in upgrading their management models, empower the optimization of government systems, and drive the active value creation of carbon assets.

The fourth is the cultivation of talents for ecological and humanistic protection, coordinating ecological resilience, cultural continuity and community co-governance. Integrate the four-dimensional values to achieve the construction of a framework for the protection of natural capital, the synergy of ecology and culture, the guidance of community spiritual identity, and the innovation of policies and systems. Through systematic governance, integrate ecological protection with cultural inheritance, and deepen the intergenerational practice of the "Two Mountains" theory.

The fifth is the cultivation of low-carbon strategic talents, which will drive the improvement of the government's carbon governance capacity and the construction of a competitive framework for enterprises through a dual-track approach. Integrate the four-dimensional value transformation logic: internalization of ecological constraints, transformation of pressure and opportunities, balance of fair transformation, and innovation of investment and financing tools. Mutually empower the government to formulate collaborative routes and enterprises to achieve strategic closed loops, catalyzing the transformation of institutional texts into innovative practices.

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Conclusions

This research is based on the contemporary demands of the "dual carbon" strategy and ecological civilization construction, and reconstructs the value coordinates and practical paths for cultivating construction-related talents with the "Two Mountains Theory". At the theoretical level, it breaks through the single dimension of traditional economic orientation and proposes an educational philosophy framework of "socialization - ecologicalization - humanization" coordinated development. It deeply integrates ecological ethics, low-carbon technology and humanistic care, forming a "four-dimensional integration" logic for cultivating compound talents. At the practical level, in response to the actual contradictions such as the imbalance between supply and demand of carbon management talents, the lack of ecological value in the curriculum system, and the lag in the alignment with international rules, a countermeasure system covering the entire chain of carbon asset value assessment, circulation and trading, and ecological and cultural protection is proposed. This promotes the innovation of the collaborative education mechanism among the government, schools, industries, and enterprises, and facilitates the precise connection between talent cultivation standards and the demands of the low-carbon industry. Through the value transformation in ecological restoration projects, social participation in low-carbon community building, and innovative practices in cultural heritage inheritance, research provides systematic solutions from concepts to methods for talent cultivation under the "dual carbon" goals, facilitating the comprehensive green transformation of economic and social development. In the future, it is necessary to deepen the integration of interdisciplinary theories and expand the global governance perspective, promote the continuous upgrading of the talent cultivation paradigm from a technical tool-oriented approach to an ecological value leading one, and contribute Chinese wisdom to global climate governance.

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