# Analysis of the Demand for Landscape Professionals and Optimization of Their Training Models in Rural Revitalization

**Lin Wang***

*School of Art and Design, Dalian Polytechnic University, Dalian 116034, China*
**Corresponding author: 15642381014@163.com*

***Abstract:*** *As the spatial structure and ecological complexity of rural areas continue to increase, the role of landscape design in rural development has gradually evolved into a comprehensive professional practice integrating ecological reconstruction, cultural expression, and systemic coordination. However, structural mismatches persist between the current training system for landscape professionals and the practical demands of rural contexts, particularly in terms of knowledge frameworks, educational pathways, and competency development. Centered on the logic of "functional transformation–structural analysis–pathway optimization," this paper begins with an examination of the functional reconstruction of landscape design in rural contexts. It analyzes the tensions between professional practice and academic training, systematically outlines the current deficiencies in adaptability and the bottlenecks in competency transfer within talent supply, and proposes optimization approaches including context-embedded curriculum design, interdisciplinary competence development, and academic–industry collaboration mechanisms. Findings suggest that talent training in the landscape discipline must transcend the traditional urban-oriented paradigm and reshape knowledge logic and competency structures suited to rural spaces, thereby enabling the education system to effectively respond to the complexity of rural spatial systems.*

***Keywords:*** *landscape discipline; rural space; talent structure; curriculum system; competence development; education optimization*

## Introduction

The ongoing transformation of urban–rural spatial patterns is driving a redefinition of disciplinary boundaries in design fields. The role of landscape design in rural development has extended beyond formal aesthetics, becoming a central force in regulating ecological processes and coordinating local spatial systems. In contrast, landscape education remains predominantly oriented toward urban contexts, lacking structural alignment in curriculum content, skill direction, and talent development pathways to address the complexity of rural spaces. Confronted with challenges such as ecological system evolution, multifunctional land use, and cultural landscape generation, traditional design training—centered on visual expression—can no longer adequately support systemic interventions in rural environments. This study focuses on the evolving talent demands for landscape professionals within rural contexts, identifying structural barriers in the current educational system and, guided by the principles of "competency reconstruction" and "mechanism optimization," explores a systematic reform path for talent cultivation. The aim is to offer both theoretical grounding and practical reference for expanding landscape education into non-urban domains.

## 1. Functional Transformation of the Landscape Discipline in Rural Development and Its Disciplinary Adaptation

### *1.1 Evolution of Landscape Design Functions in Rural Environmental Reconstruction*

The evolution of rural landscapes has moved beyond interventions confined to ecological or aesthetic dimensions, becoming an essential element within a complex socio-natural system. As rural spatial structures exhibit greater ecological sensitivity and increasingly diverse usage demands, the professional functions of landscape design have shifted from traditional beautification and scenery creation toward systemic integration and process-oriented guidance. In the context of diversified land

use and reshaped ecological processes, the role of landscape design in rural areas has become more strategic and forward-looking, encompassing ecological restoration, hydrological regulation, landform reconstruction, and the reconfiguration of indigenous cultural spaces. This functional evolution has not only redefined disciplinary boundaries but also reinforced the designer's position as a coordinator of spatial systems and integrator of multiple disciplines.

Rural landscape systems are characterized by pronounced non-standardization and discontinuity, requiring design interventions to be highly adaptive and sensitive to spatial and temporal contexts. In such settings, landscape design is tasked not only with constructing static spatial forms but also with organizing and coordinating dynamic ecological processes and patterns of social behavior. Design logic must transition from visual coding driven by formal aesthetics to a holistic response mechanism grounded in site logic, ecological evolution, and social interaction. Future-oriented rural landscape planning must adopt a professional mindset that prioritizes multidimensional system coordination, shifting fundamentally from formal control to the construction of ecological resilience and integration of social values. This functional transformation expands the disciplinary scope of landscape architecture and provides both a theoretical foundation and practical approach for its deep embedding in rural development processes [1].

### *1.2 Structural Tensions Between Disciplinary Knowledge and Rural Contexts*

Current mainstream landscape education systems are still structured around the logic of urban space, with curricula typically focusing on urban open space design, linear greenway systems, and urban ecological infrastructure planning. This urban-centric knowledge architecture lacks adequate responsiveness when confronted with the complex ecological texture and informal social structures of rural space, resulting in structural mismatches between professional cognition and real-world problems. Rural landscape challenges often involve fragmented land use, discontinuous ecological processes, and non-standardized mechanisms of social participation—factors largely unsupported by the current theoretical tools and operational models in existing knowledge systems, thereby limiting designers' capacity to engage effectively within rural contexts.

Moreover, the rural field's strong sense of locality, cultural plurality, and implicit spatial logic demands that designers possess heightened contextual awareness and systemic coordination capabilities. However, current landscape education falls short in covering informal knowledge, experiential landscape elements, and indigenous knowledge systems. A persistent overemphasis on technical expression at the expense of contextual understanding has led to teaching practices that prioritize mapping and digital modeling over the construction of landscape meaning and analysis of cultural logic. As a result, students often struggle to meaningfully address the spirit of place and historical continuity in rural projects. This structural tension reflects the developmental limitations of the discipline and reveals systemic obstacles in establishing deep dialogue and mutual embedding between landscape education and rural transformation—issues that urgently require resolution through curriculum restructuring and the rebuilding of knowledge frameworks.

### *1.3 Competency Reconstruction for Landscape Professionals in Rural Contexts*

To address the increasingly complex ecological and social demands of rural spaces, landscape professionals must cultivate composite professional competencies that go beyond traditional design skills. At the ecological systems level, designers should be proficient in disciplines such as landscape ecology, land restoration, and hydrological geography, and capable of translating ecological processes into actionable design strategies. In terms of spatial construction, it is essential to develop sensitivity to multiple spatial scales and to adopt systemic thinking for organizing diverse land uses, ensuring organic integration among agricultural, residential, and public spaces. Additionally, a sound understanding of how local knowledge is generated and how it can be incorporated into spatial expression is critical for aligning formal language with cultural contexts in a dynamic manner. This reconstruction of competencies is not merely a matter of knowledge transfer, but a profound transformation of cognitive structures, value orientations, and methodological frameworks [2].

In practice, traditional closed training models based on "project simulation" are no longer sufficient to meet the demands of comprehensive competency reconstruction. Landscape education must adopt innovative teaching paradigms that incorporate complex scenario simulations, interdisciplinary collaborative design, and feedback-driven mechanisms. These approaches should strengthen students' practical understanding of uncertain spatial conditions, nonlinear ecological processes, and mechanisms

for negotiating among diverse stakeholders. Teaching objectives must shift from "producing drawings" to "generating strategies" and from "representing forms" to "designing interventions," enabling students to develop stronger systemic judgment and problem-solving abilities when dealing with open-ended, dynamic rural design tasks. Through the systemic reconstruction of competency frameworks, landscape professionals will be better equipped to serve as knowledge integrators, strategic designers, and spatial facilitators in rural development, thereby enhancing their professional value and societal significance within real-world contexts.

## 2. Structural Characteristics and Development Pathways of Landscape Professionals Oriented Toward Rural Contexts

### *2.1 Structural Mismatches in the Current Supply of Landscape Professionals*

The training system for landscape designers has long been structurally constrained by a curriculum centered on urban renewal and public space aesthetics. Course content primarily focuses on standardized site organization, urban skyline control, and hierarchical visual composition. This urban-oriented educational model relies heavily on form generation and procedural norms, making it inadequate for addressing core issues in rural contexts such as ecological succession, social network organization, and flexible land tenure systems. Faced with highly variable ecological structures and discontinuous cultural landscapes in rural areas, current landscape professionals often lack adaptive cognitive frameworks and strategic thinking under complex conditions. As a result, significant cognitive and technical gaps emerge in tasks such as ecological restoration projects, the construction of coupled agricultural–landscape systems, and the development of local landscape narratives, limiting the potential for systemic support and effective intervention.

The mismatch in talent supply is further reflected in imbalances across regional distributions and competence levels. Educational and professional resources in the landscape field are predominantly concentrated in large and medium-sized cities and key universities. Talent output is spatially skewed toward urban areas and central institutions, lacking a geographic coupling mechanism aligned with rural development needs. Meanwhile, the availability of mid- and high-level professionals equipped with skills in ecological restoration, social research, and interdisciplinary collaboration remains limited, impeding the formation of a tiered talent system responsive to the complex demands of local contexts. This unidirectional supply structure not only weakens the discipline's systemic responsiveness in non-urban areas but also exacerbates the disjunction in urban–rural spatial governance capacity. To address this issue, it is essential to reconstruct the ecosystem of landscape talent development across dimensions such as educational structure, regional practice networks, and incentive mechanisms, thereby bridging the structural gap between the downward distribution of professional resources and the upward formation of advanced competencies [3].

### *2.2 Developmental Discontinuities and Bottlenecks in Competency Transformation*

The development path of landscape professionals generally comprises three stages: academic education, design internship, and project practice. However, there are evident discontinuities along this chain. University education is largely curriculum-based, emphasizing foundational landscape knowledge and design techniques, while offering limited training oriented toward complex sites and social systems. Internships often involve auxiliary tasks and rarely provide substantive design engagement. In project practice, core designers typically dominate, with newcomers having minimal opportunities for deep involvement. This mechanism weakens students' ability to transfer knowledge, rendering theoretical understanding difficult to translate into strategic design and site-responsive capabilities in practice.

In terms of competency transformation, the absence of linkage mechanisms between education and professional practice leads to a "disconnection effect" when individuals attempt to bridge academic logic with project logic. Engagement with rural contexts requires designers to possess systemic integration capabilities and acute issue awareness. However, the existing development pathway fails to establish effective training channels for problem identification, needs analysis, strategy formulation, and stakeholder coordination. The transition from technical to strategic roles, and from expressive to facilitative modes of practice, remains severely constrained, resulting in rigid knowledge structures and lagging innovation capacity. Addressing these bottlenecks requires embedding dynamic feedback mechanisms and staged competency evaluation systems into the professional development path,

thereby enabling the continuous evolution of knowledge, skills, and cognitive structures.

### *2.3 The Potential of Interdisciplinary Integration to Advance Talent Development Mechanisms*

Given the complex demands of rural contexts, the development of landscape professionals can no longer rely solely on a single disciplinary framework. The evolution of rural landscapes often intersects with multiple fields, including ecology, agricultural geography, sociology, anthropology, and environmental psychology. These issues are inherently contextual and systemic. Within this context, interdisciplinary integration is no longer a supplementary approach but a necessary pathway for constructing competency structures. By incorporating collaborative mechanisms across disciplines, landscape education can offer comprehensive support in problem identification, contextual understanding, and strategic formulation, thereby enhancing students' overall judgment and adaptability [4].

The construction of integration pathways must go beyond superficial collaboration and emphasize deep cognitive restructuring and methodological interoperability. For example, embedding social research methods, ecological modeling techniques, and cultural landscape analysis into design logic within curriculum design can foster students' ability to build systematic associations and cross-disciplinary coordination when solving real-world site problems. Additionally, methods such as design studios, interdisciplinary joint courses, and scenario-based training can be used to cultivate practical competencies in issue generation, task breakdown, and communication within team settings. This integration mechanism not only helps dismantle knowledge silos but also enables landscape professionals to develop an open, composite, and systems-oriented mindset, equipping them for effective engagement and sustained growth within the complex spatial systems of rural environments.

## 3. Systematic Optimization Pathways for Landscape Talent Training Models

### *3.1 Contextual Embedding of Teaching Content and Restructuring of Knowledge Architecture*

Current landscape education commonly centers its curriculum design on standardized urban spaces, neglecting the high heterogeneity of ecological evolution mechanisms, land use logic, and cultural landscape structures in rural areas. This abstract teaching model, detached from specific contexts, weakens students' abilities to identify and respond to nonlinear systems, resulting in a disconnection between knowledge generation and real-world intervention. Given the multiscalar complexity of rural landscape systems, the logic of curriculum organization must be restructured. Course content should be embedded within typical geographical units, ecological contexts, and cultural symbols to form a knowledge framework that unfolds through the triadic relationship of site–process–culture. By guiding students to identify contextual risks, interpret spatial semantics, and engage in ecological restoration processes, a comprehensive cognitive framework for rural engagement can be effectively established.

Regarding course structure, the traditional linear logic of scaling from single-point design must be replaced with a framework oriented toward "dynamic processes–system strategies–scenario reconstruction." Teaching content should be problem-driven, incorporating modules such as ecological process simulation, historical landscape analysis, and local materials research. These components support the development of cross-scalar comprehension and adaptive thinking within real spatial paradigms. Moreover, the generative and actionable nature of contextual knowledge must be emphasized. Students should come to understand rural space not as a static background, but as an evolving site of cultural–ecological negotiation. Based on this understanding, curriculum structures must establish a knowledge generation mechanism centered on "context diagnosis–strategy derivation–system feedback," thereby constructing a highly adaptive teaching system suited to non-standard spatial conditions.

### *3.2 Adaptive Shift in Teaching Methods and Innovation in Skill Training Mechanisms*

Teaching methods that address rural spatial complexity must move beyond traditional design paradigms centered on static drawings, transitioning instead toward open-ended instructional systems that emphasize process construction, systemic derivation, and feedback coordination. Instruction should focus on three core stages: identifying problems, organizing strategies, and dynamically adjusting interventions. Students should be guided to begin with observation and perception, then use field research, ecosystem simulation, and structural analysis to build responsive mechanisms. Specific

methods may include scenario simulation, role-playing, and system evolution modeling, enabling students to cultivate comprehensive judgment and negotiation skills when dealing with multi-agent, multivariable, and multi-objective tasks. These techniques reinforce their adaptability and ability to generate design logic in response to non-standard spatial challenges [5].

In developing skill training systems, it is necessary to break free from the single focus on visual representation and promote deep integration of digital technologies, spatial modeling, and strategic design. Multimodal tools—such as GIS spatial data modeling, BIM parametric logic, VR/AR immersive environments, and UAV aerial surveying—should be used to enhance students' abilities in topographic identification, structural evolution simulation, and environmental response modeling. Design training must cover a complete workflow, including initial research, mid-phase model iteration, final strategy evaluation, and multiple rounds of feedback and refinement. This ensures a progressive path characterized by continuity, hierarchy, and feedback. Through embedded instructional mechanisms and comprehensive technological support, a competency development system centered on site, driven by problems, and mediated by tools can be established—cultivating a composite skillset that equips landscape professionals with both strategic execution and systemic guidance capabilities.

### *3.3 Collaborative Mechanisms Linking the Academic System and Industry*

A long-standing structural disparity exists between the goal-setting and operational logic of landscape education in universities and its application in the industry, resulting in a disconnection between talent training outcomes and job market requirements. The academic system prioritizes conceptual exploration and theoretical depth, whereas the industry emphasizes project feasibility and process efficiency. These two systems lack alignment in terms of training objectives, knowledge application paths, and evaluation criteria. To bridge this divide, a collaborative education mechanism should be established based on the core principles of "knowledge-driven—task-oriented—evaluation-linked," facilitating dynamic coupling between the educational system and industry logic. By involving students deeply in the full project cycle, this mechanism promotes a competency loop in which students learn to generate strategies, collaborate in teams, and translate outcomes into practical deliverables within real-world scenarios, thereby enhancing their adaptability and transferability in professional environments.

The collaborative mechanism should be developed around three pillars: co-developed curricula, joint research projects, and shared evaluation frameworks. A partnership matrix involving universities, design firms, research institutions, and local platforms should be established. Real-world tasks and open-ended problems sourced from the industry should be embedded into teaching systems, enabling students to engage in strategic derivation and spatial logic reconstruction within live projects. Evaluation systems should be jointly composed of academic mentors and industry experts, integrating multiple dimensions such as conceptual originality, strategic adaptability, and implementation feasibility. This would enhance the composite and dynamic nature of course assessments. Additionally, the creation of platforms for outcome transformation and academic–industry knowledge sharing should be prioritized, encouraging the testing and feedback of student projects within industry settings. In doing so, the educational process becomes part of a broader system of knowledge production and service, facilitating a systemic leap from a closed educational loop to a knowledge ecosystem [6].

## Conclusion

The evolving role of landscape design in the process of rural development imposes new demands on the knowledge structure, competency composition, and development trajectory of professional talent. This study reveals that current landscape professionals, when confronted with the complexities of rural spaces, commonly experience delayed knowledge adaptation, fragmented development mechanisms, and imbalanced structural supply. To address these issues, it is essential to optimize the overall training system by embedding teaching content within real-world contexts, restructuring instructional methodologies, and fostering deep academic–industry collaboration. Looking ahead, landscape education should establish a teaching structure guided by systems thinking, grounded in interdisciplinary integration, and driven by task-oriented approaches. Such a model should support the transformation of talent from "plan renderers" to "spatial facilitators." Additionally, the incorporation of digital technologies, simulation platforms, and feedback mechanisms can help construct an open, experimental teaching environment that continuously supplies talent and drives theoretical innovation for addressing multidimensional rural challenges.

**Funded Project**

2024 Ministry of Education Employment-Education Matching Initiative: Research on the Talent Training Model for Landscape Architecture Based on the Integration of New Engineering and New Liberal Arts (2024022239839)

**References**

*[1] Yuan Yingjun. Research on Rural Landscape Planning and Design under the Background of Rural Revitalization. 2024. Henan Agricultural University, MA thesis.*
*[2] Li Lisha. Research on the Protection and Tourism Development of Ancient Village Landscapes under the Background of Rural Revitalization. 2024. Guilin University of Electronic Technology, MA thesis.*
*[3] Wang Gang. "Research on the Curriculum Reform of Landscape Design under the Background of the Rural Revitalization Strategy." Modern Rural Science and Technology 02(2024):137–139.*
*[4] Xue Guoyu. Research on Traditional Village Landscape Planning and Design from the Perspective of Rural Revitalization. 2023. Henan Agricultural University, MA thesis.*
*[5] Yang Dan. Research on the Landscape Design of Clustered and Upgraded Rural Areas under the Background of Rural Revitalization. 2023. Kunming University of Science and Technology, MA thesis.*
*[6] Yang Xiaozhou, Sun Guan, and Zhou Lixia. "Exploration of Ideological-Political and Aesthetic Education Reform in Landscape Design Courses under the Background of Rural Revitalization." Art Education Research 01(2023):94–96.*