

Pathways and Strategies for Vocational Undergraduate Education to Empower the Revitalization of the Rural Tourism Industry

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Abstract: As rural tourism transitions towards the experience economy and digital transformation, its demands for the competencies of technical and skilled talents have become increasingly composite and dynamic. Vocational undergraduate education possesses unique empowerment potential in terms of talent specification alignment, accumulation of technical skills, and integration of industry and education. This study analyzes the mapping relationship between talent specifications and the job competency spectrum, the value-added transmission mechanism of technical skill accumulation along the service value chain, and the closed-loop transformation from educational elements to production factors. It then proposes three core pathways: modular curriculum reorganization based on the job task map; embedded collaboration between immersive practical training and operational processes; and two-way knowledge flow within dual-qualified teaching teams. Furthermore, it constructs an agile iterative framework oriented by dynamic capabilities, a technical support system for digital transformation in education, and cross-regional alliance resource sharing and differentiated synergy strategies, thereby forming a systematic theoretical framework and operational guidelines.

Keywords: Vocational undergraduate education; Rural tourism; Industrial revitalization; Integration of industry and education; Accumulation of technical skills.

Introduction

After a period of large-scale expansion, the rural tourism industry is now confronting challenges such as homogenization of service quality, structural mismatch in talent supply, and lagging digital transformation. The underlying root cause lies in the disconnection between the industry's demand for compound technical and skilled talents and the traditional training models adopted by the educational sector. Vocational undergraduate education, which possesses both academic and vocational attributes, offers unique advantages in bridging this gap. Clarifying the alignment logic, core pathways, and strategy optimization for vocational undergraduate education to empower the revitalization of the rural tourism industry is of theoretical significance and practical necessity for enhancing the technological content and innovation vitality of the rural tourism service value chain. Existing studies mostly discuss the general direction of vocational education serving rural development at a macro level, and lack in-depth analyses of the interactive mechanisms between vocational undergraduate education and the micro-level operational dynamics of the rural tourism industry. This study attempts to construct a complete analytical framework that proceeds from logical foundations to pathway implementation and then to strategy enhancement, aiming to provide theoretical references for the talent cultivation reform of related majors in vocational undergraduate institutions, and to offer a basis for rural tourism operators to optimize human capital allocation and technical service processes.

1. The Alignment Logic between Vocational Undergraduate Education and Rural Tourism Industrial Revitalization

1.1 The Compatibility between Talent Specifications of Vocational Undergraduate Education and the Job Competency Spectrum of Rural Tourism

The talent cultivation specifications established by vocational undergraduate education emphasize a composite structure combining technical theoretical knowledge and applied technical skills, while also placing importance on the comprehensive competence for solving complex on-site problems. The job

clusters involved in the rural tourism industry encompass multiple functional modules, including rural guiding, homestay operation, local cultural experience design, ecological farm management, and digital marketing. The competency requirements for practitioners in each module form a spectrum that is both hierarchically structured and intercorrelated. At the core of this spectrum lies the dual demand that practitioners not only master standardized service procedures but also possess the ability to flexibly allocate and creatively reorganize resources according to the seasonal and regional variations of rural assets, thereby imposing clear requirements on talents' knowledge transfer capabilities and situational adaptability^[1].

From the perspective of competency dimension analysis, vocational undergraduate education, through its modular curriculum system and project-based teaching, integrates and cultivates professional competence, methodological competence, and social competence. Specifically, professional competence corresponds to the technical specifications at the operational level of rural tourism posts, such as the operation of smart ticketing systems and the design of intangible cultural heritage experience activities; methodological competence is manifested in the analysis of rural tourism operational data and the formulation of service quality improvement plans; and social competence is expressed as local cultural identity, team collaboration, and cross-role communication. These three types of competence exactly form a mapping relationship with the execution level, optimization level, and innovation level in the job competency spectrum of rural tourism, thereby laying a structural foundation for the deep compatibility between the two.

1.2 The Value-Added Transmission Mechanism of Technical Skill Accumulation along the Rural Tourism Service Value Chain

The accumulation of technical skills is not a single process of knowledge storage, but rather a dynamic cycle that encompasses technology acquisition, internalization, refinement, and re-innovation. In the context of rural tourism, technical skill accumulation manifests as practitioners' ability to extract tacit knowledge from service processes, systematically transform tourist feedback, and redesign local resources. This accumulation is quantified and made explicit through such vehicles as practical training projects, case-based reviews, and skills competitions within the educational process, thereby forming transferable and iterative technical assets. When these assets are introduced into the basic activities and support activities of the rural tourism service value chain, they trigger a stepwise transmission of value.

Specifically, the accumulation of technical skills first acts upon the service design phase, promoting the upgrading of tourism products from homogeneous sightseeing to immersive experiences, and thereby enhancing the depth of consumption per visitor and the willingness to revisit. Subsequently, in the service delivery phase, the standardized operation modules and contingency plans formed through accumulation reduce the volatility of service quality while shortening the adaptation period for new employees in their posts. At the level of support activities, the accumulation of technical skills gives rise to cost control tools and customer source forecasting models for small-scale rural tourism operators, indirectly optimizing the profit retention ratio within the value chain. The entire transmission process exhibits a bottom-up value-added amplification effect, meaning that the more compound and systematic the technical skills accumulated in the educational context become, the more significant their value-added contribution to the service value chain will be.

1.3 The Closed-Loop Transformation from Educational Elements to Production Factors in the Integration-of-Industry-and-Education Ecosystem

The core feature of the integration-of-industry-and-education ecosystem lies in the fact that educational organizations and industrial organizations have transcended the one-way talent supply relationship and formed a network structure featuring two-way factor flows and collaborative value regeneration. Within this ecosystem, the curriculum resources, training facilities, faculty expertise, and student project outcomes of vocational undergraduate institutions constitute the set of educational elements; while the site conditions, customer source data, service process pain points, and brand assets of rural tourism operators constitute the set of production factors. The transformation between these two types of elements requires clear interface standards and operational rules; otherwise, it may fall into an inefficient cycle due to information asymmetry and incentive misalignment^[2].

The establishment of this transformation closed-loop depends on the collaborative operation of three dynamic links. First, the task requirements from real rural tourism service scenarios are transformed into teaching projects, enabling students to accumulate technical skill outcomes that can be

directly transferred to industrial contexts during the project completion process; this process is termed as industrial-end encoding of elements. Second, the optimization plans, prototype products, and service process improvement suggestions generated by students in teaching projects are fed back in reverse to the rural tourism operation links for validation and revision, and those outcomes that meet the criteria are absorbed as part of the production factors, thereby realizing value injection from the educational end to the industrial end. Third, the new technical requirements and management challenges that emerge at the industrial end after absorbing educational elements are once again fed back into the curriculum content and practical training design, thus completing the iterative update of the closed loop. The continuous operation of this closed loop ensures that the empowerment of rural tourism industrial revitalization by vocational undergraduate education possesses a self-reinforcing dynamic foundation, rather than being a one-off external intervention.

2. Core Pathways for Vocational Undergraduate Education to Empower the Revitalization of the Rural Tourism Industry

2.1 Modular Curriculum Reorganization and Dynamic Updating Mechanism Based on the Job Task Map

The job task map of rural tourism is a structured description of the work units required by different functional positions and their logical relationships. Its basis for construction includes the behavioral decomposition of typical work tasks, frequency statistics of job competency characteristics, and identification of key control points within operational processes. Based on this map, vocational undergraduate education decomposes the curriculum system into basic literacy modules, core skill modules, and contextual expansion modules. Specifically, the basic literacy modules align with the general service standards of rural tourism; the core skill modules correspond to specific task clusters such as digital management of homestays and local cultural and creative planning; and the contextual expansion modules are oriented toward complex cross-position scenario tasks. Through prerequisite-successor relationships and credit recognition mechanisms, these modules form a spliceable curriculum network that allows learners to choose different module combinations according to their own career orientations, thereby enhancing the matching efficiency between talent cultivation and industrial positions^[3].

The establishment of the dynamic updating mechanism depends on the continuous monitoring of technological variables and market variables in the rural tourism industry. The technological variables include iterations of smart guide systems, changes in booking platform data interfaces, and updates to immersive display equipment; the market variables involve shifts in tourist composition, changes in consumption preferences, and the emergence of new forms of tourism business. Vocational undergraduate education establishes a signal capture channel composed of industry advisors, graduate feedback, and online job data scraping to periodically identify discrepancies between existing curriculum modules and the job task map. After being evaluated with weighting by an expert panel, these discrepancies trigger module content revisions or module replacements. The revised modules then undergo feasibility confirmation through pilot teaching verification before being rolled out to all teaching cohorts. This mechanism ensures that the life cycle of curriculum modules remains synchronized with the life cycle of rural tourism job tasks, thereby preventing educational outputs from lagging behind industrial demands.

2.2 Embedded Collaborative Integration of Immersive Practical Training Scenarios and Rural Tourism Operational Links

The immersive practical training scenario is a pedagogical reconstruction that restores the spatial functions, operational workflows, and information flows of the real rural tourism operating environment with high fidelity. Its constituent elements include physical space layout, service process simulation software, tourist behavior simulation models, and real-time data feedback systems. Compared with traditional training rooms, the immersive scenario emphasizes multi-role concurrent operations and the injection of random events, requiring learners to complete a full operational loop from demand identification to service delivery within a limited time. During the scenario design phase, based on the touchpoint map of rural tourism operational links, sub-links such as guest reception, room status management, activity organization, and complaint handling are respectively mapped to different functional areas of the training scenario, while information transmission specifications among these areas are simultaneously established, enabling learners to perceive the coupling relationships among

operational links when switching roles.

The core of embedded collaborative integration lies in breaking the spatial and temporal barriers between practical training and operations, enabling the two types of activities to proceed in parallel on the same task carrier. The specific implementation method is to assign the non-critical operational tasks or test operational tasks of rural tourism operators to learner teams in the practical training scenario; while fulfilling teaching objectives, these learner teams generate real operational data and service records for the operators. The operators incorporate the above records into their own service quality monitoring systems and accordingly adjust their standard operating procedures or staff scheduling plans. During the integration process, the operation logs within the practical training scenario and the operators' operational systems maintain data synchronization through application programming interfaces, with both parties sharing the same set of task status views. This embedded relationship transforms practical training activities from mere simulations of operations into a legitimate extension of operational activities within the boundaries of teaching, thereby eliminating the conversion loss between learning contexts and work contexts.

2.3 The Two-Way Knowledge Flow Model between Dual-Qualified Teaching Teams and the Inheritance of Rural Tourism Craftsmanship

A dual-qualified teaching team is jointly composed of full-time teachers who have frontline industry experience and hold corresponding technical grade certificates, as well as part-time mentors from rural tourism operators. The unique value of this team lies in the fact that its members carry different types of knowledge from various sources: full-time teachers are skilled at systematically encoding technical principles and breaking them down for pedagogical purposes, while part-time mentors possess a large body of situational knowledge that is difficult to make explicit, including emergency reception scripts for abnormal weather conditions, communication preferences of tourists from different source regions, and aesthetic recombination techniques for local materials. These two types of knowledge mutually verify and complement each other during teaching interactions, thereby forming a teaching content system that is more robust than knowledge derived from a single source.

The two-way knowledge flow model is manifested as two transmission paths that run in opposite directions but are complementary in intensity. The first path is a lateral flow from part-time mentors to full-time teachers and learners, with its carriers including the review of typical service cases, hands-on operational demonstrations, and oral accounts of decision-making logic in non-standard scenarios. This path focuses on the demonstration and imitation of tacit knowledge, emphasizing the extraction and reproduction of implicit rules in the industrial field. The second path is a reverse flow from full-time teachers to part-time mentors and the industrial end, with its carriers comprising explanations of technical principles, methods for using quality management tools, and training steps for data analysis models. This path elevates the experiential knowledge of part-time mentors to a verifiable and transferable technical level, helping the industrial end optimize the efficiency of experience inheritance. The two flow paths converge in the teaching case library and industrial problem solution library jointly developed by the team, enabling knowledge to be continuously recorded, questioned, revised, and re-encoded during the flow process, thereby forming a self-reinforcing knowledge ecosystem.

3. Strategy Optimization for Vocational Undergraduate Education to Empower the Revitalization of the Rural Tourism Industry

3.1 An Agile Iterative Framework for Talent Cultivation Programs Oriented by Dynamic Capabilities

Dynamic capabilities emphasize an organization's adaptability to reconfigure resource allocation and operational processes in response to rapid changes in technological environments and market conditions. Introducing this concept into the design of talent cultivation programs in vocational undergraduate education implies that the cultivation program is no longer regarded as a static document with a fixed cycle, but rather as an open system comprising three sub-functions: sensing, seizing, and transforming. The sensing function is responsible for identifying newly emerging job skill gaps and service model changes in the rural tourism industry; the seizing function converts the above changes into specific learning outcome indicators and weight adjustment parameters for curriculum modules; and the transforming function carries out structural reallocation of the existing curriculum sequence, practical training components, and assessment methods. These three functions form a closed-loop feedback circuit, enabling the talent cultivation program to complete an incremental update before the

start of each teaching cycle, rather than waiting for a major overhaul every three to five years^[4].

The operational carriers of the agile iterative framework are the annual rolling revision mechanism and the version control protocol. During a fixed period each year, the program director, industry advisors, and graduate representatives jointly review the implementation data of the previous cohort's cultivation program, including course achievement levels, internship unit feedback, and changes in word frequency in rural tourism job postings. Based on the review conclusions, partial revisions are made to the competency matrix within the cultivation program, with the scope of revisions constrained by the conditions that total credits and the core curriculum sequence remain unchanged, so as to ensure the executability of teaching resources. Each revision is recorded with a version number and the rationale for the revision, forming a traceable change log. This framework enables the talent cultivation program to maintain sensitive responsiveness to fluctuations in the rural tourism industry while avoiding disruption to teaching order caused by frequent large-scale adjustments.

3.2 Construction of an Educational Technology Support System in the Context of Digital Transformation of Rural Tourism

The digital transformation of rural tourism involves four technological dimensions: online booking channels, datafication of tourist behaviors, intelligent service touchpoints, and visualization of local resources. The educational technology support system refers to the collection of technological tools and data flow specifications designed to support the integration of the above dimensions into the talent cultivation process, including a teaching-level rural tourism operation simulation platform, a lightweight data analysis dashboard, and mobile skill assistance modules. The simulation platform reproduces the interfaces and basic database structures of open-source booking systems commonly used by small-scale rural tourism operators, enabling learners to complete operations such as order processing, inventory management, and revenue forecasting in an environment without real transaction risks. The data analysis dashboard is pre-configured with three types of analytical models commonly used in rural tourism, namely source market analysis, satisfaction score trends, and service response time statistics, and its output results can be directly used for justifying service improvement plans.

The system's technical architecture adopts a modular design, with data exchange among various components achieved through well-defined application programming interfaces, allowing controlled data import and export between the commercial systems actually used in the rural tourism industry and the teaching system. The optimization plans generated by learners during on-campus practical training can be exported as standard operating procedure manual files for trial implementation by cooperative operators in real environments; conversely, the anonymized operational data from operators can also be imported back into the simulation platform as raw materials for teaching cases. The operation logs and learning behavior data generated during system operation simultaneously serve both the monitoring of teaching quality and research on rural tourism operational efficiency, thereby forming a technological symbiosis between the educational support system and the digital transformation of the industry.

3.3 Resource Sharing and Differentiated Synergy Strategies of the Cross-Regional Rural Tourism Education Alliance

The Cross-Regional Rural Tourism Education Alliance is jointly composed of vocational undergraduate institutions distributed across different geographical regions and the networks of rural tourism operators that each institution partners with. The core value of the alliance lies in overcoming the limitations of individual institutions' resource endowments and enhancing overall teaching capacity through resource complementarity among members. The resources cover multiple categories, including curriculum plans, training venues, part-time mentor pools, typical service case databases, and graduate employment channels. The resource sharing mechanism adopts a tiered authorization model, whereby basic resources are open to all alliance members, while resources involving specific local knowledge or core commercial data are subject to access thresholds and can only be accessed after passing the usage agreements of the resource providers.

The differentiated synergy strategy requires alliance members to establish distinctive cultivation orientations according to the types of rural tourism resources in their respective regions, thereby avoiding homogeneous competition. For example, one member focuses on talent cultivation for outdoor activity organization in mountain-type rural tourism, another member specializes in talent cultivation for homestay cluster operation in water-town-type rural tourism, and a third member concentrates on talent cultivation for cultural experience design in ethnic-village-type rural tourism.

Through cross-selection of courses, short-term study exchanges, and joint graduation projects, the alliance achieves cross-integration of the above differentiated orientations, enabling learners to acquire a comparative understanding of rural tourism operation models in other regions while mastering the distinctive skills of their own region. Within the alliance, resource utilization efficiency evaluation indicators are established to regularly assess the balance between the amount of resources contributed by each member and the amount accessed, and based on this assessment, the alliance's operational rules are adjusted to maintain the sustainable functioning of the collaborative network.

Conclusion

This study has elucidated the underlying mechanisms by which vocational undergraduate education empowers the revitalization of the rural tourism industry from three aspects: alignment logic, core pathways, and strategy optimization. The alignment logic is manifested as the structural compatibility between talent specifications and the job competency spectrum, the value-added transmission of technical skill accumulation along the service value chain, and the closed-loop transformation from educational elements to production factors within the integration-of-industry-and-education ecosystem. The core pathways include modular curriculum reorganization driven by the job task map, embedded collaboration between immersive practical training and operational links, and the two-way knowledge flow of dual-qualified teaching teams. The strategy optimization encompasses an agile iterative framework oriented by dynamic capabilities, an educational technology support system for digital transformation, and resource sharing and differentiated synergy mechanisms of cross-regional alliances. Future research may conduct empirical tests on the differential effects of empowerment under varying rural tourism resource endowments, explore the in-depth empowerment of immersive practical training scenarios by artificial intelligence and virtual reality technologies, and construct quantitative relationship models between educational factor inputs and industrial outputs, so as to enhance the computability and evaluability of empowerment strategies.

References

- [1] Liu, L., & Wang, M. (2026). *Research on the development paths of private vocational undergraduate graduates under the strategy of comprehensive rural revitalization*. *Wisdom*, (5), 136-139.
- [2] Li, J., & Hu, L. (2024). *A study on the current situation and countermeasures of Suqian vocational education promoting the development of rural tourism industry from the perspective of rural revitalization*. *Tourism Panorama*, (19), 16-18.
- [3] Zhao, L., & Ma, C. (2023). *Research on vocational education serving the development of rural tourism*. *Tourism and Photography*, (3), 131-133.
- [4] Zhang, Y. (2022). *A preliminary discussion on the paths and measures for constructing vocational undergraduate programs in tourism majors*. *Western Tourism*, (17), 85-87.