Impact Analysis and Development Pathways for Teachers in Tourism Vocational Education Under the Educational Digitalization Strategy Initiative

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Abstract: *Under the background of China's National Education Digitalization Strategic Action 2.0 (2025), this study focuses on teachers in tourism vocational education as the research object. By integrating practical cases from multiple vocational colleges, it systematically analyzes the impact of digitalization on the reconstruction of teachers' teaching capabilities. The research finds that teachers must transition from knowledge transmitters to learning facilitators, with core competencies encompassing digital resource development, learning data analysis, and interdisciplinary resource integration. Practical challenges include insufficient adaptability of educational resources, persistent traditional teaching inertia, and outdated training systems. The research provides theoretical support and practical references for advancing the digital transformation of tourism vocational education.*

Keywords: Education Digitalization, Tourism Vocational Education, Teacher Development Path, Digital Literacy, Industry-Education Integration.

1. Introduction

With the deepening implementation of China's National Education Digitalization Strategic Action 2.0 (2025), educational digital transformation has become the core engine driving high-quality development in vocational education. The China Smart Education White Paper, issued by the Ministry of Education, explicitly proposes the establishment of three major digital education systems by 2027: the "National Resource Center," "Education Service Center," and "Lifelong Learning Center." As critical implementers of this transformation, teachers' digital literacy and teaching innovation capabilities directly determine the effectiveness of reform. Tourism vocational education, characterized by its focus on "industry-education integration and skill-based practice," faces dual challenges in digital transformation: on one hand, aligning with emerging industry demands such as "Red Tourism VR Training Bases" and "XR Immersive Interactive Teaching Scenarios"; on the other hand, resolving the contradiction between teachers' traditional teaching inertia and technological adaptability. This study, grounded in the requirements of the Ministry of Education's Notice on Implementing Digital Empowerment for Teacher Development, systematically explores pathways for capability reconstruction among tourism vocational education teachers, aiming to provide replicable "digital transformation solutions" for teacher team construction in vocational colleges.

2. Core Essentials of the Education Digitalization Strategy and Special Characteristics of Tourism Vocational Education

2.1 Evolutionary Path of National Education Digitalization Policies

China's education digitalization policies have undergone a three-stage evolutionary trajectory: infrastructure construction, integrated application, and strategic empowerment. The National Medium- and Long-Term Education Reform and Development Plan (2010-2020) (2010) first introduced the concept of "education informatization," marking the official integration of digital construction into national strategy. The Education Informatization 2.0 Action Plan (2018) then established the "three-full, two-high, one-large" framework (comprehensive coverage, high-quality development, and large-scale application), promoting deep integration of information technology with education and teaching. By 2022, the China Education Modernization 2035 plan upgraded "digital campus construction" to a "smart education ecosystem," introducing for the first time a dedicated task for "digital transformation of vocational education." In 2025, the Education Digitalization Strategic Action 2.0 further consolidated the "National Resource Center-Education Service Center-Lifelong Learning Center" trinity architecture, accompanied by the Notice on Implementing Digital Empowerment for Teacher Development, which mandates new competencies for vocational college teachers, including virtual simulation training guidance and industry digital project development.

2.2 Industry Demands for Digital Transformation in Tourism Vocational Education

The digital transformation of the cultural and tourism industry has spawned new formats such as smart tourism and virtual experiences, posing three-dimensional talent capability requirements: first, technical application skills (e.g., VR/AR scenario design, digital marketing tool operation); second, interdisciplinary integration capabilities merging tourism management, information technology, and cultural creativity; third, practical innovation capacities for developing emerging projects like "immersive script creation for red tourism" and "metaverse cultural tourism space planning." According to the 2025 China Cultural and Tourism Industry Development Report, 65% of scenic spots have deployed digital guidance systems, and 40% of cultural and creative enterprises require practitioners to possess virtual simulation project development experience. To align with these industry demands, tourism vocational education must adjust its

training programs by introducing modular courses such as "Digital Cultural Tourism Product Design and Operation," collaborating with enterprises to build XR training bases, and encouraging teachers to participate in industry standard formulation (e.g., Specifications for Tourism Digital Resource Development), thereby achieving precise alignment between educational supply and industrial needs [1].

2.3 Critical Analysis of Teacher Role Transformation

Teachers are the core implementers of digital transformation in tourism vocational education, and their role transition directly determines the alignment between talent cultivation and industry demands. Traditionally, teachers focused on knowledge delivery, but under digitalization, they must evolve into designers and facilitators of learning activities. This transformation is critical for three reasons: first, emerging industry formats (e.g., VR/AR practical training, XR immersive teaching) require teachers to possess technical skills in digital resource development and virtual scenario construction; second, personalized learning needs depend on teachers' ability to analyze data for precise evaluation of student performance; third, interdisciplinary project practices (e.g., development of digital cultural tourism products) demand teachers to integrate knowledge of tourism management, information technology, and cultural creativity. However, current barriers such as traditional teaching inertia, insufficient digital tool application skills, and lack of school-enterprise collaboration mechanisms hinder progress. Systematic training and practice projects are urgently needed to drive role reconstruction, thereby supporting the deep advancement of digital transformation in tourism vocational education.

3. Digitalization Strategy and the Reconstruction of Teaching Competencies for Tourism Vocational Education Teachers

3.1 Transformation of Teaching Subjectivity: From Knowledge Transmitters to Learning Facilitators

The digitalization strategy has fundamentally reshaped the role of tourism vocational education teachers. Traditionally focused on one-way knowledge delivery, teachers must now transition into designers and facilitators of learning activities under the digital context. This shift demands a move from "teacher-centered" to "student-centered" instruction, where interactive tools like virtual simulations and project-based learning create engaging scenarios. For example, in "Smart Tourism" courses, teachers design virtual tour guide training tasks using VR technology, enabling students to develop site interpretation skills through immersive practice and receive real-time feedback via online platforms. This transformation enhances student participation and cultivates autonomous learning and problem-solving abilities, achieving a paradigm shift from "teaching" to "guiding."

3.1.1 Digital Resource Development Capability

Digital resource development capability is a core skill for teachers adapting to emerging formats in the cultural and tourism industry, requiring proficiency in tools like VR/AR and virtual simulation platforms. Taking the "Cultural Heritage Protection" course in tourism programs as an example, teachers collaborate with industry partners to develop VR resources that reconstruct cultural sites such as the Dunhuang Mogao Grottoes through 3D modeling. Interactive modules like "virtual archaeology" allow students to immersively learn mural restoration techniques and master digital preservation skills via VR devices. Such resource development demands teachers integrate educational design with technical implementation while aligning content with real industry demands, such as digital cultural creation and heritage digitization [2].

3.1.2 Learning Data Analysis and Personalized Teaching Capability

Learning data analysis capability enables teachers to dynamically track student behavior and implement targeted interventions through educational information platforms. For instance, in "Tourism Marketing" courses, teachers utilize online learning systems to record metrics like module completion time, quiz accuracy, and collaborative contributions, generating personalized learning reports via data visualization tools. Based on identified weaknesses (e.g., insufficient digital marketing plan writing), teachers can assign resources or VR scenario simulation tasks; high-performing students may engage in real enterprise projects like digital promotion planning for scenic spots. This data-driven approach shifts personalized guidance from experience-based to evidence-based, significantly improving talent cultivation efficiency.

3.2 Potential Challenges: Balancing Technological Adaptation and Pedagogical Innovation

Teachers in tourism vocational education currently face dual challenges: first, technological adaptation issues such as outdated hardware and misalignment between virtual simulation software and course objectives; second, the conflict between traditional teaching inertia and innovation demands, with some teachers adopting technologies superficially. To address these, institutions must upgrade digital infrastructure and establish regular collaboration mechanisms between teachers and tech enterprises. Teachers, meanwhile, should enhance technical integration skills through specialized training (e.g., VR course design workshops) and adopt incremental innovations, such as embedding AR-assisted explanations into existing practical courses. Only by deeply integrating technological tools with pedagogical goals can true educational innovation be achieved [3].

4. Construction of Multi-dimensional Collaborative Capacity Enhancement Pathways

4.1 Policy Support: Refining Digital Literacy Evaluation Standards

Policy frameworks form the cornerstone for reconstructing teachers' digital competencies, requiring institutional design to standardize digital teaching capabilities. It is recommended that educational authorities collaborate with cultural tourism industries to establish Evaluation Standards for Digital

Literacy of Tourism Vocational Education Teachers, specifying quantifiable indicators for core competencies such as VR resource development, learning data analysis, and blended instructional design. For instance, integrating "virtual simulation course development" into teacher promotion criteria and introducing incentives like "Digital Teaching Innovation Awards" can motivate proactive skill upgrades. Concurrently, inter-institutional digital literacy monitoring platforms should be developed to publish regular capability development reports, providing data-driven insights for policy adjustments.

4.2 Platform Development: School-Enterprise Collaborative Virtual Teaching Platforms

Platform development serves as a critical vehicle for resource integration and collaborative innovation. Schools can collaborate with cultural tourism technology companies to jointly develop the "Smart Tourism Virtual Teaching and Research Platform," integrating functional modules such as VR course development tools, industry case libraries, and online collaboration spaces. Teachers can access real enterprise project data through the platform (e.g., visitor heatmaps of scenic spots, digital cultural creation design demands) and collaborate with enterprise engineers to co-develop immersive teaching resources. Meanwhile, students can engage in virtual training projects on the platform, achieving seamless integration of "teaching-learning-doing." This model not only enhances teachers' practical collaboration with industries but also cultivates students' hands-on capabilities in alignment with real-world digital tourism demands.

4.3 Practice Innovation: "Three-Stage Five-Dimensional" Training Model

Practical innovation demands a tiered competency development system structured across three phases:

4.3.1 Foundational Layer: Technical Tool Application Training

Focuses on upgrading basic digital capabilities through specialized workshops covering VR/AR development software (e.g., Unity, Maya) and learning management system (LMS) operations. For example, the "72-Hour VR Course Accelerator" program requires teachers to complete virtual attraction modeling and interactive scriptwriting within a week, ensuring over 80% attain independent VR module development proficiency [5].

4.3.2 Advanced Layer: Blended Instructional Design Workshops

Builds on technical mastery to enhance innovative teaching scenario design. Workshops use authentic courses like "Digital Tourism Marketing" and "Cultural Heritage Digitization" to guide teachers in restructuring pedagogical workflows using VR tours and AR-assisted explanations. For instance, transforming traditional "Tour Itinerary Design" courses into a "virtual site inspection and data-driven decision-making" hybrid model, where students optimize itineraries using VR platforms and analytics tools, while teachers provide personalized guidance through operational trajectory tracking.

4.3.3 Innovative Layer: Industry Digital Project Practice

The final phase connects with genuine cultural tourism industry demands, engaging teachers in enterprise digital projects. Collaborations such as the "Digital Tour Guide IP Incubation Program" with leading online travel platforms actively engage students in two core initiatives: creating immersive VR content for tourist attractions and optimizing AI-driven itinerary recommendation algorithms. This partnership not only bridges academic research with industry applications but also cultivates next-generation talent equipped to drive innovation in smart tourism solutions. Project outcomes directly feed into enterprise products, while teachers deepen technical integration and innovation capabilities through practice, fostering a virtuous cycle of "teaching-research-industry" alignment. Pilot implementation at XX College has increased teacher industry project participation from 32% to 68%, significantly enhancing student employability [6].

5. Conclusions

This paper centers on reconstructing teaching competencies in tourism vocational education under the digitalization strategy, proposing multi-dimensional collaborative enhancement pathways. Key findings include: Teacher roles must transition from knowledge transmitters to learning facilitators, prioritizing capabilities in digital resource development, learning data analysis, and blended instructional design; A training model is constructed, advancing competencies hierarchically through technical tool training, pedagogical innovation workshops, and industry project practice; School-enterprise collaborative virtual teaching platforms effectively integrate industrial resources, enabling integrated "teaching-learning-doing." At the policy level, refining evaluation standards for digital literacy and establishing incentive mechanisms are critical. This research offers actionable strategies for tourism vocational education's digital transformation, providing practical references for balancing technological adaptation and pedagogical innovation.

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