

Article

Research on the Integration Mechanism and Innovation of the "Three Innovation Integration" Curriculum of Tourism Management Professional Undergraduate Driven by Digital Culture and Tourism

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Abstract: The rapid development of digital cultural tourism is fundamentally driving the modern tourism industry's transformation toward comprehensive digitalization, intelligence, and continuous innovation. Consequently, this paradigm shift imposes significantly higher demands on the "Three Creations" (innovation, creativity, and entrepreneurship) capabilities, as well as the overall digital literacy of vocational undergraduate talents specializing in tourism management. Curriculum integration serves as the core vehicle for achieving the coordinated cultivation of these essential "Three Creations" capabilities. Furthermore, it acts as the critical link connecting the evolving demands of the digital cultural tourism industry with the academic supply of vocational undergraduate education. Based on systems theory, collaborative innovation theory, and competency-based education theory, this paper systematically focuses on the existing pain points and structural bottlenecks in curriculum construction for "Three Creations Integration" within vocational undergraduate tourism management programs. It conducts an in-depth, multidimensional analysis of the intrinsic mechanisms of curriculum integration driven by digital cultural tourism. Subsequently, the study constructs a comprehensive four-in-one integration mechanism encompassing "goal coordination, content integration, teaching linkage, and evaluation closure." To ensure practical implementation, the research proposes targeted innovative pathways from three distinct dimensions: curriculum modules, teaching models, and resource allocation. Ultimately, these findings provide robust theoretical support and actionable practical references for deepening curriculum reform, optimizing educational frameworks, and cultivating highly adaptable, interdisciplinary technical and skilled talents in vocational undergraduate tourism management education.

Keywords: digital tourism; tourism management; vocational education; curriculum integration; entrepreneurship education; educational innovation

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1. Introduction

1.1. Research Background

In the era of deep integration between the digital economy and the cultural tourism industry, digital technologies such as big data, artificial intelligence, virtual reality (VR), and the metaverse have permeated every aspect of the sector. This has fostered the emergence of innovative business models, including smart scenic spots, digital cultural and creative products, online travel customization, and live-streaming e-commerce in cultural tourism, propelling the industry's shift from resource-driven to innovation-driven growth [1]. The rapid advancement of digital cultural tourism has not only transformed tourism product formats, service models, and consumption scenarios but also redefined the structure of talent demand. There is now a pressing need for high-level, versatile technical and skilled professionals equipped with expertise in digital technology applications, innovative thinking, creative design, and entrepreneurial practices.

As a crucial component of higher education, vocational undergraduate programs emphasize cultivating high-level technical professionals, playing an indispensable role in meeting industrial demands and supporting regional economic development. The Tourism Management program, as a core discipline in vocational education, significantly influences the quality of talent cultivation and industry alignment through its curriculum design. However, traditional tourism management curricula currently encounter challenges such as fragmented "Three Creations" (innovation, entrepreneurship, and creativity) education, limited integration of digital technologies, and insufficient curriculum coordination, leading to a disconnect between "Three Creations" competency development and the requirements of the digital cultural tourism industry. Consequently, investigating curriculum integration mechanisms and innovative pathways for "Three Creations integration" driven by digital cultural tourism has become a critical strategy for vocational education in tourism management to address talent cultivation challenges and enhance professional competitiveness [2].

1.2. Research Significance

Theoretical Significance: This study explores the intersection of digital cultural tourism and vocational undergraduate education, systematically analyzing the intrinsic logic and implementation mechanisms of the "Three Innovations Integration" curriculum [3]. It enriches the theoretical framework for curriculum integration in vocational education and the cultivation of digital cultural tourism professionals. By establishing a "Four-in-One" curriculum integration mechanism, the research provides a novel theoretical framework for integrating "Three Innovations" education with digital technologies, thereby broadening the application scenarios of collaborative innovation theory in vocational education.

Practical Significance: The curriculum integration mechanism and innovative approaches proposed in this study can effectively guide vocational undergraduate tourism management institutions in optimizing their curriculum systems and innovating teaching models. This facilitates the coordinated cultivation of "three-creation" competencies and digital literacy, enhancing students' employability and career development potential. It delivers high-quality interdisciplinary talents to the digital cultural tourism industry while fostering the organic integration of education, talent, industry, and innovation chains [4].

1.3. Research Status at Home and Abroad

The current research landscape abroad shows that vocational education started earlier and has accumulated rich experience in curriculum integration and "three-creation" education. Germany's "dual system" vocational education emphasizes school-enterprise collaboration and practice-oriented approaches, with its curriculum system focusing on the integrated cultivation of vocational skills and innovative abilities. The tourism management program at American community colleges adopts an interdisciplinary curriculum model, combining entrepreneurship education, digital technology courses, and core professional courses to develop students' comprehensive abilities. Australia's TAFE education system, centered on competency-based education, has established a modular and flexible curriculum system, emphasizing precise alignment between course content and industry standards [5]. Meanwhile, the digital cultural tourism industry abroad is well-developed, with some universities deeply integrating digital technologies such as artificial intelligence and big data analysis into tourism management courses, forming a curriculum integration model of "technology + creativity + entrepreneurship." However, most foreign research is based on their local education systems and industrial environments, and the adaptability to China's vocational undergraduate education still requires further validation.

Current domestic research indicates that scholars have extensively studied digital cultural tourism and tourism management adjustments. Some researchers focus on digital technology's impact on tourism management curricula, proposing the addition of digital cultural tourism courses and innovative teaching methods. Others explore integrating

"Three Innovations" education into tourism management programs, discussing curriculum design strategies and teaching models. However, existing research remains limited: First, studies on the integration mechanism of "Three Innovations" and digital cultural tourism courses lack depth, often remaining at the course-level without systematic analysis of integration logic and collaborative mechanisms. Second, the pathways for deep integration between digital cultural tourism and "Three Innovations" education remain unclear, with insufficient exploration of how to achieve organic coupling between digital technology, "Three Innovations" education, and professional courses. Third, most research emphasizes theoretical discussions while lacking empirical studies and case analyses, making it difficult to effectively guide practical implementation.

2. Definition of Core Concepts and Theoretical Foundations

2.1. Definition of Core Concepts

Digital Cultural Tourism, a contemporary form of cultural tourism driven by digital technology, integrates advancements such as big data, artificial intelligence, VR/AR, cloud computing, and metaverse technologies with the cultural tourism industry. This fusion facilitates the digital transformation of cultural resources, intelligent services, personalized experiences, and targeted marketing, encompassing areas like smart tourism, digital cultural innovation, online cultural services, and the digital economy. Vocational Undergraduate Education, a higher education model, focuses on cultivating applied professionals equipped with robust theoretical foundations, technical expertise, and innovative capabilities for frontline roles in production, construction, management, and service sectors [3]. Its defining characteristics—"vocational orientation, practical application, and comprehensive integration"—highlight the importance of industry-education collaboration and the seamless integration of theory and practice. The "Three Creations Integration" framework unites innovation, creativity, and entrepreneurship into a cohesive system. Innovation propels technological progress and methodological advancements; creativity influences cultural expression and product design; entrepreneurship facilitates market transformation and value realization. This framework integrates these elements throughout talent development, promoting synchronized growth in knowledge, skills, and professional competence. The curriculum integration mechanism operates as a dynamic system that harmonizes and synergizes course elements—such as objectives, content, teaching methods, and evaluation approaches—across various disciplines to achieve specific talent development goals. Key components include the goal coordination mechanism, content integration mechanism, teaching linkage mechanism, and closed-loop evaluation mechanism.

2.2. Theoretical Basis

System theory posits that all entities function as organic wholes composed of interconnected and interacting elements, where system functionality arises from their synergistic interactions. This framework offers essential guidance for establishing the "Three Innovations Integration" curriculum mechanism [6]. It highlights that the curriculum system, as a complex entity, should prioritize coordinated linkages among its components and modules to achieve a synergistic effect exceeding the sum of individual contributions.

Collaborative innovation theory emphasizes mutual cooperation and innovation among various entities and elements, enhancing innovation efficiency through resource sharing and complementary advantages. This theory serves as a theoretical foundation for integrating courses by multiple stakeholders, including digital cultural tourism enterprises, universities, and industry associations, thereby fostering the development of a diversified course integration ecosystem [7].

Competency-based education theory focuses on cultivating students' professional skills, stressing the alignment between curriculum design and occupational demands while enhancing practical abilities and comprehensive competencies [8]. This framework provides essential guidance for the "Three-Creation Integration" curriculum, which

emphasizes core competencies for digital cultural tourism roles and modularizes course content.

Constructivist learning theory asserts that learning is an active process of knowledge construction rather than passive information reception. It emphasizes situational creation, collaborative learning, and practical exploration, offering a theoretical basis for innovative teaching models within the "Three Creations Integration" curriculum [9]. This approach aims to stimulate students' learning initiative and foster innovative thinking.

3. The Intrinsic Mechanism and Existing Problems of the Integration of "Three Innovations" Courses in Tourism Management under the Drive of Digital Culture and Tourism

3.1. Intrinsic Mechanism

The driving force behind the integration of "Three-Creation Integration" courses in digital cultural tourism fundamentally stems from industry demands precisely guiding educational supply. This mechanism operates through a logical chain of "demand orientation-element coupling-synergistic enhancement." Demand orientation: Emerging business models and job requirements in digital cultural tourism necessitate updated competency frameworks for tourism management professionals [9]. These professionals must not only possess traditional tourism expertise but also demonstrate proficiency in digital technology application, innovative thinking, creative design capabilities, and entrepreneurial practice. Such demands compel curriculum adjustments in undergraduate tourism management education, promoting deep integration of "Three-Creation" education with digital technologies and specialized courses. Element coupling: The core of curriculum integration lies in the organic combination of target elements, content elements, teaching elements, and evaluation elements. Target element coupling emphasizes coordinated cultivation of "Three-Creation" competencies and digital literacy; content element coupling focuses on seamlessly integrating digital cultural tourism technologies, "Three-Creation" theories, and professional knowledge; teaching element coupling highlights collaborative school-enterprise partnerships, interactive teacher-student engagement, and blended online-offline teaching models; evaluation element coupling emphasizes coordinated multi-stakeholder assessments, comprehensive evaluation content, and diversified evaluation methods. Synergistic enhancement: Through curriculum integration, all course elements achieve coordinated interaction, breaking down barriers between traditional courses. This addresses issues like fragmented "Three-Creation" education and superficial digital technology integration, enhances the relevance and effectiveness of talent cultivation, achieves precise alignment between educational supply and industry demands, and ultimately realizes the synergistic goal of improving talent quality and empowering industrial development.

3.2. Existing Problems

The curriculum integration faces ambiguous objectives and insufficient synergy [10]. Currently, some vocational undergraduate tourism management institutions still focus on traditional tourism talent cultivation, lacking in-depth research on the demands of the digital cultural tourism industry. The objectives for fostering "Three Innovations" capabilities and digital literacy remain undefined. Courses lack coordination, with issues like content duplication and disjointed goals, hindering the formation of a cohesive educational synergy for "Three Innovations integration." For instance, digital technology courses lack clear goal alignment with "Three Innovations" courses and core professional courses, making it difficult to synergistically enhance students' digital technology application skills and "Three Innovations" competencies.

The integration of digital technology with course content remains superficial, lacking structural coherence. Many institutions merely add digital tourism-related knowledge points to traditional courses or offer limited standalone digital technology electives, failing to deeply integrate digital technology with professional expertise and "Three Innovations" (innovation, entrepreneurship, and creativity) content. This disconnect

results in curriculum content that fails to meet the actual job requirements of digital tourism enterprises. The "Three Innovations" content remains fragmented, scattered across individual courses. For instance, while "Tourism Marketing" touches on innovative marketing methods and "Fundamentals of Tourism Entrepreneurship" introduces basic entrepreneurial knowledge, these elements lack a systematic "Three Innovations" course module. Moreover, they fail to organically integrate with digital technology and professional courses, hindering the systematic cultivation of "Three Innovations" capabilities. The course structure lacks logical coherence, remaining discipline-oriented without systematic analysis of digital tourism industry competencies. The sequential connection and content relevance between courses are unreasonable, making it difficult to support the progressive development of "Three Innovations" capabilities and digital literacy.

The educational integration mechanism remains underdeveloped, with insufficient coordination and rigid teaching models. Most institutions still adhere to the traditional "teacher-centered lecture + student passive listening" approach, while modern pedagogical methods like case-based learning, project-based instruction, and flipped classrooms are underutilized, failing to stimulate students' innovative thinking and practical enthusiasm. Digital technology applications in education remain superficial, limited to online platforms and digital courseware, lacking immersive and interactive teaching environments [1]. School-enterprise collaborative mechanisms are incomplete, with partnerships often reduced to superficial measures such as providing internship positions and donating teaching equipment. Deep corporate involvement in curriculum design, teaching implementation, and assessment evaluation has yet to be established. Technical experts and industry leaders from digital cultural tourism enterprises participate in teaching at a low rate, leaving students with limited access to cutting-edge technologies and real-world project cases. Insufficient teacher-student and peer interactions, coupled with ineffective engagement mechanisms, keep students in passive learning states, hindering the development of creative design skills and teamwork abilities through collaborative learning. The organic integration of online and offline teaching remains inadequate, failing to fully leverage the flexibility of digital platforms and the practical advantages of physical classrooms.

The evaluation system suffers from three critical flaws: First, the evaluation mechanism lacks integration and clear guidance, with evaluation subjects remaining overly teacher-centric. It fails to incorporate diverse assessment methods such as student self-evaluation, peer review, corporate evaluations, and industry assessments, making it difficult to comprehensively and objectively reflect students' "Three Innovations" capabilities and digital literacy. Second, the evaluation content remains narrow, focusing predominantly on theoretical knowledge through final exam scores while giving insufficient weight to practical achievements like innovative thinking, creative projects, entrepreneurial practices, and digital technology application skills. This imbalance undermines motivation for students to engage in "Three Innovations" initiatives. Third, the evaluation methods are rigid, relying mainly on closed-book exams and written assignments without process-oriented assessments of practical operations, project outcomes, or creative designs [11]. This lack of dynamic tracking of students' skill development results in evaluation outcomes that lack scientific rigor and fairness.

The education system suffers from multiple deficiencies: An underdeveloped support framework and inadequate faculty structure. Many teachers lack technical expertise in digital cultural tourism, with insufficient proficiency in big data analytics and VR/AR applications. Their "Three Innovations" (innovation, entrepreneurship, and creativity) teaching capabilities require enhancement, particularly in practical entrepreneurship training and creative design guidance, hindering effective implementation of integrated innovation education. The two-way collaboration mechanism between universities and enterprises remains incomplete, with limited opportunities for faculty internships in businesses and restricted channels for industry experts to participate in teaching. Teaching resources are scarce, with most digital

materials being digitized versions of traditional resources, lacking immersive and interactive tools like virtual reality training software and cultural tourism big data platforms. The development of innovation practice platforms lags behind, as on-campus training bases lack authentic digital cultural tourism projects, while off-campus bases offer content that does not align with innovation training objectives. Policy frameworks are inadequate, lacking specialized provisions for integrating innovation courses, credit recognition systems, and teaching quality evaluation standards. Insufficient funding further hinders the development of digital teaching resources, faculty training, and practical platform construction.

4. The Construction of the Course Integration Mechanism of "Three Innovations Integration" in the Tourism Management Professional Undergraduate Program Driven by Digital Culture and Tourism

4.1. Target Coordination Mechanism: Anchoring the Dual-Core Educational Goal of "Three Innovations + Digitalization"

Target synergy serves as the foundation and core of curriculum integration. It requires establishing a dual-core educational framework integrating "innovation, entrepreneurship, and creativity (San Chuang) capabilities" with digital literacy, aligned with the demands of the digital cultural tourism industry and the training objectives of vocational undergraduate programs. A hierarchical target system should be implemented, structured in three phases: foundational, core, and advanced levels. The foundational phase (first and second semesters) focuses on cultivating digital literacy and San Chuang awareness, enabling students to gain a solid understanding of fundamental concepts, core technical principles, and basic San Chuang theories in digital cultural tourism. The core phase (third and fourth semesters) emphasizes enhancing San Chuang capabilities and digital skills, equipping students with proficiency in creative design and innovative practices of cultural tourism products. The advanced phase (fifth and sixth semesters) highlights comprehensive application of San Chuang and career development, preparing students to operate digital cultural tourism projects, incubate startups, and drive sustainable development.

To establish a collaborative mechanism for curriculum objectives, a course integration steering committee will be formed, comprising university faculty, digital cultural tourism industry experts, and industry association representatives. This committee will define the role and positioning of each course in the "Three-Creation Integration" (innovation, entrepreneurship, and creativity) and digital literacy development, and formulate a coordinated list of curriculum objectives. For instance, the "Cultural Tourism Big Data Analysis" course must align its objectives with courses like "Cultural Tourism Product Creative Design" and "Tourism Entrepreneurship Project Planning" to ensure the integrated cultivation of digital technology application skills, creative design capabilities, and entrepreneurial practice competencies. Regular meetings will be held to coordinate curriculum objectives, with timely adjustments made based on industry developments and teaching feedback to maintain the scientific validity and adaptability of the objective system [12].

4.2. Content Integration Mechanism: Constructing a Modular and Interdisciplinary Curriculum System

Content integration is the central mechanism for achieving curriculum convergence, necessitating the removal of traditional disciplinary boundaries. By aligning with the competency requirements of digital cultural tourism roles, it establishes a modular and interdisciplinary curriculum framework that deeply integrates digital technologies, "Three Innovations" (innovation, entrepreneurship, and creativity) content, and professional expertise [13].

The curriculum is organized into a "basic module + core integration module + extension module" structure. The basic module includes general and specialized foundational courses, laying the groundwork for cultivating "three-creation"

competencies (innovation, entrepreneurship, and creativity) and digital literacy. The core integration module acts as the centerpiece of curriculum integration, comprising four sub-modules: "Digital Technology + Core Professional Skills," "Digital Technology + Innovation," "Digital Technology + Creativity," and "Digital Technology + Entrepreneurship." Examples of courses include "Smart Scenic Area Operations Management" (Digital Technology + Core Professional Skills), "Innovative Design of Cultural Tourism Products" (Digital Technology + Innovation), "Digital Cultural and Creative Design" (Digital Technology + Creativity), and "Cultural Tourism Entrepreneurship Project Operations" (Digital Technology + Entrepreneurship), achieving comprehensive integration of these elements. The extension module encompasses industry-leading courses, vocational skills training, and comprehensive quality development courses, addressing students' personalized growth needs [14].

A dynamic content update mechanism will be established through the school-enterprise collaboration platform, enabling regular surveys on the development trends of digital cultural tourism and evolving job requirements. This will facilitate the creation of a curriculum content update checklist. Emerging technologies in digital cultural tourism, such as metaverse-based cultural tourism and AI-generated cultural tourism, along with innovative business models like live-streaming e-commerce for cultural tourism and online customized travel services, will be promptly incorporated into course materials. Corporate experts will be invited to participate in curriculum design and review to ensure alignment with industry demands. Additionally, a shared curriculum platform will be developed to support content integration and resource sharing across courses, minimizing redundancy and ensuring coherence.

4.3. Teaching Linkage Mechanism: Innovating the Integrated Teaching Model of "Digital + Practice + Collaboration"

Teaching linkage is a critical component of curriculum integration, requiring the transformation of traditional teaching methods to establish an integrated model combining "digital + practice + collaboration." This approach facilitates the synchronization and integration of teaching methodologies, participants, and environments [15].

The teaching methodology incorporates diverse strategies such as project-based learning, immersive instruction, case studies, and flipped classrooms. Utilizing real-world digital cultural tourism projects as platforms, it adopts a "project-driven + task-oriented" pedagogy. For example, the "Digital Cultural and Creative Product Development" project deconstructs core courses like "Digital Cultural and Creative Design," "Cultural Tourism Big Data Analysis," and "Cultural Tourism Entrepreneurship Planning" into actionable tasks. Students collaborate in teams to conduct market research, creative design, technical development, and marketing promotion, thereby applying interdisciplinary knowledge through practical engagement. Advanced technologies such as VR/AR and the metaverse are employed to create immersive learning environments, enhancing both student engagement and educational outcomes.

The teaching entity collaborates to form a "dual-mentor system" teaching team, where university faculty members partner with corporate technical experts and entrepreneurship mentors. Academic instructors provide theoretical knowledge and academic guidance, while industry mentors offer practical skill training, case analysis, and entrepreneurial insights. Regular teaching seminars and exchange activities are conducted to strengthen collaborative teaching efforts between academic and industry mentors [16]. A student-centered learning mechanism is implemented, emphasizing group projects, project discussions, and entrepreneurship salons to foster self-directed learning and innovative thinking among students.

By integrating online and offline teaching environments, a blended learning model is established, combining digital and physical components. The digital platform includes a comprehensive resource library featuring course videos, e-textbooks, practical training software, case studies, and online assessments, enabling personalized and self-directed

learning. On-campus facilities, such as a digital cultural tourism training center, and off-campus industry-academia collaboration bases provide opportunities for hands-on practice through real-world digital cultural tourism projects and technical platforms. This seamless integration of online learning and offline practice significantly enhances teaching effectiveness and learning efficiency [5, 7].

4.4. Evaluation Closed-Loop Mechanism: Establishing a Multi-Dimensional and Comprehensive Course Evaluation System

The closed-loop evaluation serves as a critical mechanism for ensuring curriculum integration. It requires moving beyond traditional evaluation models to establish a multi-dimensional system characterized by "multiple stakeholders, comprehensive content, and diverse methods." This approach enables evaluation to effectively guide and provide feedback for curriculum integration.

To implement a closed-loop evaluation system, a multi-stakeholder framework will be developed, incorporating teacher assessments, student self-evaluations, peer reviews, industry evaluations, and corporate assessments. Teachers will evaluate theoretical knowledge, project execution, and outcomes comprehensively. Student self-assessments and peer reviews will emphasize learning engagement, collaboration, and innovation. Corporate evaluations will focus on practical competencies, job alignment, and professional ethics, while industry evaluations will assess technical proficiency and innovation through certifications and competition results. A collaborative mechanism will define evaluation criteria and weightings for each stakeholder, ensuring objective and comprehensive assessment outcomes.

The evaluation framework employs a closed-loop system encompassing multiple dimensions, including theoretical knowledge, digital skills, "Three Innovations" competencies, and professional ethics. Theoretical knowledge evaluation focuses on understanding fundamental concepts and principles. Digital skills assessment measures the ability to apply digital technologies in cultural tourism projects. "Three Innovations" competency evaluation includes innovative thinking, the quality of creative outputs, and the feasibility and market potential of entrepreneurial projects [16]. Professional ethics evaluation addresses teamwork, communication, responsibility, and ethical standards. A dynamic adjustment mechanism ensures the evaluation content remains relevant and adaptable to industry developments and teaching feedback.

The evaluation system operates in a closed-loop cycle, integrating formative and summative assessments with both quantitative and qualitative methods. Formative assessments monitor students' progress through classroom participation, project development, practical reports, and creative proposals. Summative assessments evaluate overall learning outcomes via final exams, project presentations, business plan defenses, and skill certifications. Digital tools, such as big data analytics, analyze students' online learning behaviors and project execution data, enabling precise and scientific evaluations. A feedback mechanism promptly communicates assessment results to students, faculty, and administrators, offering actionable insights for improving learning, optimizing teaching, and enhancing curricula. This establishes a robust closed-loop system of "evaluation-feedback-improvement."

5. The Course Innovation Path of "Three Creations Integration" in Tourism Management under the Drive of Digital Culture and Tourism

5.1. Innovation of Course Modules: Creating Cross-Disciplinary Integration Courses on "Digital + Triple Innovation"

Interdisciplinary courses will be introduced to address emerging sectors and job requirements within the digital cultural tourism industry. Programs such as "Metaverse Cultural Tourism Applications," "AI-Driven Creative Design for Cultural Tourism," "Digital Cultural Tourism Copyright Protection," and "Live Streaming E-commerce Operations in Cultural Tourism" will integrate knowledge from digital technology, cultural creativity, and entrepreneurial management, broadening students' perspectives

and capabilities. A project-based curriculum cluster will be developed, focusing on real-world digital cultural tourism projects. For instance, the "Smart Scenic Area Upgrading" project will combine courses such as "Smart Scenic Area Operations Management," "Cultural Tourism Big Data Analysis," "Creative Design of Cultural Tourism Products," and "Tourism Marketing" into a cohesive cluster. This approach enables students to apply cross-disciplinary knowledge and enhance their skills in innovation, creativity, and entrepreneurship through project completion. Furthermore, flexible extension courses will be established to align with students' career goals and interests. These modules will facilitate personalized talent development through options such as digital cultural tourism technology, creative design, and entrepreneurial operations.

5.2. Teaching Mode Innovation: Exploring the "Digital Empowerment + Collaborative Innovation" Teaching Model

Innovative immersive teaching models utilize digital technologies such as VR/AR and the metaverse to establish engaging learning environments [1, 5]. For example, VR technology replicates scenarios like smart scenic area tours and cultural tourism product design, allowing students to practice and develop creative designs in virtual contexts. Additionally, metaverse platforms create digital cultural tourism teaching communities, enabling real-time interaction and collaborative learning between teachers and students, thereby improving the engagement and effectiveness of education.

The innovative school-enterprise collaborative teaching model enhances partnerships by creating a tripartite platform that integrates "industry-academia colleges, training bases, and entrepreneurship incubators." Schools and enterprises collaboratively design talent cultivation plans, curriculum standards, and teaching programs, co-developing course content and educational resources. Through tailored training programs aligned with corporate requirements, students engage in real-world project development and operations, strengthening their innovation, entrepreneurship, and creativity (the "three Cs") capabilities as well as their digital literacy in practical business settings.

The competition-driven pedagogical model promotes innovation through a "learning through competition, innovation through competition" framework, incorporating digital cultural tourism contests such as the Digital Cultural Tourism Creativity Competition, Tourism Entrepreneurship Competition, and Smart Tourism Technology Application Competition into the curriculum. By treating competition topics as course projects, students refine their "three-creation" competencies (innovation, entrepreneurship, and creativity) and digital technology application skills during preparation. Involving competition judges and industry experts to provide feedback and guidance on student projects further enhances the relevance and effectiveness of teaching [13].

5.3. Innovation in Resource Allocation: Building a Diversified Resource Support System for "Digital + Triple Innovation"

Innovate digital teaching resources by establishing a "Three-Creation Integration" digital repository, which consolidates premium digital assets such as VR/AR training software, cultural tourism big data analytics platforms, digital creative design tools, online courses, and case libraries. Develop industry-academia collaborative resource libraries by incorporating real enterprise projects, technical documentation, and training materials to enhance practical relevance and targeted instruction. Leverage AI technology to create personalized learning recommendation systems that dynamically suggest suitable resources based on students' progress and competency levels, enabling tailored learning experiences.

To drive innovation in practical platform resources, an on-campus digital cultural tourism "Three Creations" (innovation, entrepreneurship, and creativity) training base will be established. This facility will be equipped with advanced digital technology devices and training software, featuring dedicated zones for innovative design, creative incubation, and entrepreneurial practice to meet both course training and real-world project needs. In collaboration with leading digital cultural tourism enterprises and small-

to-medium innovative companies, off-campus training bases will be developed to offer students internship opportunities, project-based practice, and entrepreneurial incubation [15]. Additionally, an online "Three Creations" practice platform will be launched to enable cross-regional and inter-institutional resource sharing and collaborative innovation.

To innovate faculty resources, a "Digital Literacy + Triple Innovation Competence" enhancement program for teaching staff has been launched. This includes regular training sessions on digital cultural tourism technologies and "Triple Innovation" education workshops. Teachers are encouraged to gain hands-on experience by interning at digital cultural tourism enterprises, where they can participate in real-world project development. Faculty are also supported in conducting teaching research and project applications related to the integration of digital literacy, innovation, and entrepreneurship, thereby enhancing their teaching and research capabilities. Furthermore, a recruitment mechanism has been established to bring in technical experts, industry leaders, and entrepreneurship mentors from digital cultural tourism enterprises as adjunct faculty. These professionals contribute to curriculum design, teaching implementation, and evaluation, optimizing the faculty structure.

6. The Guarantee System for the Integration of the "Three Innovations Integration" Curriculum in the Tourism Management Undergraduate Program Driven by Digital Cultural Tourism

6.1. Organizational Support: Establishing a Diversified Collaborative Management Mechanism

A task force dedicated to coordinating the "Three-Creation Integration" curriculum will be established, consisting of school administrators, deans of secondary colleges, corporate representatives, and industry association delegates to oversee the integration process. A specialized curriculum integration office will manage daily operations and implementation. Regular meetings of the university-enterprise cooperation committee will ensure alignment between industry demands and teaching practices. A curriculum integration teaching team will be responsible for course design, instruction delivery, and resource development. Clear role definitions and collaborative mechanisms will be implemented to facilitate the smooth progression of the integration initiative.

6.2. Policy and Institutional Safeguards: Improving the Management System for Curriculum Integration

Develop detailed implementation guidelines for the "Three-Creation Integration" curriculum, specifying objectives, content, methodologies, and evaluation criteria. Refine credit recognition mechanisms by incorporating students' practical achievements, digital technology certification, and competition awards into the credit system. Establish comprehensive teaching quality evaluation standards, assessing integration quality through curriculum objectives, content, teaching methods, evaluation approaches, and instructional outcomes. Implement incentive policies for school-enterprise collaboration, encouraging deep corporate involvement in curriculum integration while recognizing outstanding enterprises and individuals. Create a dynamic adjustment mechanism to optimize integration plans based on industry developments and teaching feedback.

6.3. Funding Guarantee: Establishing a Multi-Channel Funding Mechanism

A dedicated fund will be established for the "Three-Creation Integration" curriculum, supporting faculty development, resource development, platform construction, practical training equipment procurement, and entrepreneurial incubation initiatives [11, 16]. Increased funding will be allocated to digital teaching resources and practical platforms to ensure technical support for curriculum integration. The university will actively seek government financial support by applying for various educational improvement and research projects at all levels to secure funding. Funding channels for school-enterprise collaboration will be expanded, encouraging enterprises to contribute through donations, co-building training bases, or joint educational programs. Additionally, social capital will

be attracted to establish a diversified funding mechanism, ensuring adequate financial support for curriculum integration efforts.

7. Conclusion and Outlook

The rapid development of the digital cultural tourism industry presents both opportunities and challenges for undergraduate education in tourism management. Curriculum integration is the central pathway for achieving the coordinated cultivation of "Three Innovations" competencies and digital literacy. Based on systems theory and collaborative innovation theory, this paper analyzes the internal mechanisms and existing problems of curriculum integration driven by digital cultural tourism. It constructs a four-in-one curriculum integration mechanism covering "goal coordination, content integration, teaching linkage, and evaluation closure." It further proposes innovative pathways from three dimensions: curriculum modules, teaching models, and resource allocation. In addition, a tripartite support system integrating organizational structure, policy frameworks, and funding mechanisms is established. The study shows that effective implementation of the curriculum integration mechanism and innovative pathways can remove barriers within traditional curriculum systems, promote the deep integration of digital technologies, "Three Innovations" education, and specialized courses, and cultivate high-level technical and skilled talents with interdisciplinary competencies suited to the needs of the digital cultural tourism industry.

With the continuous advancement of digital technologies and the ongoing upgrading of the cultural tourism industry, the integration of the "Three Innovations Integration" curriculum in tourism management undergraduate programs remains a dynamic and continuously optimized process. Universities should actively align with industry needs, deepen educational improvement, and continue exploring new mechanisms and pathways for curriculum integration, thereby providing a solid talent foundation for the high-quality development of the digital cultural tourism sector.

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