

Exploring Refined Management Pathways for Tourism Laboratories in Higher Education in the New Era

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Abstract: Against the background of the deep integration and digital transformation of the cultural and tourism industries, university tourism laboratories—serving as core platforms for cultivating interdisciplinary and innovative tourism talents—play a decisive role in determining the effectiveness of talent cultivation and the vitality of disciplinary development. Based on the actual conditions of the tourism laboratories and practical training facilities at our university, this paper systematically explores refined management pathways for tourism laboratories from five dimensions: the construction of a hierarchical management system, the optimization of resource allocation, the integration of teaching and training innovation, the strengthening of safety norms, and the upgrading of management teams. The aim is to provide practical references for the high-quality development of tourism laboratories in similar higher education institutions.

Keywords: Tourism Laboratory; Refined Management; Practical Pathway

1. Introduction

As China's tourism industry transforms from traditional sightseeing to leisure-oriented experiences and from resource-driven to innovation-driven development, the industry's demand for talent with practical, innovative, and digital capabilities has increased significantly. University tourism laboratories, serving as crucial bridges between theoretical instruction and industry practice, shoulder the mission of cultivating professional skills, shaping vocational literacy, and nurturing creative thinking among students [1].

The tourism laboratory system at our university is comprehensive, encompassing simulation training in tour guiding and new media, convention and exhibition planning, smart tourism, hotel services, and intangible cultural

heritage (ICH) studies. It is equipped with a VR tourism planning system and a smart tourism big data analysis platform, forming a multi-scenario, full-chain training structure.

Based on the practical context of laboratory construction, this study focuses on five core areas—management system building, resource optimization, teaching–training integration, safety assurance, and team development—to establish a scientific and efficient management framework that enhances the quality of talent cultivation and provides a strong human resource foundation for the high-quality development of the cultural and tourism industry.

2. Practical Pathways for Refined Management of Tourism Laboratories

2.1 Building a Hierarchical Management System to Strengthen Operational Foundations

A sound management system serves as the foundation for standardized laboratory operation. Considering the diverse functions and equipment of our university's tourism laboratories, a three-tier management system has been established: “college-level coordination – center-level supervision – lab-level responsibility,” forming a structure characterized by clear responsibilities and efficient collaboration [2].

At the college level, authorities are responsible for macro management, including construction planning, equipment procurement, and performance evaluation, ensuring alignment between laboratory development and institutional talent training goals. The laboratory center functions as the intermediate management layer, responsible for developing detailed management regulations, coordinating inter-laboratory resource allocation, and advancing information management platform construction.

Each training room designates a dedicated

administrator under a “one room, one policy” refined management model, responsible for daily operations, equipment maintenance, consumable management, and safety inspections.

Comprehensive institutional frameworks have been established, covering equipment management, safety management, teaching management, consumables control, and open-access policies.

Equipment Management: A life-cycle management system records key data on equipment purchase, installation, training, maintenance, and disposal. Regular inspections and on-demand maintenance ensure optimal functionality.

Consumables Management: For high-consumption laboratories, a “quota application, dynamic monitoring, and cyclical reuse” mechanism enables accurate consumption statistics and cost control, minimizing waste [3].

Meanwhile, the laboratory information management platform integrates training scheduling, equipment control, teaching organization, and safety monitoring, digitizing the entire management process and improving both transparency and efficiency [4].

2.2 Optimizing Resource Allocation and Sharing Mechanisms to Enhance Utilization Efficiency

Optimizing resource allocation and sharing is central to maximizing the overall effectiveness of tourism laboratories [5].

In terms of spatial and equipment configuration, planning and adjustments are made according to functional positioning and instructional needs. For skill-based training laboratories (e.g., hotel standard guest room, front office practice room), equipment and workstations are allocated according to class size, ensuring sufficient practice opportunities for every student. For technology-intensive areas (e.g., VR tourism planning zone, smart tourism big data platform), a “group rotation + reservation-based” model enhances equipment efficiency.

Comprehensive laboratories such as the convention planning lab and tour guide simulation lab employ flexible layouts and mobile equipment to accommodate diverse training projects.

A cross-disciplinary resource-sharing mechanism has also been established. The tour

guide and new media lab shares media equipment with the New Media major; the smart tourism lab shares big data analysis tools with the Computer Science department; and the Teochew ICH research lab collaborates with the History major on cultural heritage resources. Partnerships with local tourism enterprises, cultural and tourism departments, and ICH preservation organizations further extend laboratory functions, incorporating real-world projects, industrial data, and cultural resources into academic training [6].

Open management policies allow multi-tiered and scheduled access.

- For lower-grade students, foundational skills workshops (e.g., etiquette, room service) are conducted.

- For senior students, project-based learning and research (e.g., tourism data analytics, event planning) are supported.

- For community engagement, laboratories provide employee training for local tourism enterprises and host public ICH experience workshops, expanding their social service value [7].

2.3 Deepening the Integration of Teaching and Practice to Empower Talent Development

The core purpose of laboratory management is to serve talent cultivation. Leveraging diverse training environments and facilities, the university promotes deep integration of laboratory management with teaching reform, forming a three-in-one model of “theory – practice – innovation” that transforms skills training into competency development [8].

A tiered training system is designed according to student progression:

Junior students focus on foundational skills through the hotel guest room, culinary culture, and etiquette labs.

Intermediate students engage in applied training through the tour guide simulation, convention planning, and smart tourism labs, gaining practical experience in guiding, planning, and data analytics.

Senior students undertake innovation-based projects in the ICH research and beverage culture labs, such as designing ICH tourism products and developing themed catering brands, cultivating creativity and entrepreneurship.

To align laboratory training with industry demands, the Smart Tourism Big Data platform

provides real-time business information for inclusion in training modules. Cooperation with star-rated hotels, travel agencies, and convention enterprises brings real-world projects into laboratory practice—e.g., students simulate planning a local tourism expo, handling all aspects from theme selection and booth design to on-site execution, under expert guidance.

Digital innovation in practical teaching is also prioritized. VR tourism systems enable immersive tour-guiding simulations unconstrained by location; big data tools support tourism market forecasting and behavioral analysis, strengthening students' digital literacy [9]. Hybrid online–offline teaching further enhances accessibility and continuity in training delivery.

2.4 Strengthening All-Round Safety Systems to Ensure Standardized Operations

Safety represents the bottom line of laboratory management. Tourism laboratories often involve electrical equipment and high personnel mobility; thus, a multi-level safety system is essential to protect both people and property.

Comprehensive safety policies and emergency plans are developed for each lab type. For example, hospitality training rooms define clear equipment operation standards, while VR and data labs maintain protocols for equipment handling and data security. Emergency response plans address fire, equipment failure, and injury scenarios, with regular drills improving emergency preparedness.

Safety facilities—including fire extinguishers, hydrants, emergency lights, and first aid kits—are installed and maintained regularly. A “daily–weekly–monthly” inspection system ensures continuous monitoring: daily checks by lab administrators, weekly inspections by the center, and monthly comprehensive reviews by the college. Safety records and corrective actions are archived for closed-loop management.

Safety education and training are incorporated into student orientation and laboratory courses. New students must complete safety lectures, operation tutorials, and examinations before beginning practical sessions, ensuring awareness and compliance from the outset.

2.5 Developing a Professional Management Team to Enhance Service Capacity

The laboratory management team is the backbone of laboratory development. Guided by the goal of building a professional, interdisciplinary, and high-quality workforce, a triadic structure of “administrators + faculty + industry experts” has been established [7].

Professional administrators receive continuous training in equipment operation, safety, and digital technology, and are encouraged to participate in workshops and conferences to adopt advanced management methods.

Faculty collaboration is strengthened by encouraging teachers to engage in laboratory operation and supervision, guide students in correct equipment use, and participate in project design. Regular meetings facilitate problem-solving and promote the integration of research findings into teaching innovation.

Industry experts are invited as part-time advisors to assist in laboratory planning and project design, offering technical guidance and lectures that expose students and staff to cutting-edge trends and practices. Industry collaboration also expands internship and employment opportunities, ensuring stronger alignment between education and the tourism sector.

3. Conclusion

The refined management of university tourism laboratories is a systematic endeavor requiring continuous optimization of structures, methods, and efficiency in response to disciplinary development and talent needs. Based on this study, Hanshan Normal University will continue to deepen reform by improving the three-tier management system, optimizing resource-sharing mechanisms, integrating teaching and training, reinforcing safety management, and strengthening team building. These efforts will ensure the comprehensive and efficient utilization of laboratory resources and equipment, providing solid support for cultivating innovative and interdisciplinary professionals suited to the high-quality development of the cultural and tourism industries.

The experience presented herein also offers a valuable reference for other higher education institutions seeking to modernize laboratory management and promote the sustainable, high-quality advancement of tourism education in China.

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