Construction and Practice of Safety Culture in Tourism Laboratories

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Abstract: With the deepening reform of practical teaching in tourism-related majors, tourism laboratories—serving as the core platforms for hands-on training—play a decisive role in teaching quality and the safety of staff and students. This paper takes the tourism laboratories of the School of Geography and Tourism at Hanshan Normal University as a case study. Beginning from the core connotations of laboratory safety culture and considering the laboratories' characteristics of scenario simulation, specialized equipment, and high interaction in operations, the study systematically outlines pathways for safety culture construction and documents practical outcomes. The proposed framework centers on the four dimensions of concept, system, behavior and material, and integrates institutional design, teacher and student education, organizational mechanisms, and technological measures. The eight-year practice demonstrates that a contextualized, scenario-based safety culture construction can effectively prevent accidents, improve safety awareness and behaviors, and offer a replicable reference for similar institutions.

Keywords: Tourism Laboratory; Safety Culture; Construction And Practice

1. Introduction

Rapid development and structural upgrading in the tourism industry have imposed higher demands on the professional skills and comprehensive qualities of tourism graduates. To meet these requirements, universities nationwide have intensified reforms in practical teaching for tourism-related majors, placing greater emphasis on students' hands-on abilities and professional competencies. In this context, tourism laboratories—through simulations of real service settings such as hotel rooms and catering environments—provide a critical platform for students to transform theoretical knowledge into practical skills. However, frequent operation of specialized equipment in these laboratories (e.g., guest-room appliances, kitchen utensils) markedly increases safety risks. Hence, a proactive safety culture is essential to prevent accidents. Laboratory safety culture is a multi-dimensional, multi-level complex system; its core elements can be summarized as concept (attitudes and values), system (rules and procedures), behavior (practical habits), and material (facilities and environment). These four elements interact and mutually reinforce one another, forming the foundation of laboratory safety management [1].

1.1 Current Status of Laboratory Safety Culture Construction in Chinese Universities

Historically, safety culture construction in Chinese universities has concentrated largely on science and engineering laboratories. This emphasis is largely due to the presence of high-risk factors—such as hazardous chemicals, flammable/explosive materials, high pressure, high temperature, and radiation—in those disciplines, where accidents can have severe consequences [2–6]. Consequently, educational authorities and universities have devoted substantial resources to the safety management of science and engineering labs, establishing relatively mature management systems and cultural norms. Examples include strict chemical procurement, storage, usage, and waste disposal procedures, as well as certification-based operation and periodic inspection of special equipment. These measures have effectively ensured the safe functioning of science and engineering laboratories and provided useful lessons for other laboratory types. Nevertheless, the focus on high-risk laboratories has also led to relative lag in safety culture development for other domains, including tourism laboratories.

1.2 The "Marginalization" of Safety Culture in Tourism Laboratories

Compared with science and engineering facilities, safety culture construction in tourism laboratories has to some extent been marginalised. A widespread misconception contributes to this: tourism labs are often perceived as low-risk because they typically lack highly toxic substances or specialized hazardous equipment. Such a misconception results in inadequate investment in safety management and neglect of safety culture. Concretely, this manifests in several ways: conceptually, instructors and students may overlook hidden risks in "low-risk" scenarios (for example, electrical short circuits in guest-room simulations or improper knife handling in catering exercises); institutionally, many tourism labs adopt generic laboratory management regulations without tailored protocols for tourism training contexts, reducing practicability and effectiveness; materially, safety facilities are sometimes insufficient—for instance, simulated restaurants may lack anti-scald equipment, and VR training rooms may have no collision-warning signage—thereby creating latent risks for accidents.

1.3 Urgency and Particularity of Constructing Safety Culture in Tourism Laboratories

The marginalization of safety culture in tourism laboratories underscores both the urgency and the specificity of construction efforts. Urgency arises because practical teaching in tourism disciplines is intensifying: students are engaging in more frequent and complex operations in laboratory settings. If safety culture is not strengthened in a timely manner to prevent and mitigate risks, an accident could endanger lives and property, disrupt teaching, and damage institutional reputation. The particularity stems from the fact that safety management for tourism laboratories cannot simply replicate the models used in science and engineering labs; rather, it must be tailored to the sector's own characteristics. Risks in tourism labs are more embedded in human–machine–environment interactions and are often dynamic, diverse and concealed. Therefore, effective safety culture construction must emphasize scenario-based, fine-grained, and human-centered measures, aligning risk control strategies with the specificities of tourism training scenarios.

2. The Connotation of Safety Culture in Tourism Laboratories

The safety culture for tourism laboratories needs to be closely aligned with their professional features—scenario simulation, specialized equipment, and high operational interactivity. On the basis of general safety culture elements, the tourism-lab-specific safety culture should be detailed and deepened to form a safety system with distinctive "tourism lab" characteristics.

2.1 The Principle "Training Design Is Safety Design"

Teachers play a crucial role in shaping conceptual safety culture. It is essential to reinforce a teacher's mindset that "training design is safety design," requiring that safety considerations be the primary factor when drafting training plans and designing training procedures. This means instructors must not only focus on pedagogical goals and skill requirements but also systematically anticipate and assess potential safety hazards during training. For example, when designing a simulated tour-guide training, teachers should account for collision risks arising from students moving quickly within confined spaces and pre-plan safe movement routes and interaction modalities. When designing catering training, teachers must foresee risks related to open flames, high-temperature oil, or sharp knives and put in place corresponding preventive measures. By adopting such preemptive safety designs, risks can be eliminated at their source, thus securing the training process. Establishing this mindset requires teachers to have a strong sense of safety responsibility and rich practical experience capable of integrating safety knowledge with professional skill instruction.

2.2 Students' Awareness: "Service Operation Is Safety Operation"

For students, the core of conceptual culture cultivation is fostering the awareness that "service operation equals safety operation." Safety awareness should be integrated into every step of service skills training so that students develop safe-operation habits alongside professional skills. For instance, during bed-making training, students should master speed and neatness while also being mindful of bedframe corners to avoid collision injuries; when using electrical appliances, students should inspect devices before use and

disconnect power after operation; during table-setting exercises, students should pursue aesthetics and efficiency while ensuring safe placement of knives to prevent accidental cuts. By coupling safety with operational training in this way, students will internalize the notion that safety is an integral component of service, and they will be more likely to follow safety norms instinctively in their future professional practices, delivering services that are both professional and safe.

3. Practical Outcomes of Our Tourism Laboratory

Since 2017, our tourism laboratory has formally launched a safety culture construction project that addresses the four dimensions of concept, system, behavior and material, while tailoring measures to the professional features of tourism training. Through eight years of sustained effort, the laboratory has maintained a record of "zero safety incidents" for eight consecutive years and was honored in 2024 with the title "Advanced Laboratory in Safety Work" by Hanshan Normal University—an acknowledgement of the notable achievements in safety culture construction.

3.1 Cultivating Safety Concepts: From "Passive Publicity" to "Active Participation"

To instill safety concepts among faculty and students, our tourism laboratory innovatively launched a "Tourism Laboratory Safety Micro-Class." At the beginning of each semester, all students who will enter laboratories are required to watch an in-house produced compilation titled *Tourism Training Safety Case Collection*. This casebook aggregates authentic safety incidents from recent years in both the tourism industry and university labs, including examples such as electrical short–circuit fires in guest-room simulations, knife injuries caused by improper catering operations, and collisions due to VR equipment misuse. By observing these compelling cases, students gain a vivid understanding of the severe consequences of accidents and are thereby motivated to take safety seriously. After the viewing, students must pass a "safety knowledge checkpoint" test that is closely tied to the cases and the lab's actual safety rules; only those who pass are allowed to enter the laboratory. This combined "case-warning + knowledge test" model transforms passive safety publicity into an active process of learning and reflection, significantly enhancing the effectiveness of safety education.

3.2 Hosting a "Tourism Safety Culture Festival"

To further cultivate a pervasive safety culture atmosphere, the laboratory organizes an annual "Tourism Safety Culture Festival." The festival features various activities, the most notable being a "safety training scenario drama" competition. Student groups are encouraged to write, direct and perform short plays related to training safety. Through creative enactments—illustrating how to avoid collisions when making beds, proper knife handling, or the correct response to a fire—students deepen their understanding of safety norms while improving teamwork and communication in a relaxed, engaging format. In addition to drama, the festival hosts safety quizzes, themed speeches, and safety-poster design contests, embedding safety education into students' daily learning and campus life and encouraging safety to become a habitual pursuit.

3.3 Establishing a "Safety Observer" System

To stimulate students' sense of safety responsibility, the laboratory has implemented a "Safety Observer" system. Each training group elects a student with strong responsibility and safety awareness to act as the group's Safety Observer. The observer's duties include monitoring and recording safety issues—such as unsafe operations, equipment faults, and environmental hazards—during training sessions and promptly reporting them to instructors or lab administrators. At the end of each month, outstanding Safety Observers are selected and rewarded. This system not only provides students with a formal channel to participate in safety management but also makes each student a stakeholder in laboratory safety, fostering a culture where "everyone cares about safety and everyone participates in management," thereby extending safety responsibility from instructors and administrators to all students.

3.4 Implementing a "Safety Responsibility Checklist" System

To ensure accountability, the laboratory has fully implemented a "Safety Responsibility

Checklist" system, clarifying specific responsibilities for lab administrators, training instructors, and students. Lab administrators are charged with regular inspection and maintenance of equipment to ensure proper functioning; instructors are responsible for daily safety rounds and operational guidance, serving as frontline safety stewards; students must sign a *Safety Commitment Agreement* pledging to adhere to lab rules. Importantly, compliance with safety responsibilities is linked to staff performance evaluations and student training results. Those found negligent, derelict, or responsible for major hazards may face a "veto" in performance or accountability measures and will be held responsible accordingly. This clear delineation of duties, coupled with explicit rewards and penalties, effectively consolidates responsibility across levels and fosters a joint, coordinated management model.

4. Summary

The core of safety culture construction in tourism laboratories lies in abandoning a generic management mindset and instead aligning safety governance with the professional features of scenario simulation, specialized equipment, and high operational interactivity. By building a composite safety culture system that mutually supports the four dimensions of concept, system, behavior and material, the laboratory shifts from passive compliance to active identification and internalization of safety norms. Through cultivation of scenario-based safety awareness and embedding safety into daily operational practice, the laboratory has achieved systematic, fine-grained and sustainable safety management.

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