

Building a T-E-T Framework for Smart Tourism: Integrating Technology, Emotion, and Talent

Kunfang Chen

WuXi City College of Vocational Technology, Wuxi, Jiangsu, China

Abstract: Smart tourism has increasingly become a national strategic priority in China. Through a systematic review of national and provincial governance frameworks and a comprehensive analysis of related research fields, this study identifies significant progress in three areas: smart tourism technology, tourist emotional experience, and talent cultivation. However, there is relatively little research on the emotional transmission mechanism that links technology to talent development. This study uses the cognitive appraisal theory (CAT) for reference, analyzes the governance document and interprets the literature, and studies the interactive relationship between the application of smart tourism technology, tourists' emotional experience and the ability requirements of tourism practitioners. We propose to build a three-stage T-E-T (Technology Emotion Talent) framework, extending the application of emotion evaluation theory from individual psychological analysis to industry and education system, in order to provide theoretical contribution and practical enlightenment for the development of smart tourism.

Keywords: Smart Tourism; Emotional Experience; Cognitive Appraisal Theory; Talent Cultivation; T-E-T Framework

1. Introduction

1.1 Background and Problem Statement

In May 2024, the Ministry of Culture and Tourism of China, in collaboration with four other central government departments, jointly issued the Action Plan for Innovative Development of Smart Tourism, which emphasizes the deep integration of the digital economy and tourism industry. The Plan calls for promoting the comprehensive upgrading of infrastructure, service efficiency, management

ability and marketing effect. And specify the goals of expanding the scale of smart tourism economy and improving the coverage of 5g network in 4A and above scenic spots [1]. In September 2025, the Jiangsu Provincial Department of Culture and Tourism, together with the Jiangsu Provincial Development and Reform Commission and the Jiangsu Provincial Data Bureau, released the Jiangsu Provincial Action Plan for Innovative Development of Smart Tourism (2025–2027). This document proposes five major initiatives—technological innovation leadership, product upgrading, service quality enhancement, governance improvement, and marketing effectiveness—comprising 14 specific measures to achieve high-quality smart tourism development in Jiangsu Province [2].

From the national to the local level, the successive introduction of relevant policies shows that technology is conducive to the optimization of tourist experience, and industrial upgrading needs the support of talent teams. However, smart tourism technology, while improving tourists' satisfaction, may also cause information overload, exacerbate the digital divide and other risks. At the same time, technology iteration puts forward new ability requirements for tourism practitioners. At present, tourism education in Higher Vocational Colleges focuses on practical operation and skill training, and the cultivation of students' emotional ability is obviously lagging behind. As a result, graduates are prone to emotional exhaustion, job burnout and many other problems when facing the complex service environment.

Against this backdrop, the core question of this study is: how does smart tourism technology affect tourists' emotional experience, and what new requirements does this process put forward for the cultivation of tourism talents?

1.2 Significance of the Study

The theoretical significance of this study lies in

the following aspects:

Extend the theory of emotional evaluation from individual psychological analysis to tourism industry and vocational education, and expand the scope of research; Disassemble the emotional transmission mechanism between smart technology investment and talent demand in detail, and clarify the development and theoretical path of technology emotion talent three stages; Break the research pattern in professional fields and optimize the structural dialogue platform.

2. Literature Review

2.1 Smart Tourism Technology

Smart tourism has become an important research field over the past decade. Buhalis and Amaranggana (2015) conceptualized smart tourism destinations as systems that use technology to enhance tourist experience, improve resource management and enhance competitiveness [3]. Gretzel et al. (2015) defined smart tourism as a comprehensive tourism form, involving physical infrastructure, social and organizational collaboration, and data collection, aggregation and processing of human body and mind [4]. Neuhofer et al. (2015) studied how smart technologies facilitate personalized consumer experiences and believed that value co-creation of tourists and technology is the core of the success of smart tourism [5]. As research has progressed, scholarly attention has shifted from technological feasibility to user experience issues. For example, Li Ye and colleagues found that tourists' overall emotional responses to smart tourism destinations tend to be positive. Among the five key thematic dimensions of smart facilities, ticketing, sightseeing, transportation and experience, smart experience is the most important dimension [6].

2.2 Tourist Emotional Experience and Cognitive Appraisal Theory

Research on "emotion" has become a topical issue. Hosany and Gilbert (2010) developed a destination emotion scale centered on key emotional dimensions such as pleasure, love, and positive surprise. The scale test shows that emotions significantly influence tourist satisfaction, behavioral choices, and destination loyalty [7]. Lazarus (1991) proposed the cognitive-appraisal theory. He posited that emotions arise from the interaction between

individuals and their environment, and that emotional experience depends on the individual's cognitive evaluation of stimulus events. This theory divides cognitive appraisal into three sequential levels: primary appraisal, secondary appraisal, and reappraisal, forming a complete cognitive cycle system [8]. Cognitive-appraisal theory has been applied by both domestic and international scholars to investigate tourists' evaluations of destination attributes. Tu et al. (2017) employed Cognitive Appraisal Theory to examine the mediating effect of tourists' positive emotions on the relationship between Xiamen's tourism destination image and tourists' behavior [9]. Tian et al. (2015) used an empirical research approach, integrating awe prototype theory and Cognitive Appraisal Theory to analyze. From the perspective of Cognitive Appraisal Theory, the influence of a specific destination's environment on tourist satisfaction and loyalty [10]. Zhang and Tao (2012), drawing upon cognitive-emotion theory, demonstrated the mechanisms through different types of emotions affect tourism consumer satisfaction [11].

2.3 Tourism Talent Cultivation

Talent are the core driving force of tourism development. Tourism vocational education constitutes the key path and important support for the cultivation of tourism professionals. From the traditional practical operation and skill training, such as appearance, language ability, service process and destination knowledge. In the context of the digital era, the trend toward cultivating high-skilled talents with "digital cultural tourism +" competencies is gaining momentum. The digital and intelligent cultural tourism industry is undergoing profound transformation, and the tourism labor force is confronting a significant transition. Scholars both domestically and internationally have conducted in-depth research on the demands, models, pathways, and mechanisms of tourism talent cultivation, and formed a foundational theoretical accumulation in this area. Some scholars have explicitly identified "emotional labor" as a key ability required for the sustainable development of the tourism industry. As smart technologies increasingly mediate service interactions, the nature of emotional labor is evolving. Tourism practitioners are now required not only to engage in face-to-face emotional exchanges but also to deal with the emotional impact of technical failures, data

privacy concerns, and the inherent tension between automation and humanization [12-14]. Nevertheless, most of the above studies focus on technology, management, or talent competency in isolation, and pay relatively little attention to emotional ability, emotion recognition, emotion regulation and relationship construction in the context of smart tourism. The emotional dimension of talent cultivation remains under-addressed.

3. Policy Analysis

3.1 Research Method

The policy documents analyzed in this study were sourced from official agencies including the State Council, the Ministry of Culture and Tourism, and the Jiangsu Provincial Department of Culture and Tourism. The time span is from 2015 to the present (2026). In the coding and analysis process, three first-class indicator keywords were established, namely, technology investment, tourist experience, and talent requirements. The specific breakdown is as follows:

Technology Investment: secondary indicators include artificial intelligence, big data, Internet of Things, digital twins, cloud services, etc;

Tourist Experience: secondary indicators include tourist satisfaction, immersive experience, emotional experience, personalization, private customization, etc;

Talent Requirements: secondary indicators include interdisciplinary talents, service capability, digital literacy, competency profiling, etc.

According to the above three-level coding framework, the collected texts were screened and systematically organized, and a total of 32 effective analysis samples were determined. The statistical results reveal that the keywords related to "technology investment" appeared with the highest frequency in policy texts from 2015 to 2020; the keywords pertaining to "tourist experience" showed a marked increase in frequency from 2021 onward; and the keywords related to "talent requirements" have the most obvious increase in the policy texts after 2024, and the expression has gradually shifted from "quantity demand" to "ability structure optimization".

3.2 Policy Evolution

The study found that from 2015 to 2020, the

policy documents predominantly focused on 5G network deployment, smart facility upgrades, and digital platform construction. That is, take technology as the core for building the digital backbone of smart tourism.

From 2021 to 2023, the policy priorities expanded to the optimization of consumer experience. The language in official documents shifted from "infrastructure development" toward "enhancing tourist experience" and "improving satisfaction." During this period, the attention to service personalization, convenience and service quality gradually increased.

From 2024 onward, new trends have emerged in policy documents. The Action Plan for Innovative Development of Smart Tourism calls for initiatives to cultivate innovative smart tourism talent. Encouraging and support higher education institutions to integrate multidisciplinary educational resources and intensify efforts to cultivate interdisciplinary talents combining digital technology and tourism. It also emphasizes the establishment of robust mechanisms for smart tourism talent cultivation to build a high-quality workforce commensurate with smart tourism development.

The research reveals a clear temporal evolution of policy priorities. The country has new specific needs for innovative talents in smart tourism.

3.3 Analytical Conclusions

The foregoing analysis yields the following insights: smart technologies are being deployed at an accelerated pace, and experience quality has become one of the important policy objectives, and all levels and departments pay more and more attention to tourist convenience, comfort, and satisfaction. Talent cultivation has consistently been a priority in the policy; but under the smart tourism paradigm, the new ability required for talent development, particularly "emotional competence", remain inadequately defined. This presents both opportunities and challenges for the tourism industry. Within the supportive framework provided by the policy, further research is needed to advance the mechanisms by which technology serves as a means and emotional experience serves as a pivot to promote the cultivation of new types of tourism professionals.

4. Framework Construction

4.1 Theoretical Foundation

Based on the previous coding analysis of the smart tourism policy text and the combing of relevant literature, the logical interrelationships among technology investment, tourist emotional experience, and talent cultivation have been clearly identified. On this basis, we draw upon the core tenet of Cognitive Appraisal Theory (CAT) –that cognitive evaluation determines emotional response, and introduce the S-O-R (Stimulus–Organism–Response) model from environmental psychology as a structural reference for the analytical framework. "Technology input" is defined as external stimulus (S), "Tourists' cognitive appraisal and emotional responses" as an organism (O), and "structural changes in talent competency requirements" as the long-term response (R) at the market level. Accordingly, a three-stage T-E-T (Technology–Emotion–Talent) framework tailored to the smart tourism development context is constructed. The core logic of this framework can be summarized as follows: technology shapes emotion, and emotion signals talent demand. As shown in Figure 1:

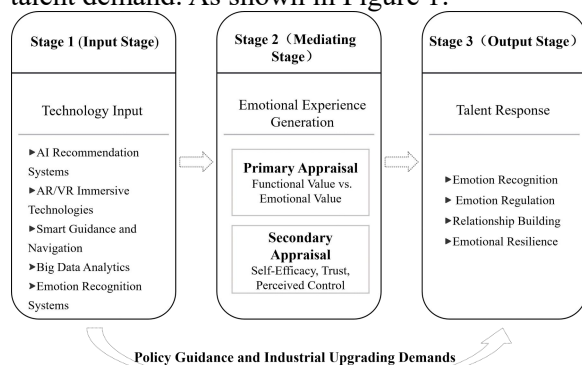


Figure 1. The Technology–Emotion–Talent (T-E-T) Framework

4.2 Stage One: Technology Input (Technology)

In the first stage, smart technology investment is the input end, featuring the deployment of core smart technologies:

AI-powered recommendation systems, which is used to provide tourists with personalized travel planning, accommodation and product purchase suggestions;

AR/VR immersive experiences, which is aimed at enhancing the attraction of the destination and provide virtual preview for tourists;

Smart guided tours and navigation, which is used to improve traffic flow and facilitate tourist access to transportation information;

Big data analytics, which is for real-time crowd

management and demand forecasting at tourism destinations and scenic areas;

Emotion recognition systems, through technical means, can recognize tourists' facial expressions, voice or text analysis tourists' emotions. The sustained large-scale implementation of these technologies continues to generate significant industrial and economic effects.

According to data from the 2025–2030 China Smart Tourism Industry Market Status and Outlook Survey Report published by the China Commercial Industry Research Institute, the market size of China's smart tourism economy reached RMB 1,455.5 billion in 2025. The 2025 China Youth Tourism Observation Report indicates that 73.5% of young respondents agree that "following AI for travel" will become mainstream, with 31.44% of frequent AI tool users in first-tier cities. According to Fliggy's 2025 Travel AI Index, the average daily call volume for travel AI surged 7.7-fold in 2025, token consumption increased 20-fold, and merchant usage of AI tools doubled by a factor of 2.4. These data collectively demonstrate that continuous innovation on the technology supply side (input) and active adoption on the demand side (tourists and merchants) jointly constitute the dual driving force of smart tourism transformation.

4.3 Stage Two: Emotional Experience Generation (Emotion)

The second stage is the transformation end, which examines tourists' cognitive appraisals of smart technologies and their resultant emotional responses. Given the distinctive attributes of tourism activities, tourists engage in two types of emotional appraisal during technology use:

Primary Appraisal, including functional value (efficiency, convenience, information quality) and emotional value (pleasure, novelty, immersion). During use, tourists engage in self-inquiry: "Does this technology help me achieve my travel purpose? Is it convenient to use? Does it enhance my travel experience?"

Secondary Appraisal, on the basis of primary evaluation, prompting tourists to reflect on the technology-use process, thereby generating self-efficacy, trust, and perceived control. For example: "Can I use this technology effectively? Am I comfortable with the data sharing it requires? If the technology malfunctions, can I cope adequately?" and so on.

Emotional appraisals yield two experiential

outcomes:

Positive Emotions: When smart technologies enhance the activity experiences and provide personalized value, tourists experience pleasure, excitement, trust, satisfaction, and delight.

Negative Emotions: When technologies induce information overload, fail to meet expectations, or exhibit exclusionary effects toward specific user groups, tourists experience frustration, anxiety, confusion, and disappointment.

4.4 Stage Three: Talent Response (Talent)

The third stage constitutes the output end, wherein emotional dynamics generated in the second stage are translated into new workforce competency requirements. In the cultivation of talents in tourism vocational education, particular attention should be focused on the following four competency domains:

Emotion Recognition. Cultivating students' ability to identify and interpret tourists' emotional states, and accurately identify tourists' experience states in the service process through direct observation, data analysis and interpretation.

Emotion Regulation. Equipping students to effectively manage their own emotions when delivering services with the assistance of smart technologies. for instance, keep professional composure in case of technical failure, flexibly adjusting communication methods according to the characteristics of different tourist segments, and effectively preventing emotional exhaustion caused by sustained digital interactions.

Relationship Building. As certain traditional service interactions are progressively replaced by technology, the human value proposition has shifted to empathy, personal connection, and emotional resonance. Students must learn to establish authentic emotional connections with tourists.

Emotional Resilience. Fostering students' capacity to maintain emotional labor and occupational enthusiasm. Smart tourism technologies can increase the emotional labor demand by intensifying service interactions and creating novel emotional touchpoints, and further improve the "emotional toughness" of employees.

Existing tourism vocational education curricula emphasize operational skills and technical knowledge, while the four key abilities above have not received sufficient attention.

5. Conclusion

Through systematic analysis of policy texts and relevant literature, this study proposes a three-stage T-E-T framework for smart tourism development, and expounds the causal logic linking smart tourism technology, tourist emotional experiences, and tourism talent cultivation. The core propositions of the T-E-T framework are as follows: smart tourism technologies produce corresponding emotional responses through tourists' two-tiered appraisals. Positive emotional responses contribute to the development and impose new competency requirements on tourism practitioners. In the cultivation of tourism talents, educational institutions should prioritize the development of students' competencies in emotion recognition, emotion regulation, relationship building, and emotional resilience to enhance talent adaptability.

Several limitations must be acknowledged. For instance, the specific interaction among smart technology investment, appraisal process management, emotional outcome identification, and talent cultivation requirements proposed in this study warrant empirical testing through quantitative methods, such as questionnaire research or experimental designs. In terms of policy analysis, this study relies primarily on the publicly available documents and does not account for the complexities of policy implementation at the local level. Future research could address these gaps through in-depth interviews with local government administrators, destination practitioners, and educators, so as to further enhance the depth and precision of the inquiry.

References

- [1] Sun, Y, & Liu, Q. (2026). Digital heritage value and tourism communication innovation in the digital age. *Tourism Tribune*, 41(04), 8-10.
- [2] Yuan, D, Pan, Y, Wu, R, & Du, C. (2025). Research on the characteristics of China's smart tourism policies and optimisation strategies. *Think Tank: Theory & Practice*, (05), 35-46.
- [3] Buhalis, D, & Amaranggana, A. (2015). Smart tourism destinations: Enhancing tourism experience through personalisation of services. In *Information and Communication Technologies in Tourism 2015* (pp. 377–389). Springer.

- [4] Gretzel, U, Sigala, M, Xiang, Z, & Koo, C. (2015). Smart tourism: Foundations and developments. *Electronic Markets*, 25(03), 179–188.
- [5] Neuhofer, B, Buhalis, D, & Ladkin, A. (2015). Smart technologies for personalized experiences: A case study in the hospitality domain. *Electronic Markets*, 25(03), 243–254.
- [6] Li, Y, Yuan, L, & Liu, Y. Q. (2025). A thematic study on smart tourism destination development based on tourist perceptions. *Economic Forum*, 10, 98–107.
- [7] Hosany, S, & Gilbert, D. (2010). Measuring tourists' emotional experiences: Toward a destination emotion scale. *Journal of Travel Research*, 49(04), 513–526.
- [8] Lazarus, R. S. (1991). *Emotion and Adaptation*. Oxford University Press.
- [9] Tu, H. W, Xiong, L. Y, Huang, Y. M, & Guo, G. X. (2017). The influence of destination image on tourists' behavioral intentions: Based on cognitive appraisal theory. *Tourism Tribune*, 32(2), 32–41.
- [10] Tian, Y, Lu, D, & Powpaka, S. (2015). Tourists' awe and loyalty: An interpretation based on cognitive appraisal theory. *Tourism Tribune*, 30(10), 80–88.
- [11] Zhang, W. Y, & Tao, Z. M. (2012). A study on tourist satisfaction based on cognitive-emotion theory. *Consumer Economics*, 28(05), 70–74.
- [12] Fang, W, Zhou, B, & Shen, X. W. (2017). A study on tourists' intention to use mobile augmented reality technology in the context of smart tourism: An integrated model based on TAM and PAD theory. *Journal of Zhejiang Shuren University (Humanities and Social Sciences)*, 17(3), 37–45.
- [13] Liu, X. N, & Kou, K. (2024). The impact of smart tourism technology on tourist experience from an interactivity perspective. *Western Tourism*, (06), 26–28.
- [14] Wang, W. F, & Bi, M. J. (2021). Emotional intelligence cultivation for tourism majors in higher vocational colleges under the context of mass tourism and smart tourism. In *Proceedings of the 2021 China Tourism Science Annual Conference*.