

THE LOGIC, DILEMMAS, AND PATHWAYS OF AI-EMPOWERED TEACHING REFORM IN HIGHER VOCATIONAL TOURISM MANAGEMENT

Jing Su

Shanghai University of Engineering Science, Shanghai Advanced Technical School, Shanghai 200437, China.

Abstract: Artificial intelligence is profoundly reshaping the form of the tourism industry. The in-depth development of smart tourism imposes new requirements on tourism management professionals in higher vocational colleges, demanding a combination of digital technology application, cross-boundary integration, and humanistic service capabilities. Based on an analysis of the internal logic of AI empowering teaching reform in higher vocational tourism management, this paper examines the realistic dilemmas currently facing higher vocational tourism management teaching in terms of curriculum systems, faculty digital literacy, practical training conditions, and evaluation mechanisms. Accordingly, it proposes systematic pathways that include reconstructing an integrated “AI + Tourism” curriculum system, innovating human-machine collaborative teaching models, upgrading practical training conditions, cultivating a digitally literate faculty, building an intelligent evaluation mechanism, and deepening industry-education integration and digital ethics education, with a view to providing a reference for the digital transformation of tourism management programs in higher vocational colleges.

Keywords: Artificial intelligence; Tourism management major; Higher vocational education; Teaching reform; Digital transformation

1 INTRODUCTION

The tourism industry is undergoing a profound transformation from a traditional service industry to a digital and intelligent creative industry. As a new model that deeply integrates modern information technology with the tourism industry, smart tourism relies on artificial intelligence, big data, and the Internet of Things to drive the industry toward intelligence, personalization, and cross-boundary integration, imposing new requirements on practitioners in terms of personalized services, cross-boundary integration, and continuous learning[1]. Meanwhile, the digital transformation of the cultural tourism industry continues to accelerate, and the shortage of digital talents in fields such as smart tourism and big data analysis is becoming increasingly prominent[2]. As a major base for cultivating application-oriented tourism talents, higher vocational colleges undertake the important task of aligning with industrial demand and delivering high-quality technical and skilled talents. Whether their teaching supply side can respond promptly to these changes directly determines the quality of talent cultivation and industrial adaptability.

However, on the whole, higher vocational tourism management teaching still lags behind the process of industrial digitalization, and curriculum content, faculty capabilities, and practical training conditions are unable to support the cultivation of digitally competent composite talents[3]. How to reconstruct the teaching system of tourism management programs in higher vocational colleges against the backdrop of artificial intelligence has become a real and urgent issue. This paper attempts to answer this question: How does AI empower teaching in higher vocational tourism management, and through what pathways can this empowerment be realized? Following this main thread, this paper first analyzes the internal logic and the realistic dilemmas, and then proposes systematic reform pathways.

2 THE NECESSITY OF AI EMPOWERING TEACHING REFORM IN HIGHER VOCATIONAL TOURISM MANAGEMENT

The empowerment of higher vocational tourism management teaching by artificial intelligence is not a simple superimposition of technology, but the result of the combined effects of three logics: industrial demand, policy drive, and educational transformation.

2.1 Industrial Logic: Digital and Intelligent Transformation of Tourism Generates Demand for Composite Talents

The digital and intelligent upgrading of the tourism industry is gradually replacing traditional basic service-oriented positions focused on interpretation and reception with composite positions that combine digital technology application, new media marketing, and smart service capabilities. The in-depth application of AI in smart tourism scenarios such as precision marketing, personalized recommendation, intelligent customer service, passenger flow forecasting, and experience design requires tourism practitioners to possess corresponding intelligent literacy and data capabilities. Smart tourism also requires talents to possess cross-boundary integration and teamwork capabilities, enabling them to

respond to complex demands through collaboration across multiple fields such as tourism, technology, and marketing, and to maintain continuous learning to adapt to rapidly iterating technological environments. The structural change in industrial demand for talents provides the most direct practical basis for teaching reform in higher vocational tourism management.

2.2 Policy Logic: Strategic Drive of Educational Digital Transformation

Developing the digital economy has become a national strategy, and educational digitalization is regarded as an important breakthrough for opening up new tracks for educational development and shaping new advantages. Under this guidance, tourism vocational colleges have successively integrated artificial intelligence into the entire chain of talent cultivation. Institutions such as Shandong Tourism College have built a relatively complete digital education system by aligning program design with the digital industry, curriculum content with digital changes, and teaching processes with digital production processes[4]. The continuous reinforcement at the policy level provides institutional support and directional guidance for teaching reform in higher vocational tourism management.

2.3 Educational Logic: The Real Need for Teaching Supply-Side Reform

Higher vocational tourism management education has long faced the structural contradiction of “supply lagging behind demand,” and traditional curriculum settings, teaching methods, and practical training resources are difficult to adapt to new industrial forms. Artificial intelligence provides precisely the technological tools and reform leverage to resolve this contradiction. By reconstructing curricula, innovating models, and reshaping evaluation, it promotes a shift in teaching from a supply-oriented to a demand-oriented approach, realizing precise and practice-oriented cultivation, and also provides new possibilities for addressing long-standing problems such as the disconnect between industry and education and the imbalance between supply and demand.

3 CURRENT REALISTIC DILEMMAS FACING HIGHER VOCATIONAL TOURISM MANAGEMENT TEACHING

3.1 Curriculum System Lags Behind Industrial Digitalization

Higher vocational tourism courses are still dominated by traditional management knowledge, with insufficient coverage of emerging digital and international fields, and the proportion of courses offering smart tourism-related content remains low. Most courses still rely on outdated textbooks and lack frontier content such as artificial intelligence applications and digital marketing, making it difficult to meet the requirements of smart tourism new business forms for a composite knowledge system.

3.2 Insufficient Teachers' Digital Literacy and Intelligent Tool Application Capability

Whether AI can be effectively integrated into teaching depends critically on teachers' digital literacy. However, a considerable proportion of teachers lack in-depth application capability for intelligent tools, find it difficult to master the complex functions of smart teaching platforms, and their educational concepts also lag behind the pace of technological development. The shortage of teachers' digital literacy has become a key bottleneck constraining the digital transformation of teaching[5].

3.3 Practical Training Disconnected from Real Smart Tourism Scenarios

Some higher vocational colleges show a tendency toward formalism in school-enterprise cooperation. Practical training mostly remains at basic positions such as front-desk reception and scenic area guidance, making it difficult for students to engage with core industrial processes such as tourism product planning and smart system operation and maintenance[6]. Moreover, due to factors such as data security, enterprises find it difficult to fully open up real business data, resulting in deviations between virtual simulation training and real work situations. This limitation in practical training opportunities means that students' practical capability improvement is limited, making it difficult to meet the industry's demand for complex skills.

3.4 Single Evaluation Methods Unable to Cover Composite Abilities

Traditional summative evaluation emphasizes knowledge memorization and assessment of single skills, making it difficult to measure soft qualities such as teamwork and emergency communication. Even with the introduction of algorithm-based scoring, excessive reliance on quantitative indicators may weaken the dimension of humanistic care, resulting in one-sided talent evaluation. This forms a clear gap with the goal of cultivating composite talents.

4 IMPLEMENTATION PATHWAYS FOR AI-EMPOWERED TEACHING REFORM IN HIGHER VOCATIONAL TOURISM MANAGEMENT

4.1 Reconstructing the “AI + Tourism” Integrated Curriculum System

Guided by job demands, a dynamic and modular curriculum system should be constructed. On the one hand, general AI courses should be incorporated into the core training system of the major, cultivating students' ability to understand core concepts such as machine learning, big data analysis, and natural language processing, and to use AI tools reasonably. On the other hand, with a "professional cluster" mindset, disciplinary boundaries should be broken to build composite courses covering tourism management, information technology, new media, and data analysis, while introducing industry job certification standards to promote the integration of positions and courses. Curriculum content should be dynamically updated with industrial technological iteration to achieve precise alignment with industrial demand, and through school-enterprise collaborative development of loose-leaf digital textbooks, new industrial technologies and norms should be promptly transformed into curriculum resources[7].

4.2 Innovating Human-Machine Collaborative Smart Teaching Models

Teaching methods should be shifted from traditional lecturing to human-machine collaboration. Teachers can rely on intelligent lesson preparation and learning condition diagnosis tools to accurately grasp students' learning states and realize personalized teaching. Personalized learning systems based on learning behavior analysis can achieve precise matching of curriculum resources, and virtual simulation training platforms can restore real production scenarios through digital technology, significantly improving the efficiency of skill training. With the help of generative AI tools to create real business scenarios, students can be guided to complete product design and business model innovation training in a closed loop of "AI generation—student practice—intelligent feedback". The application of online-offline blended teaching and smart teaching platforms helps break through the limitations of time and space and improves teaching efficiency.

4.3 Upgrading Practical Training Conditions Aligned with Smart Tourism Scenarios

Virtual simulation and augmented reality technologies should be used to build immersive teaching platforms, with a focus on constructing training scenarios such as smart scenic area guided tours and smart hotel operations. Meanwhile, through school-enterprise collaborative development of virtual simulation training systems connected to real business data, students can participate online in core processes such as tourism route optimization and digital marketing, realizing the full digitalization of "training—assessment—recruitment". With the help of AI behavior analysis technology, students' operation trajectories and skill shortcomings during training can be captured in real time to generate personalized improvement reports, making practical teaching more targeted. Smart tourism laboratories equipped with intelligent devices and VR/AR equipment can also be built to allow students to experience frontier technologies firsthand.

4.4 Cultivating a "Dual-Teacher" Faculty with Digital Literacy

The improvement of teachers' digital literacy is a foundational project for teaching digital transformation. A teacher competency indicator system should be constructed from the two dimensions of vocational digital literacy and industrial digital literacy, guiding teachers to deeply integrate AI tools into teaching and research. Colleges can promote the overall transformation of faculty teams through measures such as establishing joint digital curriculum teaching and research offices, conducting regular digital teaching seminars, and school-enterprise job-based training, thereby cultivating a "dual-teacher + digital" team that understands both tourism business and digital technology application.

4.5 Building a Data-Driven Intelligent Evaluation Mechanism

An intelligent assessment and feedback mechanism should be established to use artificial intelligence for continuous monitoring and precise diagnosis of students' learning processes, providing data support for teaching improvement. Occupational capability assessment models can be used to evaluate multiple dimensions of ability such as knowledge application, emergency decision-making, and technological adaptability, combined with the concept of value-added evaluation to focus on students' actual development based on their original levels, thereby more comprehensively reflecting the effectiveness of cultivating composite talents.

4.6 Deepening Industry-Education Integration and Digital Ethics Education

The empowerment of teaching reform by AI cannot be separated from industry-education collaboration. A school-enterprise collaborative and AI-empowered talent cultivation model should be constructed, transforming AI application scenarios on the industrial side into course cases and training content. While promoting technological application, digital ethics education should also be strengthened, guiding students to analyze, based on real smart tourism cases, issues such as privacy protection in the digital transformation of scenic areas and algorithmic bias in AI navigation systems, so as to balance efficiency and humanistic care in technological application, ensuring that talent cultivation adapts to the demands of intelligence without losing the humanistic warmth of tourism services[8].

5 CONCLUSION

Artificial intelligence provides technological support and transformation opportunities for teaching reform in higher vocational tourism management. Facing the new requirements for composite talents brought by the digital and intelligent transformation of the industry, higher vocational colleges should, based on key links such as curriculum, faculty, practical training, and evaluation, systematically promote the deep integration of AI and tourism teaching while upholding the bottom line of humanistic care and digital ethics. Only in this way can the quality of talent cultivation in tourism management programs be effectively improved and solid talent support be provided for the high-quality development of the cultural tourism industry.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

REFERENCES

- [1] Kuang H X. Innovation of Application-Oriented Tourism Talent Cultivation Models in Higher Vocational Colleges under New Smart Tourism Business Forms. *Education Discussion*, 2025, 7(12).
- [2] Wu K. Research on Innovative Models of AI-Empowered Talent Cultivation for “Grand Tourism” in Higher Vocational Education. *Journal of Hubei Open Vocational College*, 2026(01): 6-8.
- [3] Deng X L, Tang S, Guo J Q. Research on the Pathways of AI-Driven Teaching Reform of Tourism Management Majors. *Journal of Hebei Tourism Vocational College*, 2026, 31(01): 86-92+98.
- [4] Wang G J. Cultivating High-Quality Digital Cultural Tourism Talents through “Five Transformations and Five Correspondences”. *China Education Daily*, 2024-11-24.
- [5] Zhang Z G. The Connotation and Pathways of Digital Upgrading of Tourism Majors in Higher Vocational Colleges. *Journal of Shandong Institute of Commerce and Technology*, 2025, 25(04): 30-35.
- [6] Wang Po. Innovation of Industry-Education Integration in Higher Vocational Colleges Based on Industry-Education Consortium. *Folklore Selections*, 2024(22): 160-162.
- [7] Li Jing. Research on the Construction of Teaching Resources for General AI Courses in Higher Vocational Colleges Under the Background of Multi-specialty Settings. *PC Purchase*, 2025(31): 245-247.
- [8] Gao Ruiqin. Exploration on the Teaching Mode of Polymer Major Under Artificial Intelligence and Industry- Education Integration. *China Plastics Industry*, 2025, 53(3): 194- 194.