

Research on the Path of Digital and Intelligent Education in Tourism Management Empowered by Generative AI

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Abstract: With the rapid development of the digital economy, the cultural and tourism industry is advancing toward digital transformation. As the latest research achievement in the field of artificial intelligence, generative AI relies on its core advantages, including proprietary content generation, intelligent interaction, and personalized adaptation, to provide a new direction for digital education of tourism management majors. As an important carrier for cultivating interdisciplinary digital talents for the cultural and tourism industry, the traditional operation mode of tourism management majors can hardly adapt to the latest industrial development trends. Therefore, generative AI needs to be introduced into teaching to construct a new teaching system so as to guarantee the final talent cultivation effect. Starting from the current situation of digital and intelligent education in tourism management empowered by generative AI, this paper conducts an in-depth analysis of the significance of such empowerment, and systematically discusses the corresponding realization paths, aiming to cultivate more high-quality talents for the digital development of the cultural and tourism industry.

Keywords: Generative AI; Tourism management; Digital and intelligent education

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1. Introduction

Driven by the rapid development and extensive application of generative AI technology, all industries are undergoing digital transformation. Against this backdrop, the cultural and tourism industry, a field closely linked with digital technologies, is accelerating its transformation toward digitalization and intellectualization. This trend raises higher requirements for the literacy, innovation ability and practical capacity of tourism management professionals. As a key bridge connecting talent cultivation and industrial demands, the overall operation quality of tourism management education directly affects the progress speed and overall development quality of the digital transformation of the cultural and tourism industry.

2. Current situation of digital and intelligent education in tourism management empowered by generative AI

At present, the integration of generative AI technology and tourism management teaching has gradually entered the stage of exploration and practice. Some universities have attempted to embed generative AI technology into teaching, achieving certain results in updating teaching content, innovating teaching methods and optimizing practical teaching. However, overall deficiencies and practical shortcomings still exist ^[1]. Specifically, digital and intelligent technologies are applied at a relatively shallow level in teaching. Some tourism management teachers only use generative AI as an auxiliary teaching tool without realizing in-depth integration between teaching and technology. Consequently, digital and intelligent technologies fail to fully exert their due educational value, impairing overall teaching quality. Meanwhile, teaching content under the traditional teaching model can no longer meet the teaching demands of new technologies. The traditional curriculum system of tourism management mainly focuses on conventional professional tourism knowledge. Teachers prioritize delivering theoretical knowledge and partial practical skills to students, with limited teaching content covering digital technologies and artificial intelligence ^[2]. Furthermore, curriculum content is somewhat disconnected from the digital development demands of the industry, making it difficult to cultivate students' comprehensive literacy and post-adaptability effectively.

3. Significance of digital and intelligent education in tourism management empowered by generative AI

3.1. Boost teaching model innovation and improve the teaching quality of tourism management majors

Integrating generative AI technology into tourism management teaching helps teachers break the limitations of traditional teaching, plays a vital role in promoting the innovative upgrading of teaching models, and further elevates the overall teaching quality of the major ^[3]. The traditional tourism management teaching model centers on teacher lecturing, leaving students in a passive learning state, which easily hinders the development of students' innovative thinking. In addition, teaching content is relatively fixed and teaching methods adopted by teachers are monotonous. Such a format can hardly stimulate students' learning initiative and innovation. Moreover, unified teaching schedules fail to satisfy the increasingly diverse personalized learning demands of students in the new era ^[4]. The introduction of generative AI technology enables teachers to reconstruct the current teaching system, continuously consolidate students' dominant position, and help teachers form a new AI-assisted teaching model. During teaching, generative AI can generate personalized teaching materials, learning plans and consolidation exercises targeted at different teaching objectives and students' learning characteristics, so as to accurately match the learning needs of individual students and deliver more targeted teaching overall ^[5]. Meanwhile, generative AI technology can simulate diversified tourism teaching scenarios according to various teaching demands. Teachers can convert abstract professional knowledge into intuitive and vivid learning scenarios through this approach, helping students better understand and master professional knowledge and continuously improve their learning outcomes ^[6].

3.2. Improve the Talent Cultivation System and Cultivate Digital and Intelligent Talents Matching Industrial Demands

Against the trend of digital transformation in the cultural and tourism industry, its core development demand lies in digital talents. As the primary venue for talent cultivation, the completeness of the talent training

system in tourism management teaching directly determines talent cultivation quality. Embedding generative AI technology into tourism management teaching helps teachers further improve the talent training system, break the time and space constraints of traditional talent cultivation models, and foster interdisciplinary talents equipped with digital intelligence literacy, innovation capacity and practical skills, so as to provide sufficient talent support for the future development of the industry ^[7]. In addition, the integration of generative AI technology allows teachers to embed digital and intelligent concepts and technical application methods into the whole process of talent cultivation. It not only facilitates the optimization of curriculum systems, innovation of teaching methods and reinforcement of practical teaching, but also constructs an integrated talent cultivation system incorporating theories, digital technologies and practical training for the whole teaching process, providing mature teaching experience for the digital transformation of university teaching ^[8].

4. Paths of Digital and Intelligent Education in Tourism Management Empowered by Generative AI

4.1. Optimize the curriculum system and construct a digital and intelligent teaching content system

The curriculum system serves as a vital carrier for carrying out digital and intelligent education. Therefore, when integrating generative AI technology into tourism management teaching, teachers shall first optimize the curriculum system in a targeted manner, combining current education and teaching requirements and students' specific learning conditions, and further raise the digital and intelligent level of the curriculum system through embedding generative AI technology ^[9]. Teachers shall reconstruct the teaching system based on the talent cultivation objectives of tourism management majors and the digital and intelligent development demands of the cultural and tourism industry, so as to embed advanced teaching tools such as generative AI and digital technologies into classroom teaching. In terms of basic courses, teachers shall focus on cultivating students' digital intelligence literacy. While retaining original teaching content, add courses covering artificial intelligence technology, big data analysis and digital marketing, enabling students to systematically understand the development and application directions of digital technologies, fully master basic digital intelligence knowledge and relevant skills, and lay a foundation for their subsequent in-depth learning ^[10]. For core professional courses, teachers shall attach greater importance to the integration of digital intelligence and professional knowledge. During teaching, traditional core courses including Tourism Management and Tourism Planning shall be optimized and reconstructed. Application cases of generative AI technology in relevant fields shall be embedded according to the characteristics of different courses, helping students clearly recognize the practical application modes of advanced technologies in industrial development ^[11]. For instance, in the Tour Guide Service course, teachers can incorporate real industrial cases such as AI tour guide explanations and AI intelligent services. Through creating real scenarios and experiential learning, students' practical skills can be enhanced, and they can deeply integrate theoretical knowledge learned with practical operations, thus subtly improving their core competitiveness.

4.2. Innovate teaching methods and build a digital and intelligent teaching model

In the process of integrating tourism management teaching with digital and intelligent technologies, corresponding teaching methods need to be innovated to ensure compatibility between teaching content and teaching approaches. In practice, teachers can break the shackles of traditional teaching methods based

on generative AI technology and implement personalized teaching models ^[12]. For example, teachers can leverage generative AI technology to build corresponding learning portraits for each student. After collecting and conducting in-depth analysis of information such as students' learning behaviors, learning progress and learning difficulties, personalized learning plans and consolidation exercise schemes can be generated to enhance the pertinence of teaching further. For students with weak learning foundations, AI technology can generate learning plans and exercises to consolidate basic knowledge. For students with strong learning capabilities, AI can provide extended learning content and practical tasks to continuously stimulate students' innovative thinking and learning initiative ^[13]. In addition, teachers can innovate interactive teaching methods by integrating the intelligent interactive function of generative AI technology into classroom teaching to realize in-depth integration of online and offline teaching. In online teaching, teachers can launch real-time Q&A functions via AI intelligent Q&A systems, allowing students to raise questions, submit assignments and participate in discussions with AI at any time during independent learning. Teachers can grasp students' learning status based on data reflected by the AI platform and provide timely guidance. Offline, teachers can carry out interactive practical teaching through AI virtual scenario simulation. For example, teachers can use generative AI technology to simulate scenarios including AI tour guide services, intelligent hotel reception and tourism planning and design, enabling students to continuously improve their professional skills and digital intelligence technology application capabilities in a more authentic learning environment.

4.3. Strengthen faculty development and teaching evaluation to improve the support system for digital and intelligent education

Teachers are the most important guides in the teaching reform of tourism management majors, so the teaching capacity of faculty directly determines the final talent cultivation quality. Universities shall continuously increase training efforts on teachers' digital intelligence literacy and formulate systematic training plans for teachers while introducing new technologies ^[14]. Teachers shall be guaranteed regular participation in training programs covering generative AI and digital technologies, so that they can systematically recognize the importance of new technologies for teaching and obtain corresponding theoretical knowledge to support their subsequent teaching innovation and adjustment. Meanwhile, universities can invite industrial and technical experts to deliver special lectures to help teachers improve their application capabilities of generative AI technology in a targeted manner. Furthermore, exchanges and cooperation between universities and enterprises as well as faculty shall be strengthened. Universities can invite industrial digital intelligence technical experts and enterprise backbones to serve as part-time teachers, continuously enrich the teaching staff and provide technical guidance for the digital and intelligent transformation of professional teachers. Full-time teachers of the university can take temporary posts in enterprises to learn about the latest digital and intelligent development trends and real post demands at the front line, and obtain authentic enterprise practical experience for the subsequent adjustment of teaching content and innovation of teaching methods, so as to improve teachers' practical teaching capabilities comprehensively. In terms of teaching evaluation reform, professional teachers shall break the restrictions of traditional teaching evaluation and construct a diversified teaching evaluation system for students. For example, process evaluation and summative evaluation shall be incorporated on the basis of the original evaluation system to comprehensively assess students' overall learning progress and the status of comprehensive ability cultivation ^[15]. Process evaluation shall focus on assessing students' learning process, digital intelligence application ability and practical capacity. Teachers can record and analyze students' learning behaviors, assignment completion status and practical training effects via

AI teaching platforms, fully track students' learning process and propose more targeted improvement plans. Summative evaluation shall lay more emphasis on the cultivation of students' comprehensive abilities, and comprehensive evaluation can be conducted by combining theoretical examinations, practical assessments, and innovative achievements in evaluation courses. Meanwhile, AI generation technology can be adopted to intelligently analyze students' assignments, practical reports and other materials to maximize the objectivity and impartiality of evaluation.

5. Conclusion

As a crucial technology emerging in the development of the digital era, generative AI technology provides a new direction for the digital and intelligent transformation of the education sector. The teaching of tourism management majors needs to keep pace with the times and embed generative AI technology into the whole teaching process. This approach bears great significance for promoting teaching model innovation, improving the talent cultivation system and advancing industry-education integration, and exerts a strong guiding effect on boosting the high-quality development of tourism management education. Therefore, based on the actual teaching situation of tourism management majors, teachers shall continuously innovate current teaching methods and models, build an intelligent education and teaching system, and advance the in-depth integration of generative artificial intelligence and tourism management teaching.

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