World Journal of Educational Studies
Print ISSN: 2959-9989
Online ISSN: 2959-9997
DOI: https://doi.org/10.61784/wjes3148

INNOVATION AND APPLICATION OF SMART CLASSROOM TEACHING MODELS IN TOURISM MANAGEMENT COURSES DRIVEN BY NEW INFRASTRUCTURE IN UNIVERSITIES

Yue Wang
School of Economics and Management, Jilin Engineering Normal University, Changchun 130052, Jilin, China.

Abstract: Against the backdrop of the comprehensive advancement of digital China construction and new infrastructure development, the digital transformation of the cultural tourism industry has raised new demands for the cultivation of tourism management professionals in higher education institutions. Traditional tourism management courses suffer from issues such as insufficient practical scenarios, superficial integration of technology, rigid teaching models, and a singular evaluation system, making them ill-suited to meet the needs of smart tourism development. This study leverages new infrastructure as the technological foundation, integrating technologies like 5G, big data, artificial intelligence, and virtual simulation into the entire teaching process of tourism management courses. It constructs a four-in-one smart classroom teaching model encompassing "technological support + content restructuring + process reengineering + evaluation loop," and conducts practical explorations from aspects such as implementation conditions, course application, and effect evaluation. The research demonstrates that smart classrooms driven by new infrastructure can effectively enhance students' learning initiative and professional practice capabilities, optimize teaching processes and outcomes, and provide a referenceable practical paradigm for teaching reform in tourism management programs at universities.
Keywords: New Infrastructure; Tourism management; Smart classroom; Teaching model; Integration of industry and education

1 INTRODUCTION

With the deep integration of digital technology and the real economy, the construction of new infrastructure centered around 5G, big data centers, artificial intelligence, the Internet of Things, virtual simulation, and cloud computing has become an important force in promoting the digital transformation of education. The cultural and tourism industry is accelerating towards the intelligent and digital stage, with new formats such as digital scenic spots, smart hotels, online cultural and tourism operations, and cultural and tourism big data analysis constantly emerging. This has raised higher standards for the digital literacy, technological application ability, and scenario based service ability of tourism management professionals.

At present, the teaching of tourism management courses in universities is still mainly based on traditional theoretical lectures, with problems such as weak practical teaching, insufficient scene experience, low degree of technological integration, and disconnection from industry needs. Relying on new infrastructure to build smart classrooms and promoting systematic innovation in teaching concepts, teaching processes, teaching content, and evaluation methods is not only an inevitable requirement for the digital transformation of higher education, but also a key path for tourism management majors to adapt to industry development and improve the quality of talent cultivation[1].

2 THE CORE CONNOTATION AND TECHNICAL SUPPORT OF SMART CLASSROOM DRIVEN BY NEW INFRASTRUCTURE

2.1 Definition of Core Concepts

New infrastructure mainly refers to information infrastructure with 5G, big data, artificial intelligence, Internet of Things, virtual simulation, and cloud computing as its core, which is the technical foundation and supporting conditions for the construction of smart classrooms.

Smart classroom is a new form of classroom that relies on intelligent technology, centers around students, and realizes the digitization, personalization, and interactivity of the entire process before, during, and after class[2].

The intelligent classroom teaching mode of tourism management courses is based on the practical, scenario based, and industry linked characteristics of tourism management majors, and is built on new infrastructure technologies. It integrates theoretical teaching, virtual practice, industry training, and data-driven evaluation into an integrated teaching system.

The smart classroom referred to in this article is not a simple upgrade of multimedia teaching, but a new form of classroom characterized by data-driven, intelligent collaboration, and virtual real integration. It relies on the new infrastructure technology system to achieve intelligent perception of teaching environment, precise push of teaching resources, immersive interaction of teaching process, and data-driven feedback of teaching evaluation.

2.2 Key Technical Support and Its Teaching Application

The 'wisdom' of a smart classroom comes from the support of underlying technology. In the new infrastructure technology system, various technologies are deeply integrated with the teaching needs of tourism management majors through their unique core functions, resulting in rich teaching application scenarios[3]. The specific functional positioning and application practice summary of each key technology in teaching are shown in Table 1.

Table 1 The Application of Key Technologies in New Infrastructure Construction in Teaching

Technology Type	Core Function	Tourism Teaching Application Scenario
5G communication	High speed, low latency, large connectivity	Remote live streaming of scenic spots, remote collaborative teaching between schools and enterprises, and synchronous training in multiple locations
VR/AR/MR	Immersive experience, virtual real integration	Virtual scenic area mapping, cultural heritage restoration and display, hotel lobby space cognition
Artificial Intelligence	Intelligent evaluation and personalized recommendation	AI tour guide training (voice correction, facial expression recognition), intelligent learning situation analysis
Big data	Behavior tracking and decision support	Analysis of learning behavior, simulation analysis of tourist public opinion, and precise evaluation of teaching effectiveness
Internet of Things	Environmental perception, device interconnection	Intelligent training room environment regulation, real-time monitoring of training equipment status

3 CONSTRUCTION OF SMART CLASSROOM TEACHING MODE DRIVEN BY NEW INFRASTRUCTURE

3.1 Principles of Pattern Construction

The construction of teaching mode follows four basic principles: first, the student-centered principle, highlighting the student-centered position and achieving personalized and differentiated learning; The second principle is the principle of appropriate technology, supported by new infrastructure, and the rational use of intelligent technology to serve teaching objectives; The third principle is the integration of industry and education, aligning with the needs of the cultural and travel industry, and integrating job skills and industry standards; The fourth is the principle of closed-loop teaching, which constructs a complete teaching loop including pre class, in class, post class, evaluation, and optimization.

3.2 Overall Architecture of Teaching Mode

This study constructs a four in one smart classroom teaching model of "technical support+content reconstruction+process reengineering+evaluation loop". With new infrastructure technology as the underlying support and core competencies in tourism management as the training goal, we will reconstruct the course teaching content, redesign the pre class, in class, and post class teaching processes, establish a data-driven and diversified evaluation system, and achieve the organic unity of theoretical teaching, virtual practice, industry training, and ability assessment[4].

3.3 Design of the Entire Teaching Process

3.3.1 Pre class stage

In the pre class stage, relying on big data and artificial intelligence technology, teachers upload digital resources, industry cases, and virtual training tasks, and the system conducts learning situation diagnosis and pushes personalized preview content. Students complete pre learning and submit questions, and teachers accurately adjust teaching focus based on data[5].

3.3.2 In class stage

During the in class stage, immersive teaching will be conducted using technologies such as 5G, VR/AR, and interactive large screens. Through virtual scenic area tours, simulation of smart hotel operations, and analysis of cultural and tourism big data, theoretical explanations and practical operations can be synchronized; Utilize online interactive platforms to conduct group discussions, real-time answering questions, and case analysis to enhance classroom participation; Teachers combine real-time learning data to provide targeted explanations and guidance[6].

3.3.3 After class stage

Arts.After class, students can continue to use virtual simulation systems to conduct skill training by pushing layered assignments, industry projects, and expanding resources through cloud platforms[7]; The system automatically collects learning data, and teachers provide personalized guidance and review of learning situations to form a basis for teaching improvement.

4 IMPLEMENTATION AND EFFECT EVALUATION OF TEACHING MODE APPLICATION

4.1 Implementation Condition Guarantee

On the hardware level, relying on 5G classrooms, VR/AR training equipment, intelligent terminals, and IOT sensing devices to build a teaching environment; At the platform level, use smart teaching platforms, tourism virtual simulation training platforms, and big data analysis platforms to achieve digital operation of teaching; At the resource level, schools and enterprises jointly build a smart cultural and tourism case library, a digital scenic spot resource library, and a job skill standard library[8]; At the teacher level, carry out digital literacy training and industry practice training for teachers to enhance their ability to integrate technology.

4.2 Implementation of Course Applications

Select core courses such as "Scenic Area Management", "Tour Guide Business", and "Tourism Marketing" to carry out practical applications. Taking "Tour Guide Business" as an example, VR tour guide preview resources are pushed through the platform before class to systematically diagnose students' knowledge weaknesses; During class, virtual simulation technology is used to conduct simulated team training, combined with real-time interaction to complete explanations and comments; Conduct virtual tour guide assessment and industry case analysis after class to achieve intelligent teaching throughout the entire process.

4.3 Effect Evaluation and Empirical Analysis

Construct an evaluation system that includes five dimensions: learning engagement, academic performance, professional competence, classroom satisfaction, and teaching efficiency. Through comparison, it was found that classes adopting the smart classroom teaching model have significantly higher student learning initiative, practical operation ability, and course satisfaction than traditional classes. Students' ability to apply new cultural and tourism technologies has significantly improved, and the teaching effect has been effectively optimized[9].

At the same time, research has also found some problems, such as slow adaptation of some students to virtual technology, need to improve the speed of updating teaching resources, and insufficient stability of individual devices, providing direction for subsequent optimization.

5 CONCLUSION AND PROSPECTS

5.1 Conclusion

The smart classroom of new infrastructure and university tourism management courses has a high degree of coupling, which can provide solid technical support for innovative teaching modes; The current tourism management smart classroom has problems such as shallow technology application, rigid teaching mode, lagging resources, and single evaluation; The "technical support+content reconstruction+process reengineering+evaluation closed-loop" smart classroom teaching model constructed in this study can effectively improve teaching quality and students' professional abilities, and has strong feasibility and promotion value.

5.2 Prospects

The limitation of this study lies in the limited sample size and the need for further verification of its applicability to different levels of universities. The long-term effects of technology application still need to be continuously tracked. Future research can combine new technologies such as AI big models and digital twins to further optimize the smart classroom model, create a more intelligent, scenario based, and personalized teaching system for tourism management majors, provide more comprehensive solutions for the digital teaching reform of university tourism management, and help continuously improve the quality of smart cultural and tourism talent cultivation.

Acknowledgment

This paper is sponsored by project fund from Leading Group Office of Jilin Provincial Educational Science (Project title: Research on the Teaching Design and Application of Smart Classroom for Tourism Management Courses in Higher Education Institutions under the Environment of "New Infrastructure"; Contract NO. GH21292). is also sponsored by the grant from the Higher Education Research Institute of Jilin Engineering Normal University.

COMPETING INTERESTS

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

REFERENCES

[1] Zhang P. Research on the digital teaching reform of the curriculum for tourism management majors in the context of smart tourism. International Journal of Educational Studies, 2025(3).

[2] Zhang Caifei, Wang Yue. Research on Teaching Design of Smart Classroom for Tourism Management Major in Colleges and Universities in the 5G Era. Management Scholar, 2020(20).
[3] Li J, Chen Y. Construction of Network-aided Teaching System of Tourism Management in Colleges and Universities Based on Javaweb Technology. Proceedings of EIMSS 2023, Atlantis Press, 2023: 446-452.
[4] Tian L, Sui P, Liu L. Cognition and Reconstruction of Undergraduate Curriculum System in Tourism Management. China University Teaching, 2023(05): 28-34.
[5] Cheng L K, Wei X. Boya education in China: Lessons from liberal arts education in the U.S. and Hong Kong. International Journal of Educational Development, 2021, 84(2): 102419.
[6] Weimin G, Jin C. Research on Teaching Design of Smart Classroom for Tourism Management in Colleges and Universities in 5G Era. In: Zhang Y, Shah N (eds) Application of Big Data, Blockchain, and Internet of Things for Education Informatization. Springer, 2024: 353-360.
[7] Zeng L. Construction of Curriculum System for Foreign-related Digital Trade Legal Talent Training in the New Liberal Arts Context. Theory and Practice of Social Science, 2022.
[8] Okano H, Urushihara S .Curriculum Innovation Utilizing High School and University Connection System of National Institute of Technology. Journal of JSEE, 2021, 69(2): 2_109-2_113.
[9] Liu L. Research on the "Double-line Mixed Integration" Teaching Mode of Higher Vocational Tourism Major Based on Digital Intelligence Technology. International Journal of Educational Studies, 2025(2).