



Research on the Innovation for the Culture and Tourism Industry Digitalization Management Based on the Emerging Engineering Education

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Abstract. In the current era of emerging engineering education, the culture and tourism industry is compelled to respond to the challenges posed by the rapid development of digital technology. The increasing trend of emerging digital engineering technology development is expected to lead to the emergence of the smart industry. This integration will play a vital role in the comprehensive development of the culture and tourism industry's digital economy. It is essential to accelerate the pace of digitalization, so concerted efforts are required to cultivate composite talents, develop a digital culture and tourism platform, promote digital transformation, and foster innovation in the financial products of digital culture and tourism enterprises. It is imperative to strengthen the industry's integration with universities to promote the development of digital construction in the culture and tourism industry. By enhancing students' awareness of innovation and evolution, these collaborative relationships can play a pivotal role in cultivating a talented workforce equipped to drive the industry's digital transformation.

Keywords: emerging engineering education, culture and tourism industry, digitalization

1 Introduction

There is a need to adjust the professional construction system and innovate teaching methods and the knowledge content system to keep pace with the development of the digital and intelligent era in the context of emerging engineering education. These modifications are intended to cultivate a new generation of engineering talents with a broad knowledge base and outstanding digital professional literacy to meet the talent requirements of the culture and tourism industry.

The impact of digital technology on social and economic development is becoming increasingly significant, with emerging engineering education being particularly affected^[1]. Implementing innovative teaching approaches in emerging engineering education has yielded positive university outcomes. Given the current situation, the culture

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and tourism industry must undergo digitalization to facilitate the integration of culture and tourism. Against this backdrop, this paper analyzes the current status of the development of the culture and tourism industry in the context of emerging engineering education. The paper also examines the accomplishments and drawbacks of the digital development of the culture and tourism industry. By drawing upon successful experiences, this paper puts forth strategies and suggestions for the digital evolution of the culture and tourism industry^[2].

2 Current Situation of Tourists' Experience of the Digitalization of the Culture And Tourism Industry

The utilization of digital networks enables tourists to purchase tickets online, make hotel reservations in advance, and access information regarding the distribution of scenic spots, thus facilitating efficient and convenient services. Although many scenic spots have begun utilizing digital platforms, interconnectivity between these platforms remains inadequate^[3]. In the contemporary era, individuals possess increasingly complex demands concerning the culture and tourism industry, which corresponds to the industry's expectations. Thus, digital technology plays a pivotal role in meeting tourists' escalating spiritual and cultural needs.

As people's expectations for the culture and tourism industry rise, enhancing tourist satisfaction through digital construction becomes imperative. In contemporary times, digital technology has witnessed increasing usage across various industries. Short video platforms such as TikTok facilitate the effective promotion of the culture and tourism industry and enable tourists to access more vivid information. As the nation places a growing emphasis on developing emerging engineering education, there is an increasing demand for digital technology talent in several industries, including the culture and tourism industry^[4]. However, the scarcity of digital technology talent poses particular challenges for the industry's digital development.

It is crucial to enhance the integration of culture and tourism sites by exploring rural tourism elements, implementing digital application scenarios, and leveraging big data, which leads to the promotion of the full development of innovative culture and tourism industries, the construction of intelligent culture and tourism platforms, and the scenic upgrading spots and venues with intelligent technology^[5]. Tourists will gain better experiences through more tourism services, research-based tourism routes, and innovative industrial visits and sports travel, which can be achieved by deepening the integration of culture and tourism, expanding cross-border integration, and accelerating the construction of a comprehensive tourism transportation network^[6].

3 Problems in the Digital Development of the Culture And Tourism Industry

Tourism sites have started to emphasize digital construction and have made efforts to develop intelligent culture and tourism sites. Although they have mostly resorted to

websites and mini-programs as information channels, these efforts have not resulted in diverse digital formats that fully embody the unique features of each scenic spot.

3.1 Inadequate Public Service Support And A Lack of A Comprehensive Digital Culture And Tourism Service Platform

The digitalization of the culture and tourism industry necessitates the integration of disparate forms of information, such as those pertaining to scenic spots, hotels, weather, and road conditions. The abundance and complexity of such information have resulted in increased workloads and difficulty for those responsible for gathering and organizing the information^[7]. These challenges underscore the significance of digitalization in this industry and highlight the need for resource-sharing among multiple departments to establish a comprehensive digital culture and tourism service platform to facilitate better digital development.

Regarding developmental services for the culture and tourism industry, it is essential to create a platform for supporting culture and tourism services and increasing funding and support^[8]. Furthermore, establishing such a platform requires the cooperation of multiple departments, including local government departments, that support meteorological information collection and financial services. During the Spring Festival, numerous tourist attractions in Shandong Province offered free or discounted tickets, which significantly boosted the enthusiasm of tourists. However, some deficiencies need to be addressed, such as inadequate estimations of the reception capacity of scenic spots and insufficient, timely promotion by scenic areas. Many tourists have turned away due to overcrowding, and poor road facilities near scenic areas also adversely affected visitors' access. Additionally, poor signal coverage in the area negatively impacted digital services, such as navigation and telephone communication, for out-of-town visitors. Today, Zibo's popularity for barbecue underscores the city's determined efforts to develop its culture and tourism industry. A dedicated barbecue route and a multi-departmental linkage, including food quality inspection, have been established to ensure visitors from other places can enjoy their stay and barbecue experience. Short videos and other media actively promote the barbecue scene in Zibo, contributing to a surge of Internet traffic for this industry.

3.2 A Shortage of Digital Technology Talent in the Context of Emerging Engineering Education

In the present era of emerging engineering education, the digital transformation of the culture and tourism industry requires more digital technology professionals. These professionals must possess cultural creativity and engineering knowledge, including digitalization^[9]. To this end, the culture and tourism industry should strengthen its communication and cooperation with universities, propose requirements and ideas for relevant majors in the teaching reform of emerging engineering education, and encourage universities to cultivate more specialized talents for the culture and tourism industry. Culturing high-end professionals who understand the technology and the culture and tourism industry under the background of emerging engineering education is essential for

the industry's better development in digital transformation. The digitalization of the culture and tourism industry must leverage technological advantages and tap into local characteristics to be successful. Despite increased efforts in policy and funding to cultivate digital talent in the culture and tourism industry, the overall demand for talent remains insufficient. Ordinary digital technology professionals have fewer opportunities to participate in training and receive support^[10].

4 Suggestions for Promoting the Digitalization of the Culture And Tourism Industry

4.1 Creating A Digital Composite Talent Training Channel in the Context of Emerging Engineering Education

To effectively introduce high-end talent and cultivate local talent while accelerating the digitalization process, it is essential to attract and retain talent and actively foster local talent. The resource advantages of universities should be leveraged to strengthen collaboration and enhance the teaching reform of emerging engineering education. By achieving resource complementarity between culture and tourism enterprises and universities, new engineering courses in digital-related majors can be established, thus providing robust support for the integrated development of enterprises and universities and the digital transformation of the industry.

4.2 Establishing A Comprehensive Digital Platform for the Culture And Tourism Industry

Culture and tourism enterprises should construct comprehensive digital platforms integrating multiple departments, including transportation, finance, and hotels, providing tourists with more convenient and high-quality experiences by integrating resources. These digital platforms can showcase local elements, exhibit unique characteristics, and offer online reservation services and related supporting services for tourism. By doing so, the digitalization of the industry can be promoted, which in turn can offer a better life experience for people.

Tourism sites can promote virtual exhibition halls and scenario-based experiences, as well as integrate digital resources to apply such resources in public cultural content efficiently. Furthermore, it is also essential to construct accurate digital services by promoting smart radio and public television services and the digitalization of stage art. Another critical aspect is promoting the digital application of public cultures, such as establishing digital showcases of ancient books, which can enable people to experience the scene of ancient books through digital culture, thereby enhancing the cultural experience of visitors.

4.3 Improving Big Data Experience Services

Culture and tourism industries can transmit data and build a comprehensive cultural big data industrial chain by leveraging TV broadcasting technology. Meanwhile, industries can integrate digital achievements from the cultural field to create a fusion database for the culture and tourism industries, including cultural relics and ancient books databases. Enterprises should innovate the applications of big data to accelerate the construction of culture and tourism databases. Attention will be given to increasing digitalization in the culture and tourism industries while also focusing on protecting culture and tourism data. Specialized research institutions for culture and tourism data will be established to provide multifaceted services for cultural data security and protection. Measures for protecting culture and tourism data property rights will be formulated, and a security access management system will be implemented for sharing and correlating culture and tourism data.

The culture and tourism industry should emphasize the digital development of scenic spots and tourist attractions by creating digital culture and tourism industry projects. It is also essential to make progress in digital audio-visual and publishing and to drive the advancement and improvement of the digital culture and tourism industry. The culture and tourism industry should also promote the deep integration of digital creative industries and big data and expand rural cultural creativity application scenarios. A digital creativity transformation platform will be established to encourage innovation in virtual scenic areas for tourists to experience new business models, combining virtual and authentic experiences to provide tourists with different experiences. Digital integration, innovation, and entrepreneurship will reveal the unique cultural connotations and enrich the intelligent services of culture and tourism enterprises.

4.4 Build A Team of High-quality Digital Cultural Talent

In the context of emerging engineering education, universities must reform their teaching methods to cultivate talents that align with societal needs and development. These talents must possess adequate theoretical knowledge and corresponding practical skills. The culture and tourism industry, which requires talents to integrate digital technologies such as culture and tourism data, is no exception. Thus, various models can be employed, such as project assistance, the flexible introduction of different cultural experts, and the joint training of specialized talents between culture and tourism enterprises, universities, and research institutes. The talent evaluation mechanism can be improved through these measures, and digital talents can be incentivized to utilize their abilities fully.

5 Conclusion And Expectation

It is necessary to facilitate the integration of culture and tourism with digital technology as its foundation, construct a digital culture and tourism platform, and advance the digital transformation of the industry to promote innovation and development to enhance the digital development in the culture and tourism industry. To address the inadequacies

that plague the digitalization of the culture and tourism sector, it is crucial to guide diverse funding sources towards supporting the industry and increase financial support for culture and tourism enterprises. Additionally, special attention should be given to financial products catering to digital culture and tourism enterprises.

Funding projects

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