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THE DIGITAL AND INTELLIGENT TRANSFORMATION PATH OF HERITAGE TOURISM BASED ON CULTURAL CAPITAL THEORY

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Abstract: Based on the Cultural Capital theory proposed by Pierre Bourdieu, this study proposes "digital cultural capital" as the fourth form, and constructs the model of "capital form-technological empowerment-power reproduction" (C-T-P) to explore the path of digital transformation of heritage tourism. The research extends the theory of cultural capital and provides a new path for the transformation of heritage tourism. The study extends the theory of cultural capital theory, provides a framework for interdisciplinary research, and offers a technology-driven operational path for policy and practice. In the future, it is necessary to deepen the research on the empowering effect of technology and the mechanism of globalization and collaboration, so as to realize the sustainable inheritance of cultural heritage.
Keywords: Cultural capital theory; Digital and intelligent transformation; Heritage tourism; Technology empowerment; Power reproduction

1 THEORETICAL RECONSTRUCTION: CORE DIMENSIONS OF THE CULTURAL CAPITAL THEORY

1.1 Definitions and Amendments

Originally proposed by French sociologist Pierre Bourdieu, cultural capital theory holds that cultural capital exists in three basic forms: embodied, objectified and institutionalised. Embodied cultural capital refers to the cultural knowledge and skills acquired by individuals through long-term learning and internalisation; objectified cultural capital is manifested in materialised cultural products, such as books and works of art, etc.,and institutionalised cultural capital is the cultural qualifications accredited by formal institutions, such as academic certificates or professional titles[1].
In the context of the age of digitalisation, the traditional theory of cultural capital needs to be further extended. This study proposes to add a new digital form (digitalised) as the fourth form of cultural capital. Digitalised cultural capital refers to the transformation of traditional cultural capital into interactive, storable and reproducible digital assets through digital technology. This form not only retains the value of the original cultural capital, but also enhances its dissemination, interactivity and innovativeness through technological means, providing new theoretical support for the transformation of heritage tourism.

1.2 Adaptation of Key Concepts

Cultural Capital Accumulation - Digital Intellectualisation technologies need to serve the reproduction of local cultural capital. In the context of digital intellectualisation, the accumulation of objectified cultural capital is no longer limited to the production and preservation of physical entities, but extended to the digital realm. Digital intellectualisation technologies (e.g. 3D scanning, blockchain, etc.) can efficiently complete the digital reproduction of local cultural capital while ensuring its authenticity and authority. This technology-driven accumulation approach offers the possibility of wide dissemination and value enhancement of cultural capital.

1.3 Problems: Fields and Habits

Conflict of fields: The heritage tourism field is often centred on the logic of 'education' and 'cultural heritage', while the technology field favours 'efficiency' and 'user experience'. "user experience". This difference may lead to confrontation between the two in cooperation, for example, technological solutions may ignore cultural depth, while cultural preservation may exclude technological innovation.
Reinventing habits: In traditional heritage tourism, tourists' habits are mostly "assive acceptance" - listening to explanations, looking at exhibition panels and taking photos. However, digital technology can intervene in tourists' behavioural patterns and change their traditional habit of "passive visiting". For heritage tourism, AR guides and interactive games can stimulate tourists' sense of active participation, transforming them from "spectators" to "experiencers" or even "co-creators".

2 LITERATURE REVIEW

2.1 Development and Expansion of Cultural Capital Theory

Cultural capital theory was proposed by French sociologist Bourdieu, and its core idea is that cultural capital exists in three forms: embodied, objective and institutionalised, and influences the social status and power distribution of an individual through education and social interaction[1]. With the advent of the digital age, scholars have begun to explore the evolution of cultural capital in the new technological context. For example, Hargittai puts forward the concept of "digital cultural capital", emphasising how digital skills and resources can be transformed into social power[2]; Ragnedda further points out that digital technology promotes the plurality of forms of cultural capital by reconfiguring the way culture is produced and disseminated[3].

In terms of Chinese research, Wang Ning proposes a localised reproduction path for cultural capital in the context of Chinese cultural heritage preservation practices, emphasising the importance of community participation in cultural transmission[4]. Li Jun, on the other hand, analyses the application of digital tools in the preservation of local knowledge, pointing out their potential to alleviate intergenerational ruptures[5].

2.2 Application of Digital Intelligence Technology in Heritage Tourism

Digital-intelligent technologies (e.g. virtual reality, blockchain, artificial intelligence, etc.) offer new paths for the transformation of heritage tourism. Kidd through a museum case study, notes that virtual reality technology can enhance the immersive experience of visitors while reducing the physical wear and tear of artefacts[6]; Lombardo and Pietroni explore the use of blockchain in cultural heritage authentication, with emphasising the contribution of its immutability to copyright protection[7]. In addition, Gretzel et al. suggest that intelligent recommendation systems enhance visitor engagement through personalised services, an idea that has been validated in the digitisation practices of the Palace Museum[8].

Among the practical examples in China, the "Digital Dunhuang" project of the Dunhuang Research Institute has realised the digital conservation of murals through high-precision scanning and a global sharing platform[9], while the AR tour system at the Liangzhu ancient city site has strengthened the educational function of cultural heritage through technological empowerment.

2.3 Interaction between Cultural Capital and the Tourism Economy

The economic transformation of cultural capital is an important issue in heritage tourism research. Throsby put forward the theory of "cultural value chain"[10], emphasising that cultural heritage needs to be released through creative industries and market mechanisms. Richards further pointed out that digital derivatives (e.g., NFT) provide new scenarios for the sustainable development of cultural heritage[11]. In China, Zhang Chaozhi analyses the role of cultural tourism integration policies in promoting the economic transformation of cultural heritage[12], emphasising the bridging role of digital tools; while the successful case of cultural creation in the Forbidden City demonstrates the path for cultural capital to achieve a win-win situation for both social and economic benefits through market-based operation[8].

3 ANALYTICAL FRAMEWORK: THE FOUR-DIMENSIONAL PATH OF CULTURAL CAPITAL TRANSFORMATION

Based on the expansion of Bourdieu's theory of cultural capital and the reconstruction of the context of digital intelligence, this study proposes the Capital-Tech-Power (C-T-P) model, which systematically explains the practical path of digital intelligence in heritage tourism from the four dimensions of embodiment, objectification, institutionalisation and digitisation. Transformation of Heritage Tourism in the four dimensions of embodiment, objectification, institutionalisation and digitisation.

3.1 Embodied Capital Transformation: from Individual Memories to Public Digital Assets

In traditional heritage tourism, embodied cultural capital is mainly expressed as cultural resources accumulated by local communities through tacit knowledge such as oral history and traditional skills. However, the intergenerational transmission of such knowledge is facing serious challenges in the transformation of digital intelligence. The younger generation, affected by globalisation and urbanisation, has a reduced sense of identity with local culture, leading to the ageing of inheritors and the loss of knowledge. At the same time, residents generally lack the ability to use digital tools, making it difficult to transform personal memories into shareable digital resources and creating cultural silos.

To this end, participatory digital archiving and training in habituation have become important strategies. Through the development of low-threshold mobile tools, residents are able to record local knowledge in the form of voice and video, forming a dynamically updated public database. This process not only relies on technological empowerment, but also requires digital cultural workshops to raise residents' awareness of the symbolic value of technology and to emphasise the significance of their behaviour for cultural transmission. Technological tools such as Natural Language Processing (NLP) and cloud computing support the efficient integration of data, while community participation breaks the traditional "expert-driven" mode of discourse and facilitates the transformation of cultural capital into a democratised reproduction. In this process, symbolic capital incentives, such as the certification of "digital inheritors", further strengthen the subjective position of residents, forming a virtuous cycle of cultural preservation and community development.

3.2 Objectifying Capital Activation: from Static Display to Dynamic Circulation

In traditional heritage tourism, the traditional exhibition mode of objectifying cultural capital is limited by physical space and lack of interaction, resulting in low utilisation of cultural relics and difficulty in releasing economic value. Digital intelligence technology provides a new path to solve this problem. Through high-definition scanning and 3D modelling technology, cultural relics can be transformed into digital copies, breaking through the limitations of physical protection. The introduction of blockchain technology ensures the uniqueness and authority of digital assets and provides technical support for copyright management and revenue distribution.

The development of derivative products further expands the value boundary of cultural capital. The generation of digital collections and the design of virtual experience products enhance the mobility of cultural capital and energise the transformation of its economic value. For example, NFTs (non-homogenised tokens) are issued in limited quantities to give cultural relics a collector's attribute, while VR technology builds immersive scenarios that enable tourists to shift from passive viewing to in-depth participation. Enabled by technology, the protection and utilisation of cultural heritage forms a closed loop, which not only strengthens institutionalised authority, but also enhances social influence through market-based operation, realising the sustainable activation of cultural capital.

3.3 Institutionalised Capital Empowerment: from Decentralised to Collaborative Governance

The authority of institutionalised cultural capital relies on uniform standards and multi-party collaboration, but in practice it is often challenged by fragmentation of standards and conflicts of interest. Differences in technical standards across organisations lead to data silos, while competition between local governments, cultural institutions and technology companies over cultural narratives further exacerbates management dilemmas.

The establishment of cross-domain governance alliances has become a core strategy to address this issue. Coordinating stakeholders through multi-stakeholder committees and developing unified technical standards and data-sharing protocols can effectively integrate resources and improve management efficiency. Policy instruments (such as tax breaks and R&D subsidies) provide incentives for technological innovation. At the same time, the reproduction of symbolic power is embedded in the mainstream ideology through technological means. For example, incorporating national narrative symbols in AR tours or declaring the sovereignty of cultural heritage on digital platforms consolidates official discourse while balancing commercialisation with public needs. The combination of institutionalised synergy and symbolic coding provides an institutional guarantee for the standardised protection and innovative use of cultural heritage.

3.4 Digital Capital Innovation: from Generational Disconnection to Emotional Connection

The alienation of digital natives from traditional culture stems from the disconnect between traditional exhibition methods and emerging experiential needs. Young people seek interactivity, personalisation and entertainment, and static cultural presentations are difficult to stimulate their interest. The combination of gamified narratives and artificial intelligence technology provides a breakthrough direction. Location-based service (LBS) games combine offline exploration with virtual tasks to reshape the logic of cultural experience; meta-universe scenarios build an immersive historical space through virtual identities to enhance the user's sense of immersion.

Artificial intelligence is further contributing to the deepening of emotional connections. By analysing user data to generate personalised narratives or designing virtual characters with emotional feedback, technology is able to relate abstract history to individual lives. This process not only enhances tourists' sense of cultural identity, but also transforms them from passive consumers to active co-creators. With the empowerment of technology, the intergenerational transmission of cultural capital can be reconstructed, and young people can re-establish their connection with tradition through participatory experiences, thus promoting the living transmission of cultural heritage.

AI Emotional Connection: generating personalised historical stories based on visitors' social data (e.g. ancestry-associated school move stories) to achieve emotional internalisation of cultural capital.

3.5 Model Integration: Synergies in the C-T-P Framework

The core of the "Capital-Technology-Power-Production" (C-T-P) model lies in the dynamic linkage between the three. Technological tools not only facilitate the transformation of different forms of cultural capital (e.g., the migration of embodied knowledge to digital assets), but also reconfigure the chain of cultural production through efficiency improvement and model innovation. Blockchain authentication enhances the liquidity of objectified capital, AI algorithms optimise user experience, and meta-universe technology opens up new cultural consumption scenarios.

The balance of power relations is the key to the realisation of the model. The C-T-P framework has shown that the digital transformation of cultural heritage needs to take into account the multiple transformations of capital forms, the systematic empowerment of technological tools, and the dynamic adjustment of power structures. This theoretical model provides a systematic path for the sustainable development of cultural heritage, with both academic explanatory power and practical guidance value.

4 CONCLUSION

Taking Bourdieu's theory of cultural capital as a starting point and combining it with the background of digitalisation technology, this study systematically explores the transformation path of heritage tourism. Through theoretical reconstruction, it proposes "digital cultural capital" as the fourth form of cultural capital, and constructs the model of "capital form - technology empowerment - power reproduction" (C-T-P), which reveals the multi-dimensional transformation mechanism of cultural heritage in the era of digital intelligence.

At the theoretical level, this study breaks through the boundaries of traditional cultural capital theories by adding a new form of "digital cultural capital", which responds to the profound impact of digital technology on cultural production and consumption. The core features of digital cultural capital - interactivity, reproducibility and authentication - provide new perspectives for the global sharing and sustainable development of cultural heritage. Meanwhile, the proposal of C-T-P model, for the first time, incorporates the relationship between technological tools and power into the analytical framework of cultural capital transformation, revealing that technology is not only a means of efficiency enhancement, but also a core driving force for power reproduction. This theoretical integration makes up for the inadequacy of analyses of the relationship between technological empowerment mechanisms and power in existing studies, and provides a systematic framework for interdisciplinary research.

On the practical level, this study provides an operational path for the digital-intelligent transformation of heritage tourism. Firstly, through participatory digital archiving and community empowerment, tacit knowledge can be transformed into public digital assets, promoting the democratisation of cultural heritage; secondly, the application of technological tools (e.g. 3D modelling, virtual reality) breaks through the limitations of physical space and enhances the accessibility and interactivity of cultural heritage; thirdly, the establishment of institutionalised synergistic mechanisms effectively integrates resources from different parties and balances the contradiction between cultural protection and market-based development; lastly, innovative strategies for intergenerational transmission (e.g. gamified narrative and emotional computing) reconstruct cultural heritage through the active participation of young groups. Finally, innovative strategies of intergenerational transmission (e.g., gamified narratives and emotional calculation) have reconstructed the logic of living transmission of cultural heritage through the active participation of young people. These paths provide theoretical basis for policy makers and industry practitioners to help release the value and sustainable development of cultural heritage driven by technology.

In conclusion, the digital-intelligent transformation of cultural heritage is not only a product of technological iteration, but also a social process of reconfiguring cultural capital forms and power relations. This study provides a systematic solution for the sustainable development of cultural heritage through theoretical expansion and practical path analysis. In the future, we need to continue to explore the symbiosis between cultural heritage and digital civilisation, driven by both technological innovation and social demand, in order to realise the sustainable value of cultural heritage and intergenerational sharing.

COMPETING INTERESTS

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