

Research on the Effectiveness Dilemma and Breakthrough Paths of Integrating Excellent Local Cultural Heritage into University Education via Digital-Intelligent Technologies

Panpan Guo

Yancheng Teachers University, Yancheng 224000, Jiangsu, China

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: The rise of the digital intelligence era has created unprecedented opportunities for the inheritance and innovation of distinctive local cultural heritage, and has also opened up new paths for cultural education initiatives within higher education institutions. Integrating regional cultural resources with digital-intelligent technologies and systematically incorporating them into the university education system is of substantial practical significance for promoting regional cultural inheritance, deepening university-local collaboration, and cultivating interdisciplinary talents. Based on an analysis of the internal logic of the integration of culture and education in the digital age, this article, in combination with current policy orientations, technological trends, and the characteristics of the university student population, provides a systematic examination of the practical basis and existing problems of digital technology empowering cultural education in regions. Then, from three dimensions—curriculum system construction, practical platform creation, and subject capacity reshaping—it proposes specific paths for universities to utilize digital technology to activate regional cultural resources and enhance educational effectiveness. The aim is to provide theoretical references and practical frameworks for the localization of higher education and cultural inheritance and innovation.

Keywords: Digital-intelligent empowerment; Regional culture; Cultural education; University-local collaboration; Practical pathways

Online publication: June 26, 2026

1. Introduction

The 2025 Government Work Report provided systematic guidance on cultural development, emphasizing “cultivating healthy online culture, promoting the deepening of high-quality cultural resources to grassroots levels, and accelerating the development of new cultural forms.” This provided policy guidance for regional cultural dissemination and identity construction in the digital era. Against the backdrop of deepening globalization, diverse cultures interact and collide, significantly impacting existing cultural ecosystems.

This can easily lead college students, whose worldviews are not yet fully developed, into value confusion, weakening their identification with and sense of belonging to local culture, and resulting in a lack of cultural confidence ^[1]. Therefore, fully tapping into the distinctive regional cultural resources of cities across the country provides a rich reservoir for local universities to promote education rooted in local cultural characteristics. Strengthening the educational function of higher education through cultural identity as a bridge, and enhancing students' understanding of and attachment to local culture, is an urgent and essential challenge that contemporary higher education must address.

The Outline of the 15th Five-Year Plan made a special deployment on “proceeding with in-depth Digital China construction and enhancing the level of digitalization and intelligence,” emphasizing the use of digital technologies to promote educational model transformation. Thus, in the wave of digitalization and intelligent development, the connection between cultural education platforms and technology has become increasingly close, giving rise to numerous unprecedented media forms. These innovations not only disrupt traditional information dissemination pathways but also profoundly reshape people's perspectives on perceiving and understanding the world ^[2]. As technology is deeply integrated, texts and images no longer have a dominant position in the traditional media landscape. Culture needs to rely on digitalization to achieve its own mode update, thereby demonstrating its new vitality, influence, and contemporary value in the new era. Therefore, digital intelligence-enabled empowerment is not merely a strategic handle for Jiangsu to shoulder the mission of building a strong cultural province, but also a pedagogical and practical path for local universities to keep up with the times and cultivate new-era college students.

2. The logical framework and practical foundations of digital intelligence empowering regional cultural education

2.1. Logical foundation: The paradigm shift from “digitalization” to “digital intelligence”

The communication revolution in the digital age not only involves the iterative development of technological tools, but also triggers a profound reshaping of cognitive frameworks and interaction patterns ^[3]. Compared to the earlier digitalization that mainly focused on solving the problems of “archiving” and “retrieval” of culture, digital intelligence adopts technologies such as algorithm recommendation, intelligent interaction, and situational perception to transform from “static and single” to “digital and real integration,” promoting cultural communication from one-way information transmission to multi-dimensional meaning co-creation, and achieving “understanding,” “empathy,” and “co-creation” of culture ^[4]. In this process, emotional communication becomes an important mechanism for cultural identity construction—digital intelligence media, through narrative expression, image creation, and immersive experience, enables the audience to perceive the unique charm of regional culture through emotional resonance, thereby achieving deep identification with local culture and Chinese culture. Based on this, cultural education in the digital age not only requires mobilizing students' traditional humanistic qualities such as historical cognition, aesthetic judgment, and critical thinking, but also demands their mastery of cutting-edge technical capabilities such as data collection, information visualization, interaction design, and intelligent generation. It can be said that digital intelligence empowering cultural education is not only a means of innovation for cultural inheritance but also an important path for cultivating talents with a comprehensive nature in the new era.

2.2. Technical support: “Synergistic drive” of policy guidance and industry demand

At the national level, the development of digitalization has been elevated to a strategic level. The outline of the “15th Five-Year Plan” has made a special deployment for “proactively advancing the construction of digital China and enhancing the level of digitalization,” emphasizing the use of digital technologies to promote the transformation of educational models. In the industrial sector, the integration of culture and technology has become a prominent trend. The demand scale and quality requirements for digital talents in the cultural field are simultaneously increasing. New business models such as AIGC, VR immersive experiences, and digital twin scenic areas are emerging at an accelerated pace. The deepening of cultural tourism integration is forcing universities to accelerate the cultivation of “cultured, skilled in technology, and capable of dissemination” interdisciplinary talents. Currently, some governments are promoting the application of digitalization in regional culture and have established a collaborative mechanism centered on “government guidance, university support, market operation, and social participation.” At the policy level, top-level design and resource support are provided, while universities participate deeply as the “source of technological innovation” and talent, forming a multi-level and multi-form practical system. This dual driving force from national policies and the industrial market provides a solid policy basis and practical urgency for universities to actively embrace digital technologies and transform the cultural education model. Universities are no longer merely the inheritors of culture; they also need to become the “talent pool” and “source of technological innovation” for serving the upgrading of local cultural tourism industries.

2.3. Audience characteristics: Cognitive preferences and subjective shift of ‘digital natives’

Contemporary college students, as typical “digital natives,” have significantly different information acquisition methods, social habits, and cultural cognitive paths from previous generations. They are naturally drawn to visual, interactive, and fragmented digital-intelligent media, and are more inclined to express their opinions and identities through participatory and collaborative methods. This group characteristic implies that if regional cultures still adhere to traditional graphic displays or one-way lectures, they are highly likely to face the risk of “marginalization” among the youth. What is even more worthy of attention is that many college students are undergoing a role shift from cultural “audience” to digital-intelligent communication “subject.” For instance, students from East China Normal University created the AI short film “Yuyuan Lantern Shadows Crossing Three Bridges” inspired by the Yuyuan Lantern Festival; undergraduate students from Soochow University used AI technology to restore digital figures of World War II veterans and tell revolutionary stories. These cases demonstrate that new technologies such as AIGC short videos, digital humans, and AI micro-dramas are becoming popular carriers for contemporary young people to participate in regional cultural innovation and realize their self-worth. They also fully showcase the rapid growth of the comprehensive capabilities of college students in digital-intelligent cultural practices.

3. Practical reflections and current challenges of digital intelligence-empowered regional cultural education

In reflection, the current practice of regional cultural education based on digital intelligence has achieved initial success, but it has also exposed some issues that need to be addressed and resolved. Systematically examining these current situations is a prerequisite for proposing effective solutions.

The superficial application of technology constrains the depth and effectiveness of educational outcomes. Through virtual simulation, digital twinning, and other technologies, some universities have been able to break through the limitations of physical space and bring red education bases, historical and cultural sites, etc. into the campus or cloud classrooms, enhancing students' sense of historical presence and interactive participation, effectively solving the problem of narrow audience coverage and a single experience in traditional on-site teaching.^[5] Digital transformation of teaching through technological empowerment is a necessity of the times. However, a mere technology-driven teaching reform cannot achieve the fundamental goal of cultural education^[6]. In current practice, some universities simply reduce the combination of digital technology and cultural education to "scanning QR codes to watch videos" and "3D modeling exhibitions," remaining at the level of supplementary exhibition tools, without truly embedding it in the core of teaching, and failing to truly integrate it into the deep ability cultivation links such as students' cognitive construction, creative expression, and collaborative practice. At the same time, the development cost of VR/AR immersive courses is high, and the maintenance period is long. Most universities lack the ability for continuous investment; the content generated by AIGC has "hallucination" risks, posing potential threats to the accuracy of historical materials and cultural authenticity, and when digital empowerment deviates from the principle of cultural authenticity, it not only fails to enhance the educational effect but may even undermine the seriousness and educational value of cultural inheritance.

Fragmented collaboration mechanisms hinder the effective integration of university and local resources. Local cultural resources are scattered among tourism bureaus, museums, heritage centers, and cultural protection units, and there is a lack of stable resource connection channels between universities and local departments. Most university-local cooperation remains at the level of "ceremonial announcements" and "summer practice," and the project-based, curriculum-based, and long-term operation mechanisms have not yet been established. The distribution of resources and capabilities in the southern, central, and northern regions is uneven, and universities in northern regions have relatively weak technical application capabilities. The cross-regional sharing mechanism is absent, and the digital gap between "strong in the south and weak in the north" in the cultural education field also poses a real bottleneck for deep integration. Although the exploration has reached a certain scale, for digital intelligence-enabled regional cultural education to achieve high-quality development, there are still some key bottlenecks.

Lagging evaluation and incentive mechanisms have weakened the capacity of curriculum systems to support cultural education. The effectiveness of cultural education is difficult to quantify, and traditional evaluation systems focus on paper output and project approval, lacking effective incentives for the development of digital courses and innovative cross-disciplinary teaching. The digital literacy training for teachers mostly aims at "being able to use software," failing to reach the level of teaching method reconstruction and curriculum redesign, and there are common problems such as "being able to use technology but not teaching, and lacking value penetration." The disciplinary barriers have not been broken, and teachers in liberal arts understand culture but not technology, while those in science and engineering understand technology but not culture. The development of cross-disciplinary courses such as "digital humanities and local culture" is lagging behind. Multiple factors combine, making the organic integration of cultural inheritance and digital skills cultivation face the dilemma of "having ideas but no carrier, lacking motivation." Students' achievements in digital intelligence-enabled cultural practice projects are mostly in the form of digital works, exhibition plans, and communication cases, and the current credit recognition system

and comprehensive quality evaluation have ambiguous standards and weak incentives for such achievements. Students face a dilemma between project investment and academic rewards, and extracurricular innovation practices often fail to be sustained and deepened due to “too much effort, too little recognition, and too low returns.” The weight of diverse achievements such as competition awards, publications, and achievement transformation and application in the admission and promotion for graduate studies and scholarship evaluations is limited, further weakening students’ internal motivation to combine cultural inheritance and technological innovation, resulting in “elite participation, short-term activity, and insufficient depth” as a common phenomenon.

4. Optimization paths for cultivating local distinctive cultural education through digital intelligence-enabled empowerment

4.1. Curriculum reconstruction and integration: Establish a “Culture as Core, Intelligent Technology as Application” integrated curriculum system

Curriculum is the core carrier for achieving educational goals. Firstly, the concept of “Culture as Core, Intelligent Technology as Application” should be established to ensure that intelligent technology always serves the comprehensive goals of cultural cognition, value internalization, and ability improvement. Secondly, integrate the cultural research forces of liberal arts departments with the intelligent technology teachers of science and engineering departments, jointly offer interdisciplinary courses and cooperative projects, and invite experts from local cultural institutions and cultural enterprises to participate in joint teaching, so that the teaching content can closely align with the actual needs of local culture. In terms of teaching implementation, a project-driven approach should be adopted as the main driving force, guiding students to use tools such as data analysis, VR interactive narration, and AIGC creation to deeply explore, creatively transform, and precisely disseminate regional cultural resources. Through “learning by doing,” students can simultaneously achieve comprehensive improvement in cultural literacy, technical ability, innovative thinking, and communication and planning capabilities in solving real problems.

4.2. Practice platform reshaping: Build a practice-based educational matrix of virtual and real coexistence and school-local collaboration

The practice platform is the hub connecting the campus classroom and the local cultural scene, and it is the most direct institutional carrier for school-local collaborative education. In response to issues such as scattered resources, poor connection, and regional imbalance, systematic progress should be made from three aspects: virtual platforms, physical bases, and collaborative mechanisms. Firstly, build a “cloud-based cultural practice base” using technologies such as digital twins, cloud exhibitions, and remote interaction, converting regional cultural sites, intangible cultural heritage workshops, museums, etc. into regular online teaching resource libraries, breaking through time and space barriers and achieving inclusive sharing of high-quality resources. Secondly, deepen the collaborative construction between schools and local areas, establishing “intelligent culture practice bases” in cultural institutions, cultural parks, digital creative enterprises, etc., covering complete practical links such as on-site research, data collection, project development, and achievement transformation and application, promoting the upgrade of cooperation from shallow connection to course-based, project-based, and long-term operation. At the same time, build an “interlocal collaborative intelligent culture innovation center” with joint investment and management by

universities and local governments, undertaking real projects such as the development of local cultural IP and digital interpretation of revolutionary relics, and hosting students' course practice, graduation design, and innovation competitions. In response to the reality of relatively weak technical application capabilities in universities in northern Jiangsu, a cross-regional resource sharing and paired assistance mechanism should be established to gradually bridge the digital gap between "strong in the south and weak in the north." Through the operation mechanism of "real practice, shared results," an "education-innovation-service" virtuous cycle can be formed.

4.3. Stakeholder capacity building: Cultivate "culture-intelligent" composite teachers and innovative talents

Digital and intelligent transformation of teachers is the key to the implementation of the reform. Universities should implement a teacher digital-intelligent literacy improvement plan through special training courses, establishing enterprise-workshop collaborations, and building interdisciplinary teaching communities, to cultivate a group of "seed teachers" capable of integrating intelligent enabling and curriculum teaching. At the same time, leveraging the school-local collaboration mechanism, hire local cultural research experts and digital creative industry mentors as part-time professors, and build a diverse teaching team of "in-house teachers + industry mentors + cultural experts." In terms of talent cultivation, students' digital-intelligent cultural practice abilities should be included in the training target system, covering the abilities of digital collection and organization of cultural resources, cultural creativity expression based on intelligent technology, cultural communication planning for digital media, and cross-team collaboration and project management capabilities, etc. Encourage and guide students to use AIGC, short videos, interactive media, etc. To carry out systematic innovative creation, build a full-chain support platform for works display, competition exchange, achievement transformation, technology application, and entrepreneurship incubation, and through strengthening process evaluation and outcome orientation, stimulate students' cultural subject consciousness and innovative drive.

5. Conclusion

Digital and intelligent technologies have opened up broad prospects for integrating outstanding regional cultural characteristics into the educational system of universities, and have given rise to a new ecosystem where cultural inheritance, talent cultivation, and university-local collaboration mutually enhance each other. Local universities should seize the strategic opportunities, based on the dual missions of serving the construction of regional cultural highlands and improving the quality of talent cultivation. With curriculum reconfiguration as the core, platform reshaping as the support, entity empowerment as the foundation, and deep-level university-local collaboration as the key guarantee running through the entire process, they should systematically promote the deep integration of digital-intelligent technologies with regional cultural education. Only in this way can local outstanding traditional cultures rejuvenate in the digital age, cultivate new-era individuals with profound cultural heritage, outstanding digital literacy, and a strong sense of social responsibility, and contribute the strength of universities to the construction of cultural power and the high-quality development of the local economy and society.

Funding

- (1) 2026 Yancheng Municipal Social Science Fund Project: “Research on the Mechanisms and Innovative Paths for Digital-Intelligent Empowerment of Yancheng’s Distinct Cultural Heritage” (Project No.: 26skC184)
- (2) 2025 Jiangsu Provincial Higher Education Institutions Philosophy and Social Sciences Research General Project: “Research on the Synergistic Mechanism of Digital Communication Subjects Enabling Jiangsu’s Cultural Identity from the Perspective of ‘Each Beauty in Its Own Right’” (Project No.: 2025SJYB1503)

Disclosure statement

The author declares no conflict of interest.

References

- [1] Li YT, 2025, Behavioral-Oriented Cultural Security Education Strategies for College Students: A Review of Research on Cultural Security Education in Colleges and Universities in the New Era. *Journal of Safety and Environment*, 25(6): 2467.
- [2] McLuhan M, 2003, *Understanding Media: The Extensions of Man* (He DK, Trans.). The Commercial Press. (Original work published 1964)
- [3] Yu GM, 2026, “Theoretical Toolbox” for Intelligent Communication Paradigms: An Analysis of Several Key Concepts in the Paradigm Revolution of Communication Studies in the Intelligent Age. *Journal of Xinjiang Normal University (Philosophy and Social Sciences)*, (01).
- [4] Zhao YY, 2026, Digital Intelligence Empowering Multimodal Transformation of Cultural Resources. *Henan Daily*, 2026-02-13, 11.
- [5] Zhang Y, 2026, Practical Paths for Digital Intelligence Technology Empowering Red Culture Education in Universities. *Harbin Daily*, 2026-04-28.
- [6] Xin JX, 2024, Beyond Technological Empowerment: Cultural Reflections on Pedagogical Transformation in the Age of Digital Intelligence. *Curriculum, Teaching Material and Method*, 44(11): 13–20. DOI:10.19877/j.cnki.kcjcjf.2024.11.001.

Publisher’s note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.