

Research on the Construction of the Integrated Resource Platform of Intellectual Media and Vocational Education

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Abstract. The Great Wall is the largest existing cultural heritage in China, the spiritual symbol of the Chinese nation, and has an irreplaceable important value and status in the history of Chinese civilization and the development of Chinese traditional culture. It is of great significance to further strengthen cultural confidence and fully demonstrate the enduring influence of fine traditional Chinese culture, the powerful appeal of revolutionary culture, and the strong vitality of advanced socialist culture.

Keywords: Digitization of Cultural Heritage; Digital Twin Technology; Art and Technology; Immerse Yourself in Interactive Art; Media Experimental Art; Digital Great Wall.

1. Digital Protection and Inheritance of Cultural Heritage

The report of the 20th National Congress of the Communist Party of China pointed out that in the construction of a strong culture and a strong science and technology, the digitalization of cultural heritage, as a cross-cutting field of the two, has increasingly become an important support for cultural confidence and scientific and technological self-reliance[1]. The implementation of the national cultural digitization strategy has taken a solid step for the comprehensive advancement of the digitalization of cultural heritage in the era of digital economy. In order to realize the sustainable development path of cultural heritage digitization, it is necessary to co-create by multiple parties and form a new pattern of protection and inheritance with multiple cooperation.

In the two sessions of 2023, the Central Committee of the Democratic Revolution submitted the Proposal on Promoting social co-construction and Helping the digital protection and inheritance of Cultural Heritage, suggesting the exploration of the digital co-construction mode of cultural heritage under government guidance and multi-social subjects' linkage. We will encourage cultural institutions and science and technology enterprises to participate in co-creation as supply and demand subjects, and help the integrated development of cultural undertakings and cultural industries. Support the government, universities, investment institutions and other supporting bodies to participate in co-creation, and provide a guarantee base for the digitalization of cultural heritage. The Central Committee of the Democratic Revolution believes that the digitization of cultural heritage, as a cross-field and cross-disciplinary social cause, the government, cultural and cultural institutions, science and technology enterprises, university research institutions, investment institutions and other diverse subjects have their own advantages in the fields of cultural resources holding, technology research and development and industrial application, theoretical research, venture capital and other fields, and need to be guided by the government. Explore a co-construction model that integrates social roles and resources, solve the core issues of digital ecology and resource investment of cultural heritage, and promote the process of digital cultural heritage [2].

2. Great Wall Spirit in Liaoning

The Great Wall embodies the spirit of self-improvement and the patriotic spirit of unity and perseverance of the Chinese nation, and has become a representative symbol of the Chinese nation and an important symbol of Chinese civilization. We must do a good job in the excavation of the cultural value of the Great Wall and the inheritance and protection of cultural relics, promote the



national spirit, and gather tremendous strength to realize the Chinese Dream of great rejuvenation of the Chinese nation.

The Great Wall in Liaoning Province is rich in resources. The patriotic spirit, national spirit, and era spirit carried by the Great Wall play a unique role in deepening cultural identity, consolidating national strength, and strengthening the awareness of the Chinese national community. Efforts should be made to excavate the cultural value of the Great Wall and inherit and protect cultural relics. The cultural symbols of the Great Wall should be regarded as important measures, typical demonstrations, and successful cases to promote the "two constructions", and to explore and promote the culture of the Great Wall, Guarding and inheriting the spiritual roots, let the Great Wall culture shine brightly in the new era.

Liaoning has abundant resources of the Great Wall, and to make these contents distinctive, it is first necessary to deeply explore the local cultural connotations of the Great Wall in Liaoning. Exploring the historical and cultural resources of the Ming Great Wall, promoting the inheritance, protection, and utilization of cultural heritage, is the key to enhancing the cultural soft power of Liaoning. Our province should create more iconic achievements with Liaoning characteristics in the inheritance, protection, and utilization of the cultural heritage of the Mamenzi Great Wall and Bianqianzi Great Wall in Shenbei New District, Liaoning.

More iconic achievements with Liaoning characteristics have been formed in the inheritance, protection, and utilization of the Ming Great Wall cultural heritage in Shenbei New District, Liaoning. Integrate the unique historical and cultural heritage of Liaoning with the Great Wall culture, and develop the market and cultural value of the Great Wall cultural heritage. Digitization and intelligence are the key to promoting the activation and utilization of historical and cultural resources in our province. We should strengthen the application of digital technology, build a cultural intelligence big data gene bank in Liaoning Province, carry out intelligent interactive content production and IP development, and promote the development of the cultural experience industry. The key points of immersive interactive virtual reality image design and immersive interactive virtual reality images based on the cultural heritage of the Ma Menzi Great Wall and Bian Qiangzi Ming Great Wall sites in Shenbei New District, Liaoning Province. Carrying out scientific innovation research and social services around national strategies and major themes of local economic and social development is an important manifestation of shouldering the responsibility and responsibility of media universities. It is a breakthrough achievement in the integration of culture and technology achieved by Liaoning Media University, relying on the research base of the university and actively serving local economic construction and social development. Conduct comprehensive and systematic research in the academic field on the significance and value of digital display and virtual experience systems for cultural heritage. The importance of digitization in the protection and inheritance of the Great Wall cultural heritage.

The Liaoning Ming Great Wall Education Base project is different from traditional museums, memorial halls, or other themed exhibitions. It presents research, promotion, and application through ideological propaganda and education. It has important theoretical guidance and practical significance for the concentrated interpretation and promotion of excellent traditional Chinese culture, the display of Chinese image, the telling of Chinese stories, and the dissemination of Chinese voice.

3. Building a Pan Digital Chemistry Discipline That Integrates All Media and Interacts with Industries

The global digital revolution has given rise to the context of new media culture, and many disciplines in higher education institutions have grown from the heavy soil of traditional art education, possessing strong vitality and wide adaptability. With the deepening development of the 5G information age and the rapid arrival of the AI era, people's thinking, concepts, expressions, and ways of carrying have undergone disruptive changes. Emphasizing the high integration of "art" and "science" has become the most important feature of the development of disciplines in private universities. Where is the

boundary of art? As a presentation of audio-visual narrative language, creation, like other artistic styles, is inseparable from the development of science, technology, and new media. Every advancement in science and technology triggers the enrichment of cultural heritage expression methods and language. Conducting teaching research from the perspective of the mutual relationship between art and science is undoubtedly a new approach.

The Art and Technology major of Liaoning Media University focuses on the practical teaching and research of the digital reconstruction project of the Ming Great Wall site in Liaoning, with cross media, hyper visual, pan field, and meta symbiosis as its professional construction positioning. The Art and Technology major has two studios, namely the Immersive Interactive Art (full sensory intelligence) studio and the Media Experimental Art (digital integration) studio. The Immersive Interactive Art (Full Sensory Intelligence) Studio has five joint laboratories: the Extended Reality Art School Enterprise Joint Laboratory, the Immersive Metaverse Art Joint Laboratory, the Electronic Sports Art School Enterprise Joint Laboratory, the Game Technology Art School Enterprise Joint Laboratory, and the Artificial Intelligence Art School Enterprise Joint Laboratory. The Media Experimental Art (Digital Integration) Studio has five joint laboratories: the Human Computer Interface Interaction Art Joint Laboratory, the Digital Generative Art School Enterprise Joint Laboratory, the Data Visual Art School Enterprise Joint Laboratory, the Media Integration Innovation Design Joint Laboratory, and the Comprehensive Media Experimental Art Joint Laboratory. The characteristics of laboratory teaching and practice correspond to the teaching content of the Liaoning Ming Great Wall Site project, and are coordinated with off campus teaching practice bases for communication and development. Classrooms are set up in the areas where subject construction is most needed, expanding the connotation and extension of professional development.

At the beginning of its establishment, Liaoning Media College has clearly established a unified academic mechanism that integrates teaching, scientific research, and social services. It conforms to the pulse of the times, breaks away from the barriers of traditional art teaching models, organically combines classroom teaching and practical teaching, and forms a dual track model of teaching studios and joint laboratories between schools and enterprises with new era characteristics, in line with the development concept of the Media College, and in line with international advanced higher art education.

Liaoning Media College adheres to the pan digital chemistry discipline of cultural heritage and full media integration, as well as industry interaction, to construct the digital reconstruction project of the Liaoning Ming Great Wall site. It breaks down barriers, integrates across media, boldly conducts comprehensive media experiments, expresses philosophical thinking through multiple means of digital and full media integration, and transforms the deconstruction of survival methods and cultural concepts in the new media era into visualization and theatricalization Immersive artistic experience.

In the future, the Art and Technology major of Liaoning Media Digital Media College will rely on its professional advantages, committed to the transformation and incubation of art and technology achievements, committed to the output and collaborative innovation of major achievements, committed to the cultivation of applied talents, committed to serving Liaoning and society, and enabling universities and enterprises to jointly contribute to the economic and social development of Liaoning through interactive win-win cooperation.

4. Regional Economic Construction and Social Development under the Background of Integration of Industry and Education

As a local and application-oriented media university, Liaoning Media College has always taken the responsibility of inheriting and protecting traditional Chinese culture, fully leveraging its disciplinary and professional advantages. For many years, it has actively served the regional economic construction and social development of Liaoning, promoting cultural dissemination, and has been approved as a demonstration base for cultural and technological integration in Liaoning Province and a research center for digital inheritance and innovation of cultural heritage in Shenyang City, And

selected as a new type of think tank in higher education institutions in Liaoning Province. The school relies on research and innovation bases such as the Digital Virtual Simulation Research Institute and the Intangible Cultural Heritage Digital Protection Research Institute, and utilizes modern information technologies such as artificial intelligence, VR/AR, and big data analysis to achieve multiple cultural and technological innovation achievements in the four major Liaoning cultural projects of "Xibo Culture, Intangible Cultural Heritage Culture, Liao Porcelain Culture, and Liao Jin Culture" in Liaoning. Hosted and completed the National Art Fund project for the cultivation of innovative talents in Liao porcelain art. Teachers and students jointly completed various technological transformation and social service projects, including the digital upgrading and reconstruction of the Xibe Museum in China, the construction of the Shenyang Intangible Cultural Heritage Digital Museum, the design of the Hundred Pocket Parks in Shenyang, the decoration design of the Shenyang Metro carriage, the creation of national anti fraud animation promotional videos, and the creation and filming of urban cultural micro films such as "Spring Comes to Yan Bei Gui".

In the three-year action plan to fully implement the new breakthrough in Liaoning's comprehensive revitalization, as a high-level professional talent training base, technology research and development center, and government decision-making think tank for the media and cultural industry in the Liaoshen region, Liaoning Media College is dutifully committed to leveraging its talent and professional advantages in promoting Liaoning's cultural soft power and shaping Liaoning's new image, creating the influence of "telling Liaoning stories" and the appeal of "understanding Liaoning stories". The shaping power of "telling the story of Liaoning well" focuses on "full network, full screen, and full domain" through integrated development, aggregating "content, brand, and audience", gathering "energy, traffic, and volume", leveraging innovative inspiration for Liaoning cultural promotion with cross-border power, gathering surging momentum with the power of integration, and creating a new era of cultural prosperity in Liaoning with cutting-edge power. Accelerate the construction of high-level local application-oriented media universities, and assist Liaoning in achieving the first victory of the three-year action plan for comprehensive revitalization and new breakthroughs.

5. Technological Revolution, Industrial Transformation, and Educational Transformation

5.1. The Value of Utilizing and Inheriting the Cultural Heritage of the Great Wall in the Digital Era through Technological Revolution, Industrial Transformation, and Educational Transformation

The digital reconstruction project of the Liaoning Ming Great Wall Site is supported by technical services provided by the Liaochuan Immersive Interactive Art (Full Sensing Intelligence) Studio and the Media Experimental Art (Digital Integration) Studio, integrating spatial information technologies such as RS, GIS, GNSS, VR, as well as new technologies such as the Internet of Things (IoT), holographic photography, Big Data, 5G communication, and cloud computing, which can be applied from a macro and meso perspective. By combining multidimensional analysis such as two-dimensional and three-dimensional spatial and temporal changes at different micro levels, we aim to reveal the multiple values of the Great Wall cultural heritage, such as the scientific value of the site selection and layout of the Great Wall cultural heritage, the historical value of functional distribution, the ecological value of building materials, the artistic value of construction techniques, and the cultural value of the comprehensive system. And further expand the utilization and inheritance value of the Great Wall cultural heritage based on the above inherent values.

The project team has conducted nearly three years of investigation and research on the history and culture of the Great Wall. Through dozens of scheme demonstrations, they have decided to use natural history, urban history, and cultural history as the time axis, and then use immersion, interaction, and cultural creativity as the spatial axis. The two trajectories are intertwined and integrated to showcase Liaoshen culture. Relying on the rich natural, historical, and cultural resources of Liaoning and Shenyang, a digital upgrade and renovation plan is ultimately designed and formed, integrating the

design principles of "long history, high historical height, national height, profound atmosphere, ancient elegance, smooth nature, distinctive features, and advanced technology". With the new trend of world museum development and the new concept of sustainable development, the Liaoning Ming Great Wall Site has a high academic and artistic positioning, It can also put people first, meet the aesthetic psychology of the general audience, incorporate education into beauty, incorporate education into entertainment, and achieve the effect of appreciating both refined and popular.

5.2. Strengthen the Construction of Digital Infrastructure

The information network technology represented by big data, cloud computing, and artificial intelligence has injected new development vitality into the Ming Great Wall. Combining with international operating platforms, serving patriotic education bases and network-based socialized production, improving the digital museum of Liaoshen cultural heritage, achieving the goal of using materials to prove history, explaining history, and interpreting history. It can also play an important role in using history to understand reason, educate people, and enlighten people, enhancing the aesthetic taste of the whole society. Provide technical support for informationization in important fields such as China's economy, society, culture, and national defense;

Gradually achieve full coverage of wireless networks and fifth generation mobile communication networks in the theme display area. Build an official website and digital cloud platform to digitally showcase the cultural relics and resources of the Great Wall, creating an endless online space. Maintain and enhance the digital management platform for the Great Wall resources, connect with the national data sharing and exchange platform system, and promote the sharing and rational utilization of data on the Great Wall heritage information resources.

5.3. Improve Scene Construction and Achieve Intelligent Integration

Improve scene construction, achieve intelligent integration, establish the application of new media technology, improve the narrative style of the Ming Great Wall, and present the information of cultural relics to the audience in diverse ways. The application of panoramic videos, panoramic images, and full live broadcasts helps to fully display the scene. A large amount of immersive content is dynamically presented to users, intuitive, vivid, and encompassing numerous details. To become an immersive transformation line for several achievements in national patriotic education bases, form supporting and sustainable virtual laboratories, and improve operational mechanisms.

5.4. Digital Twin Technology

In recent years, the concept and technology of Digital Twin have gradually been promoted in fields such as smart cities, smart transportation, and smart scenic spots. In the field of cultural heritage protection, Digital Twin is also considered as Digital Cultural Heritage (DCH) and Heritage Building Information Model (HBIM) The theoretical support and technical methods of the Cultural Heritage Information Model (CHIM) aim to construct an information model (GW-CHIM) for the physical entities of the Great Wall cultural heritage, including various constituent elements such as the walls, enemy towers, beacon towers, fortresses, and their environments, And associate intangible cultural information related to the cultural heritage of the Great Wall (such as literature, art, painting, skills, spirit, stories) with information models. By digitizing the ontology and environment of the cultural heritage of the Great Wall, establish a mapping relationship between physical space and virtual space of the Great Wall model, in order to achieve digital archiving, management, analysis of the cultural heritage of the Great Wall The entire business process of protection and inheritance has shifted from digitization to intelligence. Therefore, it is necessary to conduct research on the theoretical framework, technical system, model methods, information platform, application system, service system, etc. of the digital twin of the Great Wall cultural heritage.

6. Conclusion

Looking back at the Great Wall in the voice of history, the Liaoning section of the Great Wall confirms the exploration and construction of the Liaoning region throughout history, witnessing the profound history, ethnic integration, and economic prosperity of the Liaoning region.

Looking ahead to the Great Wall in the melody of the times, the digital reconstruction project of the Ming Great Wall site in Liaoning, which is about to be revitalized, will be integrated into the overall economic development of Liaoning and the local people's lives. It will be organically combined with the production and life of residents along the Great Wall, and with poverty alleviation and the pursuit of a moderately prosperous society along the Great Wall, promoting economic development and allowing cultural heritage to benefit people's livelihoods; It will become an important landmark showcasing Liaoning culture and a new business card for Liaoning to move towards the world.

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