

## **Secondary School History Inheriting Chinese Excellent Traditional Culture Empowered with Metaverse: Realistic Demands, Internal Mechanism and Practical Path**

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**Abstract:** It is our eternal mission to inherit and carry forward the excellent traditional Chinese culture. This paper discusses the realistic demand, logical mechanism and practical path of metaverse technology in secondary school history education to inherit Chinese excellent traditional culture. In terms of practical demands, it emphasises the necessity of metaverse empowering secondary school history to pass on Chinese excellent traditional culture. In terms of internal mechanism, it explains how the metaverse can realise the effective inheritance of Chinese excellent traditional culture through immersion experience, aggregation inheritance and social interaction. In terms of the practical path, it puts forward specific suggestions such as combining metaverse technology with secondary school history teaching, creating an immersive history classroom, and using metaverse space to carry out diversified traditional cultural activities. The aim of this paper is to offer innovative perspectives and methodologies for the inheritance of Chinese excellent traditional culture within secondary school history education, while also fostering the application and advancement of metaverse technology in the educational domain, and facilitating the transmission and promotion of China's outstanding traditional culture.

**Keywords:** Metaverse; Chinese Excellent Traditional Culture; Secondary School History; Cultural Confidence; Intrinsic Mechanism; Practical Paths

### **1. Introduction**

Chinese culture boasts a lengthy history and

profound depth, encapsulating the deepest spiritual aspirations and emotional DNA of the Chinese nation, and exhibiting a distinct spiritual allure. Culture serves as the lifeblood of the nation and the spiritual sanctuary of its people. Cultural self-confidence constitutes a more fundamental, profound, and enduring strength. The unique concept, wisdom, temperament, and charisma of Chinese culture add to the deep confidence and pride of the Chinese people and the Chinese nation [1]. And history is the core curriculum for the implementation of Chinese excellent traditional culture (Chinese excellent traditional culture, hereafter abbreviated as CETC) education, plays an irreplaceable role in passing on the common heritage of human civilisation, helps students to systematically and profoundly understand the historical origin of CETC, the process of its formation and development as well as its important position in the process of human civilisation, to comprehend the vastness and depth of the Chinese culture with its long history, and to appreciate the unique wisdom of the Chinese nation[2].

The emergence of Metaverse has completely overturned our traditional perception of space, and its innovation lies not only in transcending the spatial form of the virtual world, but also in the perfect fusion with the physical space, constructing a brand new world that transcends reality. Educational metaverse is an important field that uses artificial intelligence, virtual reality and other technologies to provide teachers and learners with a virtual teaching and interactive environment; it is an important way to establish a learner-centered educational environment, provide accurate push educational services, and achieve

customisation of daily and lifelong education; it is a further development of modern teaching to carry out virtual reality intelligent modelling, group intelligence, and cross-media analysis and reasoning, Hybrid Augmented Intelligence Teaching, a new trend to make a breakthrough in traditional teaching in terms of environment, philosophy and methodology' [3]. In this context, the inheritance of CETC in secondary school history education will usher in a comprehensive transformation of the existing teaching paradigm. As active participants in this educational endeavor, both teachers and learners must promptly comprehend the scope of these changes, adapt to their evolving roles, and embrace novel experiences. By doing so, they can more effectively accomplish teaching objectives and foster emotional engagement within the educational process.

## **2. Connotation of Metaverse**

### **2.1 The Origin and Development of the Concept of Metaverse**

The term 'metaverse' was first used in 1992 to describe a virtual space parallel to the real world, where users can communicate and interact with other users in the real world through virtual reality technology [4]. The common definition of metaverse is considered to be an online 3D virtual environment that will last in the future by using network technology, which requires users to enter through VR glasses, mobile phones, computers and other devices in the real world, and is the mutual integration of the real world and the virtual world, which is supported by the communication network and embodied reality technology to achieve the connection between the virtual world and the real world [5]. Along with the development and promotion of virtual environment, mixed reality, augmented reality and other technologies, the public has gradually accepted and entered the metaverse environment. For example, the use of mixed reality technology integrates computer image technology, visualisation wearable devices, sensing technology and other related technologies to help users build an interactive system to interact with the virtual world in the real world, and to deeply integrate the environment of the virtual digital world and the environment of the real physical world in the human consciousness and memory through

human hearing and vision, so as to achieve the organic unity of the virtual and the real. Because the metaverse has the characteristics of strong interactivity, persistence, immersion, and audiovisual, this space has the characteristics of real time and virtual space, which is parallel to the real world in time and space dimensions [6]. Currently, there are cases of metaverse use in video games, business, real estate, education and other fields, for example, people use hardware devices and applications to enter the metaverse and communicate with each other in it, work together and play games [7].

### **2.2 Metaverse + Education**

Educational metaverse can be understood as the creation of digital identities of teachers, students, administrators and other participants in educational activities, the development of formal and informal teaching and learning places in the virtual world, and interaction in the virtual teaching and learning places [8]. Based on the perspective of nurturing, the educational metaverse can be understood as a virtual-reality fusion educational environment shaped by using emerging information technologies such as VR/AR/MR, digital twin, 5G, artificial intelligence, blockchain, etc. It is a higher-order form of the intelligent educational environment in which the virtual and the real are fully intertwined, humans and machines are fully connected, and the school and the society are fully interacted with each other. It achieves the goal of promoting learners' wisdom development by innovating talent cultivation modes, providing diversified educational resources, constructing diversified learning activities, and carrying out intelligent learning evaluation [9]. In the educational metaverse field, the learning environment that overlaps the real world with the virtual world makes it possible for participants in teaching activities to integrate the teaching resources of the real world with those of the virtual world, and the metaverse is able to provide a realistic mirror world for learners through the simulation of the real world [10]; through the mixed-reality technology, the teacher demonstrates the operation steps in the teaching environment, and the learner observes and practices after imitation, putting his/her own wisdom into shape . mimic and then practice, and their mimic activities are

displayed as virtual images [11], which is able to combine different individuals in different time and space in one scene through computer technology, and different teachers and learners enter the online environment with virtual images [12]. With the support of digital twins, brain-computer interfaces, virtual reality (XR), augmented reality and mixed reality technologies, education breaks through the limitations of a fixed learning field. Teaching methods have been greatly enriched and are no longer limited to the traditional forms of text-based interaction and projection playback. In such an environment, learners can freely explore in the metaverse space to form identity cognition, time cognition and space cognition. This not only enriches learners' cognition and emotions, but also deepens their understanding of knowledge and skills. This empowerment of whole-scene learning helps to create a multifaceted digitally linked teaching and learning environment that opens a new chapter in the future of smart education.

### **3. The Real Demand: The Necessity of Metaverse to Empower Secondary School History to Inherit the Excellent Traditional Chinese Culture**

With the continuous innovation and integration of the new generation of high-speed network, augmented reality, virtual reality and artificial intelligence and other technologies, the metaverse has become a brand-new field of content expression, building an unprecedented virtual scene for people's communication and interaction. This change has opened up a new path for the inheritance and promotion of CETC and created a new ecological context for its inheritance.

#### **3.1 National Level Attaches Great Importance to and Deeply Needs Cultural Inheritance**

From the national point of view, the protection, inheritance and promotion of CETC is a realistic need of the modern state, as well as a necessary way to achieve the modernisation of education and build a strong educational country. National culture is both the root of the nation and the foundation of the country. For the country, the root is solid and the state is peaceful, and if the root is lost, the cohesion will be lost [13]. National culture shapes national values, political beliefs, and

determines the direction of national cohesion.

#### **3.2 The Unique Advantages of the Discipline of History, Carrying a Deep Cultural Heritage**

CETC is not a source of water, no wood. Long and heavy Chinese history, is the excellent traditional Chinese culture on the basis of the soil, is to understand the development of the excellent traditional Chinese culture of the roots [14]. The History Curriculum Standards for Compulsory Education (2002 Edition) clearly assigns five core literacies to the discipline of history, and the national sentiment literacy requires students to 'understand and identify with the advanced traditional culture, revolutionary culture, and the excellent traditional Chinese culture, to understand the historical value and practical significance of the Chinese civilisation, and to enhance the national self-esteem, self-confidence, and pride' [15].

#### **3.3. Secondary School Students on Traditional Culture, Knowledge is Still Shallow Face Challenges**

Cultural self-confidence embodies a nation's wholehearted endorsement of its cultural worth and a steadfast conviction in its cultural vitality. Secondary school represents a pivotal stage in the formation of students' cultural identity and values, making it imperative to augment their interest in Chinese traditional culture. The Metaverse, leveraging virtual reality, augmented reality, and other technological advancements, has the capacity to recreate historical and cultural scenes, allowing students to immerse themselves in the enchantment of Chinese culture. Consequently, it is of paramount importance to educate students about traditional culture and nurture a profound sense of cultural identity during this crucial period.

#### **4. Inherent Mechanism: The Application Principle of Meta-Cosmos Empowering Secondary School History to Inherit CETC**

Under the wave of metaverse, the inheritance of CETC has ushered in a new development opportunity. The intermingling of metaverse technology and environment has injected new vitality into secondary school history education and opened up a broad space for the inheritance and transmission of traditional

culture.

#### **4.1 Immersion Experience: Breaking through the Visual Boundaries of Reality and Reality**

In the world of metaverse, the inheritance of CETC breaks the traditional boundaries and realises an immersive experience. This experience is mainly due to the breakthrough of three ‘boundaries’.

Firstly, metaverse technology has dissolved the gap between physical and digital traditional culture. Metaverse technology, with its unique immersive properties, activates our sensory experience and creates breathtaking visual spectacles. It skilfully uses cutting-edge technologies such as Extended Reality (XR), 5G+AR, and so on, to realise the fantastic virtual experience of ‘travelling through the past and present, roaming the world’ [16].

Secondly, Metaverse breaks the visual barrier between physical space and virtual space, and XR technology, as a bridge connecting the virtual and real space, perfectly integrates with traditional culture, bringing unprecedented deep immersive experience for the visual interpretation of traditional culture. ‘Contrasting the details of specific characters’ images in the work with the corresponding historical realities moreover encompasses the requirement that its artistic expression should be compatible with the “spiritual temperament” of a specific historical scene’ [17].

Finally, the metaverse challenges the boundaries between incarnation and embodiment. In the virtual world, the body exists in an off-site state, and the avatar’s behaviour is manipulated through remote control. With the advancement of artificial intelligence technology, human beings can participate in visual activities in virtual space in the form of ‘relative embodiment’ through external wearable devices. And augmented reality technology is to integrate the virtual phantom into the real world, realising the seamless connection between the virtual and the real.

#### **4.2 Convergence and Inheritance: Integration and Innovation of Multiple Visual Elements**

In the metaverse space, the inheritance of CETC realises the integration and innovation of multiple visual elements. This integration

and innovation is mainly reflected in the two aspects of cultural hierarchy and content. From the vertical dimension, the meta-cosmic space integrates and expresses the ‘tools, images and Tao’ of traditional culture in a vertically coherent way. Among them, ‘ware’, as a visible and palpable cultural form, becomes the best carrier for visual presentation; while hidden cultural elements such as ‘image’ and ‘Tao’ are effectively inherited by integrating them into the scene. The multi-dimensional scenes in the metaverse space provide strong support for the integration and inheritance of traditional culture. From the horizontal dimension, meta-cosmic space realises the visual integration and innovation of cultural elements at the same level. As a diversified, shared, open and highly participatory space, the metaverse attracts many users to carry out independent innovation and creation in it. These users continue to expand the boundaries of the metaverse by building original virtual worlds, injecting new vitality into the inheritance of traditional culture.

#### **4.3 Social Inheritance: Visual Interactive Experience beyond Reality**

In traditional classroom teaching settings, there are numerous constraints in the interactions between teachers and learners, as well as between teachers, students, and the teaching environment. Whether conducted in physical classrooms or online, learners primarily engage with teachers through verbal and gestural exchanges, thereby imitating and practicing the knowledge and skills imparted by the teachers, often neglecting the learners’ own subjectivity. In contrast, within the Metaverse environment, interactions between teachers and students, as well as between teachers, students, and the teaching environment, all occur within a virtual realm populated by virtual avatars [18]. The Metaverse offers a novel platform for the social transmission of CETC On this platform, traditional culture is presented across diverse, real-time, integrated, and open social visual scenes.

#### **5. Practical Path: The Implementation of Metaverse Empowering Secondary School History to Inherit CETC**

With the rapid change of science and technology, metaverse, as the intersection of



technology and culture, is bringing unprecedented opportunities for secondary school history education. We will further expand how Metaverse can be combined with secondary school history education to explore and pass on the excellent traditional Chinese culture. To this end, metaverse provides a new practical path for secondary school history to pass on the transmission of CETC.

### **5.1 Build Immersive Historical Scenes to Reproduce Historical Moments**

Metaverse can provide learners with immersive sensory experience, flexible and diverse interaction methods, hands-on learning experience and social learning based on collaboration [19], especially with the support of wearable device technology, it can create a 'co-presence' learning environment for learners [20]. Using the VR/AR technology of Metaverse, we can build highly simulated historical scenes, such as ancient palaces, temples, streets and alleys, so that students feel as if they were in the historical scene. For example, when learning the history of Ming and Qing Dynasties, students can 'travel' to the Forbidden City and witness the historical moments such as the emperor's court meetings and court celebrations, so as to understand the ancient court culture and social landscape more intuitively.

### **5.2 Conducting Virtual History Practice Activities and Experiencing Traditional Culture and Skills**

In addition to visiting historical sites, Metaverse can also provide a virtual practice platform for students to learn and experience traditional cultural skills. In the Metaverse, the technological synergy formed by vital records, holographic projection, VR/AR/MR/XR can bring learners full and deep sensory stimulation in the areas of graphics, text, sound, image, and touch, thus creating a learning experience of 'realm and body in one' [21]. For example, virtual calligraphy, painting, tea ceremony and other courses can be set up to let students experience the charm of these traditional cultures in the virtual environment. Such practical activities not only help students understand the connotation of Chinese culture more deeply, but also cultivate their aesthetic interest and practical ability.

### **5.3 Design Gamified History Learning Tasks to Stimulate Students' Learning Interest**

Metaverse itself originated from online games, which have similar characteristics such as free creation, strong socialisation, strong virtual identity, and high immersion experience [22]. Through the metaverse platform, we can design challenging gamified history learning tasks. These tasks can be puzzle games with historical events as background or role-playing games with historical characters as protagonists. In the process of completing the tasks, students not only need to apply the historical knowledge they have learnt, but also need to use their imagination and creativity, so as to gain a deeper understanding of the richness and complexity of history and culture.

### **5.4 Using Big Data and Blockchain Technology to Build a Scientific Teaching Evaluation System**

Big data and blockchain technology in the metaverse can not only record students' learning progress and feedback, but also provide a scientific basis for history teaching evaluation [23]. Through the analysis of students' learning data, teachers can more accurately understand students' learning needs and difficulties, so as to develop a more personalised teaching plan. At the same time, the tamperability and traceability of blockchain technology can also ensure the fairness and objectivity of teaching evaluation.

### **5.5 Create a Companionable History Learning Community to Promote Student Communication and Cooperation**

The metaverse itself can exist as a symbiotic learning community between reality and reality [24]. In the metaverse, students can join various history learning communities to communicate and collaborate with their classmates from different regions and different cultural backgrounds. These communities can provide rich learning resources and interactive tools, such as online discussion forums and collaborative editing platforms, to help students work together to solve learning problems and share learning experiences. At the same time, parents and teachers can also learn about students' learning through the communities and provide timely guidance and support.

## 6. Summary

Introducing metaverse technology into secondary school history classrooms represents not only an innovative departure from traditional teaching methods but also a revolutionary approach to transmitting CETC. Through the immersive experience offered by the metaverse, students can intuitively appreciate the allure of history and culture, thereby fostering a deeper sense of identification with traditional culture. This teaching methodology not only caters to students' demand for novel and engaging learning approaches but also delves into the underlying mechanisms of history and culture, enabling students to grasp the essence of traditional culture through interactive engagement. In summary, the educational metaverse offers a fresh opportunity and platform for secondary school history education to convey CETC, thereby cultivating students' cultural self-confidence and national identity, and driving educational innovation and development. The exploration and implementation of this educational model not only enhance students' learning interest but also constitute a valuable attempt at redefining the manner in which traditional culture is inherited.

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