

# Digital Technology Facilitating University Traditional Cultural and Artistic Design Inheritance and Innovation

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**Keywords:** Artistic Design; Traditional Cultural; Digital Technology; Innovation

**Abstract:** With the vigorous development of digital technology, its application in the field of traditional cultural and artistic design in universities has attracted wide attention. The purpose of this study is to explore how digital technology can help the inheritance and innovation of traditional cultural and artistic design in universities, and make an in-depth analysis through specific cases and practical research. First of all, through the research on the digitalization of cultural relics and the construction of virtual museums, it is found that digital technology provides a new way for the inheritance of traditional culture. Secondly, the combination of AI and artistic creation shows the powerful potential of digital technology in innovation. Through AI to generate art, artists can explore creative space more widely, inject modern elements into traditional culture and form a unique artistic expression. Further, this study focuses on the practical application of digital science and technology curriculum and training in universities. In this process, students not only deeply understand the essence of traditional culture, but also cultivate the skills of digital creation through practical case analysis, creation and achievement display, which provides broader possibilities for future career development. Through the in-depth discussion of this study, we expect to provide theoretical guidance and practical experience for the application of digital technology in university traditional cultural and artistic design, and promote the inheritance and innovation of traditional culture in the digital age.

## 1. Introduction

With the continuous progress of science and technology and the rapid development of society, digital technology has profoundly changed all aspects of our lives. In this digital age, the design of traditional culture and art in universities is facing new opportunities and challenges. As the foundation of a nation, traditional culture bears rich historical and cultural connotations, and digital technology provides new possibilities for the inheritance and innovation of traditional cultural and artistic design.

In the inheritance of traditional cultural and artistic design, digital technology has provided strong support for the digitalization of cultural relics, the construction of virtual museums and the management of digital archives [1]. Digital means can not only help to preserve ancient works of art and cultural heritage, but also make people experience traditional culture and art in a more intuitive way through virtual reality technology, and stimulate students' interest and understanding of traditional culture [2]. In terms of innovation, digital technology has injected new creative elements into the traditional cultural and artistic design of universities. Through AI, digital art and other technical means, traditional culture can be integrated with modern aesthetics to create more contemporary and innovative works of art [3-4]. The application of digital technology has also brought a wider audience to traditional culture and art design, and accelerated the spread and inheritance of traditional culture and art.

The purpose of this paper is to explore how digital technology can help the inheritance and innovation of traditional cultural and artistic design in universities. Digital technology involves computer science, information technology, virtual reality, AI and other fields. The introduction of these technologies provides a broader space for traditional cultural and artistic design. Digital technology can better protect, inherit and display the treasures of traditional culture and art, and at

the same time give them new life in innovation. Through in-depth research on the digital technology's contribution to the inheritance and innovation of university traditional culture and art design, we are expected to provide strong support for promoting the protection and development of traditional culture and inject new vitality into university art design education.

## **2. The influence of digital technology on the inheritance of traditional cultural and artistic design**

### **2.1. Digitalization of Cultural Relics and Construction of Virtual Museum**

Digitalization of cultural relics is a process of transforming physical physical cultural relics into digital forms through high-precision three-dimensional scanning, image acquisition and other technical means. This process not only protects the integrity of cultural relics, but also provides great convenience for virtual exhibitions and research [5]. Digital technology can not only restore the original appearance of cultural relics, but also provide high-quality data foundation for subsequent research. Through digitalization, we can realize all-round recording of cultural relics and ensure the integrity and accuracy of their information.

The construction of virtual museum is one of the important applications of digital technology in heritage. Traditional museums may be limited by space, time and manpower, so it is difficult to fully display the cultural relics in their collections. The virtual museum presents the cultural relics to the audience in a virtual form through digital technology, which eliminates the geographical and time constraints and enables anyone to visit virtually anytime and anywhere. This innovative construction method not only greatly improves the dissemination effect of cultural relics, but also broadens the public's cognitive approach to cultural relics [6].

Digital technology provides strong support for the construction of virtual museums, and also stimulates the public's enthusiasm for participation. Through the virtual museum, the audience is no longer limited by time and place, and can browse cultural relics more freely. In addition, the virtual museum also provides opportunities for the audience to interact and participate, such as online comments, digital interactive display, etc., so that cultural relics are no longer closed exhibits, but form closer ties with the audience. This mechanism of public participation contributes to the inheritance of traditional culture and inspires the new generation to pay attention to and love cultural traditions.

### **2.2. Digital archives management and cultural heritage protection**

Digital archives management adopts advanced digital technology, including digital scanning, image processing and database construction. Through these means, the relevant information of cultural heritage can be recorded efficiently in digital form to ensure the integrity and accuracy of the information. Digital archives management can not only record the physical objects in an all-round way, but also relate relevant information such as history, culture and artistic background, and build a three-dimensional and comprehensive cultural heritage archives [7-8]. First of all, digital archives can improve the storage efficiency of cultural heritage information, reduce the pressure of physical archives, and thus better protect cultural relics. Secondly, the construction of digital archives contributes to the remote management and monitoring of cultural heritage and improves the timeliness and accuracy of protection. In addition, digital archives also provide researchers with more convenient retrieval and utilization channels, and promote the academic research and dissemination of cultural heritage.

Digital archives management provides a good platform for the openness and sharing of cultural heritage through the application of digital technology. Digital archives can be shared online through the Internet platform, which enables researchers, educators and the public to obtain cultural heritage information more conveniently. This open and shared mechanism not only strengthens the dissemination of cultural heritage, but also promotes the international exchange of cultural heritage information, providing new possibilities for cultural protection cooperation around the world.

### **3. Digital technology promotes the innovation of traditional cultural and artistic design**

#### **3.1. The application of AI in artistic creation**

Traditionally, artistic creation has always been regarded as a field with high creativity and emotional input, but modern artists are increasingly aware of the great potential of AI in creation. AI can learn and understand the creative style of artists and generate unique works of art through deep learning and other technologies. This combination makes artistic creation no longer limited to individual imagination, but can expand a wider creative space with the help of AI [9]. Generative art is a unique direction of AI in artistic creation, where technologies such as GANs (Generative Adversarial Networks) are widely used. This technology can generate works of art that are unique in appearance and form, even surpassing the limitations of traditional art. Artists can use AI generated images, music, or text as a starting point for their creations, and through further modifications and combinations, create stunning new works that showcase the potential for innovative expression.

The application of AI in artistic creation is not limited to the level of the creator, but also extends to the interaction of the audience. By analyzing the audience's preferences, habits and other data, AI can generate personalized artworks or provide personalized artistic experiences. This personalized interaction not only makes artworks closer to the needs of the audience, but also provides a new way for the dissemination and sharing of artworks.

#### **3.2. Integration of digital art and traditional culture**

The rise of digital art has injected new vitality into traditional culture, and digital technology has provided new possibilities for the expression of traditional culture. The integration of digital art and traditional culture is not only a combination of technology, but also an attempt of innovative development and inheritance of traditional culture.

Digital technology provides artists with rich diversity of creative means. Through virtual reality, augmented reality and other technologies, traditional cultural elements can be presented in a more stereoscopic and vivid way. For example, the elements of traditional China ink painting are integrated into digital painting, and the evolution of traditional architecture is displayed through virtual reality. The innovation of digital art forms makes traditional culture glow with brand-new brilliance [10]. Through the interaction of digital technology, the audience can participate in the experience of traditional culture. For example, through the virtual exhibition, the audience can roam in the digital space and have a more intuitive interaction with traditional culture, which enhances the audience's sense of participation and experience in traditional culture.

The integration of digital art and traditional culture has promoted the development of cultural and creative industries. Through digital technology, symbols, patterns, stories and other elements of traditional culture can be reinterpreted and utilized to create more modern cultural products. This not only injects new commercial value into traditional culture, but also promotes the innovation and upgrading of cultural industry. Digital art provides a brand-new expression for the inheritance of traditional culture. Through the digital platform, traditional culture can be transmitted to a new generation of audience in a more attractive form, which will help them better understand and love traditional culture. At the same time, the innovation of digital art has also injected a sense of the times into traditional culture, making it better adapt to the needs of contemporary society.

### **4. Practice and case analysis of digital technology assisting traditional cultural and artistic design in universities**

#### **4.1. Curriculum and training of digital science and technology in universities**

The rapid development of digital technology in today's society poses new challenges and opportunities for higher education. In order to make students better adapt to the needs of the digital age, universities should constantly improve the curriculum and training of digital science and technology, so as to cultivate students' digital science and technology ability and enhance their

competitiveness in the future career field.

Universities should establish diversified digital science and technology courses, covering computer science, data analysis, AI, virtual reality and other fields. These courses should not only focus on imparting theoretical knowledge, but also combine practical cases to cultivate students' practical application ability. In addition, interdisciplinary curriculum can also cultivate students' comprehensive literacy and make them have a broader knowledge structure. In the course of digital science and technology, practical training and project actual combat are indispensable parts. Through the design and implementation of practical projects, students can understand theoretical knowledge more deeply and cultivate the ability to solve problems in practice. Universities should cooperate with industries to provide students with opportunities to participate in practical projects, so that they can apply digital scientific and technological knowledge in real scenes.

Digital technology involves many disciplines, so universities should encourage interdisciplinary cooperation. For example, the combination of digital art and computer science, the intersection of digital marketing and data analysis. Such interdisciplinary cooperation can not only cultivate students' comprehensive quality, but also help to cultivate their broader vision and innovative thinking. With the rapid development of digital science and technology, universities should update the course content in time to keep it consistent with the development trend of the industry. In order to better meet the needs of the industry, universities should also establish close ties with enterprises, understand the latest trends of the industry, adjust and optimize the curriculum, and ensure that students can smoothly integrate into their careers after graduation.

#### **4.2. The application of digital technology in the course of traditional culture and art design in universities**

In the course, students participated in a series of practical case studies, one of which is the digital adaptation of traditional painting techniques. Students learned the skills and historical background of traditional painting, and then used digital technology, such as image processing software and drawing board, to combine traditional painting elements with digital art. Through case analysis, students have a deep understanding of the essence of traditional culture and mastered the use of digital tools.

In the creative stage of the course, students are encouraged to use digital technology as a creative tool and integrate traditional cultural elements into their own designs. Inspired by traditional festivals, architecture and calligraphy, students have created a series of original works through digital painting and virtual reality. This creative process of students not only exercises their digital technology ability, but also stimulates their innovative thinking on traditional culture. Figure 1 is an image depicting a series of creative works inspired by traditional cultural elements, such as festivals, architecture and calligraphy, and incorporating modern digital art and virtual reality technology.



Figure 1 Students' creative works

Figure 2 represents the integration of traditional painting elements and digital art, and shows the harmonious integration of classic technology and contemporary aesthetics.



Figure 2 The integration of traditional painting elements and digital art

The achievements of students' creation are displayed through digital platforms, including digital galleries and virtual museums. Students' works not only retain the unique aesthetic feeling of traditional culture in form, but also present brand-new visual effects through digital technology. This kind of achievement display not only enables students to show their creative achievements more comprehensively, but also provides a brand-new artistic experience for the audience.

## 5. Conclusions

The rapid development of digital technology has brought new possibilities for the inheritance and innovation of traditional cultural and artistic design in universities. By studying the application of digital technology in traditional cultural and artistic design, we not only deeply understand how digital technology promotes the inheritance of traditional culture, but also discover the great potential of digital technology for the innovation of traditional cultural and artistic design. The combination of digital technology and traditional cultural and artistic design not only contributes to the inheritance of traditional culture, but also glows with new vitality in innovation. Universities should further strengthen the setting and training of relevant courses, provide better learning environment for students, and promote the continuous development of traditional cultural and artistic design to better adapt to the trend of the digital age. Such efforts will help to protect and inherit the precious heritage of traditional culture and inject new impetus into the future development of culture and art.

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