

# Digital Empowerment: Ecological Transformation and Business Innovation in the Communication of University Cultural and Creative Products

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## ABSTRACT

In recent years, the impact of digital technology on people's learning, life, and work has deepened, posing new requirements for the digital dissemination of university culture and endowing university cultural and creative products with new era connotations, making their digital dissemination more valuable and meaningful. Through the application of digital technology, the communication ecology of university cultural and creative products has transformed from information interaction to the Internet of Things, from virtual and real interaction to human-machine collaboration, from symbol dissemination to immersive collaboration, and from human dissemination to artificial intelligence dissemination. Relying on VR, intelligent AI and other technologies, the communication ecology of university cultural and creative products has transformed from anime games, online music, online performance, online videos, digital art, creative design and other means of expression. The use of digital technology to transform and enhance the presentation of campus culture has made mobility, visualization, interactivity, and intelligence the trends and trends in the communication of university cultural and creative products, which has promoted the innovation of the dissemination mode of cultural and creative products in universities, promoted the integrated development of "digital + cultural and creative", enhanced the digital communication of campus culture, and made campus culture "live".

**Keywords:** *Digital empowerment, University cultural and creative products, Communication, Ecological transformation, Format innovation.*

## 1. INTRODUCTION

In recent years, the impact of digital technology on people's learning, life, and work has been deepening, and higher education institutions are no exception. In February 2023, the Central Committee of the Communist Party of China and the State Council issued the "Overall Layout Plan for Digital China Construction", which clearly states the need to "comprehensively energize economic and social development, create a confident and prosperous digital culture, strengthen the supply of high-quality online cultural products, and promote the digital development of culture". [1] The "Plan" emphasizes the importance of high-quality digital cultural dissemination, but also puts forward new requirements for the digital dissemination of university culture. Cultural and creative products that embody the educational

philosophy and brand culture of colleges and universities have also been endowed with new era connotations, making their digital dissemination more valuable and meaningful.

## 2. THE COMMUNICATION DILEMMA OF UNIVERSITY CULTURAL AND CREATIVE PRODUCTS

Cultural and creative products are important carriers of cultural dissemination in colleges and universities, as well as an important way for universities to disseminate educational concepts and promote brand values. However, the communication of Chinese university cultural and creative products still faces challenges such as weak marketing awareness, limited dissemination coverage, and limited connectivity.

## **2.1 Weak Marketing Awareness and Incomplete Industrial Chain**

It is not common for colleges and universities to establish specialized marketing and communication teams to unify the management of cultural and creative products. Most colleges and universities lack market awareness in the online operation process, have few promotion links, weak audience experience, low participation enthusiasm, and have not formed a good marketing interaction relationship. The degree of commercial operation is low; In the offline operation process, there is a lack of supervision and regulation. Some unscrupulous merchants, in order to seek profits, print the school logo on non-university developed cultural and creative products with poor quality to deceive consumers. Weak awareness of marketing communication and regulation, and incomplete industrial chain, have reduced the sales and reputation of university cultural and creative products.

## **2.2 Small Communication Coverage and Low Brand Recognition**

Brands not only have recognition functions, but also can increase product added value, evoke consumer identification, and promote sales. [2] On the one hand, most cultural and creative platforms in colleges and universities have not been established for a long time, and their penetration into the student community is insufficient, resulting in insufficient student awareness. On the other hand, there is relatively little contact between the cultural and creative industry in universities and the off campus market. Schools lack the necessary understanding of establishing cultural and creative incubation parks, and cultural and creative funds mostly come from school funding or teacher project funding. There is a lack of social capital support, insufficient incubation motivation, and it is difficult to form a widely recognized cultural and creative brand by the public.

## **2.3 Limited Interconnectivity and Lack of Institutional Mechanisms**

Most colleges and universities have not established a long-term mechanism for benefit sharing and risk sharing with cooperative enterprises and government departments. The endogenous power is insufficient, the cultural and creative products produced lack personality characteristics, fail to segment the audience market,

the accuracy of product delivery is not high, the ability of creative products to transform into the market is weak, the transformation rate of educational, teaching and scientific research achievements is low, and the products are pushed only through microblog and WeChat official account, with a single communication mode, There is no systematic digital cloud platform for marketing and communication, product circulation is limited, and there is no sustainable collaborative development between industry and academia, as well as a cultural education model.

## **3. THE ECOLOGICAL TRANSFORMATION OF UNIVERSITY CULTURAL AND CREATIVE COMMUNICATION**

On December 9, 2022, the World MOOCs and Online Education Conference was held online, and the Ministry of Education took the lead in releasing the "Infinite Possibilities: Report on the Digital Development of Global Higher Education" to the world, clarifying the trends and changes in digital transformation of higher education. The "Development Report" points out that by accelerating the digital transformation of higher education and promoting the deep integration of information technology and higher education, collaborative efforts will be made from both the "thing" and "human" levels to create a more equitable, high-quality, and beautiful future of higher education, promoting comprehensive human development. [3] The requirements of the "Development Report" for the digital transformation of higher education have also led to a transformation of the communication ecology of university cultural and creative products.

### **3.1 Information Interaction to the Internet of Things**

Digital technology fully integrates big data, cloud services and artificial intelligence. With mobile phones, computers, televisions and other carriers, through new media discourse platforms such as websites, microblogs, WeChat official account, mobile clients, and Tiktok, the way of information communication can be improved, transforming the university cultural and creative industries to "digital subsistence". On the one hand, the advent of the digital age has promoted the transformation of physical models of traditional campus cultural and creative products to digital models. In addition to selling physical products

such as cards, clothes, keychains, and cups, digital creative products such as music, videos, and games are also sold, expanding the marketing scope of campus cultural and creative products; On the other hand, the application of digital technology can allow audiences to watch exciting and interesting 3D models, physical images, or promotional videos of high school cultural and creative products anytime and anywhere using mobile devices. They can leave comments, make reservations, and make purchases, and support Weibo and WeChat forwarding and dissemination, breaking the limitations of time and space, making communication platform based, online, and cloud based, breaking through the communication barriers of traditional campus cultural and creative products, and realizing the interconnection between human and things, as well as between things. The application of digital technology has changed the value chain and supply-demand relationship of university cultural and creative product communication, promoted the digital transformation of university cultural and creative product communication, triggered an ecological revolution in the cultural and creative industry, and transformed the communication mode of campus cultural and creative products from traditional information interaction to the Internet of Things.

### ***3.2 Virtual and Real Interaction to Human-Machine Collaboration***

At the beginning of the communication of university cultural and creative products, whether it is the comments when browsing the official account, or buying products through mobile clients, or sending pop-up screens when watching product videos, it is a virtual reality interaction that empowers the audience. The application of digital technology will bring about a comprehensive upgrade of interaction technology and methods. The new achievements brought by high-tech and facility equipment can attract and serve university teachers and students, and strengthen the penetration of cultural and creative products in the school and students' awareness. Through on-site human-machine collaborative interaction, it can stimulate the audience's purchasing desire to a greater extent. For example, in the cultural and creative product promotion area of the innovation and entrepreneurship center of universities, an experience space for on-site human-machine collaborative interaction can be established. In this space, 3D printers, motion sensing games, and facilities and equipment with virtual enhancement

technology and augmented reality technology need to be set up to promote cultural and creative products, form an interactive experience mode of information technology and science, guide visitors to understand university cultural and creative products, and form a good reputation, as well as promote the communication and circulation of university cultural and creative products. The new media based on digital technology provides a new on-site human-machine collaborative interaction method for the communication of university cultural and creative products, which creates a strong sense of participation among the audience. This interactive experience between people and technological facilities effectively compensates for the shortcomings of traditional virtual real interaction, transforming the communication mode of campus cultural and creative products from virtual-real interaction to human-machine collaborative interaction.

### ***3.3 Symbol Propagation to Immersive Collaboration***

From the perspective of semiotics of communication, symbols are the carriers of information communication. In the communication activities of university traditional cultural and creative products, cultural and creative products represent the signifier of university traditional cultural elements, as well as the signifier of conveying the spiritual connotation and creative level of universities. They serve as a bridge for the communication of university cultural concepts to audiences. But in this traditional communication process, the audience can only communicate emotionally with the creator through product symbols, and cannot experience the creator's creative practice process. With the application of digital technology, high-tech represented by VR, AR, and MR will change the traditional mode of cultural and creative symbol dissemination. Through virtual imaging, projection capture, and changing lighting, advanced digital technology will be used as a medium to enable audiences to interact with cultural and creative products through various sensory levels such as audio-visual and tactile senses. In this immersive collaborative interaction, creators and cultural and creative products achieve deep emotional communication. "The audience can not only appreciate the work through its interactive function, but also recreate the meaning of the work based on their own understanding and imagination." [4] From the perspective of communication effectiveness, immersive

collaborative interaction has changed the relationship between cultural and creative products and audiences, allowing audiences to immerse themselves in the media events of situational interaction, become participants, and gain the right to narrate. In this immersive experience, the audience continuously encodes and decodes symbols for the information communication of cultural and creative products, thus giving new meaning to the communication of cultural and creative products. This transformation from symbolic interaction to immersive collaborative interaction mode has endowed university cultural and creative products with new aesthetic experiences and cultural connotations.

### ***3.4 Human Transmission to Artificial Intelligence***

At the beginning of the internet communication of university traditional cultural and creative products, information was mainly disseminated through the editing, input, sending, and reply methods of cultural and creative product promotion personnel. The technological progress brought about by the application of digital technology has deeply influenced and reconstructed the external form and value orientation of university cultural and creative products. Through user platforms and information terminals, new intelligent technologies such as machine algorithms, big data analysis, semantic recognition, machine vision, and cloud services are used to expand the communication space of products, and also transform the communication of cultural and creative products from human to artificial intelligence. Injecting artificial intelligence thinking into the integration of university cultural and creative product communication media allows machines to work according to people's behavior, reshaping the editing process of information, and promoting the extension of communication media. Some cultural and creative online platforms of colleges and universities have launched interactive communication programs such as robot responses or chats, which can analyze and process various audience information. With the help of artificial intelligence information collection and big data analysis methods, university cultural and creative product backend managers can better mark and recommend popular product types, accumulate user information, and through in-depth exploration of user information databases, clarify user preferences and increase audience stickiness. The application of artificial intelligence communication mode has

improved the efficiency and quality of the communication of university cultural and creative products.

## **4. INNOVATION IN THE FORMAT OF UNIVERSITY CULTURAL AND CREATIVE COMMUNICATION**

The application of digital technology enables the interactive communication of high-tech, digitalization, and the Internet of Things, expanding the expression forms of university cultural and creative products, enhancing the interactive experience between products and audiences, and making cultural and creative products a collaborative art between creators and audiences. The ecological transformation of the communication environment in the digital age has made mobility, visualization, interactivity, and intelligence the trends and trends in the communication of university cultural and creative products, promoting the innovation of business models for the dissemination of university cultural and creative products.

### ***4.1 Deeply Cultivating Cultural Soil and Cultivating Digital Brands***

The report of the 20th National Congress of the Communist Party of China proposed the implementation of the national cultural digitization strategy. Campus cultural and creative products carry the pursuit of aesthetic appreciation of campus life by teachers and students, and are the combinations of creation and appreciation, culture and creativity, and campus and brand. High quality campus cultural and creative products need to organically integrate the historical evolution of the school with the aesthetic development of the times, and achieve the organic integration of cultural value and practical value through the digital creative concept of the new era, which is one of the important ways to implement the national cultural digitization strategy. At present, most colleges and universities have begun to explore the digital advancement path of campus cultural and creative industries. Through in-depth exploration of key points of campus culture, utilizing digital campus cultural and creative products, campus IP hyperlinks, and other methods, they shape a brand concept centered on campus culture, build a digital ecosystem of campus culture, innovate campus cultural industry formats, and strive to tell good campus stories and empower cultural communication, realizing the digital regeneration of

campus culture. The digital video "Qingxiaohua Brings You to Tsinghua" launched by Tsinghua University features a virtual design of the "Qingxiaohua" mascot image with school cultural characteristics, introducing the admission method of Tsinghua University; Xiamen University uses the song "Because the Phoenix Blossoms" as a tribute to its centennial anniversary, using the unique plant Phoenix as a guide, combined with folk art, to widely spread campus culture through digital audio modes; Sun Yat-sen University utilized the regional characteristics located in the "Redwood Capital" to design a creative USB drive made of redwood material as a carrier for digital communication of campus culture.

#### ***4.2 Building a Digital Platform to Enhance Service Capabilities***

By utilizing the characteristics of collaborative construction and sharing through digital technology, some colleges and universities have begun to deepen the digital transformation and construction of campus cultural and creative products. The first is to aggregate resources and create platforms. By comprehensively integrating internal and external resources and using a three-dimensional design approach of "digital, creative, and cultural", schools should create a digital cultural and creative product exhibition platform to provide a space for high-quality digital cultural and creative product presentation. The second is to promote application and form a business model. By vigorously developing campus cultural and creative industries, it is necessary to promote the integration of industry, academia, research and application in schools, enhance the widespread application and sharing of new technologies, expand the industrial chain of campus cultural and creative products, and accelerate the formation of new campus cultural and creative formats and consumption models. The third is to rely on technology to enhance services. Through the big data function of the school's digital cultural and creative product exhibition platform, digital language processing technology is used to search, classify, and extract information on cultural and creative products. Based on user click browsing, search for information, and other operation records, digital personalized recommendation technology is used to analyze user needs, interests, and hobbies, recommend cultural and creative products of interest to users, and enhance digital cultural service capabilities. The fourth is to create an atmosphere and form a case study. By creating a cultural and creative platform with campus cultural

characteristics, schools should also guide teachers and students to design and produce digital cultural and creative products with campus cultural characteristics and positive development, forming a campus cultural database. The fifth is to co-create and share, and improve services. Through official websites, Weibo, WeChat, APP clients, social media, mobile devices and other user terminals, the schools can achieve campus culture co-creation and sharing, provide better campus culture services for users, and improve the sales channels of campus cultural and creative products.

#### ***4.3 Breaking down Time and Space Barriers, and Cross-border Integration and Connectivity***

The development of digital technology has melted the boundaries between media and people and things. Through the development of digital virtual reality technology, the connotation and extension of media expression have been reshaped, integrating material objects with emotional extensions, real scenes with virtual reality, expanding the communication scope of university cultural and creative products, and promoting the virtualization, visualization, and three-dimensional presentation of university cultural and creative products. Some colleges and universities have begun to explore the path of cross-border integration and communication of campus cultural and creative products. On the one hand, they use anime or cultural IPs to develop digital promotional videos, MV songs, games, animations, videos, small applications and other internet cultural and creative products through authorized methods such as themes, products, activities, and brand cooperation, promoting the free and widespread circulation of digital cultural and creative products online. On the other hand, VR virtual reality technology is adopted in the physical stores where campus cultural and creative products are launched, establishing interactive experience platforms for audiences such as touch screens and phantom imaging. The detailed information of cultural and creative products is fully displayed through digital information such as sound, graphics and images, animation, and video, creating a virtual environment for campus culture, allowing audiences to experience the cultural inheritance of the school firsthand and strengthen cultural identity. At the same time, most colleges and universities break through time and space barriers by selling physical derivative products related to digital cultural and creative products, such as alumni gifts,

daily necessities, fast-moving consumer goods, and limited edition explosive products, initially forming a cross-border integrated online and offline full industry chain.

#### **4.4 Upgrading digital technology to promote intelligent communication**

In August 2021, the Ministry of Culture and Tourism, the Central Propaganda Department, and eight other departments jointly issued a notice on the issuance of several measures to further promote the development of cultural and creative products in cultural heritage units. The document clearly states that "strengthening the application of technologies such as big data, the Internet of Things, and artificial intelligence in the development of cultural and creative products, supporting innovative utilization of virtual reality, augmented reality, holographic imaging, naked eye 3D graphics display, interactive entertainment engine development, digital processing of cultural resources, interactive film and television and other technologies, and enhancing the cultural carrying capacity, presentation power, and communication power of cultural and creative products." [5] The development of digital technology has accelerated the innovation of cultural and creative products in universities, and some colleges and universities have begun to actively explore the integration and development of "digital + cultural and creative product communication". Institutions such as the Institute of Cultural and Creative Development at Tsinghua University and the Institute of Artificial Intelligence have collaborated in multiple ways to hold the "Global AI Cultural and Creative Competition", promoting the integration and development of artificial intelligence and cultural and creative industries, and improving the digital communication industry chain of university cultural and creative products; Wuhan University combines a flexible RF energy harvester with the Wuhan University emblem, using sensor technology to design a "mobile hotspot opening indicator pendant" with technological attributes and cultural heritage. By collecting and utilizing environmental electromagnetic energy, it helps promote sustainable development. The integration of new concepts, new materials, multimedia, 3D printing, virtual reality and other technological means meets the audience's technological needs for cultural forms, which further promotes the digital transformation and upgrading of university cultural and creative products through deep interaction, human-machine collaboration, information

feedback and other means, laying a solid foundation for intelligent communication.

## **5. CONCLUSION**

The digital age is the era of the Internet of Things, relying on VR technology, intelligent AI, etc., the Internet of Things will enter a period of vigorous development,[6] and the university cultural and creative industry will usher in a new round of historical development opportunities. Every networked campus cultural and creative product may be media and platform oriented. Through industrial forms such as anime and games, online music, online performances, online videos, digital art, creative design, etc., using digital technology to transform and enhance the presentation of campus culture, and using digital application scenarios such as "cloud live streaming" and "cloud exhibitions" as carriers, can improve the supply chain of university cultural and creative products, promote the transformation of the dissemination ecology of campus cultural and creative products, and make mobility, visualization, interactivity, and intelligence the trend and trend of university cultural and creative product communication, thus promoting innovation in the communication mode of university cultural and creative products, improving the integrated development of "digital + cultural and creative", realizing the digital transformation and intelligent upgrading of efficient cultural and creative products, enhancing the digital communication of campus culture, and making campus culture "live".

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