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Digital Humanities Perspective on the Development Path of Excellent Traditional Chinese Farming Culture

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Abstract:
With the rapid development of digital technology, a plethora of digital resources has enriched the methods and perceptions of the dissemination of agricultural culture, liberating the propagation of China's outstanding traditional agricultural culture from the constraints of conventional forms. Concurrently, the emergence of digital humanities has broadened the avenues for the spread of agricultural culture. The integration of traditional culture with digital technology has enhanced the efficiency of dissemination, forging new forms of agricultural cultural communication, and the empowerment of cultural innovation by science and technology has become an inevitable trend. To foster the integration of digital humanities and the inheritance of agricultural culture, approaches such as the collection and organization of digital materials, the construction of virtual museums and digital exhibitions, and the integration of agricultural culture with cultural tourism can be adopted. Digital humanities offers new developmental pathways and methodologies for the study of agricultural culture, thereby promoting the inheritance of China's excellent traditional culture.

Keywords:
Digital Humanities, Farming Culture, Excellent Traditional Chinese Culture

1.Introduction

The sustainable development and diversified development of China's traditional agriculture are the material guarantees for the continuous inheritance and splendid diversity of Chinese culture. The report of the 20th National Congress of the Communist Party of China emphasized that the excellent traditional Chinese culture has a long history and is extensive and profound, which is the crystallization of the wisdom of Chinese civilization. Agricultural culture, as an important part of excellent traditional Chinese culture, is the continuous spiritual force for the comprehensive revitalization of the countryside, and it is also the source of confidence and self-confidence for accelerating the construction of an agricultural powerhouse [1]. Therefore, excavating, inheriting, protecting, and utilizing agricultural culture is not only for inheriting the national agricultural culture but also for stimulating the potential economic, social, and ecological benefits that agricultural culture can bring. With the increasing ability to manipulate information, large language models represented by ChatGPT and generative AI technology herald the beginning of a new round of production revolution. Discussing how digital humanities deepen and promote the symbiosis and mutual empowerment of technology and humanities to obtain new life has become a practical issue in the field of excellent traditional Chinese

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culture [2].

To deeply address this issue, it is necessary to organically combine the essence of culture with digital technology. The development of data technology has provided new research methods and tools for long-standing problems in the field of humanities research, re-expanding and constructing the research of humanities from the horizontal range and vertical depth. This paper will provide a macro-level interpretation and micro-level analysis of the digitalization of agricultural culture from the perspective of digital humanities.

2.Connotation and Characteristics of Excellent Traditional Chinese Farming Culture

2.1. The Connotation of Agricultural Culture

There is still no consensus in academia on the definition of agricultural culture, and scholars have studied it from different perspectives [3]. It is believed by some scholars to be the quintessence of thousands of years of production and life practices by Chinese working people, and it is a type of cultural form that has been inherited so far [4]. Agricultural culture as described by scholars is the sum of all ideologies which arose from the traditional agricultural socioeconomic base [5]. According to some scholars, it is also defined as the sum total of the material and spiritual wealth created by human beings in the process of practice of agricultural production [6]. Agricultural customs and habits, along with the agricultural philosophy and ideas, are pertinent to agricultural production technology and experience [7]; thus, those items are some critical contents of agricultural culture.

Agricultural production technology and experience refer to heritages from one generation to another through the accumulation of long-term planting, breeding, and cultivation knowledge, technology, and managerial experience. Agriculturally, it is true that their deep knowledge and respect for land further promote agricultural diversity in activities, festivals, and customs that reveal belief, value system, and a way of life. Agricultural culture is based on land; the methods of production adopted are crop cultivation and livestock breeding. They have gradually mastered key skills over the long run in the technique of planting, ways of irrigating, soil improvement, and pest control, thus forming a unique and effective system of agricultural production. This system is not only the foundation of material production but also the result of the deep dialogue between human beings and nature, which reflects the perfect unity of human wisdom with nature [8]. These values influence the farmers' behavior and attitude toward life; they form the ideological foundation of agricultural culture.

The values in agricultural culture are presented as a permanent solution to the question of life, nature, and society, thus establishing an ever special understanding and pursuit for humanity. The concept of agriculture culture itself contains the idea of "the harmony between men and nature," involving the thought of the harmonious co-existence between human beings and nature; advocating that men should fit into the natural world order and transform natural resources into properly used natural resources. Meanwhile, other values concerning agricultural culture involve the "respect for labor" and "diligence and thrift" that instill in one to lead a better life and further cherish that which is gained through hard work. To date, some scholars have

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summarized its core connotation into eight words: "responding to the times, taking appropriate measures, following rules, and promoting harmony" [9]. The main spirit of the excellent traditional agriculture culture may be reflected in the concepts of "unity of heaven and man", "self-improvement", and "harmony" [10]. Some scholars believe that the main content includes material, institutional, and people-oriented levels of excellent traditional agriculture culture [11]. Among which, the material culture consists of labor tools, labor facilities, and so on [12]; institutional culture includes agricultural system, labor habits, social customs, etc; the people-oriented culture consists of the survival concept that roots from the people and the values of putting people first.

2.2. The Application of Digital Technology on Agricultural Culture Heritage

Digital technology offers new perspectives and methods for heritage in traditional agriculture culture. Therefore, scholars in recent years have been committed to seeking the way to use digital technology to achieve the record, preservation, and display of the culture of agriculture [13]. The applications related to the reproduction of virtual farming scenes within digital archives extend from artistic productions by individual authors to meet the agricultural culture heritage requirements in continuous technological application boundaries [14]. For instance, through the help of high-definition photography and 3D modeling technologies, detail, both in agricultural tools and ancient structures, is properly digitized, allowing for more intuitive views by researchers and the public at large. The rise of social media and other online platforms has been a factor for the easy sharing of this agricultural culture to every corner, hence increasing awareness and interest by the public [15].

Although the benefits of digital technology in inheriting agricultural culture are far better than traditional ones, the process of digitizing them has problems of its own that also benefit the inheritance of agricultural culture. First, the problem of the preservation of information during the course of digitization urgently needs to be solved, for example, information distortion and incomplete data. Secondly, the implementation of the technological barriers may limit the scope, especially in areas that are short of technological resources. This is where researchers put emphasis on how to balance the relationship between technological innovation and cultural inheritance, while the latter still retains the nature of traditional culture and the former widely disseminates it with technology.

3.Digital Humanities Integration and the Inheritance of Agricultural Culture

Viewed from the perspective of digital humanities, the development path of excellent traditional agricultural culture in China is facing a time of unprecedented opportunity and challenge. The intervention of digital technology provides new tools and platforms for protecting and inheriting agricultural cultures while opening up new space for innovation and development of agricultural culture.

3.1.The Application of Digital Technology in the Protection of Agricultural Culture

Collection and Organization of Digital Data:

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With the application of digital technology, the whole process of collecting and organizing agricultural cultural heritage information has become much more efficient and systematic. It is now possible to reach the digital archiving of cultural agricultural sites, cultural relics, and other related literature by using this technology; high-precision scanning, photogrammetry, and geographic information system technologies have opened new ways for long-term preservation and convenient access to precious material. The China Agricultural Museum is an instance in the process of taking up the digitalization project to collect and digitize all cultural relics, tools, images, and documents of traditional Chinese farming culture. Some representative data show that the project has already digitized over 20,000 collections related to agricultural culture, including ancient farming tools, crop samples, and old photos reflecting agricultural life. These digital resources will not only bring rich research resources to the scholarly academic community but also facilitate the general public's access to the understanding of and learning from traditional agriculture.

Each of these digital humanities projects abroad is so rich in new ideas for using digital technology in the protection of agricultural culture: Humanistica in France, aaDH in Australia, csdh/schn in Canada, and JADH in Japan [16]. Gradually, the digital humanities project has advanced from early physical photography to the construction of digital platforms to developing large-scale digital humanities resource integration platforms, continuously defining and changing the connotation and extension of digital technology and traditional humanities disciplines. In the meantime, it is necessary to develop a digital management platform for classifying, annotating, and retrieving information of agricultural cultural materials to provide solid data support for the researcher and a way of learning and studying more by people on this aspect of culture.

Virtual Museums and Digital Exhibitions:

Virtual museum and digital exhibition technologies capitalize on the technology of building 3D models, VR, AR, and others to make user experiences immersive for agricultural cultural instances. Over the past few years, the Palace Museum has been very successful with virtual museums and digital exhibitions. The Forbidden City provides digital exhibitions, such as "Celebrating the New Year in the Forbidden City" and "A Day of the Qing Dynasty Emperor," on its official website and mobile application. The exhibition is conducted through 3D modeling, virtual reality, and other high technologies, with rich multi-media methods of communication employed so that people get a lifelike viewing effect. It can also present the reproduction of historical scenes through digital exhibitions, vividly showing the display of the development and changes of agricultural culture, so that audiences can feel the charm of the view of agricultural culture. Virtual museums and digital exhibitions on online platforms transcend geographical limitations and are accessible by global users to help them learn about Chinese agricultural culture.

3.2.Integration of Digital Technology and Agricultural Culture: Agritainment Culture and Tourism

Deep Development of Agricultural Cultural Resources:

At the present time, the deeply integrated innovative academic exploration related to the development of agricultural cultural and tourism resources is approaching a deep level more and more. It is a process which reflects in-depth the cross-section and integration of technology and humanity. To systematically transform the rich heritage of agricultural culture into searchable and interactive digital resources by high-precision

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digital means like high-definition image capture and 3D-scanning modeling. An agricultural culture digital resource library is now under way globally for offering multi-dimensional restoration, such as site restoration, agricultural tool exhibition, and folk recording. It is able to aggregate such studies and offer unprecedented research materials and perspectives to the academic community. In this way, these resources can be digitalized and the safety and inheritance of cultural heritage can be realized at the same time; it has also opened up a solid foundation for innovative application of agricultural culture in the field of culture and tourism.

On the other hand, new opportunities were opened with the maturity of some technologies, such as big data and artificial intelligence. According to big data, enterprises of cultural and tourism analyze travel behaviors and interest preferences of tourists to make related service customization come true. For instance, with the use of the intelligent recommendation system in theme parks, personalized tour routes and project experiences are customized for tourists based on their individual preferences and historical travel records, thus allowing this to greatly increase tourist participation and experience. Meanwhile, the application of new media channels—such as social media and short video platforms—offers much broader coverage for the spread of agricultural culture and tourism resources. Moreover, there are increased daily visits and discussions on related topics, forming a better social environment for the inheritance and development of agricultural culture.

Empower the Development of Agricultural Culture and Culture Tourism:

From the perspective of digital humanities, the development and utilization of agricultural cultural and tourism resources have developed at an unprecedented pace in recent years, showing strong vitality and innovation. Over the past five years, a series of works of the digital project, which attract the attention of the culture of agriculture, have been rapidly carried out all over the world — many excellent works of high quality and influence. These projects use such advanced technologies as high-definition photography and 3D scanning to bring different resources of agricultural culture into digital form, realizing that every detail is maintained with extreme accuracy. By now, they have accumulated digital resource libraries with more than one million copies concerning various aspects, including agricultural sites, traditional farming tools, and folk activities. These digital resources not only provide rich material for academic research but also inject new vitality into the innovative development of the cultural and tourism industry.

Moreover, from the perspective of digital humanities, the agricultural cultural and tourism resources will also rely on the aforesaid advanced technology, such as big data analysis and artificial intelligence. In this way, with in-depth study of the pattern of tourist behavior and interests and preferences, it would be possible for precise positioning of market demand by cultural and tourism industries, achieving the effect of service recommendation and product recommendation, tailor-made to provide for or present services and products to be marketed. Academic research reveals that the application of such strategies significantly ameliorates the quality of tourist experience, enhances the attractiveness, and market competitiveness of cultural tourism. At the same time, in the face of wide application of artificial intelligence and digital technology, the dissemination and sharing of information related to agricultural culture have become more rapid. It has further promoted research from academic and scientific views, provided new paths for the inheritance and development of agricultural culture in contemporary society, and created influence on diverse fields.

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4.Challenges in the Inheritance of Excellent Traditional Chinese Farming Culture

4.1.Technical Challenges in the Digitalization Process

From the perspective of digital humanities, the development path of China's excellent traditional agricultural culture is facing enormous challenges from technological updates. Firstly, the rapid iteration of digital technology requires continuous updating of software and hardware facilities, which puts higher demands on the funding investment of cultural memory institutions. Secondly, in the process of digitization, a large number of professional digital humanities talents are needed for data collection, organization, and post-processing. Talents who possess both digital technology and humanistic literacy have become an important component of the process of inheriting agricultural culture. The digitization of agricultural cultural materials also involves issues such as copyright, privacy, and data security, which require sound laws, regulations, and technical standards to ensure.

4.2.Realistic Challenges in the Digitalization Process

With the acceleration of urbanization, a large number of rural labor forces have transferred to cities, and people's lifestyles have undergone structural changes, leading to an aging population in rural areas and a lack of understanding of agricultural culture among the younger generation compared to the past. Young people lack opportunities to understand agricultural production, and this change poses the risk of a disconnection in the inheritance of traditional agricultural knowledge and skills. In this context, how to effectively use digital humanities means to protect, inherit, and innovate in the development of agricultural culture has become an urgent problem to be solved. Looking at the development path of excellent traditional Chinese agricultural culture from the perspective of digital humanities, it not only helps to preserve and promote this precious cultural heritage but also provides cultural support and spiritual motivation for the rural revitalization strategy.

5.The Method to Inherit Outstanding Traditional Chinese Agricultural Culture

5.1. Increase investment in scientific research and introduce advanced technologies

According to the problems of technology and resources existing in the digital process, it is necessary to continue increasing research and development for making progressiveness and applicability of digital technology. This involves the use of modern technologies like big data, cloud computing, and artificial intelligence to comprehensively and systematically collect and organize historical documents, physical remains, and oral traditions of agricultural culture. For instance, artificial intelligence technology can be utilized to conduct more precise analysis and restoration of the cultural heritage of agriculture. Big data analysis will assist in knowing the inner wants and interests of the public relating to agricultural culture to provide the customized services to the public. The global sharing of the resources of agricultural cultural elements can be realized on cloud computing, which will facilitate cross-regional and cross-cultural communication and cooperation through agriculture cultural resources. Simultaneously, attention should be devoted to the quality of

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data, ensuring accuracy, completeness, and accessibility of digital information.

5.2.Integrate Diverse Resources and Strengthen International Cooperation

In terms of resources, a diversified and open resource system should be established, integrating resources from the government, enterprises, academia, and other parties to form a situation of resource sharing and complementary advantages. In addition, it is necessary to strengthen international cooperation, learn from international advanced experience and technology, and jointly promote the digital process of farming culture. The establishment of the resource system provides convenience for international exchange and cooperation in farming culture, helping to enhance the global influence of farming culture. In the process of resource acquisition, intellectual property rights should be respected to promote the legality and legitimacy of digital achievements.

5.3.Cultivate Professional Talents and Expand Promotion Channels

In terms of personnel, we should focus on cultivating digital talents with interdisciplinary knowledge and skills. Professionals include talents in the fields of history, information resource management, cultural studies, information technology, etc., who have a deep cultural foundation and keen technological insight. Establish interdisciplinary and inter-domain cooperation mechanisms to encourage experts and scholars from different fields to participate in digital projects of agricultural culture. In addition, exhibitions, lectures, and experience activities can be held to increase public awareness and participation in agricultural culture. Multi-channel promotion will also help the innovative development of agricultural culture, encouraging more young people to participate in the protection, inheritance, and innovation of agricultural culture, promoting this precious cultural heritage to be passed down from generation to generation, and continuously adapt to the development of the times.

5.4. Emphasize promotion and release the efficiency of dissemination

The digital achievements of agricultural culture should not be limited to academic research but let it be understood by the general public, society at large, and put into practice at the cultural heritage area, into popular education and even tourism development. It is of great significance to use the combination of agricultural culture and modern life in order to bring the characteristics and functions of traditional agricultural culture into the people's daily life, using digital technology such as smart home and healthy eating, so that it can regain new vitality in modern society. Therefore, it is necessary to co-operate closely with related industries and promote transformation and application in related fields, for example rural tourism, cultural education, agricultural science popularization and so on. Simultaneously, the process in digital transformation should be quite attentive and sensitive to some ethical and privacy issues, where individual privacy and rights are upheld, as well as conformance to the relevant ethical norms.

6.Conclusion

With the rapid advancement of information technology, digital technology has become a vital tool for cultural preservation and innovation. This study seeks to explore how digital technology can be effectively

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utilized to protect and inherit China's rich traditional agricultural culture. Currently, China's traditional agricultural culture is facing the dual challenges of discontinuity in inheritance and the impact of modernization. Digital humanities offer new perspectives and methods for developing China's agricultural culture. By digitally protecting and integrating culture with tourism, we can not only enhance the transmission of agricultural culture and overcome the temporal and spatial limitations of traditional inheritance but also improve its dissemination efficiency and influence. This approach also stimulates public interest and engagement in agricultural culture, promoting its innovative development. Digital technology, particularly in the collection and organization of digital materials, the creation of virtual museums, and digital exhibitions, provides new solutions for preserving and popularizing agricultural culture. This makes the experience of agricultural culture more vivid and interactive and fosters a new generation of inheritors with a deep understanding and sense of identity towards agricultural culture.

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