

Research on the Communication Opportunities of Intangible Cultural Heritage under the Background of Big Data and AI

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Abstract: The study on the dissemination opportunities of Intangible Cultural Heritage (ICH) in the context of big data and artificial intelligence (AI) explores how to combine big data and AI technology to promote the inheritance and dissemination of ICH. Big data technology provides an effective way for ICH digital protection, helping to solve material loss and timeliness issues. AI technology provides a new opportunity for the digital restoration and display of ICH, which can reproduce the lost skills and cultural practices. In addition, big data and AI can also achieve personalized customization of ICH communication and improve audience participation and understanding. Most importantly, combining ICH with innovative industries will bring business opportunities for sustainable development. This paper combs the definition and importance of ICH, emphasizes the role of big data and AI in cultural communication, and emphatically analyzes the opportunities of ICH communication under the background of big data and AI, with a view to forming a new situation of ICH protection and cultural inheritance.

1. Introduction

With the development of the times and the rapid progress of science and technology, cultural inheritance and protection have entered a brand-new era. Under the background of big data and artificial intelligence (AI), the spread of Intangible Cultural Heritage (ICH) is facing unprecedented opportunities and challenges [1]. As the crystallization of human wisdom and creativity, ICH bears rich history, values and lifestyles, which is crucial for the protection of cultural diversity. However, with the acceleration of globalization and the escalation of cultural conflicts, the inheritance and dissemination of ICH has become more complicated.

As the two core driving forces in the information age, big data and AI are providing new opportunities for the spread of ICH. Big data technology can collect, analyze and manage huge cultural data, thus helping us to better understand the origin, evolution and inheritance of ICH. At the same time, the development of AI enables us to develop intelligent tools to better spread ICH and meet the needs of different audiences [2-3]. The integration of these technologies has opened a new door for the global spread and sustainable development of ICH.

Through in-depth study of the communication opportunities of ICH, we hope to provide new

ideas and methods for the protection and inheritance of ICH, so as to ensure that this precious cultural heritage can continue to flourish in the digital age and contribute to the richness and diversity of human society. At the same time, this study will also highlight the application of big data and AI technology in the field of cultural communication, and provide useful reference and inspiration for scholars, policy makers and practitioners in the cultural field.

2. Definition and importance of ICH

ICH refers to ICH in China, which includes a series of cultural elements such as traditional skills, performing arts, oral traditions, social practice, ceremonies and festivals. These ICH are precious heritages handed down from generation to generation, bearing rich historical, cultural and national memories, which are of great significance for maintaining cultural diversity, promoting social development and protecting traditional values [4].

First of all, ICH, as a part of culture, has the function of cohesive national identity and cultural inheritance. It reflects the lifestyles, values and religious beliefs of different regions and nationalities. Through ICH, people can better understand their cultural roots, strengthen their cultural identity and contribute to national unity and social harmony.

Secondly, ICH is an important part of cultural diversity. In today's globalization, cultural exchanges and integration are becoming more and more common, but this does not mean that we should give up local culture [5-6]. On the contrary, the protection and inheritance of ICH can play a key role in cultural diversity, contribute to the richness of the world's cultural treasures, and maintain the global cultural ecological balance.

ICH also plays a positive role in social development and economic growth. Many intangible skills and performing arts can not only provide employment opportunities, but also attract tourists and investment and promote the prosperity of local economy. In addition, ICH also contributes to innovation, and many traditional techniques can provide inspiration for modern industries and promote scientific and technological progress and innovation.

Finally, the protection and inheritance of ICH helps to protect traditional values and ethics. These values, including respect for elders, filial piety to parents, thrift and so on, are the cornerstones of social and family stability. Through the inheritance of ICH, it can help the younger generation to understand and respect traditional values and contribute to social harmony and stability.

To sum up, ICH, as a precious heritage of traditional culture, has multiple importance. It not only contributes to cultural inheritance and diversity, but also promotes social development, economic prosperity and the protection of traditional values. Therefore, the definition and importance of ICH has irreplaceable value in today's society and should be paid more attention to and protected.

3. The role of big data and AI in cultural communication

3.1. The role of big data in cultural communication

Big data and AI are two important trends in today's information age, which have brought great influence on various fields, one of which is the field of cultural communication. Cultural communication is a key component of social development and cultural evolution, and big data and AI provide new opportunities and challenges for cultural communication.

Big data technology enables media and cultural institutions to better understand the interests and needs of the audience. By analyzing large-scale data, these institutions can produce content that is more in line with the taste of the audience, thus improving the attractiveness and influence of the content [7]. Big data and machine learning algorithms enable cultural products (such as movies,

music, books, etc.) to recommend relevant content according to the historical preferences and behaviors of individual users, which increases the personalization of user experience and promotes wider cultural communication. The level of big data analysis is shown in Figure 1:

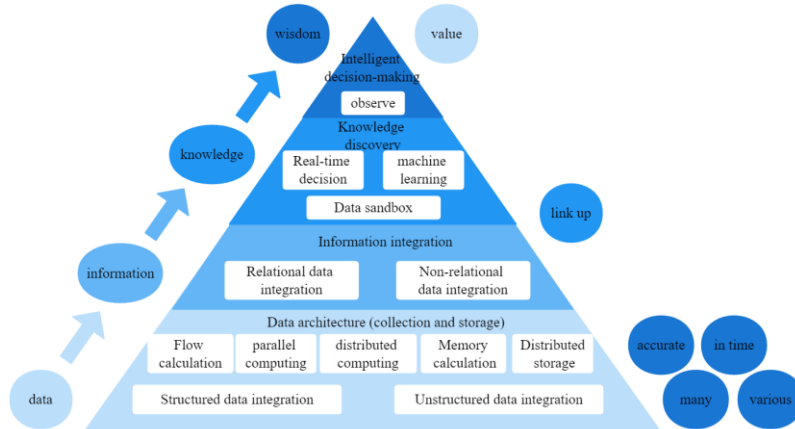


Figure 1: Big data analysis level

Big data analysis can be used to study the trends and changes of different cultural communication phenomena, so as to better understand the evolution and communication methods of culture and provide important insights for decision makers on cultural policies. Big data analysis can help producers of cultural products better understand the audience, accurately locate the target market and formulate more effective market strategies.

3.2. The role of AI in cultural communication

AI can be used in natural language processing to improve the efficiency of language translation and processing of cultural content. The application field of AI is shown in Figure 2. This is helpful for cultural content to cross language and cultural boundaries and realize global communication. AI can generate cultural content, such as articles, paintings, music, etc., providing creative inspiration for creators, and can automatically generate a large amount of content to meet the growing demand [8-9]. AI can be used to analyze the emotions and reactions of the audience and help cultural institutions better understand the audience's feelings about the content, so as to carry out more targeted cultural communication. Intelligent recommendation system: AI algorithm can provide more accurate content recommendation according to users' interests and behaviors, thus improving users' participation and loyalty.

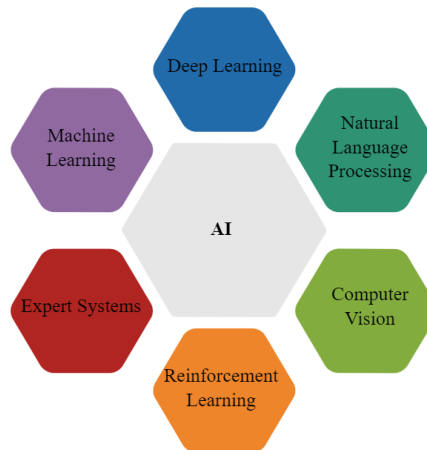


Figure 2: AI application field

Big data and AI play an important role in cultural communication, which can improve the efficiency of content production, strengthen personalized communication and promote cultural innovation, but it also brings challenges such as privacy, cultural diversity and technical inequality. In the future, it is necessary to better balance the relationship between technology application and social ethics to ensure that the role of big data and AI in cultural communication is maximized without damaging cultural diversity and human rights.

4. ICH communication opportunities under the background of big data and AI

ICH is the precious wealth of various cultures, including traditional music, dance, handicrafts, oral traditions and so on. However, with the development of globalization, ICH has been threatened by many threats, such as cultural loss and lack of inheritors. Big data and AI have brought new opportunities for the spread of ICH and helped to protect and inherit these valuable cultural heritages.

4.1. Application of big data in ICH communication

Big data technology can be used for digital recording and preservation of ICH. Through digitalization, intangible heritage can be permanently preserved in digital form, which reduces the fragility of traditional recording methods. Big data can also be used to analyze the trends and audiences of ICH communication, so as to better customize communication strategies. In addition, big data can also help traditional interactivity, such as virtual reality and augmented reality technology, so that people can understand ICH more deeply.

The application of big data in ICH communication can help improve the sustainability and inheritance of non-legacy traditions, and also promote the spread of cultural diversity. The following are some applications of big data in ICH communication:

Digital documents and archiving: Big data technology can be used to digitize all aspects of ICH, including music, dance, handicrafts and so on. These digital files can be preserved permanently, which reduces the fragility of traditional paper documents and the problem of cultural relics preservation.

Content management and classification: Big data can help manage a large amount of ICH content, including images, audio and video. Automatic classification and labeling tools can help organize and find relevant cultural elements, making cultural materials easier to be retrieved and shared.

Cultural trend analysis: Big data analysis can track the trend of ICH communication, including which elements are more popular, which regions or communities are more active, and the preferences of the audience. This helps to formulate more targeted communication strategies.

Social media and online communities: Big data can be used to monitor ICH-related discussions and sharing in social media platforms and online communities. This helps to understand the feedback from the audience, and at the same time, ICH can be spread through these platforms to attract a wider audience.

Personalized recommendation: Based on big data analysis, personalized recommendation system can provide users with ICH content related to their interests. This will help attract more young audiences and make it easier for them to participate in and learn ICH.

Interactive and virtual experience: Big data and augmented reality (AR) or virtual reality (VR) technologies can create interactive experiences and make people know more about ICH. For example, a virtual museum or a virtual reality performance can let people experience ICH for themselves.

Cross-cultural communication and translation: Big data technology can be used for multi-

language translation and cross-cultural communication. This will help spread ICH to international audiences and promote the spread of cultural diversity.

Education and training: Big data and AI can be used for online education and training of ICH. Virtual tour guides and educational applications can help people understand the intangible heritage more deeply.

These applications contribute to the protection, inheritance and dissemination of ICH, and at the same time promote the spread of cultural diversity, so that more people can understand and appreciate the value of ICH.

4.2. Application of AI in ICH communication

AI technology, such as natural language processing and computer vision, can be used for automatic translation and subtitle production, making ICH easier for international audiences to understand. In addition, AI can also be used for the educational and interactive experience of ICH. Virtual tour guides and educational applications can help people understand the intangible heritage more deeply. AI can also be used in digital art and music creation to protect and inherit ICH. The application of AI in ICH communication brings many opportunities for cultural inheritance and communication. The application of AI in ICH communication includes the following aspects:

Automatic translation and subtitle production: AI can be used to automatically translate ICH-related text and voice content, making it easier for international audiences to understand. It can also be used to generate subtitles to help people read or understand the intangible traditions of different languages.

Audio and video analysis: AI can analyze audio and video content to extract elements of music, songs, dances and other performance forms. This helps to preserve and spread the sound and visual aspects of ICH.

Virtual tour guides and interactive applications: Through virtual tour guides and interactive applications, AI can help users understand ICH more deeply. Users can interact with virtual tour guides to explore the history and significance of intangible heritage.

Creative generation: AI can be used to generate ICH creations such as music, painting and handicrafts. This helps to preserve and inherit the intangible traditional art forms, and also provides inspiration for artists.

Cultural education: AI applications can be used to provide online education and training for ICH. It can create a personalized learning path, and make learning non-legacy traditions more attractive.

Emotional analysis: AI can be used to analyze users' emotions and feedback to understand their emotions and interests in ICH. This helps to improve the communication strategy and content.

Social media and online communities: AI can monitor ICH-related discussions and sharing in social media platforms and online communities. This helps to understand users' interests and trends, so as to better customize the content.

Cultural preservation and restoration: AI can be used for the preservation and restoration of cultural heritage. For example, it can help restore damaged cultural relics, photos and documents.

These applications are helpful to spread ICH, promote cultural heritage and spread diversity, and attract a wider audience, including the younger generation, so that they can understand and appreciate the importance of ICH more deeply. However, care should be taken when applying AI to ensure that cultural rights and privacy issues are properly handled.

5. Conclusions

The research on the communication opportunities of ICH under the background of big data and AI reveals the new direction of ICH inheritance and development for us. Combining big data and

AI technology, we can spread, protect and promote ICH more effectively and promote its inheritance and development in modern society. Big data and AI provide strong support for the digital protection of ICH. AI technology provides new possibilities for digital restoration and display of ICH. Big data and AI can customize ICH communication. The combination of ICH and innovative industries has more potential in the context of big data and AI. Big data and AI technology provide unprecedented opportunities for the spread and development of ICH. However, we also need to deal with the related ethical, legal and privacy issues carefully to ensure that the inheritance and protection of ICH will not be negatively affected. Through scientific research, policy support and social participation, we can make better use of big data and AI to inherit and promote ICH, and make these precious cultural heritages glow with new vitality.

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