

## Research on Digital Protection Strategy of National Traditional Culture Based on Big Data Background

Li Junli<sup>1</sup>, Liang Zhicheng<sup>2</sup>

<sup>1</sup>College of Educational Science and Technology, Northwest Minzu University, Gansu Lanzhou 730030

<sup>2</sup>College of Educational Science and Technology, Northwest Minzu University, Gansu Lanzhou 730030.

**Keywords:** national traditional culture; big data; digital protection; database

**Abstract:** In order to study the digital protection strategy of national traditional culture under the background of big data, this paper collects a large number of data technology and cultural digital protection information, studies the theoretical framework of big data technology, and tries to design the database of national traditional culture on this basis in order to protect national transmission. Uniculture provides technical support. At the same time, based on the big data technology, this paper analyses the specific application of the marketing link of the traditional national culture, which provides a new way of thinking for the protection of the traditional national culture under the background of the big data era. Through the research of this paper, the database of national traditional culture based on big data background and digital marketing strategy can provide great help for the digital protection of national traditional culture, which is of great significance.

### 1. Introduction

Since the reform and opening up, China's economic and cultural exchanges with foreign countries have become increasingly frequent. At the same time, some foreign cultures have also entered the country, making people's ideas, emotions and attitudes have changed. The influx of foreign cultures has further impacted our national traditional culture. At the same time, influenced by force majeure factors such as natural disasters, the inheritance of our national traditional culture is facing severe challenges. In the process of protecting national traditional culture, it is necessary to combine the reality, conform to the trend of the times, innovate the ways of protection, and digital protection emerges as the times require. Firstly, this paper studies the technology of big data combined with literature, lays a theoretical and technical framework for the digital protection of national traditional culture, and on this basis, analyses the construction of the database of national traditional culture.

### 2. Theoretical Framework Based on Big Data Technology

The concept of big data was put forward at the end of the 20th century. The term "big data" was first used by NASA researchers Michael Cox and David Ellsworth. Big data is a combination of data that cannot be efficiently captured, managed and processed by traditional methods. In fact, there are two important definitions of big data. Firstly, the definition is based on the characteristics of large data. In its 2011 report, IDC used "4Vs" (large number, diversity, speed block, low value) to analyze large data; second, analogy definition. Define big data as a collection of data that can be stored and managed beyond typical data tools [2]. In this paper, we interpret big data as a huge amount of data resources generated by the Internet and the Internet of Things. Under the rise of new media, unstructured data such as video and audio are generated. By mining and analyzing these data, we can increase the accuracy of decision-making. The process of processing large data is more complex than traditional methods, and it needs anti-multi-link to extract valuable data [3].

Big data has the following characteristics: (1) Massive data size (volume), refers to the increase in the amount of data generated with the increase of time dimension, which requires the development of new data storage mode. The existing digitization of national traditional culture has

a single performance in content recording, that is, the traditional protection methods of registration, identification, discovery and preservation are preserved in the form of words, which requires relatively small storage space. With the emergence of new data such as characteristic villages, ethnic dances and ethnic buildings, it is necessary to use rich media to describe the content. Traditional text preservation methods need to be improved urgently and expanded, resulting in a sharp increase in data acquisition. Therefore, it is urgent to develop new methods for data storage and processing. (2) Variety. It mainly consists of structured data, semi-structured data and unstructured data. With the amount of unstructured data appearing in images, audio and video, geographic location information and WEB accounts for 4/5 or more of the total data, the mixing of heterogeneous data makes it increasingly difficult to provide useful information. Traditional digital protection methods mostly use the way of text recording, along with new recording methods. With the increase, the related unstructured data forms can be effectively generated [4]. At the same time, with the rise of social networks, some semi-structured data are gradually emerging, such as the construction of characteristic villages, 3D-based national cultural tourism and other related protection data, which need to be accompanied by relevant geographic location information, which makes the data present a multi-source, heterogeneous state. Therefore, it is necessary to study a new data expression model to provide heavy weight. The mode of information needed. (3) Low value density. The value density is inversely proportional to the total amount of data. The explosive growth of data volume leads to the increase of the complexity of extracting valuable information and the gradual decrease of the density [5-6]. In the digital protection of national traditional culture, redundant data exists in a large number. How to mine the relationship between national culture based on data-driven method, so as to extract useful data information from a large number of low-value density data, and then generate knowledge is a key concern.

### 3. Analysis of Digital Protection Strategy of National Traditional Culture in Big Data Background

Ethnic traditional culture database is an information resource database which relies on the information resources collected by libraries and scattered ethnic culture data, collects, collates, classifies and stores valuable information, and digitalizes these resources to meet the needs of users according to certain standards and norms. In the process of digitalization of cultural resources, it should be carried out according to certain standards. Text digitalization processing standards and video data processing standards are shown in Tables 1 and 2.

Table 1 text digitization standards

The processing object	Machining process	Generated file type	Proposed standard
The text data	Keyboard input directly generated	Text file	TEX format
	Scanner,OCR generation	The image file	PDF format XML format PDF format
			High resolution JPEG, TIFF, GIF, etc

Table 2 video data processing standard

Resource level	The resolution of the	Frames	Set the audio	Video rate (bps)	Audio rate (bps)
low-level	352*288	25	Stereo, 44.1kHz	1152k	224k
Intermediate (m1)	480*576	25	Stereo, 44.1kHz	2600k	384k
Intermediate (m2)	720*576	25	Stereo, 48kHz	4m	224k
senior	720*576	25	Stereo, 48kHz	8m	384k

This database will take the types of traditional ethnic cultural resources as the main line, and the basic structure of content categories as the auxiliary line as the framework. It scientifically and comprehensively collects Chinese traditional culture-related resources such as words, pictures, videos and history, and ensures the integrity and accuracy of the original appearance of the materials. According to different dimensions, combing the traditional Chinese cultural resources, the system construction objectives are mainly divided into the following two aspects.

According to the dimension of resource type and the characteristics of different materials in each resource sub-database, four different kinds of resource base are designed selectively, including: text base (books, periodicals, newspapers, dictionaries), multimedia base (pictures, audio, video), and work base (original works, reprint music). Music score, manuscript, etc.), artist database (performers, educators, etc.). The architecture is shown in Figure 1.

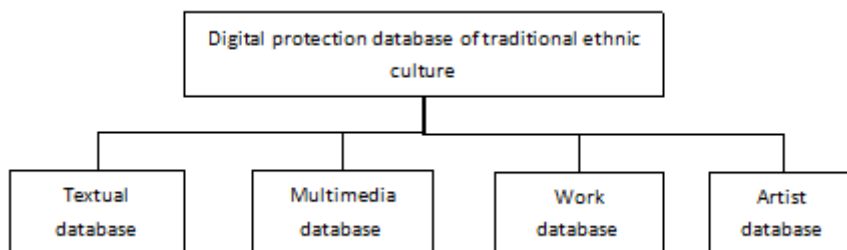


Figure 1 resource library master type diagram

According to the content category dimension, the design of three sub-databases is based on the traditional cultural education, performing arts and the creation of national traditional cultural works. The architecture is shown in Figure 2.

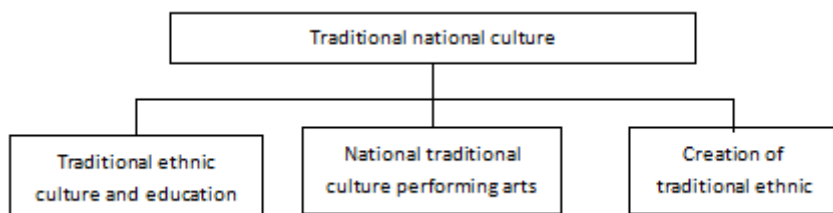


Figure 2 resource library sublibrary type diagram

In summary, the database is divided into a general database, four parent libraries and sixteen sub-libraries by using the classification method combining resource types and content categories. Faced with such rich and diverse resources of traditional Chinese culture, when designing the classified navigation system of database, we should not only reflect the stage characteristics and cultural characteristics of music creation, but also make the resource database complete and systematic. According to the scheme of horizontal navigation and vertical navigation for resource type, the structure of resource base is designed. Although this crossover design mode increases the difficulty of resource database construction, such structure design can not only systematically and comprehensively reflect the information situation of each project, but also improve the retrieval speed and facilitate access to [8-9].

According to the requirement analysis of database platform for resource construction and application, the platform is divided into two kinds of functions according to user categories: common access user class function and system management user class function. General access user class functions are used to provide services to front-end users in database platform, including user registration, user login, resource retrieval and retrieval, resource download and collection, resource upload and co-construction, etc. Among them, the system management user class function is used to realize the construction, management and service configuration of database platform resources, mainly including account management, sub-database category management, resource category management, resource management maintenance, resource retrieval and configuration management, personality recommendation configuration management, user management, evaluation management,

system. Integrated management, resource co-construction management, log management, etc.

According to the functional design requirements of the platform, the functional requirements of the system are realized through the design of foreground module and background management module. The main task of the front-end module design is to design the interface of the database platform - the portal subsystem. The core of the back-end management module design is to realize the back-end management subsystem of the database platform [10]. Through the front-end portal subsystem to meet the common access user's resource retrieval, access, collection, download and other application services needs. Mainly divided into user registration and login, user center, resource retrieval, resource access and download modules, as shown in Figure 3. The design of background management module is the core content of database platform construction. The construction and maintenance personnel of database platform realize the construction, management and maintenance of data resources through the background management subsystem, which mainly includes account management module, user management module, sub-database category management module, resource category management module and resource management module. Category management module, etc. The daily management and maintenance of the database by administrator users includes designing and defining the database system, optimizing the performance of the database system, backing up and restoring the database, etc. The main requirements are shown in Figure 4.

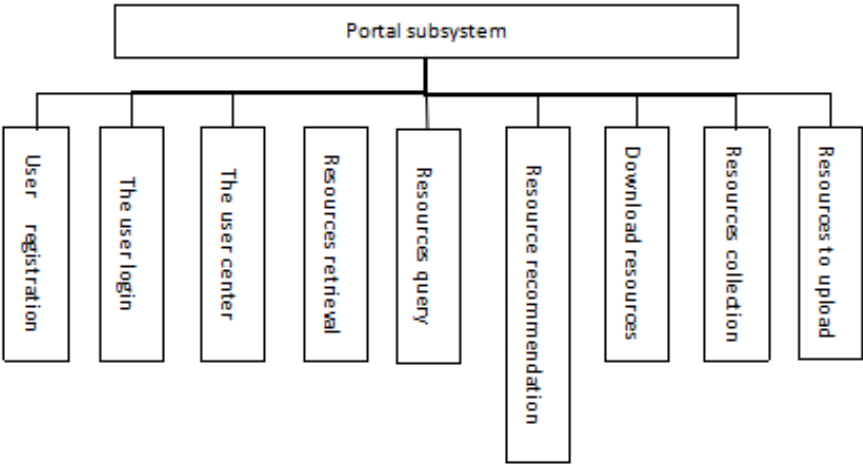


Figure 3 foreground function structure diagram

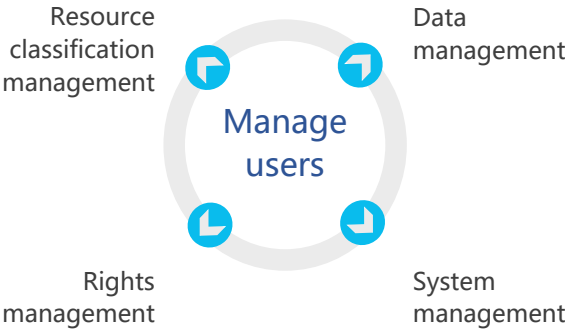


Figure 4 administration user requirements diagram

According to the characteristics of this database and the requirement analysis and feasibility analysis of this database system, the front-end subsystem and the back-end management subsystem are designed and developed, and the overall design of the platform and the functional module division are completed. It not only realizes the construction, management and maintenance of platform resources, but also effectively solves the important problems of cultural inheritance and digital protection.

#### **4. Strategies of National Traditional Culture Communication under Big Data Technology**

Internet, computer and cloud storage technology have been developed in an all-round way, which can provide powerful technical support for data mining and utilization, and realize the sublimation and extension of data value through accurate mining, effective accumulation, scientific analysis and rational application. Taking the dissemination and protection of national opera culture as an example, the paper publishes questionnaires on the public platform or cooperates with some widely used APP developers to publish and collect information, provide relevant materials for netizens to choose, collect opinions and preferences of netizens, and obtain basic data such as different age structure and preferences of regional netizens. Combined with the survey and analysis results of the data, some subjects with high attention are extracted and screened. Themes are published on the public platform, and the subjects are commented by netizens. Then a small number of subjects with high attention are selected and collected and listed in the catalogue to be shot. Publish the elements of the subject matter to be shot on the public platform to attract the whole country.

Excellent screenwriters (writers) are registered on the platform, and they are encouraged to choose interesting subjects for award-winning receipts. The screenwriters (writers) complete the script writing within a specified time limit, upload the script to the platform, and organize experts on the platform to review, modify and finish the script.

Good, pay a certain proportion of the script to be used. Put the excellent stories with complete story plots and script characteristics on the Internet platform, and attract excellent cultural product producers and individuals from all over the country to condense and arrange the scripts into a 5-minute video upload to the platform, and then review them in the background, and put them on the public platform for nationwide on-demand testing by netizens. In the era of big data, the media has been able to fully support the propaganda needs of national traditional culture. By developing application software, connecting network information system platform, real-time publishing and pushing information on the platform, the dissemination of information on the mobile Internet can be realized.

#### **5. Conclusion**

Based on the background and technology of big data, this paper studies the digital protection of national traditional culture. Under the theoretical framework of big data technology, a database of digital protection of national culture is established, and the platform is managed by accessing user functions and system management user functions. At the same time, the front-end and back-end modules are implemented. Designed and established a relatively complete digital protection platform for large data ethnic traditional culture. Today, the traditional national culture is facing the dilemma of inheritance and protection. Digital protection based on big data technology provides a new opportunity for the inheritance and development of traditional national culture. In the design of the database, the related functions of the system need to be improved, which is also a problem to be improved in the future construction of the digital protection platform for national traditional culture.

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