Construction of Digital Library Precision Service System under Big Data Environment

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Abstract. With the promotion of Internet communication technology and information technology, university digital libraries are also in the process of continuous reform and development. With the passage of time, the information resources of digital libraries accumulate more and more, coupled with the continuous update of computer technology and social networks, users will generate more and more information resources. The rapid development of communication and Internet technology in the era of big data brings opportunities to digital library's accurate service, and at the same time, it also makes it face huge challenges. The library should rely on the massive book resources platform, combine the big data processing technology with the digital library service concept, and actively explore the data acquisition, sorting and storage technology, so as to provide more effective and humanized services for users. This paper introduces the goal of precision service of Digital Library Based on big data, expounds the characteristics of precision service of Digital Library Based on big data, and puts forward the construction method of precision service system of Digital Library under big data environment.

1. Introduction
With the rapid development of information technology, communication technology and network technology in the era of big data, digital libraries are facing unprecedented challenges and difficulties. How to use big data technology in digital libraries to benefit and avoid harm, give full play to the advantages of data, avoid user diversion caused by big data networking, and provide more satisfactory services for users are issues that librarians must seriously consider under the background of big data era [1]. With the passage of time, the information resources of the digital library accumulate more and more, coupled with the continuous update of computer technology and social networks, the information resources generated by users will also increase [2]. In the era of big data, the rapid development of communication technology and Internet technology has provided a better development prospect for digital libraries, and has also brought certain challenges to the development of digital libraries [3]. The complexity, variety and rapid development of internal information in the library make big data unable to meet its development needs and information cannot be fully utilized, which hinders the progress of digital library [4]. Libraries should rely on massive book resource platforms, closely integrate big data processing technology with digital library service concepts, and actively explore data acquisition, sorting, and storage technologies to provide users with more effective and user-friendly services [5].

In the era of planned economy, as a non-profit organization, college libraries have no competitive pressure, waiting for readers to arrive. Libraries are facing fast data growth and diverse data types, while the development and utilization of big data are very limited, and information resources are not effectively used, which has hindered the development of digital libraries to some extent [6]. In the era of big data, the rapid development of communication and Internet technologies has brought opportunities to the precise services of digital libraries, but also faced huge challenges [7]. With the development of
information technology, many similar institutions of university digital libraries have appeared, such as information consulting service agencies and data analysis agencies. Libraries, as providers of traditional book information resources, should also keep up with the times and try to obtain more accurate and effective data information [8]. Digital library precision services are built on the basis of big data, which will greatly improve user satisfaction with digital library precision services. If the digital library of a university wants to maintain its own uniqueness all the time, it needs to conduct precise marketing, narrow the relationship between users and libraries, and increase readers’ loyalty to the library [9]. This article analyzes the connotation of big data and digital library, and based on the background of the era of big data, puts forward some digital library precise service strategies to improve the service level of digital libraries.

2. Digital Library Service in Big Data Environment

2.1 Set up a correct concept

The digital library service under the big data environment must first establish the correct service concept, which is the premise for the digital library to carry out the big data service. The proposal of big data knowledge service model provides new solutions, ideas and approaches to solve the integration problem of big data and digital libraries, especially the development and distribution of knowledge service products in universities and research libraries with abundant resources and large service demand. The digital library service under the big data environment has the characteristics of digitalization, convenience and high efficiency. The information ecology emphasizes that the contents of each part of the information construction should not be seen in isolation, but should be studied skillfully from the perspective of coordinated development, so as to better meet the needs of users and provide reference for university library website staff. In the information age, creating a document integration process has become a new concept. It is a process of integration of work links, work posts and work steps after division of labor. Fig. 1 shows the structure of digital resources construction under the information ecology.

![Fig. 1 Digital resource construction structure under information ecology](image)

Digital library organizes and manages document information resources and reader behavior information by means of computer technology and communication technology through digital information resource system constructed by information technology. According to the survey results of readers’ needs, digital libraries mainly use relevant cloud computing technologies to provide effective digital knowledge services for readers. Whether it is a digital library or a digital library based on big data, its foothold is in service, and the ultimate goal of service is to meet the information needs of users [10]. In the construction of service resources, it is necessary to set up detailed and standardized development
plans, allocate professional personnel and equipment for resource construction, and rationalize the organization and classification of big data resources. Under the big data environment, the foundation of digital library's accurate service is the analysis of big data, and the difficulty of big data processing lies in the complexity of data structure. In library management service, the application of data mining technology can well grasp readers' preferences and behaviors, thus promoting the integration of digital resources, the adjustment of collection resources and the improvement of librarians' service level.

2.2 Building the service model of Digital Library

Building a service model of digital library based on big data architecture is the foundation for digital library to carry out relevant services. With the wide application of data mining technology and the increasing specialization of readers' information needs, digital libraries should deeply analyze readers' preferences and characteristics of information needs to help readers find the required data information from the huge data information. As the main form of library development in the future, intelligent library has intelligent requirements in its service mode and mode. Libraries should adhere to the principles of intellectual property rights and legal security, pay attention to the protection of readers' privacy and the convenience of transmission, and provide users with diversified digital service experiences through diversified service methods and channels. In big data, the proportion of semi-structured information and unstructured data is increasing. It is necessary to analyze these data in order to truly realize personalized and accurate service for users. The data of the digital library is a very valuable resource. These data with the characteristics of standardization, structure and integrity should be fully utilized for information mining and knowledge discovery through data mining technology. In the specific service process, we should establish the overall concept, fully understand and understand the system service elements. The promotion of information technology is the main factor for the rapid development of intelligent services. Libraries should make good use of information technology and continuously develop new intelligent services, which will provide an important guarantee for the sustainable development of digital libraries.

The purpose of the informatization construction experiment based on information ecology is to study the influence of different vector dimensions on the judgment results of emotional orientation. Table 1 shows the accuracy results of data sets in different feature dimensions. The change trend of accuracy rate under different feature dimensions is shown in Fig. 2.

| Feature dimension | 20   | 40   | 60   | 80   | 100  |
|-------------------|------|------|------|------|------|
| Accuracy (%)      | 79.18| 75.31| 78.59| 82.17| 71.76|

Fig. 2 Trends in the construction of informatization construction under different characteristic dimensions

Digital information consumers are users or readers of digital libraries. Their greatest concern is whether they can receive and effectively screen out useful digital information resources and make use of
them. The integration of digital information resources is to organize relatively scattered resources and mutually independent information services together according to certain purposes and corresponding methods for the convenience of users. At the data level, the goal of information resource planning of university libraries is to improve the data sharing ability of libraries by formulating departmental data element standards, information classification standards and user view standards. From information promotion to knowledge, it is mainly to establish a connection between information and users' needs, explain information and give meaning to information. Based on the information construction of information ecology, information construction theory is applied to adjust the balance between users and environment, between users and content, and between content and environment. Integrating traditional libraries, digital libraries and other digital information resources can not only avoid repeated development, but also provide users with convenient and efficient information services. Information demanders are no longer satisfied with obtaining only documentary clues or original documents from the library, but require the library to provide them with excellent information that can solve practical problems.

3. Accurate Service System of Digital Library under Big Data Environment
When integrating library resources under the background of big data, the actual needs of users and subject development should be considered in advance, and the quality should be ensured while the quantity meets the needs. In order to apply the relevant technologies of big data to the service of digital libraries, first of all, it is necessary to define the big data architecture of digital libraries, which is also the combination of big data and digital libraries. The digital library should pay attention to the quantity construction of the collection resources and ensure the quality construction at the same time. Through the correlation analysis of the literature information consulted by readers, the collection resources should be rationally allocated. The digital library can recombine the current audio and video resources, self-built database resources, etc. to establish an information resource bank, which is convenient for readers to consult and use [11]. The digital library combines the readers' information needs with the daily services of the digital library closely, excavates the readers' professional needs and potential needs, and provides the readers with accurate service contents. Reasonable allocation of various collection resources can optimize collection resources, save construction funds and improve service efficiency. Digital libraries should work out targeted service modes after mastering users' personal hobbies, so as to replace the traditional passive mode with the modern active mode.

As a place for information gathering and knowledge service, digital library needs to use data mining technology to process and analyze readers' preference and behavior information. The behavior of users in the library will leave many traces. Therefore, the staff should sort out the information and summarize the user's hobbies so as to provide more accurate services. The use of big data technology by digital libraries must first be based on relevant data resources. All kinds of network information resources, database resources and reader data are "big data" available to the library [12]. These heterogeneous resources are stored in different nodes in a distributed manner, with various types and lack of in-depth mining, integration and analysis. The integration of resources in the museum plays an important role in improving the service level and maximizing the economic benefits. The precise service of digital library is embodied in grouping users according to their different ages or hobbies, determining their unique attributes, and thus providing targeted services for users. The rich diversity of digital libraries is reflected in the appearance of audio and other resource forms, and the establishment of a resource library provides convenience for users to find. The core layer of digital library's big data architecture is big data collection, storage, processing and application. Relevant data is the basic condition and user satisfaction is the ultimate goal.

4. Summary
The digital library service under the big data environment must first establish a correct concept based on big data and have a comprehensive understanding of the digital library service mode under the big data environment. In the era of big data, the demand for readers in digital libraries is showing a new trend. It
is becoming more and more important to provide accurate service for readers with high quality. Under the background of big data, the demand of users is obviously increasing, and the demand for services is getting higher and higher. Therefore, if the digital library wants to get better development, it must formulate accurate service mode and provide users with targeted humanized service experience. The rapid development of modern information technology and network technology has created more convenient technical means for readers to provide accurate services, and service models and content are changing. The big data environment provides a new digital platform for the development of digital library services. At the same time that digital libraries use massive data resources, they should pay attention to selecting and identifying effective information data, and fully understand the important role of information security technology. The rapid development of information technology and network technology has provided very convenient conditions for readers of digital libraries, and the service model and content of digital libraries have also continuously changed.

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