

Original Research Article

## Research on the Strategy of Building Intelligent Services in College Libraries under the Background of Big Data

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**Abstract:** In recent years, university libraries have actively developed intelligent services with the support of big data technology, providing readers with more intelligent and diverse services. However, there are still many challenges in the current intelligent service development of university libraries. Therefore, more effective strategies for intelligent service development should be adopted to promote the improvement of the intelligent service level of university libraries. Specifically, university libraries should collect and integrate reader information, recommend personalized resources to readers, use big data technology to provide immersive services, cultivate intelligent service talents, and equip intelligent devices.

**Keywords:** New economic situation; Financial management; Development path

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### 1. Introduction

The Ministry of Education emphasized in the Regulations of Libraries of General Colleges and Universities that university libraries should actively participate in resource sharing, leverage information resources' advantages, and offer services to readers. In response, university libraries have enhanced efforts to develop their information resources, with big data technology driving this progress. With big data technology support, libraries can offer readers intelligent services, integrate diverse book and literature data, and enhance knowledge services beyond traditional library constraints through user data analysis. This strengthens overall knowledge services and enhances knowledge value. Enhancing knowledge services overall and maximizing knowledge value.

### 2. Characteristics of Intelligent Services of College Libraries in the Context of Big Data

#### 2.1. Intelligent Information Sharing

University library wisdom service in the backdrop of big data exhibits intelligent information sharing traits. During the development of library wisdom service, informationization and intelligent equipment offer technical support. Radio Frequency Identification (RFID), Internet of Things, and other intelligent perception technologies are instrumental in the amalgamation of an integrated management system, spatial resources, virtual services, integrated resource platform, thereby laying the groundwork for library's big data information sharing<sup>[1]</sup>. Through this approach, the library can facilitate seamless interconnection, interaction, and reciprocal sharing of collection resources, thereby granting readers access to an extensive array of information resources.

#### 2.2. Precision Personalized Service

With the advent and application of big data, university library intelligent services can furnish readers with precise personalized services. This involves the integration of books, literature, user behavior, and business process data information. By dynamically linking these data sets, conducting further data mining, clustering

analysis, and user profiling, the library can grasp the diverse needs of different users and uncover implicit reader demands by exploring the latent cross-value of data. Drawing upon this understanding, libraries can offer readers tailored and precise services, aligning with their reading preferences, ultimately enhancing reader satisfaction with library wisdom services<sup>[2]</sup>.

### **2.3. Integration of Functional Innovation**

Under the era of big data, college libraries focus on the user experience as the center, optimize the service level, promote the creation of library service functions, broaden the scope of services, and realize the enhancement of the value of library services under the drive of big data<sup>[3]</sup>. Relying on the support of big data technology, university libraries are able to break the data and information barriers, promote cross-regional and cross-field cooperation, promote the integration and innovation of library functions, build a service space of internal and external three-dimensional interaction, virtual and real integration, and continue to promote the innovation and development of intelligent services in university libraries.

## **3. Challenges in Constructing University Library Wisdom Services in the Era of Big Data Are As Follows**

### **3.1. The Content of Intelligent Services Is Relatively Thin**

The current development of wisdom services in domestic college libraries under the backdrop of big data has certain limitations. The issue of relatively thin content in wisdom services is prominent, leading to a lack of personalized resources for college students<sup>[4]</sup>. Intelligent services in college libraries should encompass not only convenient services but also deeper personalized services like humanistic services and personalized recommendation services. Unfortunately, most colleges and universities primarily focus on convenient services through intelligent equipment, neglecting the need for more profound humanistic services and personalized recommendations. As readers have diverse preferences and needs, the absence of personalized recommendation services in college libraries results in insufficient service content, lacking depth.

### **3.2. Low Level of Innovative Services**

The development of intelligent services in college libraries, under the influence of big data, has been emphasizing the need for more innovation. These services aim to blend big data technology with traditional library functions to enhance the overall user experience. However, the current smart services in college libraries fall short of meeting this demand. These libraries still primarily focus on basic tasks such as book lending and information queries, lacking a proactive approach to innovation.

### **3.3. Lack of Specialized Talents**

Compared with traditional libraries, college libraries face new challenges in the era of big data. To address these challenges effectively, college libraries now require staff with higher business capabilities. However, many current college library staff members lack the skills needed to provide intelligent services. As intelligent equipment continues to evolve, library managers must enhance their operational skills and effectively utilize these technologies to offer diverse services to readers. Yet, colleges have not adequately trained their staff to meet the growing demands for intelligent library services. Consequently, the overall business proficiency of the staff falls short of the requirements for developing library intelligence services.

### **3.4. Insufficiency of Intelligent Hardware**

The insufficiency of intelligent hardware hinders the advancement of intelligent services in college libraries amidst the era of big data. While colleges necessitate intelligent hardware for support, many institutions currently face inadequacies in this domain. Insufficient financial allocation towards library services impedes the timely upgrade of equipment, resulting in a reliance on rudimentary facilities. For instance, the absence of electronic selection systems, intelligent bookmobiles, automated book counting setups, and self-service borrowing stations limits the enhancement of library intelligence services.

## **4. Strategies for Constructing Intelligent Services in College Libraries in the Era of Big Data**

### **4.1. Collecting and Integrating Readers' Information and Recommending Personalized Resources**

In constructing intelligent services in university libraries in the age of big data, it is crucial to fully utilize big data technology to collect, organize, and analyze readers' information to cater to the diverse needs of individual readers. University libraries can utilize big data technology to gather customer information within legal boundaries, including data on readers' gender, age, field of study, reading preferences, borrowing history, and more. By processing this information using big data techniques such as data classification and clustering, user profiling can accurately portray readers' unique interests, reading habits, knowledge base, and reading preferences, thereby creating a personalized knowledge map. Subsequently, libraries can offer tailored interactive services and personalized reading recommendations based on this user profiling, demonstrating the precision and effectiveness of intelligent services to meet readers' individual needs. By aligning with readers' requirements, university libraries can deliver intelligent services that cater to the distinct needs of individual readers, enhancing the precision of reading choices within the realm of big data.

### **4.2. Virtual Reality Technology is Essential for Providing Immersive Services**

Virtual reality (VR) technology represents various technologies, including computer, multimedia, human-computer interaction, and sensing technologies, to create virtual reality scenes. Its applications are diverse and beneficial for enhancing university library services. VR technology enables college libraries to offer readers virtual library layouts, interactive consulting services, and book information inquiries in a simulated quiet environment, improving the overall reading experience. Additionally, VR and big data support can be utilized to establish a three-dimensional information resource base and create a multi-dimensional virtual information environment within university libraries. This allows textual and pictorial information to be transformed into interactive three-dimensional animations, enabling readers to physically interact with virtual books and immerse themselves in a simulated reading environment. Such advancements contribute to the development of intelligent learning spaces and facilitate reading in serene and comfortable settings.

### **4.3. Enhancing the Training of Professionals is Crucial to Enhance the Service Standard**

College libraries, in the realm of big data, impose stricter criteria on their personnel. To align with the demands of intelligent service construction in libraries, academic institutions need to enhance the grooming of adept professionals, thereby elevating the standard of library intelligence services. Initially, academic libraries should unearth the latent potential within their workforce, motivating them through incentives, training, and

other methods to boost their zeal, energize their work ethic, foster a congenial and cozy work ambiance, and forge a human resource bedrock for the advancement of smart services in college libraries. Subsequently, academic libraries should intensify training initiatives on staff regarding big data, smart services, and modern technical tools to enable them to adapt to the evolving landscape of library work in the big data era, continuously enrich their understanding of smart library management, distill service learnings, and flexibly apply big data expertise to cater to readers' needs. Moreover, academic libraries should establish an enduring framework for enhancing staff competency, enabling libraries to be data-centric. Responding to the evolution of intelligent services across different timeframes and catering to readers' needs, academic libraries should conduct tailored ongoing training programs, thereby establishing a proficient team for intelligent services.

#### **4.4. Strengthen the Construction of Hardware Facilities, the Introduction of Intelligent Equipment**

Colleges and universities have enhanced their efforts to enhance the hardware infrastructure of libraries and have actively introduced a range of intelligent equipment. College libraries should actively introduce RFID, AI robots, 3D printing, face recognition, intelligent bookshelves, VR, augmented reality (AR), and other related technical equipment. By leveraging these advanced technical means, the university library's intelligent services can identify and collect data object information, implement digital control, and improve the user's audio-visual experience promptly. Additionally, university libraries can integrate 3D face recognition technology and RFID technology to offer seamless user services integrating reservation, access control, and other systems, enhancing the overall level of library intelligent services. Users can verify their identity through the face recognition system, facilitating book borrowing, returning, and space utilization.

### **5. Conclusion**

In the era of big data, college libraries have shifted towards wisdom services. These libraries, unlike traditional ones, are developing unique features. However, they also encounter new challenges. While domestic university libraries have made progress in wisdom services, they lack in resource sharing and professional personnel. To address this, university libraries should gather reader information, offer personalized resources, provide immersive virtual reality services, train staff, improve services, upgrade facilities, and implement intelligent equipment for big data services. These efforts aim to enhance intelligent service development in college libraries using big data technology.

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