

The Innovation And Influence Of Digital Library In The Era Of Big Data

Xi Wang

Sichuan University of Media and Communication, Chengdu City 611745

ABSTRACT

With the support of big data technology, literary communication has burst out new vitality. The development of digital library is changing the communication mode of traditional literature, and affecting people's reading habits and reading methods at the same time. From the perspective of deconstruction in literary criticism, this paper analyzes the development trend of contemporary literary communication through the development status of digital library.

KEYWORDS

big data; deconstruction; digital library

1 The definition and development status of digital library

Since the emergence of human society, words have emerged, and the carrier used to record these words -- books came into being. It records the development and evolution of human history from ancient times to now. One of the functions of the library is to collect, process, sort out and scientifically manage these precious document resources for the majority of readers to borrow and use. The library exists as an institution to preserve the cultural wealth of all ethnic groups. Its task of preserving human cultural classics is the oldest function of the library.

It carries out its business activities based on literature. With the development of information society, more and more information needs to be stored and transmitted, and the types and forms of information become more diverse. It is obvious that the mechanism of traditional library cannot meet these needs.

Therefore, people put forward the idea of digital library. Digital library is a growing new thing with the rapid development of computer technology, communication technology and network technology. It is an electronic information warehouse, which can store a large number of various forms of information. Users can easily access it through the network, and its information storage and user access are not limited by region.

Traditional library, electronic library and digital library all have the basic attributes of library. Their different titles are relative. For example, digital library is relative to the application of digital technology in library. Cheng Yanan believes that the library is a scientific and cultural education and information service organization that collects, arranges, stores, transmits and develops literature information and provides utilization for the society ^[1]; Xu YinChi and Huo Guoqing believe that the library is "an information resource system that develops dynamically according to the information needs of specific user groups" ^[2]; Huang Zongzhong believes that traditional libraries mainly refer to the libraries represented before the 1950s. It is characterized by: the collection of books is mainly paper printed books and materials, which reflect the collection information through card catalogue and Retrieval Publications, pass the information through readers' borrowing and delivering books to

the library, and the book sorting and circulation reading are mainly manual ^[3]. Therefore, the traditional library can be defined as: it is an entity form of information resources orderly integrated for utilization, a place for the exchange of human wisdom, civilization and spiritual wealth beyond time and space, a memory organ of human history, and a physical collection entity.

Before the emergence of the term "Digital Library", people used electronic library to define the form of applying electronic technology to traditional library. In the 1960s, Americans put forward the view of "library without library", which is the pre-public opinion preparation of electronic library. As a new technology, electronic library has injected new vitality and new development vitality into the traditional library. The term "electronic library" was really first put forward in the book "Electronic Library: bibliographic database: 1975 ~ 1976" published by American Librarian Christian in 1975 ^[4]. In his book "Electronic Library: prospects and processes" published in 1984, Dorian, a district Librarian in Colorado, USA, first proposed that "the so-called electronic library is an organization that is most likely to provide access to information and enable electronic technology to enter and manage information resources" ^[5]. In the 1990s, with the application of computer technology in libraries, the research on electronic libraries is gradually in-depth.

For digital library, it is based on the concept of electronic library. With the rapid development of information technology, more and more people think that the concept of "Digital Library" is more appropriate. Digital library is a powerful collection of organized and systematic digital libraries. Digital library is a digital information resource library. Digital library is a powerful massive database that supports a variety of search functions. For "Digital Library", the most accurate translation should be digital database ^[6]. It is a global digital library that uses digital technology for storage, network technology for information transmission, Hypertext Technology for information query, information institutions as the main information source and network nodes, connects relevant global institutions, reasonably and effectively organizes and manages all information resources, and accurately transmits information or knowledge to required users with higher efficiency.

Based on the development of big data technology, the progress of digital library construction varies from country to country. Taking Russia as an example, after experiencing the initial stage of disorderly development, the construction of digital literature resources in Russia has entered a period of rapid development under the stimulation of national support and market demand in the past decade. In 2005, the Russian science e-library took the first step in establishing an academic document retrieval and academic evaluation system. In 2012, the seboletu document retrieval platform was established, and the national e-library project began to be implemented in 2014. Today, the resource construction, data scale and service capacity of these platforms are far beyond the "East View universal database"^[7].

Based on these databases, Russia's "national electronic library program" was proposed. It is a national project led by the federal government and participated by the Ministry of science, technology and education, the Ministry of culture, the Academy of Sciences and other institutions. It has a huge number of resources and rich content. It is the largest digital library of scientific and educational documents in Russia.

In the organizational structure of the national electronic library, the Russian National Library is the main implementer of the project, and its members mainly come from libraries, museums and Archives under the Ministry of culture, as well as some universities and scientific research institutions. The national electronic library is a large distributed database. Libraries, archives and museums located in different locations are connected by the network to form a logically centralized and spatially dispersed library complex through unified architecture, protocols and standards.

At present, the national e-library provides network services through 896 municipal libraries, 181 Regional Libraries and 124 federal libraries. Among them, 6 municipal libraries, 26 Regional Libraries and the national electronic museum have realized cross database retrieval. The 1200 electronic

reading rooms of Russian e-library connect a large number of public libraries and university libraries, and the annual visits of the website reach 10 million people ^[7].

After more than ten years of development, China's digital library construction has made a series of achievements. Seven national digital libraries have been established (or are being established) respectively: the national digital library, the national science and technology book and document center, the National Science Digital Library, the digital library of China's higher education, the digital library of the Party School of the CPC Central Committee, the digital library of Military Colleges and universities and the digital library of the Chinese Academy of social sciences ^[8].

2 The influence of the rise of digital library -- Taking teenagers' reading as an example

Library is an important position for teenagers to expand extracurricular reading and learn extracurricular knowledge. At present, traditional libraries are gradually transforming to electronic libraries. Many libraries have established electronic reading rooms, which can be regarded as the prototype of the transformation to electronic libraries. The electronic library has broken the operation mode of fixed place and industrial assembly line of the traditional library, the information resources have changed from printing entities to electronic resources, and the information acquisition mode of readers has changed from "purchase" to "download". Electronic library makes the presentation form of reading content more multimedia, which can greatly stimulate teenagers' interest in reading, make them love reading and improve their digital reading experience.

On April 16, 2019, the China Academy of press and publication released the results of the 16th National Reading survey. The survey showed that in 2018, the comprehensive reading rate of China's adult citizens was 80.8%, the digital reading contact rate was 76.2%, an increase of 3.2 percentage points over 2017, and the reading rate of paper books was 59%, which was basically the same as that in 2017.

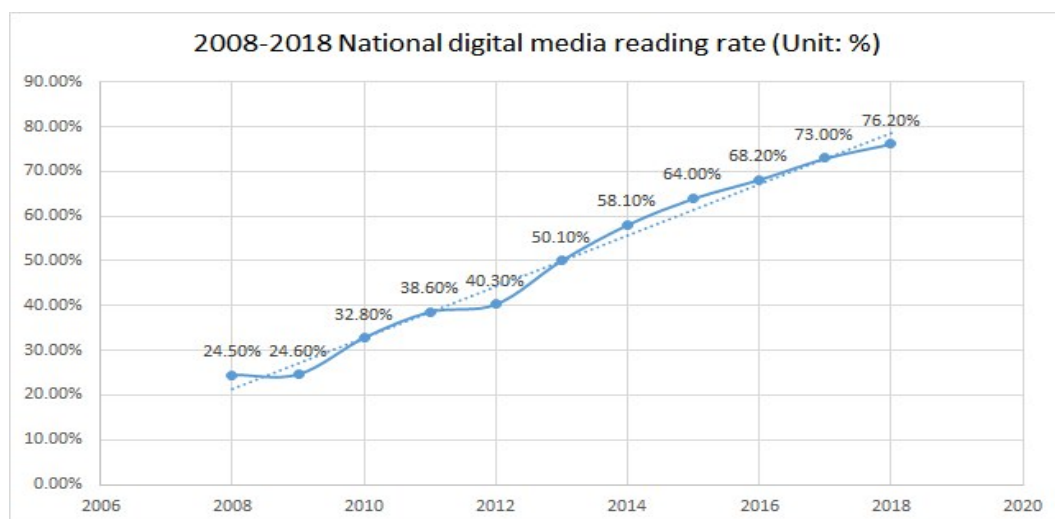


Figure 1 National Digital Media Reading Rate

Source: [9]

The survey results show that mobile phones and the Internet have become the main body of China's adult citizens' daily contact with the media, and the reading hours of paper books and newspapers have decreased. In 2018, the average daily mobile phone contact time of adult citizens

in China was 84.87 minutes, the average daily Internet contact time was 65.12 minutes, the average daily e-reader reading time was 10.70 minutes, and the average daily pad contact time was 11.10 minutes.

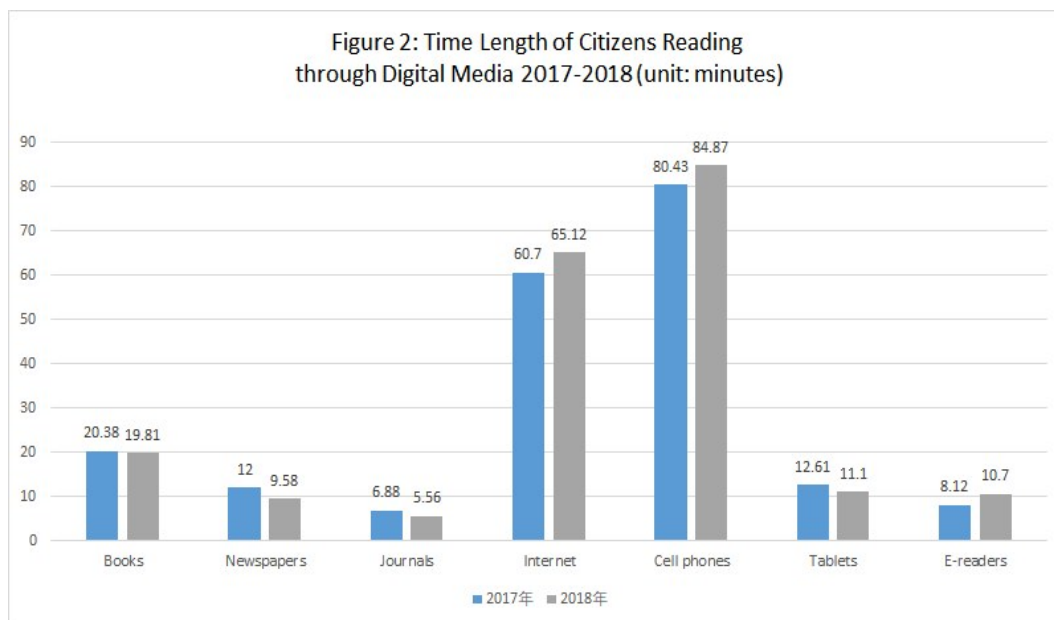


Figure 2 Time Length of Citizens Reading through Digital Media 2017-2018

Source: [9].

According to the data released by the National Bureau of Statistics: in 2012, the number of national public libraries was 3076. By 2019, the number of national public libraries reached 3189, an increase of 113 compared with 2012.

The main function of the library has shifted from the traditional library to the electronic book

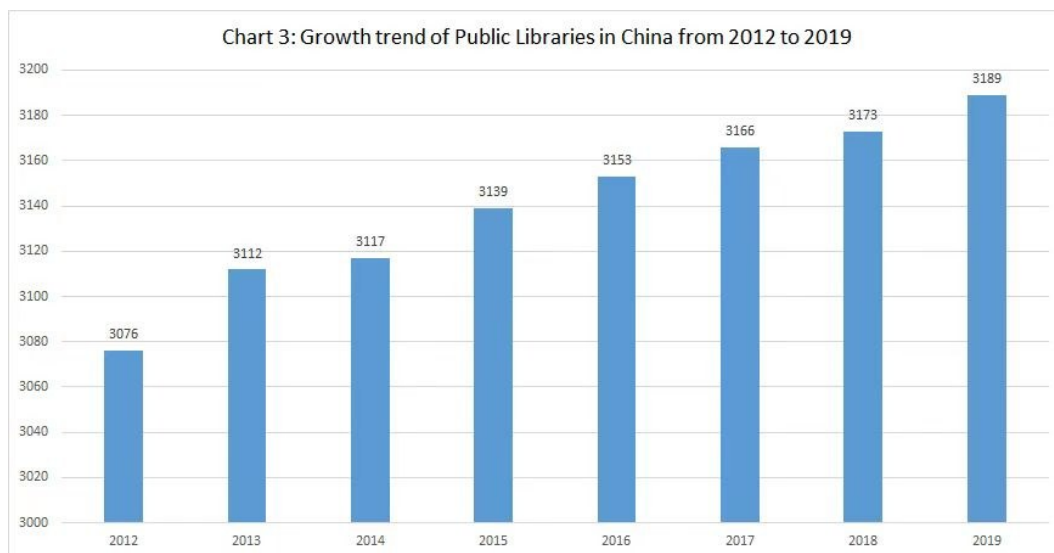


Figure 3 Growth Trend of Public Libraries in China from 2012-2019

Source: [9]

retrieval service. The contact and use of teenagers requires the electronic library to improve the ability of information retrieval, flexible selection and integration. At present, China's electronic libraries are trying to change from free service to paid service, which is also a trend of digital reading market in the future. Let teenagers form the habit of paid access to information, which is also of great benefit to the protection of intellectual property rights and the improvement of teenagers' media literacy in the future.

Compared with the online reading platform, it can provide more high-quality reading resources for teenagers. It can be believed that this is mainly due to two advantages in the reform and progress of E-library.

On the one hand, the electronic library has gradually changed from library centered to reader centered. Readers are no longer the "tourists" of the library, but only need a computer or a mobile phone to have their own exclusive library. In addition, the classification of teenagers' reading resources in traditional libraries is not detailed enough, so teenagers often choose to read books blindly. With its powerful retrieval and classification functions, e-library can effectively sort and classify reading resources, which is convenient for teenagers to find.

On the other hand, electronic library has the function of personalized recommendation. The information of electronic library is screened by managers, which can effectively strengthen the authenticity of digital content and avoid the impact of bad information on teenagers. Moreover, the electronic library can strengthen the influence of high-quality publications in teenagers' reading through the setting of columns such as "good book recommendation". Therefore, it can be believed that the reading resources of electronic library can really play a guiding role in developing teenagers' thinking and promoting teenagers' psychological growth, and promote the better development of teenagers' reading promotion.

3 The opportunities faced by digital library in the era of big data

In the era of big data, people are constantly exploring the integration point of big data and digital library. Foreign scholars have done a lot of research in concept, technology and application. Huwe, of the University of California, Berkeley Library, pointed out in the article "building a digital library"^[10]: big data and the library are made in heaven. The research projects of librarians on users are especially suitable for big data, hoping to strengthen the collection of user behavior information by the digital library. Renaud of the University of California Irvine, Britton of the Massachusetts Institute of technology and others^[11] used big data technology to deeply mine the behavior of users using the University Digital Library, and helped the school to conduct correlation analysis on students' reading behavior and related information. In terms of technology, Borgman et al.^[12] of the University of California, Los Angeles used embedded technology to embed sensors in the digital library system to collect relevant data, provide data for researchers to carry out research, and add new functions to the digital library. Many other scholars have begun to pay attention to the collection, processing and correlation of technical information in big data by digital library^[13], so as to make digital library better integrate into the Internet and make better use of big data.

There are also many relevant achievements and ideas in China research. For instance, Zeng Jianxun pointed out in the preface of the album "big data and digital library" of "Digital Library Forum"^[14]: big data will promote the deep-seated reform of data management, data analysis, data use and data service of digital library, and also put forward higher requirements for the responsibilities and consciousness of librarians. Chen Chuanfu of Wuhan University and others^[15] analyzed the problems faced by digital libraries under the big data environment, and put forward relevant suggestions and countermeasures from the aspects of changing ideas, developing

knowledge services, perfecting financial investment mechanism and improving the quality of librarians. Chen Chen of Lanzhou business school [16] discussed how to establish an efficient digital library search engine to meet the personalized needs of users from a technical point of view. There are also many researches on the application of big data technology in other aspects of digital library. Chen mang et al. [17] studied the mobile service technology of Digital Library in big data environment, Chen Chen [18] and Li Baiyang [19] discussed the problem of big data storage in digital library, and Guo Chunxia [20] explored the integration of unstructured data in big data environment, Wang Yuge et al. [21] discussed the application architecture of big data technology in digital library, and so on.

The transformation from "physical library" to "Digital Library" is a historical trend and inevitable trend. From the "Baidu knows" [22] question, many users put forward higher requirements for free online reading and material download. However, at present, the vast majority of electronic libraries, especially the university libraries with abundant electronic resources, are limited to the public. It is a pity that universities and scientific research institutions spend a lot of state funds to purchase electronic resources, but the public can not enjoy the public services of taxpayers. We should explore a mechanism so that ordinary people can enjoy more and better resource download services.

4 Conclusion

The digital library conforms to the development of the times and people's reading habits. With the development of big data technology, online reading space will be infinitely expanded. On the one hand, the digital library is imperceptibly developing people's reading habits; on the other hand, people's demand for massive reading in the era of the confidence explosion also reacts to the reform and innovation of the digital library. As the carrier of spreading mainstream literature and traditional literature, digital library may be able to truly realize the high-quality development of literature communication, which is different from the good and bad mixed online literature.

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