

PROCEEDINGS ARTICLE

Research on the Current Situation of Digital Reading Services in University Libraries Against the Background of Nationwide Reading

Han Li¹, Lu Yang², Qingyu Gong², Yu'nan Xie^{2,*}¹ School of Electronic Engineering (School of Microelectronics), Chengdu Technological University, Chengdu, China² School of Public Affairs and Administration, University of Electronic Science and Technology of China, Chengdu, China

ABSTRACT

With the gradual deepening of nationwide reading, the digital reading service provided by university libraries has been gradually developed and improved from the initial completion, its service scope has been continuously expanded, and the service modes have been gradually diversified. This article takes the digital libraries of colleges and universities as the research object, reviews the previous research content, and analyzes the current status and problems of digital reading services. The research finds that the advantages of digital reading resources are expanding and the recognition of services is improving, but there are still deficiencies in platform architecture, digital resource construction, service methods, and promotion. This article constructs a feasible reading service adjustment strategy for the existing problems, in order to further improve the digital reading service level in colleges and universities, and to create a better environment for digital reading.

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1. INTRODUCTION

Nationwide reading refers that with the advent of the information age, people's reading activities have changed from the original single paper reading to electronic reading, video media, 3D, audio reading, VR and other forms of activities. The wide reading channels and rich resource forms have made the reading subject more extensive and popular. The abundance of reading resources and the diversification of reading channels have led to the situation of nationwide reading, and at the same time shaped the general problem of reading fragmentation and entertainment that prevail in the reading activities of the modern information society.

Digital reading promotes the widening of reading activities. Digital reading services originate from the transformation of traditional paper to modern digital reading. This transformation brought about changes in service models, service content, service purposes

and other aspects in various fields. Users obtain digital reading resources such as digital journals, books, magazines, newspapers, and so on, through the terminal, which greatly improves the dissemination, flexibility and richness of reading, thereby weakening the influence of time and space on reading activities, and enhancing sociality and transitivity.

University libraries are the main position in providing reading services. How to transform the service content and form under the wave of digital reading and better promote digital reading is an important issue that needs to be solved. University libraries act as an information technology platform between user groups and collection resources, and the corresponding digital reading services focus on the construction and allocation of collection resources. The digital reading service of university library comes from the background of nationwide reading. In terms of user needs, in addition to mainly facing teachers and students on campus, it should also be connected

*Corresponding author. Email: xieyunan@uestc.edu.cn

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with personnel outside the campus and various universities, in order to achieve resource sharing and service linkage and improve service level and coverage. Library collection construction is related to digital resources, and its construction standards are closely related to the purpose of allowing users to enjoy high-quality reading resources anytime and anywhere. Therefore, ensuring the stability, richness and intersectionality of digital resources is the basic work of digital reading services in university libraries.

Horizontally analyzing, the relevant digital reading service documents of university libraries generally divide the service into three aspects: system and platform construction, digital resource construction, and service technology and mode. In terms of system platform construction, many scholars have discussed mechanism construction, management talents, information technology infrastructure, etc. In general, the hard construction of the digital reading service platform has been initially completed, but there are problems such as insufficient use of new technologies, single form, inconsistent standards, etc. For example, Mao Yihong and other scholars believe that the digital library system and platform have been initially built, but the service function and technology application need to be strengthened [1]. Liu Hong and other scholars believe that there are major defects in the top-level design, operating mechanism, technical standards, service forms, etc. of digital reading services [2]. In terms of digital resource construction, university libraries generally have problems such as insufficient digital resource construction of mobile terminals, single resource type, few multimedia resources, lack of characteristics, low degree of digital resource mining, insufficient resource sharing among libraries, etc. For example, Le Chengyi and other scholars have concluded through empirical research that mobile digital libraries have not been fully utilized and that libraries attach low importance to the construction of digital resources [3]. Xu Rongli and other scholars believe that people should deepen the content of digital reading services and build deep digital resources. In terms of service technology and mode, scholars generally believe that collaborative service of university libraries is insufficient and the service mode is single [4]. For example, scholar Mao Yihong believes that the intelligent service level of digital libraries should be improved, and the user centered service scope should be continuously expanded and the level of collaborative service should be improved [1]. In addition, a few scholars explore users' expectations and perceived quality of digital reading services from the perspective of user needs, in order to seek ways to improve user satisfaction.

In a vertical summary, the literature on digital reading services in colleges and universities focused on how

to develop digital reading services from 2000–2010, and introduced foreign quality assessment models to conduct empirical research on the quality of digital reading services. From 2010–2020, relevant literature mainly reviewed the current status and problems of digital reading services, and put forward policy recommendations. The latest literature continues to subdivide into digital reading services, gradually scattered in mobile reading services, reading services for different groups and other different fields, and the number of cases is gradually increasing.

With the continuous improvement of information technology and deepening of user needs, centralized and comprehensive literature is conducive to grasping the new trend of digital reading services in colleges and universities, and further prospects development of digital reading services in the next stage. This article will analyze the current situation of digital reading services in university libraries, summarize the common problems of university libraries in providing services, and put forward suggestions and prospects for the current situation in combination with the needs of users in the new era and the application of information technology in university libraries.

2. STATUS QUO OF DIGITAL READING SERVICE IN UNIVERSITY LIBRARIES

2.1. Current Situation of National Digital Reading

2.1.1. Scale of Reading Increased and Scale of Users Expanded

In the era of rapid development of digitalization and informatization, the mode of user reading has gradually changed from "paper end" to "mobile end". On 23 April 2022, the "2021 China Digital Reading Report" was released at the Digital Reading Sub Forum of the First National Reading Conference [5]. The data shows that in 2021, the number of digital readers per capita in China will exceed 11, and the main users will be young people aged 19-25. On 23 April 2022, the Chinese Academy of Press and Publication released the results of the 19th National Reading Survey [6]. The survey shows that the digital reading contact rate is close to 80%, showing an increasing trend compared with the previous year. More than half of adult readers tend to use digital reading to meet their reading needs. As far as the age structure of digital reading is concerned, people aged 18-59 account for more than 90%, and young and middle-aged people have become the main body of digital reading. It can be said that the way of digital reading has gone deep into national reading activities.

2.1.2. Rich Reading Forms and Increased Reading Choices

The 19th National Reading Survey reflects users' reading preferences from the specific reading forms of digital reading, including online reading, video lectures, radio listening, etc. The survey shows that 1.5% of adult citizens prefer "video storytelling", which is a new form of digital reading that is gradually emerging in the eyes of public readers, increasing users' digital reading choices; 7.4% of adult citizens prefer to "listen to books", which even exceeds the proportion of members who prefer "online reading". "Listen to books" is rapidly occupying the digital reading market with its unique advantages [7]. In 2021, 32.7% of China's adult citizens have the habit of listening to books, including "mobile audio app platform", "WeChat official account or applet", "smart speaker" and "radio", among which "mobile audio app platform" is the most popular.

2.1.3. Industry Is Booming and Brand Activities Are Abundant

The digital reading industry is booming, and the mass reading market, which accounts for more than 70% of the market, has become the leading force to promote industrial development [5]. From the perspective of capital investment, the digital reading industry is developing well. Many big internet companies, such as Tencent and ByteDance, have laid out relevant businesses in the digital reading field [8], which not only intensifies market competition, but also injects vitality into the digital reading industry and constantly promotes digital reading enterprises to improve their innovation ability. The government is also playing a role in promoting comprehensive reading and promoting the development of digital reading, and has carried out colorful national reading brand activities. The specific forms include "online reading sharing", "urban reading festival", "book fair", "reading lecture hall", etc. The comprehensive participation rate exceeds 60% [7], further enriching the national reading life.

2.2. Status Quo of Digital Reading Service in University Libraries

2.2.1. Strong Service Demand and Improved Service Quality

Most young and middle-aged digital readers are students and staff of colleges and universities. With the continuous development of digital publishing technology, college teachers and students have gradually become the main group of digital reading

services. Due to the needs of teaching and research, mobile learning, and leisure reading, college teachers and students have a stronger demand for digital reading than ordinary digital reading groups. Through the digital reading service platform provided by their colleges and universities, college teachers and students can easily and quickly query information, collect materials, and read literature. In order to actively respond to the concerns of teachers and students in colleges and universities, many university libraries have begun to optimize the digital reading service mode and continuously improve the service quality. According to statistics, more than 90% of universities have established digital libraries, and some have even begun to explore the service application of virtual communities in libraries [9].

2.2.2. Service System Has Been Built and the Platform Has Been Completed

After years of development, with the strong support of national and local finance, many university libraries in China have built and put into use relatively complete digital reading service platforms, which include not only digital libraries, but also mobile libraries, virtual communities, etc. [9]. After investigation and research, Mao Yihong and Zhu Qiang found that the digital library system has been basically built in the libraries of colleges and universities in China, and a digital reading service matrix has been preliminarily formed. Within this matrix, digital libraries, virtual communities and other platforms have developed cooperatively to provide users with high-quality digital reading services. University library users have basically formed the habit of using digital reading services and become dependent on them [1].

2.2.3. Rich Digital Resources and Increased Investment

The reading resources of university libraries are divided into paper resources and digital resources. According to the "Report on the Development of Literature Resources of Academic Libraries (2010–2014)" [10] released by the Steering Committee of Library and Information Work of Colleges and Universities of the Ministry of Education on their official website in April 2020, since 2013, the procurement funds for digital resources of university libraries in China's "211 Project" have exceeded that of paper resources, showing a rising trend year by year, and the investment in digital resources by colleges and universities is also increasing. From the perspective of the repeated purchase rate of digital resources, academic libraries of China's "211 Project" have achieved 100% of the repeated purchase of CNKI

journal full-text, and the repeated purchase rate of foreign language digital resources is also high.

2.2.4. Level of Collaboration Has Improved and Image and Reputation Are Good

To further give play to advantages of digital resources, narrow the gap between number and level of digital resources of libraries at different levels, in different regions, and in different types of universities, and to improve the quality of digital reading services, many university libraries continue to deepen collaborative services, carry out inter-library exchanges and cooperation, and improve service levels. Some colleges and universities have innovatively built learning commons, which is a mode of close cooperation with other teaching units and institutions to jointly support university teaching and learning activities. Compared with traditional libraries, learning commons has more emphasis on collaboration, realizing the integration of resources and services of different institutions [11]. At the same time, in recent years, each university library has constantly improved the "external" and "internal" construction height of the library. While innovating the design and construction of university libraries, the libraries have constantly optimized the working style and achievements of the staff in the library, expanded the image publicity of university libraries, and formed a high popularity and recognition in the society.

3. ANALYSIS ON THE EXISTING PROBLEMS OF DIGITAL READING SERVICE IN UNIVERSITY LIBRARIES

3.1. Structure of Digital Reading Service Platform in University Libraries

At present, although the construction of digital reading platforms of university libraries in China started relatively late, the digital library system has been initially constructed, including web digital library, mobile digital library, digital library WeChat service official account and other forms, but there are still problems such as simple platform structure, idle system functions, and imperfection. According to the survey, the community interaction function of university libraries is in the embryonic exploration period and has not been widely popularized, resulting in low interaction efficiency among students and between students and schools. The use form is still "stand-alone". At the same time, the web digital library provides a single form of service, flat and cumbersome functions, which is not conducive to the retrieval of effective information by teachers and

students. In addition, due to the lack of instructions and low ease of operation, the libraries provide limited browsable information and have many idle functional areas.

3.2. Construction and Allocation of Digital Information Resources

University libraries pay more attention to the construction of multi type digital information resources, such as e-books, electronic journals and databases, and network multimedia resources, and rely more and more on digital resources. The overall construction of digital resources of university libraries in China is characterized by rapid growth in quantity, continuous improvement in quality, gradual improvement in categories, gradual expansion in proportion and continuous increase in investment. The types of digital resources of university libraries are concentrated in academic literature resources such as electronic journals and databases. The support for online reading of resources such as electronic books and periodicals is not high, the types of digital information resources are simple, the quality of electronic books is uneven, and the number of books and periodicals is insufficient. The construction of non-book materials, i.e. multimedia and other reading resources, is seriously insufficient, and there is a phenomenon that the real resources cannot be obtained even though there is no name. In addition, in terms of the allocation of digital information resources, digital resources of most university digital libraries are only open to teachers and students of the university, the construction of shared resources is relatively weak, and the resource library of interlibrary borrowing is relatively limited.

3.3. Content and Methods of Digital Reading Services Are Relatively Scarce

At present, the popularity of digital libraries in colleges and universities in China is relatively high. Undergraduate colleges have generally launched the business of internet digital libraries. However, the digital reading business on mobile phones is still facing a lack of functions and services. In terms of service content, the school mobile terminal mainly pushes library service information through WeChat and other public accounts, excluding downloading and consulting of digital information resources. At the same time, for some daily borrowing business of the school, there are also problems such as poor updating of book borrowing, great difficulties in data collection, and low convenience in information query and use. In addition, the school's pilot community service is still in its infancy, and readers still use the school's digital

library services in a "stand-alone" way. In terms of service type, the school's digital borrowing business is still mainly a passive service, with low degree of concern for the digital reading of readers, focusing on the handling of readers' feedback. In the context of education for all, the level of inter library sharing in school libraries is relatively weak, and the problems of digital reading services such as complex interlibrary borrowing process, corresponding service blocking, low response efficiency and high borrowing costs are also common.

3.4. Digital Reading Service of University Libraries Is Not Widely Popularized

From traditional reading services to digital reading services, the popularity of digital reading services provided by university libraries has continuously improved. Based on system platform, digital resources and the reading service, the degree of service improvement has gradually increased. Internal users' understanding of the digital reading service provided by university libraries generally comes from the frequently used network information platform and the introduction of students and teachers around. Due to the low degree of publicity about the digital reading services currently available in colleges and universities and the factors of personal choice, there are still a large number of students who do not have the habit of browsing and visiting the digital library of colleges and universities. This part of the population has a low frequency of using and experiencing the digital reading services and is in great difficulty. Taking the promotion method of WeChat official account as an example, some university library tweets mainly focus on in library consultation, service notice, learning recommendation, etc. There is less introduction and promotion of services provided in the library, and the service menu function that can be directly used is also lacking.

4. SUGGESTIONS AND PROSPECTS FOR THE DEVELOPMENT OF DIGITAL READING SERVICES IN UNIVERSITY LIBRARIES

4.1. Optimizing the Digital Reading Service Platform of University Libraries

First of all, it is necessary to strengthen the development of mobile digital reading service platform. At present, the internet continues to shift to the mobile internet, and mobile phones are becoming the main carrier of national reading. According to the 19th national reading survey report, mobile phone

reading and online reading are the main ways of digital reading for adult citizens, and the number of mobile internet users is growing rapidly [6]. In addition to conventional means such as WeChat service and application software development on the mobile phone, based on diversified mobile internet information technology support, technology exploration can be carried out in a variety of mobile terminals, such as smart watches and smart homes.

Then, the existing system platform should be optimized. First, there is a necessity to constantly improve the community user communication function of digital reading and build a sharing platform; Second, it is also necessary to enhance the stability and reliability of the existing system platform. The stability is reflected in the fact that when users register and implement various digital reading operations, there is no repeated loading, errors and other phenomena. The reliability lies in further optimizing the design of the home page and menu bar, adding description browsing pages, adding or deleting functional areas according to the user's clicks, and increasing the convenience of user operations.

4.2. Construction of Digital Information Resources in Library Collections Is Gradually Followed Up

Digital information resources are the basis for colleges and universities to provide digital reading services. Improving and optimizing construction and allocation of digital resources is of great significance for improving the level of digital reading services. First of all, it is necessary to use high-tech means such as emerging virtual information technology to informationize traditional resources, and to add more diversified and three-dimensional digital reading resources such as e-books and multimedia to the resources dominated by the original journal literature and database, in order to meet the high-level needs of users. Secondly, in view of the low quality of digital reading resources and prevalence of shallow reading, it is also necessary to further deepen the content of digital information resources, optimize the quality of digital reading resources in the library, remove outdated and messy resources, update reading resources with the times according to user needs, and further expand the sharing library of digital reading resources to expand the beneficiary groups.

4.3. Deepening Digital Reading Service Strategy and Technology Application

First, the digital reading service mode and content should be gradually three-dimensional and deepened.

According to the 19th National Reading Survey, the wide and diversified reading behavior has become a major trend, the comprehensive reading rate of all media has continued to grow steadily, the contact rate of digital reading methods is rising and getting younger and younger, and more than 70% of minors have been exposed to digital reading [7]. Therefore, the provision of digital reading services should be combined with vision, hearing, touch experience and other ways to integrate and expand, and provide three-dimensional digital reading services through the carrier of university digital libraries. And then, the fragmentation and entertainment of reading activities require university libraries to more strictly screen digital resources and deepen the connotation of digital reading services, such as actively providing guided reading services, in-depth analysis and other ways to improve the reading quality of users. At the same time, they should also integrate the scattered digital resources in the library and update the shared resource library in a timely manner.

Second, it is the combination of application technology and reading services. In order to coordinate with three-dimensional services, digital reading services should be timely combined with information technology to provide accurate and novel digital reading services by using big data, artificial intelligence, augmented reality (AR), virtual reality (VR) and other emerging scientific and technological means, which not only is conducive to the realization of user demand oriented digital resource docking, but also helps to improve the dimension of services and enrich the overall service content and methods.

Third, it is to improve mobile digital reading services. Due to the rapid development of mobile internet, the convenience and frequency for users to use mobile phones, tablets, etc. are much higher than that of web pages. However, due to the low degree of attention and high development costs of university libraries, there are few independent applications, and they basically rely on third-party platforms such as WeChat and Flying Books to provide users with mobile digital reading services. The disadvantage of this approach is that the scope and mode of services are limited, which cannot meet users' deep-seated needs. Therefore, there is a must to continue to explore the provision methods and contents of digital reading services on mobile terminals, and add functional services available on web pages on the basis of previously limited functions such as information transmission and service notification. On this basis, it is also necessary to actively promote to the users inside and outside the school, optimize the common problem of non-campus access restrictions of the geographical location, in order to expand the service scope of mobile digital reading.

Fourth, it is to change from passive service to active service. The passive service provided by digital libraries in colleges and universities mainly refers to the response to user feedback and the operation of handling user submissions, while the active service is more inclined to use information means to actively push information to users, actively collect and handle opinions, in order to gradually improve the level of digital reading services.

Fifth, it is to improve the synergy and interactivity of digital reading services. Synergy is mainly reflected in resource sharing and service coordination with interlibrary and off-campus people, breaking the interlibrary service barrier, and realizing integrated service of interlibrary borrowing, unified service, and resource co-construction. The key is to improve the top-level design of colleges and universities and break through the restrictions from the system.

4.4. Carrying Out Digital Reading Activities and Promoting Digital Reading Services

In addition to expanding the content of digital reading services, the school can strengthen the promotion and publicity of digital reading services by organizing activities, service introductions, communication institutions, use guides and other ways to increase the popularity of existing digital reading services in colleges and universities, thus increasing the frequency and extent of teachers and students' use of services other than the functions of paper resource library, and improving the access rate and use rate of digital libraries in colleges and universities.

5. CONCLUSION

In the era of rapid development of digitalization and informatization, digital reading has become the reading method chosen and recognized by most college teachers and students with its convenient operation, diverse forms, rich content and other characteristics. After years of development, the construction of digital libraries in colleges and universities in China has entered a relatively stable and mature stage of development. Digital library systems have been basically built in major colleges and universities. The number of digital resources and funding are increasing, the level of inter library collaboration is improving, and digital reading services are gradually turning to high-quality development. The construction of digital libraries in colleges and universities in China has entered a relatively stable and mature stage of development. All colleges and universities have basically built digital library systems. The number of digital resources and

funding are increasing, the level of inter library collaboration is improving, and digital reading services are gradually turning to high-quality development. However, at present, the development of digital reading service in university libraries is still in difficulties and on tortuous road. The national and university library and information workers must constantly improve the digital reading service platform architecture of university libraries, further expand the input of digital resources, improve the quality of digital reading service, improve the level of collaborative service and strengthen positive publicity and guidance, in order to effectively help our university library digital reading service to achieve high-quality development.

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