Development of Mobile Library Based on the "Internet +" in China

Meng Ni[a], Yue Zhang[b]

School of Nanjing University of Science and Technology, Nanjing 210094, China

[a]17801086781@163.com, [b]1789622508@qq.com

Keywords: Digital library, "Internet +", mobile library

Abstract: With the continuous improvement of human intelligence, the development of high and new technology is also improving. In the digital information age, computer, network communication, multimedia and other technologies are developing rapidly. These hardware bases have played a very important role in promoting the functional construction, service performance and service quality of libraries, which promoted the birth of electronic libraries and digital libraries. This paper gives a detailed overview of the theoretical research and application status of mobile digital library in China, discusses the countermeasures for the construction and management of information service of mobile digital library, and finally provides some innovative practical ideas.

1. Introduction

Mobile digital library refers to the combination of wireless network and digital library system. Readers can browse, download and read digital resources of the library without time and space restrictions by using mobile terminal devices, which is a new kind of library service.

In the earliest days, when mobile digital libraries were first proposed, they were called "virtual libraries". Gapen D Kaye, an American, put forward the concept of virtual library earlier. In 1993, he defined virtual library as "a way to obtain information and knowledge through electronic network" in a paper, which better reflects the essence of virtual library, namely networking and information utilization.

Mobile reading mode caters to modern people who pursue efficiency and simplicity. This new reading mode is impacting people's traditional reading habits at an unprecedented speed. Mobile reading will soon become an important way for people to acquire knowledge and improve their quality. Under this background, the traditional library service function will have the significant transformation. At present, the "Internet +" has become a new engine to promote the development of the society, what main characteristic is open, converged and innovative.

This paper will analyze the current situation and existing problems of mobile digital library, and then summarize the development countermeasures of the current mobile library. In order to better develop mobile digital library, this paper will put forward some innovative practical strategies to solve the existing problems.

2. The Present Situation and Existing Problems of Mobile Library

At present, the domestic and foreign libraries have been keenly aware of the changes brought by mobile technology to library services and the rapid rise of mobile digital libraries. In recent years, researchers have been actively engaged in the research and practice of mobile digital libraries.

2.1 Theoretical Research

Zhu Haifeng is the first scholar in China to discuss the mobile information service of libraries. In 2002, he put forward the idea of applying wireless Internet technology to digital libraries to realize "wireless library". In 2004, Wu Zhipan put forward the concept of "mobile reading era". Subsequently, Mao Yihong scholars studied the emergence and development of mobile digital library, discussed the development direction of mobile digital library, mobile digital library development has made a systematic planning. The mobile digital library project group of Tsinghua

University has conducted a series of user experience surveys to seek solutions for mobile digital libraries from the perspective of users. In 2009, Ma Aifang and Yang Guomei selected 107 Universities of 211 Project as samples to investigate and study the construction of mobile digital libraries in universities. Xu Kaiying et al. compared the application status of mobile libraries in China and found that most libraries in China developed mobile library services through SMS platforms.

2.2 Application Status

The construction of domestic mobile digital libraries rose after 2003. In 2003, the library of the Beijing Institute of Technology was the first in China to open a mobile library SMS service platform. In 2006, Hunan Institute of Technology opened the first WAP mobile phone service library in China. In addition to libraries, some database publishers and information technology companies have also begun to engage in mobile digital library services, signed a mobile digital library cooperation agreement with a number of libraries.

Currently, some libraries have developed app programs for mobile terminals. In addition, mobile libraries based on third-party platforms have begun to appear. With the popularity of WeChat, the mobile library service system built on WeChat has been launched one after another.

2.3 Existing Problems

Mobile libraries have opened up a new era of library services, but there are still many problems with mobile libraries. First of all, most mobile libraries generally only move some functions of the digital library directly to the mobile terminal, and do not give full play to the unique advantages of the mobile Internet. Secondly, the current mobile library is lack of function, poor user experience, which are obvious shortcomings. Although the emerging application have delicate interface and powerful function, the cost of development and maintenance is very high, which can't be withstood by general library can withstand. The development of mobile libraries demands a mass of download and renewal, in the process of competition for the mobile App market, it is not an easy task to maintain user stickiness. In conclusion, so far App is difficult to become the mainstream of mobile libraries.

Finally, the promotion of mobile library is not enough, which is generally limited to the inside of the library and the website, Weibo and WeChat of the library. The coverage is narrow, which basically cannot affect the group of non-frequent users of the library, resulting in low penetration rate and low usage rate. Different departments within the library often have their own Weibo and WeChat accounts, which operate independently, making users more dispersed and not conducive to gathering popularity and establishing a unified mobile library brand.

3. Research on Development Countermeasures of Mobile Digital Library Services

3.1 Construction of Library Mobile Information Services

Lai Yongbo proposed to build a unified search platform for handheld devices, enabling all types of handheld devices to search for different database resource systems, effectively utilizing mobile cloud computing technology to solve the problem of system and data format unification and standardization. Ye Tian proposed to build a mobile reading experience reading room to create a mobile reading service environment to strengthen the construction of library mobile information services.

3.2 Management of Library Mobile Information Service

Mao Yihong points out that by incorporating mobile information services into the library's system management, improving service initiatives, enhancing service personalization, and enhancing service interactivity, users will be encouraged to use mobile information services. Ye Tian proposed that in terms of mobile information services, libraries should also provide personalized information push services, strengthen communication with users, establish a reader information base, and pay attention to the integration of collection resources and mobile reading

devices.

It can be seen from the viewpoints put forward by the above researchers that with the rapid development of Internet technology, the views of the predecessors have been realized one by one. Nowadays, in the era of 4G network, high-speed network provides the foundation for the development of mobile digital library. In order to adapt to the "Internet +" era, mobile digital library will have a new development trend.

4. Based on "Internet +", the New Trend of Library Development

4.1 Integrate into the Open Platform

At present, all walks of life are building their own mobile internet platforms, many of which have great influence and users, or have unique advantages in some aspect. The library should break away from the closed thinking in the past, take the initiative to carry out cross-border cooperation with them, and build a mobile library platform that is mutually beneficial.

By embedding mobile libraries into third-party platforms with a large number of users, such as WeChat and Alipay, library users and more potential users can easily find and use mobile library services without downloading mobile library App or entering the URL. The platforms can also refer to the credit value, it will become very convenient when the user needs to pay for library services, such as card deposit, fine payment, self-copying, printing, etc. This has virtually improved the popularity of mobile libraries and improved the user experience, which is an excellent marketing for mobile libraries.

4.2 Crossover Cooperation and Innovation

In addition to broadening the service area of the library, it is also necessary to carry out content innovation and integration cross-library and cross-industry to achieve win-win cooperation. Inter-library cooperation is mainly to realize real-time exchange of bibliography and circulation data, so that users can search the literature in each library and its status in one stop and send out document delivery and inter-library loan if local conditions cannot be met.

4.3 Explore Situational Awareness Services

Personalized service has always been the studious direction of library. The development of situational awareness technology has made it possible to break through the problems of the library's personalized service. Situational awareness is to provide users with real-time, specific and personalized information or services by automatically "sensing" the current situation of users through sensors and related technologies.

The mobile terminal has the characteristics of relatability, recognizability and portability. The sensor for situational awareness has greatly exceeded the PC, and the ability to acquire, analyze and reason the user activities and their scenarios is enhanced. Therefore, mobile-based mobile libraries are the best choice for implementing situational awareness service in all platforms of the library to date.

5. Conclusion

This paper discusses the development of mobile library and the existing problems as well as the current mobile library service content. At present, mobile libraries are slow in development and lack of innovation. Therefore, with the shareholding of "Internet +", mobile libraries actively find ways to solve problems and serve users. It can not only reduce the inconvenience for users when using mobile terminal, but also bring convenience to the library staff and reduce the time wasted in the process of information search.

References

[1] Lei Z, Gapen D K, Schmitt S N. Developing Intellectual Access and Control Mechanisms for

Discipline-Based Virtual Libraries that Feature Media Integration [J]. Advances in Classification Research Online, 1993.

[2] Zhu Haifeng. Development of digital library -- wireless library [J]. Library Theory and Practice, 2002(6):14 - 15.

[3] Wu Zhipan. Mobile reading and the future of libraries -- "the library of mobile readers" [J]. Journal of Academic Libraries, 2004 (1): 2 - 5.

[4] MAO Yihong. The Status and Countermeasures of Development of Library Mobile Information Service in China [J]. Journal of Academic Libraries, 2012 (2): 35 - 36.

[5] Ma Aifang, Yang Guomei. Investigation and Consideration of the Situation of Mobile Phone Service in University Libraries in China-Taking "211 Project" University as Example [J]. Library Work and Study, 2009 (12): 87 - 89.

[6] Xu Kaiying. Research on the Service Model of Mobile Library Based on M-learning [J]. Library and Information Service, 2010 (6): 72 - 75.

[7] Lai Yongbo. From Digital to Mobile Digital: the Evolution of Library Service Function and the Ways of Achievement [J]. Journal of Intelligence, 2011(5):166 – 168.

[8] Ye Tian. An Analysis of College Students' Mobile Reading Preferences Based on Grounded Theory [J]. Research on Library Science, 2011 (7): 78 - 81.

[9] MAO Yihong. The Status and Countermeasures of Development of Library Mobile Information Service in China [J]. Journal of Academic Libraries, 2012 (2): 35 – 36.

[10] Ye Tian. An Analysis of College Students' Mobile Reading Preferences Based on Grounded Theory [J]. Research on Library Science, 2011 (7): 78 - 81.

[11] Zhu Qiang. Development trend and enlightenment of foreign libraries [J]. Journal of the National Library of China, 2015 (5).