Library Information Construction and Service Trend under Big Data

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Abstract. With the rapid development of knowledge economy and the rapid progress of science and technology, in order to adapt to the pace of the times, university libraries have also undergone tremendous changes, especially in the context of information technology. The traditional service mode of library cannot meet the demand of teachers and students for cultural knowledge information. Is not a single demand for knowledge, but more pursuit of personalization, specialization and diversification? Therefore, it is urgent for the library to change the old service mode. Under this background, the university library has been greatly challenged in the service concept and service mode. Only through the application of personalized service mode through innovative service mode, the university library sets up individualized information service channel according to the user's information demand behavior. And through the analysis of user's habits and personal characteristics to meet the user's potential information needs. Through the investigation and investigation of a university in our province, the number of people who do not understand the personalized recommendation service is up to 115, accounting for 40.35% of the total.

Keywords: Library Informatization, Project Construction, Statistical Survey, Service Trends

1. Introduction
With the development of information technology, the degree of computer information automation system of library has become the basic standard to determine the advanced degree of a library. Higher vocational and technical education has played a great role in promoting the popularization of education in China, laying a foundation for the modernization of education, and has made great contributions. With the increasing development of information technology, our understanding of higher vocational education will be more and more, at the same time, due to the improvement of knowledge level, also put forward higher requirements [1].

On October 28, 2005, the "decision on vigorously developing vocational education" put forward several suggestions as follows: "further strengthen the informatization of Higher Vocational Education", "vigorously promote the development of information resource technology of higher education in the field of education", "strengthen the construction of various information resources of Higher Vocational Education", etc. This provides a good development opportunity for the library
information project construction of Higher Vocational Education in China [2]. The 21st century is an era of knowledge economy and information development. Knowledge capital and information resource technology have become the main resources for the development of the whole society, especially valuable information can promote the development of economy. In this new economic environment, the library as a knowledge center, its dominant position and value are fully reflected. The library system built by using network technology can not only save time and space, enrich information content, increase the value of knowledge information on the network, but also gradually make library information go to the market. All of these will improve the overall efficiency of the library and make it meet the challenges of the information age with a new attitude [3].

The main work of this paper is to briefly introduce the background and significance of the research, as well as the research ideas and content of the article; and to summarize the relevant theories, to elaborate the library information theory and project cost theory referred in the writing process of this paper; through the investigation and statistical analysis of a university library information construction example in our province, the corresponding results are obtained.

2. Related Theories

2.1. Library Informatization
Library informatization is also called library informatization project construction. With the rapid development of knowledge and information resources technology and Internet network technology in China, the definition of library informatization is also changing. At present, there is no unified theory in various fields and colleges and universities. However, in many expressions, there is a basic consensus that colleges and universities should establish the concept of Library Informatization. The information project construction of university library is to use modern computer technology and network technology to collect, arrange and arrange book information resources, and provide information resources inquiry institutions for Internet users [4]. Generally speaking, library information project construction is the knowledge center of Internet which is easy to use [5].

Library information project construction uses network information technology to digitize and network the library and scientific research and education institutions, educational facilities, teaching resources, library management process, so that teachers and students in university libraries can use computer network to carry out various learning activities [6].

2.2. Library Information Process
Modern society has developed into a new era of knowledge economy with knowledge as the leading factor. As the core of the knowledge gathering place of university library, the development process is particularly important. Therefore, combined with the development of our country's library at the present stage, in the process of information project construction, the specific performance is as follows:

First, the library has hired special staff to collect, classify and manage the online digital knowledge resources. Under the influence of the increasing number and types of various academic and literature resources covered by the Internet, there will be more and more ways for libraries to adopt in the management of knowledge information resources [7]. In order to ensure the effectiveness and rationality of the library collection management structure in the process of project construction, it is necessary to set strict requirements in the process of collection management, set up corresponding systems, and realizes the maximum integrity of the library to the maximum extent [8].

Second, at present, special personnel have been arranged for the existing resources of the library, and in the future construction, the information transformation of this part of the collection information resources has been gradually realized. In view of these meticulous works, the leading groups at all levels of the library have also made detailed work plans. On the basis of determining the scope of work, they have concentrated their efforts to improve the information efficiency of library construction [9].
2.3. Related Formulas

(1) Logistic mapping [10]

$$x_{n+1} = \lambda x_n (1-x_n)$$  \hspace{1cm} (1)

(2) Tent mapping

$$x_{n+1} = \begin{cases} \frac{\lambda x_n}{2} & x_n < 0.5 \\ \frac{\lambda (1-x_n)}{2} & x_n \geq 0.5 \end{cases}$$  \hspace{1cm} (2)

Sine mapping

$$x_{n+1} = \frac{\lambda \sin(\pi x_n)}{4}$$  \hspace{1cm} (3)

3. Information Construction of a University Library

3.1. Background

The library of the college includes two branches in the South and North campuses, with a total collection of more than 1.02 million books as of September 2013. The library building in the south campus is five stories high. There are three stacks of more than 1000 square meters, two stacks of 500 square meters, about 900000 paper books and 520000 electronic books (3.5tb) on the second to fifth floors. There are 8 reading areas, about 130000 paper books and 360 reading seats in the north campus library.

3.2. Information Construction Project

The library information construction project of the College started in June 2016 and is expected to end in October. The whole project will last for more than four months. The project was highly supported by the leaders of the college before it was launched, and is expected to invest more than 3 million project funds. The project participants are mainly the staff of the whole school library, as well as the relevant personnel of the information department. If necessary, more advanced system design will be outsourced. At the same time, the college also provides sufficient human and material support at different stages of the project. The support conditions of the project are very sufficient. If it is implemented as planned, the project can be completed within the scheduled time and cost.

At present, the college is in a stage of rapid development. With the increase of subjects and students, the management and information transmission are becoming more and more complex. The demand of teachers and students for information and books resources is also increasing. The speed and quality requirements for finding books and information resources are also improving. Only by relying on the information in the information system, effectively solving the information processing speed of the library, and actively responding to the changes of knowledge and resources, can we better and more quickly manage the whole library resources and meet the needs of teachers and students for books and resources.

The typical university library information management system should have the following characteristics:

(1) Book category subscription: including the management and control of book subscription data.

(2) Cataloging of book categories: including the management and control functions of book cataloging information.

(3) The collection of books and periodicals: including the distribution of books and periodicals, the allocation of library rooms and other functions.

(4) Circulation of book management: including borrowing, renewal, return of books, and book inquiry.
(5) System registered user management: including system registered user data management and other functions.

(6) Reader information management: including reader category registration, modification and other functions.

With the strong support of computer information technology system, the merged information library has developed rapidly in just a few years. The collection of academic literature in the library has been further increased to closely cooperate with the development of colleges and universities. It has formed its own information-based book features in the research fields of art, new materials, mechatronics, higher chemical engineering, food and new biology, with a collection of more than 1 million books and more than 1700 kinds of Chinese and foreign science and technology academic literature. This greatly improves the service level of computer knowledge information and the quality of information books in the library, and constantly improves the utilization rate of academic literature resources, enhances the library's borrowing business ability, strengthens the cooperation with the teaching of colleges and universities, and improves the management efficiency of teaching, so that the library information work is fully integrated into the overall construction of the university and becomes an important supplement to the development of the University.

4. Statistical Analysis Results

4.1. Project Evaluation

From the cost performance report of the project, it is concluded that the later capital investment of the library management system is greater than the planned cost limit. If the deviation of the analysis result is taken as the cost deviation of the actual system application, the capital investment budget result of the whole project EAC is 3.6132 million yuan. It is found that the capital investment amount in the whole process is much greater than the planned cost, and the amount is as high as 51.1 million
yuan Ten thousand yuan. If we want to reasonably control the amount of capital investment in the later stage of the project and make the project acceptable, we must effectively control the project cost in the later stage. Otherwise, the project goal can not be successfully completed.

4.2. Survey Statistics

**Table 1.** TEACHERS and students' Attitude towards Personalized Intelligent Agent Service

| Select          | Teachers | Number of people | Scale   |
|-----------------|----------|------------------|---------|
| be willing      | 58       |                  | 60.41%  |
| under protest   | 32       |                  | 33.33%  |
| as appropriate  | 16       |                  | 16.67%  |
| be willing      | 83       |                  | 30.4%   |
| under protest   | 49       |                  | 17.94%  |
| as appropriate  | 141      |                  | 51.64%  |

In this question, 58 teachers, or 60.41 per cent of the total, were willing; 32 were unwilling, or 33.33 per cent of the total; and 16 were willing, or 16.67 per cent, depending on the circumstances. This ratio shows that the teacher library is willing to accept the implementation of personalized intelligent agent service.

It can be seen from the student questionnaire that 51.64% of the student users are basically willing to provide personal information so that they can obtain the latest information of resource information and other literature resources in time through the library. According to this questionnaire can actively stimulate potential student users, vigorously promote the convenience and time-saving of intelligent agents, so that users can obtain information in time.

**Table 2.** TEACHERS and students' understanding of personalized information recommendation services

| Select                      | Teachers | Number of people | Scale   |
|-----------------------------|----------|------------------|---------|
| Understand                  | 26       |                  | 26.8%   |
| A little understanding      | 19       |                  | 19.58%  |
| Do not understand           | 52       |                  | 53.6%   |
| Understand                  | 77       |                  | 27.01%  |
| A little understanding      | 93       |                  | 32.63%  |
| Do not understand           | 115      |                  | 40.35%  |

In this questionnaire, the number of teachers who know about personalized recommendation is 26, accounting for 26.80% of the total; the number of slightly understood is 19, accounting for 19.58% of the total; the number of people who do not know is 52, accounting for 53.60% of the total. As can be seen from the largest proportion of the total, librarians should give special lectures on recommendation services to teachers in various colleges, let more teachers understand information recommendation services through lectures, and master mail push and channel push information. Bring them quick access to information.

Through the survey of students, the number of people who do not understand personalized recommendation services is up to 115, accounting for 40.35% of the total. This item shows that the frequency of students using channel recommendation to receive information and mail to push and receive information is particularly low. Although the library implements this service, the students' attitude towards this service is low, so it should be paid attention to how the library can stimulate the potential of students and improve the quality of service.

4.3. Investigation and Analysis of Library Information Service

(1) In the aspect of informatization of knowledge economy infrastructure in China. In terms of information technology, the investment of infrastructure construction in Colleges and universities in information technology is mainly carried out around the "information of library resources". In China, the United States and Japan, the proportion of interconnected resources is very high, and there is little
difference in technology between them. However, in terms of the resources and information provided by the websites of universities in the three countries, the websites of University Libraries in the United States can provide the most knowledge resources and information resources, and more than 51% of universities can provide 20% of the resources except "tool software." Many information projects, followed by Japanese universities.

(2) Teaching information. At present, information resource technology tools have been widely used in Colleges and universities in the United States and Japan. 87.4% and 76.2% of American and Japanese universities use PowerPoint and other computer simulation in teaching; 70.5% and 59% of American and Japanese universities use e-mail and BBS to discuss topics and collect assignments; 59.4% and 49% of American and Japanese colleges and universities are using various computer teaching resources to teach; 29.5% and 9.5% of American and Japanese universities teach on the Internet. In Chinese colleges and universities, the application of information resource technology in teaching is also highly valued, but the level of teaching informatization is far lower than that of the United States and Japan. There are also some problems to be solved in the informatization of University Libraries in the United States, Japan, and China, mainly in the following two aspects: the lack of funds for informatization project construction and the problem of teachers' teaching skills training. According to Roland's information development theory of knowledge economy, the development of project information technology is defined as the whole process of an organization's growth after the introduction and application of technology information resources. He divides the development of information technology project organization into four stages: introduction, expansion, control, and maturity. The process of informatization project construction in China's higher vocational colleges can also be summarized into these four stages: introduction, expansion, control, and maturity.

5. Conclusion
With the knowledge economy and society, people's work and life depend on the network day by day, the demand for information knowledge resources is also increasing, and the demand for college users is greater. Different users of information use, their demand for information is also different. Based on the analysis of the connotation and characteristics of personalized service, the mode and mode of personalized service at home and abroad, and under the guidance of relevant personalized theory, combined with the user groups of different grades of Gansu Z University, the questionnaire is designed.

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