Research on Embedded Information Reference Service During Big Data Times

Xue PAN and Ya CHEN∗

Nanjing University, China

*Corresponding author

Keywords: Embedded reference service, Reference service.

Abstract. Based on the analysis of the present situation of embedded reference practice in colleges and universities, this paper analyzes the characteristics of embedded reference. This paper also points out the problems in the development of embedded reference service and looks forward to its future development.

Introduction

Chinese Encyclopedia Dictionary defines library reference services as "library reference services or specialized personnel answering questions raised by readers in reading or scientific research through oral or written form". Providing ways and methods for obtaining literature materials, and compiling bibliography, index, and abstract, etc. for readers to use." Reference consulting service core content is using collection etc. as reference information source to satisfy user personalized information requirement. Recently, with the arrival of big data era, user information demand has changed greatly from simple text and simple original data acquisition to more attention to access convenience and information added value. Previous reference services especially for libraries of university cannot meet their information needs. Meanwhile embedded discipline service is developing rapidly in colleges and universities. Embedded services can effectively embed user groups and provide convenient and efficient information services based on analyzing users’ individual characteristics. It can be said that embedded reference consulting becomes an important trend of reference consulting activities. Nowadays, with rapid development of information technology, various industries in life are closely connected with Internet. So is university library. Digital reference service of university library should integrate mobile interconnection technology and cloud computing technology under big data background. Service becomes more advanced, establishes new service mode, tries to offer passive advisory service actively, meets users' information needs and enhances user experience. Embedded reference service comes into being under this background. Embedded reference service is user centered and provides information reference service which users need to provide certain pertinence. Nowadays there are relatively few researches on embedded reference service in domestic library information field. Although most colleges have already carried out digital reference consultation activities during practice, there is still lack of practice in embedded reference service. However, in this case, although some university libraries do not formally propose embedded reference service, some consulting services already reflect the characteristics of embedded reference consulting service.

Along with the development of information technology, facing growing mass data, in order to promote reference advisory development make reference advisory services towards refinement, this paper analyzes the characteristics of embedded reference consulting based on analyzing the actuality of embedded reference consulting practice in colleges and universities in China. On this basis, the existing problems of embedded reference consulting in big data era are analyzed and the future development is prospected.
Analysis on Present Situation of Embedded Reference Service in Colleges and Universities in China

Reference Service for Embedding Scientific Research

Reference service for scientific research should be established in scientific research information demand in the province's value added knowledge service. Embedded reference consultation in university library should embed service into scientific research environment and information utilization process, librarians should walk around scientific research users as embedded librarians. Help users solve problems encountered in many aspects of scientific research projects. Colleges provide scientific novelty retrieval services through scientific novelty retrieval techniques and provide literature search services through reference services. For example, China Science and Technology University embeds patent services resources in search for patent documents, if these recommended approaches do not satisfy users' needs, they can ask librarians. Answers that are satisfactory to users will be given.

Reference Service for Embedded Teaching

Embedded reference service of university library aiming at teachers is embedding service into teaching which can help teachers improve teaching quality and efficiency. For students, embedded reference service of university library aiming at student service is embedding service into student learning environment which can help students improve their learning quality and efficiency. They can also improve their learning ability and ability to solve problems. Nowadays, there are several kinds of embedded teaching services in university libraries: setting up information literacy education curriculum, offering courses through MOOC form etc. For example, Tsinghua University Library conducted training activities aimed at students and researchers on "Primary SPSS Statistics Analysis of questionnaire". During the course of research, we obtained data through questionnaire survey. This paper introduces the primary statistical analysis methods and operations using SPSS data generation, multiple choice statistical analysis, statistical analysis of Richter scale chart making etc. It aims to improve students' professional data literacy.

Analysis on Characteristics of Embedded Reference Consultation in University Library

Innovation of Service Concept

The concept of service during providing reference service has changed: passive service is changed into active service and focus on target users group. The idea of embedded service starts from users coming to libraries or asking for help from libraries through relevant ways transforming into libraries consulting services and users daily learning and life etc. Information requirement of subject users is the driving force of embedded reference service. The specific service modes and service contents directly depend on the information requirement of the subject user to embed the user's information space actively. It can provide services more efficiently and conveniently. Now embedded reference consultation implemented by libraries really embodies the principle of "people oriented" which means service is around users such as scientific research projects. Librarians not only bear the auxiliary role of scientific research but actively develop themselves into one part of scientific research projects participate in them. Do everything possible to help scientific researchers solve problems such as information retrieval and information usage encountered during scientific research so as to help scientific researchers accomplish scientific research projects together. Embedded reference service requires libraries to focus on group and individuality of users according to users' professional background educational background etc. This paper establishes a stable user community on the basis of analyzing the user information needs, and provides accurate directional information consulting.

Innovation of Service Mechanism

In traditional reference service, due to the dispersion and uncertainty of user groups faced by library
services. Moreover, service is passive service, reference service is aimed at each specific consultation process. Because embedded reference service provides service to users actively from concept "people oriented". When provide services again, you can embed them more easily within your users' scientific research, teaching and learning environments. Provides embedded reference consulting services. Embedded reference service provided by library is actually one kind of collaborative service. It defines the relationship between users and librarians. Pay attention to the construction of strategic partnership between them, and emphasize on joint responsibility of teaching and scientific research responsibility; Librarians participate in users' scientific research projects, effectively communicate with users, make scientific researchers need concrete and facilitate their implementation, provide information supply, management and value added. It benefits to research and innovation of scientific research users. The service mechanism of embedded reference service becomes subject librarian can directly, actively connect with a group with certain commonness. During this process, not only can it solve user's related problems timely but also play certain guiding role.

**Innovation of Service Content**

Under big data era background, embedded reference service content has far exceeded traditional library literature service boundary. Embedded reference consultancy services extend to users' learning, scientific research and even living environments. Service content presents rich and integrated in order to meet users' diverse personalized information needs. Its service objects are not only the readers, but also the network users. Therefore librarians should embed users' scientific research environment and scientific research process deeply, study various kinds of complicated problems encountered by users in scientific research teaching and cooperate closely with users to find optimal solutions together. Thus, it goes far beyond the traditional reference consulting which regarding literature search and acquisition as the main content of advisory services category.

Library, as a social organism, change pace with times along with social needs. Information technology progress, big data era coming, library service forms also undergone drastic changes. Intelligent mobile terminal technology and wireless communication technology development further broaden users' information access channels. Users' information needs are more personalized and information values change. Traditional forms of library services face many challenges. Nowadays users need not simply retrieve documents but hope librarians excavate deep information and realize value added in information collection and collation process. Under this background reference service should be embedded into user's work and living environment, such as librarians should participate in scientific research project teams and scientific research projects. Consult librarian in depth understanding experience user's environment can more intuitive clear user's information demand.

**Innovation of Service Mode**

Nowadays, due to rapid development of information technology virtual embedded service becomes a new service mode. Firstly, reference services embedded space is virtual, followed by embedded means by using some social networks (SNS), aggregation tools (RSS), etc. On a certain hardware device, it is pushed to the homepage of the library and the website that users often browse, even to the user's desktop. Compared with traditional digital reference consulting, according to some characteristics of target users' information environment and information demand, select optimal consultation channel and service mode. Flexibly embedding consulting service into user environment or embedding into user information utilization process, it realizes organic cohesion and efficient interaction between reference service and specific user needs.

From the above analysis of embedded reference consulting in colleges and universities, it can be found that embedded mobile reference consulting is a new hotspot. With the increasing trend of reference materials digitization, reference consultancy concept has changed greatly. Appearance of mobile communication systems and strong desire for mobile reference service demand prompt many libraries to provide mobile related services. Firstly reference service can be embedded in mobile interconnection devices: users obtain reference services via mobile devices, WeChat and APP etc. Embedded mobile reference consulting can be mixed with original digital reference
service by means of instant messaging technology. Second reference advisory services can embed digital resources provided services: provide a powerful seamless reference link to users. This comes from library files or resources such as encyclopedias which can serve as references for libraries or databases available for research purposes. According to user community features, digital resources are summarized and provided to users, while using mobile terminal devices, it provides users with access to reference services.

Intelligent embedded reference consulting actually provides virtual consulting service which can realize real-time communication with users using intelligent question answering robot and automatically answers user problems through knowledge base. This is a novel form of reference consulting mode. At present, there are many researches on it at home and abroad. There is a third generation library robot "tubao" which is launched by Nanjing University Library in China. And Artificial Librarian etc. are abroad. Intelligent embedded reference consulting mode can effectively reduce the labor cost of librarians and enhance online consultation ability through full integration with knowledge base services.

It can seamlessly connect online artificial consultation system and provide consulting services all round and all weather so that network reference service efficiency of library can be effectively improved. It can be said that consulting robot widely applied can bring qualitative leap into embedded reference service.

Prospect of embedded reference Service in Colleges and Universities

Nowadays there exist various problems in embedded reference service in universities: embedded service demands higher quality of librarians than others do. Libraries must have talents to carry out embedded services, which is foundation. Besides, for library leaders, we must establish a complete set of institutional mechanisms to promote embedded high-level service oriented teaching and scientific research, including organization management system, publicity system, talent mechanism and incentive mechanism etc. For the object of embedded reference consulting service-teacher scientific research team, it does not understand the content of embedded service of library, and it is also long enough to understand and accept service. Many problems need to be considered in carrying out embedded reference service in library.

But it is also worth expecting for the development of embedded reference consulting in colleges and universities: ①Integrate reference consulting service with discipline service in order to provide personalized embedded reference service for users: along with development and extension of library information service, carrying out discipline service is not only necessary for university libraries to deepen service content innovation service mode but also conform to the changing information demand of users in big data era. Many university libraries currently serve only lower levels of service such as answering questions about readers’ general questions and developing regular readers training etc. There is no good combination of teaching and scientific research work in the school to carry out disciplinary services. However, each libraries can explore new service modes according to the conditions and the actual situation. ②Strengthen reference consulting team construction: Under big data era, Internet and new era background, the quality requirements of reference librarians are getting higher and higher. On one hand, information retrieval and information analysis capabilities are necessary skills for reference librarians in libraries; On the other hand, data mining, data organization and other aspects of capabilities are also increasingly important impact on daily reference activities. University libraries should combine the principles of library management and school running characteristics. Based on analyzing Information behavior of Target Group and the professional background capability and specialty of actual staff members of our institute, we build up efficient and high level reference consulting team. Meanwhile, we should adopt the mode of combining continuing education with practice training, constantly improve data literacy and information literacy of reference librarians, and improve professional ability, in order to better satisfy users’ diverse, personalized information needs, better support school teaching research work, thus improve reference service level and quality.
References


