Research on Information Literacy Education in University Cloud Library Learning Centers

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Abstract

With the innovative development of inclusive sharing technologies on the internet in China, various functions of university libraries have undergone different degrees of change, and the concept of cloud libraries has been proposed, leading to increasingly stringent demands on the objectives, presentation forms, and content of university information literacy education. The rapid development of computer networks and communication technologies, along with increasingly abundant network resources, provides convenient conditions for information dissemination and practice. Libraries need to re-examine the current development environment, closely monitor the development trends of the social information environment, thoroughly explore user information needs, and emphasize user-demand-driven development as the foundation of disciplinary services, aiming to adapt to the development environment of the new era. This paper primarily discusses the current information literacy education in university libraries, and from the perspective of cloud libraries, aims to create more convenient service platforms for optimizing the open sharing of information resources and services.

Full Text

Research on Information Literacy Education in University "Cloud Library" Learning Centers

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Abstract

With the innovative development of inclusive and shared Internet technology in China, university library functions have undergone significant transforma-

tion. The cloud library concept has emerged, imposing increasingly stringent demands on the objectives, presentation forms, and content of university information literacy education. The rapid development of computer networks and communication technologies, coupled with increasingly abundant online resources, provides convenient conditions for information dissemination and practice. Libraries must re-examine the current development environment, closely monitor trends in the social information landscape, thoroughly explore users' information needs, and focus on user-demand-driven subject services to adapt to the new era's development context. This paper primarily discusses current information literacy education in university libraries and, from the cloud library perspective, seeks to optimize and create more convenient service venues for the open sharing of information resources and services.

Keywords: University Library; Internet; Information Literacy Education

University libraries serve as institutional literature and information centers. Based on the application of cloud computing technology and big data, they have gradually become hubs for advanced technology and knowledge dissemination. As the foundation for academic and research education, they are also primary venues for implementing quality education and cultivating high-caliber talent, bearing the important responsibility of enhancing readers' information literacy. In 2016, the Ministry of Education explicitly stated in the *Regulations for University Libraries* that these institutions must shoulder the work of cultivating quality talent, fully leverage their role as a "second classroom," and employ various methods to enhance readers' comprehensive literacy. Therefore, strengthening readers' information literacy education is a key aspect of university library work.

1. Overview of Information Literacy Education

The term "information literacy" was first introduced by Paul Zurkowski, Chairman of the U.S. Information Industry Association, in a 1974 government report. Upon its introduction, it immediately garnered widespread attention from academic circles both domestically and internationally, becoming a focal point of scholarly inquiry. Broadly speaking, information literacy refers to the fundamental information awareness individuals should possess, the ability to efficiently acquire and accurately evaluate information using information technology, proficiency in applying information to implement various skills, and the cultivation of sound information ethics. The content of information literacy education encompasses information awareness, information capability, and information ethics education, among other components.

2. Definition of Cloud Library

2.1 Origin of Cloud Library

The concept of the cloud library was first articulated as a preliminary idea. Jason Griffey wrote in *Net Connect* magazine: "Future libraries will differ from existing ones, with their primary purpose being information storage and data management, as well as providing venues for user interaction. The library's content and services will reside in cloud storage, and such libraries will be called 'cloud library' entities, with the resulting librarians being termed 'cloud librarians' [1]." This marked the first proposal of the cloud library concept. The formal introduction of this concept occurred in 2011 through a program planned and implemented by the OCLC Research Center in conjunction with a consortium of other digital libraries, which primarily investigated the feasibility of outsourcing the management of printed materials in libraries.

2.2 Core Concept Definition of Cloud Library

Currently, there is no unified understanding of the cloud library definition domestically or internationally, though several scholars have proposed definitions. Wang Hong defines it from the perspective of cloud computing technology, arguing that cloud libraries rely more heavily on the Internet to provide more comprehensive and systematic library services, including book borrowing, digital literature retrieval, virtual consultation, and more. Supported by cloud technology and integrated with the Internet, cloud libraries closely combine library equipment, digital resources, data information, and users as a database stored in the network, providing cloud services to the general public. Through this storage service, resource retrieval and collaborative sharing platforms can be constructed, allowing library users to experience physical services while simultaneously accessing various types of information from network resources anytime, enabling convenient operation. On-demand service represents a novel experience for users. The author believes that cloud libraries represent the main direction of future library development. Relying on cloud computing technology, multiple resources can be collaboratively built and shared on cloud platforms, facilitating users' access to different types of resources. Users can complete access to and utilization of library information through mobile clients, tablet computers, and other devices.

3. New Challenges Facing Information Literacy Education

3.1 Information Literacy Education as an Inevitable Path to Information Sharing

Possessing sound information literacy is key to success. It requires not only that readers have strong abilities to collect and analyze information but also that they master the latest network technologies to better utilize library resources. Therefore, implementing information literacy education is not only a method to

promote learning but also an important means to drive learning success, becoming a crucial tool for fostering academic achievement. With the changing times, information literacy education has been widely applied across various industries and professions. It not only enhances people's information sharing capabilities but also provides a solid foundation for achieving societal informatization [2]. Through this approach, we can not only better understand our own culture but also better satisfy our information needs, making important contributions to national development in scientific research, industry, agriculture, and other fields, and making positive contributions to human prosperity.

3.2 Changes in Information Environment Require New Teaching Models for Information Literacy Education

The rapid development of computers, networks, and communication technologies has brought tremendous changes to how information is acquired, organized, and transmitted, with computers becoming the primary tool for information acquisition. The cultivation of information literacy has far exceeded the scope of traditional library education and general literature retrieval and services. One of its educational objectives is to enable readers to adapt to "resource-based learning," which uses various real-world information resources existing in the information society as learning tools and utilizes these tools for information access and retrieval, organization, and evaluation to achieve learning goals. To accomplish this objective, existing teaching models must be innovated, with greater emphasis placed on information literacy education and the cultivation of student readers' learning abilities. Gradually permeating teaching and readers' learning and research through network platforms, mutual cooperation between librarians and full-time teachers is becoming the main trend in future information literacy instruction.

3.3 Cultivation of Autonomous Learning Becomes the Directional Goal of Information Literacy Education

University libraries possess a unique readership, as these users typically consist of faculty and students from within the institution. Universities should strengthen the cultivation of their information literacy, as beyond possessing adequate knowledge, they need to establish sound learning patterns [3]. Student readers should select the most suitable sources of reading based on their own circumstances, thereby unleashing greater innovative potential. As library professionals, we should focus on improving student readers' skills in information collection, processing, and analysis, as well as enhancing their information awareness and techniques. We should strive to unleash their potential and enhance their creativity. By improving their information literacy, we can help them better meet future challenges and thereby better fulfill our responsibilities.

4. Analysis of Advantages in Information Literacy Education for University Library Readers

4.1 Information Resource Advantages

First, richness. With societal progress, university libraries continuously invest substantial financial resources to meet growing social demands. These investments have made library collections increasingly abundant, spanning from print to electronic, from traditional to modern. The diversity and richness of literature resources have surpassed those of other departments and institutions. Consequently, university libraries are highly suitable venues for providing information literacy education.

Second, rarity. University libraries are important pillars of institutional development, possessing rich literature resources including out-of-print documents, audio-visual materials, patent documents, theses, and more. The value of these resources far exceeds traditional information acquisition methods and holds extremely high historical and social significance.

Third, convenience. With the rapid development of computer and network technologies, major university libraries across China are vigorously promoting information automation and network construction, making it more convenient and efficient for readers to consult and acquire information resources in libraries.

Fourth, extensibility. With technological advancement, an increasing number of modern electronic resources have emerged in university libraries. This not only provides readers with abundant resources but also offers strong support for enhancing educational levels. For example, the adoption of various multimedia auxiliary systems, computer network resource systems, and globally unified digital resource systems all provide powerful guarantees for improving education.

4.2 Information Environment Advantages

First, excellent information atmosphere. University libraries possess high-quality learning environments, including specialized stacks, electronic reading rooms, and study areas, providing comprehensive services to readers. With beautiful environments, efficient management, and convenient education, readers can more easily acquire knowledge and cultivate sound information awareness, thereby better achieving self-actualization [4].

Second, strong information education capabilities. With the development of new information technologies, university libraries possess outstanding information education capabilities, including rich practical experience, proficient mastery of information retrieval, analysis, and utilization technologies, and strong service consciousness, thereby providing readers with high-quality information literacy education.

4.3 Information Technology Advantages

First, strong technology. In this era, university library facilities have become relatively complete and possess inclusive, shared advanced technologies. They can not only obtain information from various channels but also receive support from government agencies and industry associations, and utilize these advanced technologies to meet the learning needs of student readers.

Second, digitalization. Many university libraries have begun adopting digital, online, and cloud-based methods to provide information resources. Through well-developed online education functions, readers can easily access library collections from home and conduct information downloads and consultations.

Third, sharing. By establishing and improving cooperative alliances among major university libraries and fully utilizing the latest technological means, information resources can be shared and exchanged, thereby providing readers with richer learning resources and knowledge.

5. Cloud Library Service Models

5.1 Information Resource Integration Model

Cloud libraries utilize information storage platforms to optimally integrate various resources from library collections onto a single platform, achieving unified management within the platform to provide readers with more diversified service models. Through the Internet, resources can be effectively extended, facilitating user operation. Therefore, in the process of providing various information services, libraries must first optimize and integrate all types of information resources and avoid redundancy as much as possible to provide better and faster services to readers. The integration of cloud library information resources involves effectively consolidating bibliographic indexes, electronic resources, and databases stored in various areas of the library. This consolidation process includes refining the user interface, aggregating data resources, and optimizing information systems. Simply put, it involves integrating various information elements in the user interface to form a complete user interface; aggregating data resources means unifying various types of database resources within the library, eliminating overlapping portions, and forming a unified library catalog; system integration involves optimally consolidating scattered collection resources throughout the library to resolve information discrepancies between different systems.

5.2 Personalized Service Model

Through cloud libraries, targeted services can be provided to readers to meet their diverse needs. The personalized service model of cloud libraries refers to providing tailored services to readers at different stages and with different needs, centered around the user. In this service process, information push is the primary method. Cloud library push services refer to exploring diversified push

services based on different readers' needs and characteristics, using information technology to automatically integrate various types of knowledge and deliver it to the user interface. This personalized service is completed in two stages: First, readers must express their reading needs by filling out requirement information on the user interface, including basic personal information, types of information of interest, expected service times, etc. Second, the cloud library will aggregate and integrate the information provided by readers, select required content from the database, and deliver it to readers through push technology to meet their personalized needs.

The personalized service model of cloud libraries possesses strong proactivity. By setting up personalized services, information needed by readers can be delivered to the cloud interface without requiring users to conduct their own searches. Readers only need to filter and apply the pushed information. Through cloud library personalized services, library service types can be improved and perfected, thereby achieving one-stop library services.

6. Information Literacy Education Strategies for University Libraries in the "Internet+" Inclusive Sharing Era

6.1 Timely Update Educational Concepts and Establish Librarian Cloud Service Skills Competitions

On one hand, library-related educational concepts must be updated promptly. University education serves as the primary pathway for cultivating librarians' comprehensive qualities. During the development and construction of libraries, it is necessary to seek connection points between cloud library talent demand structures and talent cultivation models, promote the integration of library education and technology, and particularly emphasize training in network information processing skills to cultivate cloud librarians adapted to the new environment. On the other hand, cloud service skills competitions should be established in a timely manner. The function of librarians is to provide services to readers, and cloud service skills are the main characteristic of their work. By establishing diverse cloud service skills competitions, the enthusiasm of both librarians and readers for learning can be fully mobilized. Competition content should be created based on the needs and functions of different services, including theoretical knowledge, practical operations, etc. The focus should be on professional and skills-based training to create modern library talent with deeper theoretical foundations and proficiency in practical operations.

6.2 Build a Diversified, Multi-level Information Literacy Education System

First, the orientation stage. The orientation stage is tailored for incoming freshmen, aiming to help them master basic knowledge about the library, better understand the library's value, and more clearly comprehend how to effectively utilize resources, thereby enhancing their self-management and self-development

capabilities and improving their information skills. Through comprehensive promotion of the library, including its collection status, borrowing methods, opening hours, services provided, book classification and arrangement, and relevant regulations, readers can more easily and effectively master and use the library's information resources.

Second, the introductory stage. This stage focuses on helping undergraduate students master basic information processing skills. We provide these student readers with information about different types of resources based on their academic majors. With technological development, we hope that through this stage, more student readers will master how to correctly process information and protect their privacy. To better help student readers learn how to filter out the highest quality content from numerous materials, we have specially launched a series of literature retrieval courses aimed at helping them extract the most valuable content from vast amounts of materials.

Third, the advanced stage. This stage is specifically designed for undergraduate and graduate student readers, aiming to help them more effectively collect, organize, analyze, and utilize various types of information to more effectively complete graduation projects, thesis writing, internships, and other tasks, while also enhancing their capabilities to more effectively accomplish future workplace responsibilities. By continuously providing real-time, comprehensive, and diverse information, this stage helps these readers deeply understand the current economic and social environment, enhance their knowledge reserves, improve their comprehensive adaptability, strengthen their sense of community responsibility and awareness, and develop their overall capabilities, thereby enabling them to excel in future careers. Learning is a continuous process, and autonomous learning is the key [5]. Therefore, universities should pay special attention to cultivating student readers' awareness of autonomous learning, giving them opportunities to integrate the concepts of "learning knowledge" and "knowing how to learn" into their own studies.

6.3 Establish a Comprehensive Information Literacy Education Model

First, orientation education. Primarily aimed at new student readers, also known as enlightenment education, the focus is on cultivating freshmen's information awareness, helping them understand how to use the library, and learning to utilize it efficiently. First, libraries should pay special attention to the "primacy effect." Upon enrollment, libraries should hold special lectures on "How to Use the Library Efficiently for Learning," using multimedia demonstrations and on-site tours to introduce students to various library resources and services. Second, produce new student library navigation videos and post them on the library homepage for convenient viewing. Third, compile the *Library User Manual* and distribute it to students across all colleges and majors.

Second, curriculum education. Through the principle of "teaching a man to fish" and literature retrieval courses, students can deeply understand and mas-

ter the transformation of theoretical knowledge into specific operations, making student readers' minds more flexible and enabling them to more effectively apply this knowledge, thereby obtaining lasting, beneficial, and effective information literacy. To improve student readers' information literacy, libraries should actively promote literature retrieval courses, continuously improve and refine teaching content, enhance teaching methods, and cultivate student readers' self-management and creativity, thereby achieving an efficient information literacy cultivation model.

Third, special lectures. Through three special lectures, we can convey the most important knowledge and topics to faculty and students in a concise and understandable manner within a limited time frame. This is one of the most effective methods of information literacy education. Experts, scholars, and professors from different fields can provide guidance to readers from both professional and non-professional perspectives, helping them broaden their horizons and enhance their knowledge base, thereby effectively improving their information literacy and skills. When organizing special lectures, libraries should fully consider readers' individual needs and provide them with the most needed and most interesting information possible, enabling them to benefit and achieve better learning outcomes.

Fourth, online education. Libraries can leverage the Internet to actively build online information literacy education platforms, facilitating autonomous learning for faculty and students. Libraries can also create special columns for information literacy education, uploading relevant resources such as literature retrieval courseware, digital resource usage guides, and new student orientation PPTs for students to browse and learn independently. They can establish hyperlinks to subject-specific information resources on the library homepage to help students retrieve relevant materials purposefully and selectively. Libraries should guide students to use MOOCs and online high-quality courses related to information literacy education for self-study. They can set up VOD servers to enable on-demand access to information literacy education video resources. They can utilize blogs, BBS, and other Web platforms to collect and publish articles related to information literacy education and use the communication functions of blogs and BBS to interact with students. They can use instant messaging tools such as QQ and WeChat to provide online consultation services, answering questions for students at all grade levels. When conditions permit, libraries can also implement online information literacy education by introducing platforms such as WebCT and Blackboard.

6.4 Strengthen Communication and Cooperation with Other University Departments

First, collaboration with the Academic Affairs Office. To more effectively enhance information literacy, we recommend conducting deeper practical activities outside the classroom and require libraries to maintain close communication with the Academic Affairs Office to integrate this work into relevant curricula.

This will enable us to establish an effective and unified atmosphere that promotes the development of library services. According to the current educational environment, universities should incorporate information literacy education into the educational system, making it an important component of education and requiring educators to disseminate and promote it more widely. Therefore, universities should establish a comprehensive information literacy education system, providing relevant education on computer fundamentals, information resources, and legal information, as well as practical education on information technology from freshman to senior year to enhance the comprehensive qualities of student readers.

Second, cooperation with research departments. By strengthening the cultivation of information literacy among student readers, we hope to help them apply theoretical knowledge in practice and continuously engage in reflection, practice, and re-practice during the practical process to improve their capabilities. Therefore, we recommend establishing a favorable information literacy cultivation platform on campus so that student readers can continuously enhance their abilities through practice. To better accomplish research tasks, we suggest that student readers transform their professional knowledge into practical work [6]. For example, we can allow readers to collect data on topics they wish to explore themselves and try using various collection tools. Additionally, we can encourage readers to investigate topics of interest and attempt new collection tasks to cultivate their information processing skills.

6.5 Emphasize Library Staff Development and Improve Librarians' Information Literacy

First, improve librarians' comprehensive qualities. To meet the needs of institutional development, we should strive to cultivate and improve librarians' professional skills and abilities. This requires librarians to possess not only good professional skills but also a strong educational mission and the ability to serve as positive role models for faculty and students. To better promote the inclusive sharing of cloud libraries, we must cultivate a team with good professional ethics. This requires not only meeting the professional skill requirements of the Internet era but also implementing reward and penalty measures to encourage them to work harder in related tasks. To better leverage the library's role, it should be built into a learning community, creating an environment that stimulates librarians' learning, enabling them to better realize their potential, actively explore new knowledge, and learn new skills to better meet community needs. A series of learning activities should be arranged for librarians to help them acquire the latest knowledge and share it with more people, thereby enhancing the library's comprehensive capabilities. To promote librarians' professional development, we should strongly support them in various educational and research activities to enhance their professional qualities and cultivate their application abilities.

Second, strengthen the construction of information literacy education teaching

staff. Enhancing the dissemination capabilities of information technology and knowledge and cultivating excellent teaching talent to achieve national development and ethnic rejuvenation is the common pursuit of all educators. Teachers are important components of educational theory, curriculum content, and methods—all of which are indispensable. Implement effective measures to ensure optimal results for library information literacy education. Among these, an important method is to strengthen teacher training to ensure they possess strong professional competence. This requires establishing a robust evaluation system and effective reward and penalty measures during implementation to promote teachers' continuous improvement. Additionally, we should actively promote reforms to literature retrieval courses [7], giving teachers more practical opportunities, such as participating in professional seminars, practical inspections, and hands-on activities, and actively engaging in cloud library research to deeply explore its connotations, investigate best practices, and apply them in practice to improve teaching quality. Literature retrieval course teachers need to seize all favorable opportunities to actively conduct exchanges with other departments, actively engage in project exploration, strive to obtain valuable information, thereby enhancing their professional skills and effectively promoting their own development. Furthermore, universities should actively support teachers in conducting research, allowing their achievements to contribute to curriculum development and achieving a win-win situation.

7. Conclusion

In summary, information literacy education represents the development, transcendence, and innovation of university libraries' original functions within the information society under the backdrop of big data and cloud computing. It is gradually becoming an important development direction for future library resource sharing and services. To continuously adapt to new environments and situations, university libraries have an unshirkable responsibility in information literacy education. They must constantly innovate educational models, methods, and approaches, improve the information literacy of all types of readers, and cultivate more quality-oriented, comprehensive, high-end, and innovative talents, providing inexhaustible momentum for the healthy and sustainable development of the national and social economy.

References:

[1] Lian Lijun. Research on the Construction Path of an Innovative System for Subject Information Literacy Education in University Libraries[J]. Journal of Hebei United University: Social Science Edition, 2017(1).
[2] Xing Zhi. Analysis of Cloud Service Platform Construction Methods for University Libraries Under the Background of Big Data[J]. 2019.
[3] Kuang Yun. Research on Service Models of University Libraries Under the Background of Big Data[J]. Journal of Hubei Correspondence University, 2018, 024(024): 62-63.

[4] Wang Ye, Hou Wanfeng, Liu Xuezhu, et al. Innovative Research on Information Literacy Education in University Libraries Under the MOOC Background[J]. Information Recording Materials, 2018, 19(12): 2.
[5] Zhang Tong. Discussion on Strengthening the Education Model of Readers' Information Literacy in University Libraries Under the Background of Big Data[J]. Contemporary Education Practice and Teaching Research, 2019(17): 41-42.
[6] Zhao Jun. Exploration of Information Literacy Education in University Libraries Under the "Internet+" Background[J]. Industry and Science Forum, 2021, 20(13): 2.
[7] Qiao Yuqing. Innovation in Subject Services of University Libraries Under the Background of Big Data[J]. Education Observation, 2018, 7(7): 3.

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Note: Figure translations are in progress. See original paper for figures.