Research on the Operation and Development of Knowledge Bases in Higher Education Institutions

Xiaoping Zhang

China University of Geosciences (Beijing) Information Network and Data Center, Beijing 100083, China

Abstract: The knowledge base of university institutions is an important way to collect and store academic literature, promote the development and dissemination of scientific research achievements, and also an important institution to promote the development of university education and scientific research. It is of great significance for universities to achieve sustainable development. In this regard, this article provides a brief analysis of the operation and development of university institutional knowledge bases, hoping to provide valuable reference and guidance for readers.

Keywords: Universities; Institutional knowledge base; Function; Development

Currently, with the continuous improvement of China's economic strength and the increasing emphasis on the field of education, the knowledge base of university institutions has gained a vigorous development trend. Its quantity is showing a high-speed growth trend, and it has gradually become one of the main bodies of disseminating academic knowledge from the academic periphery. According to OpenDOAR statistics, over 2000 knowledge bases have been created internationally, and the number of institutional knowledge bases is gradually increasing. Compared with developed Western countries, the development of China's university institutional knowledge base is relatively slow and still in its initial stage. There is still great room for progress in both institutional aspects, theoretical research, and practical aspects.

1. Analysis of the significance of institutional knowledge base

Currently, institutional knowledge bases are showing a thriving trend globally, which has also brought profound impacts. This article provides a brief analysis of the importance of institutional knowledge bases from both macro and micro perspectives.

From a macro perspective, firstly, the operation and development of institutional knowledge bases have important practical significance in promoting the reform of academic exchange systems. Institutional knowledge base is an important channel for collecting and storing academic materials, promoting the dissemination of academic and research achievements. Its operation and development greatly promote academic exchange and development worldwide, enabling experts, scholars, and other personnel to access cutting-edge information, thereby promoting the reform and development of the academic exchange system. Secondly, the operation and development of institutional knowledge bases accelerate the speed of information exchange, promote collaborative research and scientific knowledge innovation. The earlier scientific research achievements, technological innovation, and other information are known to peers, the faster the knowledge and research innovation in this field or interdisciplinary fields will also be significantly improved. Once again, the operation and development of institutional knowledge bases can effectively enhance their academic status in a certain field and build academic brands. The relationships between academic institutions are relatively complex, with close cooperation and intense competition between them. The construction and development of institutional knowledge bases can lay a solid foundation for enhancing the academic status of a certain field and building academic brands.

From a micro perspective, the construction and development of institutional knowledge bases also have a positive impact on the development of scholars, expanding their personal achievements and significantly enhancing their academic influence. In the past, scholars had relatively limited channels to obtain academic research, mainly through relevant academic journals. However, due to factors such as the prices and publication cycles of these journals, the quality of academic exchanges was seriously affected. Scholars publish and publicize their research results with the main purpose of communicating and exchanging ideas with peers, while also promoting the development of scientific research in related fields.

Secondly, the operation and development of institutional knowledge bases also provide scholars with a storage base for research results, which is convenient for scholars to store and track the dynamic development of cutting-edge scientific research information, expanding their own perspectives. In the past, scholars' research achievements were scattered and published in different academic journals, and relevant information was stored in personal computers. Once equipment loss or malfunction occurs, it will cause certain obstacles to academic research and also hinder scholars from accessing current scientific research trends. And institutional knowledge bases can provide scholars with a secure storage base for scientific research information. Scholars can store their research data for a long time and permanently open for use, and their value is also continuous.

2. Analysis of Problems in the Construction and Development of Knowledge Bases in Higher Education Institutions

2.1 Insufficient cognition and weak awareness of open access

After practical investigation by the author, it was found that many universities in China are actively building their own institutional knowledge bases. However, due to the relatively late development of institutional knowledge bases in China, the concept of open access

has just emerged. Although the public has a certain understanding and knowledge of knowledge bases, it is still not comprehensive enough, resulting in the use of knowledge bases not being widely disseminated. At the same time, the resources available for knowledge bases are relatively limited, and the types of resource content are relatively single. After practical investigation by the author, it was found that the resources in the institutional knowledge base are mainly research papers, lacking experimental data, degree theses, research courseware, and other content. Chinese university libraries are important institutions for carrying out educational and teaching work in universities, as well as important guarantees for scientific research in universities. They store a large amount of academic research results and experimental research data, and universities can use this as a basis to build unique knowledge bases. However, despite the increasing number of institutional knowledge bases in China, only a dozen or so universities in the district have participated in the construction of the knowledge base, and the scale is relatively small. The public's browsing volume of the knowledge base is also relatively low, leading to the dilemma of "having cars but no stations, having stations but no cars".

2.2 Problems in quality control of institutional knowledge base

The institutional knowledge base can provide a secure and stable storage base for scholars, and its openness allows users to upload various resources without restrictions. And there are certain differences between academic journals, as the knowledge base does not have an expert review or peer review system. Therefore, compared with traditional academic journals, knowledge inventory has a certain disadvantage. The relevant resources have not been reviewed through authoritative and effective evaluation procedures, resulting in uneven quality of resources in the knowledge base. The quality of knowledge resources cannot be effectively controlled and managed, especially for preprint papers. As long as they meet specific standard formats, authors can upload them to the knowledge base without strict review of the scientific and accurate nature of these data. Therefore, the quality control of institutional knowledge base resources has gradually become one of the main reasons limiting the sustainable development of knowledge bases. It is crucial to develop different quality control methods and evaluation systems for different types of resources.

2.3 Lack of policy and funding support

The construction and development of institutional knowledge bases have important practical significance for the development of higher education. However, after investigation, it was found that the development of knowledge bases in Chinese universities is still limited by policies and funding. For institutional knowledge bases, policy support is an important driving force for their development. However, after investigation, it was found that China has not officially formulated policies and systems for building institutional knowledge bases, which seriously affects the development of institutional knowledge bases. In this regard, it is necessary for each construction unit to strengthen publicity work, increase publicity efforts, and formulate and improve relevant incentive policies to attract users to upload their academic knowledge resources to the institutional knowledge base. Meanwhile, funding issues are also one of the main factors limiting the construction and development of institutional knowledge bases. The construction of a knowledge base, selection, use, and maintenance of hardware equipment, as well as the hiring and training of relevant personnel, all require significant expenses. Therefore, it is necessary to increase investment in financial resources to ensure the construction and development of institutional knowledge bases.

2.4 There are certain issues with intellectual property rights

In the process of constructing and developing institutional knowledge bases, the issue of intellectual property rights has always been one of the continuously explored issues in the academic and practical fields. In order to build institutional knowledge bases, ensure their sustainable development, and provide good services for scholars, institutions, etc., it is necessary for relevant institutions, publishers, and users to have in-depth communication, explore and formulate scientific and reasonable copyright policies, in order to ensure that the intellectual property rights of all parties are not infringed upon; In addition, academic achievement providers should consciously abide by intellectual property law and Internet related laws and regulations in addition to submitting relevant academic achievement resources by themselves. To ensure that knowledge resources do not violate current laws and regulations. As the main builder of the knowledge base, relevant institutions should also rigorously review the content submitted by users. Although the institutional knowledge base emphasizes that the content is mainly academic information, it is necessary to require knowledge submitters to comply with relevant laws and regulations because knowledge submitters can submit relevant content on their own, and the current quality control measures of institutions are relatively limited.

3. Strategies for Building Knowledge Bases in Chinese Higher Education Institutions

3.1 Strengthen the publicity work of institutional knowledge base construction and expand the channels for collecting information resources

Currently, some universities do not have a comprehensive understanding of institutional knowledge bases and have not recognized their important role. And compared with developed Western countries, Chinese universities started relatively late in the construction of institutional knowledge bases and are still in the initial stage. Therefore, it is necessary to strengthen publicity and promotion work, and enhance public awareness and understanding. By conducting knowledge base training, special lectures, and building institutional knowledge base websites, more scholars, researchers, teachers, and others can understand the operation mode of knowledge bases and the role of promoting academic information exchange. They can be encouraged to actively participate in the construction of knowledge bases, provide them with a large amount of high-quality content, and become advocates and builders of knowledge bases. Institutional knowledge base is a self storage base. Its construction will be the practical application of the concept of WEB2.0 in some ways. WEB2.0 tends to pay more

attention to the interaction between users and the WEB on the browser. It is the Internet with users as the core. Users are not only the builders of website information, but also the consumers of website information. They are the "participation" and "interaction" of users.

3.2 Strictly control the quality of knowledge resources and improve the resource evaluation system

Currently, unlike traditional academic journals, institutional knowledge bases are more open and do not have expert review or peer review processes. Users can upload their already formed or yet to be formed knowledge resources, which also leads to ineffective control of the quality of related content. Only by ensuring high-quality resources and more scientific and accurate content in the knowledge base can the role of the knowledge base be fully utilized and better services be provided to the public. Therefore, it is necessary to strengthen resource control work. Institutional knowledge base managers should have a certain level of academic literacy and relevant disciplinary background. They should not only ensure that the content of the knowledge base is scientifically reasonable, but also have certain review and evaluation skills. They should review the quality of uploaded resources, especially for unpublished gray literature, such as experimental data, conference literature, preprints, etc., and strictly control the quality. Resources that do not meet relevant requirements are not allowed to enter the knowledge base. At the same time, staff should also selectively establish and improve evaluation mechanisms based on actual situations, regularly organize experts to evaluate the quality of relevant resources, and improve the resource evaluation system through various methods to enhance the quality of knowledge base resources.

3.3 Develop relevant copyright policies and address intellectual property issues related to uploaded resources through multiple channels

The intellectual property issue of uploading resources has always been an important factor limiting the construction and development of institutional knowledge bases. For publicly published literature, academic achievements, and other resources, as the author does not have clear restrictions on copyright issues, the author still enjoys the copyright of the resource. Therefore, the author has the right to submit their own resources to the knowledge base; With the reform of the publishing system, the issue of copyright ownership among authors, publishers, institutions, users, etc. has become more prominent. Therefore, how to smoothly solve the problem of copyright ownership has become one of the important issues affecting the construction and development of knowledge bases. In this regard, the government should formulate and improve policies and laws and regulations on intellectual property to ensure the smooth resolution of intellectual property issues. At the same time, institutions should also establish copyright licensing agreements and digital rights management mechanisms in the knowledge base submission system, and set control over user permissions based on different resource types, including agreements between institutions and users, institutions and authors, publishers and institutions, and authors, to ensure that the content submitted by authors does not violate or infringe on the copyright of others.

Conclusion

In summary, the institutional knowledge base in China is still in its early stages, and some universities and institutions have not fully recognized its important role. In order to promote the construction and development of knowledge bases in university institutions, it is necessary to fully recognize the existing problems and adopt various methods to handle and solve them according to the actual situation, so as to promote the construction and development of knowledge bases, promote scientific exchanges and technological cooperation, and provide high-quality services for university teachers and students.

Reference:

[1]Fujita L S M ,Tartarotti D C R ,Dal'Evedove R P , et al. The indexing policy in the practices of Brazilian institutional repositories: A diagnostic study from the perception of managers and indexers[J]. Journal of Librarianship and Information Science,2024,56(2):424-442.

[2]Posigha B E ,Eseivo O L . Content recruiting: Obstacle to institutional repository development in university libraries in Nigeria and South Africa[J]. Information Development,2024,40(2):173-189.

[3] Yue Che. Research on Semantic Knowledge Base Caching Technology for Semantic Communication [D]. Beijing University of Posts and Telecommunications, 2023.

[4] Hui Li. Data organization and management of scientific research achievements in universities based on institutional knowledge bases [J]. Journal of Library Science, 2022, 44 (05): 53-59.

[5] Min Ma, Zhiyi Shao. A Review of Research on Institutional Knowledge Bases in China from 2010 to 2019 [J]. Henan Journal of Library Science, 2022, 42 (05): 122-126.

[6] Guobin Chen, Dongmingv Lu, Yanqi Cheng. Design of Academic Resource Collection System in Universities [J]. Journal of Sun Yat sen University (Natural Science Edition), 2009,48 (S1): 207-209.