DEVELOPMENT OF INSTITUTIONAL REPOSITORIES IN CHINESE UNIVERSITIES AND THE OPEN ACCESS MOVEMENT IN CHINA

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Abstract

The number of research articles about Open Access (OA) and Institutional Repository (IR) has grown quickly in recent years, while Chinese universities move slower than their western counterparts. There are only a few experimental institutional repositories (IRs) now, and no explicit campus-wide policies towards open access have been proclaimed. This paper will describe the status of the OA movement in China, and mainly focus on institutional repositories in Chinese Universities. Factors that hinder the development of OA will be discussed; meanwhile we will give some suggestions for constructing IRs in Chinese Universities.

Keywords: Open Access; Institutional Repositories; Chinese Universities.

1.   Introduction

Since The Budapest Open Access Initiative (BOAI) was launched in February 2002, the Open Access movement has developed rapidly around the world, especially in developed countries. As open access grows in prominence, there are many disputes and misunderstandings about this issue. In this paper, the term 'open access' means the free availability of peer-reviewed literature in the public internet, permitting any user to read, download, copy, distribute, print, search, or link to the full texts of the articles [1].

The Green OA road allows authors to self-archive their peer-reviewed articles in an institutional or other kind of repository. The Gold road means that authors publish their article in journals that are also peer-reviewed but are open access for readers. Their costs are covered in a different way from traditional journals, usu-

ally through publishing fees. These fees can be covered by research grants or by the author's institution. OA can increase the usage of academic papers, and noticeably enhance the academic impacts of authors and their organizations.

As Clifford Lynch defined it, an IR is "a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members" [2]. The two main goals of IR services, among others, include preserving the intellectual output of the institution and making it widely accessible to members of the general public.

The current faculty promotion and tenure process highly relies on the impact factors and citations of SCI- and/or EI-indexed scientific papers. Therefore, most high impact or high quality papers in China are published in English and only reach a limited local audience for language and access reasons. Thus, universities and research institutes in China should have more incentives to promote and support OA. However, the overall development of OA and IRs in China still lacks significant progress, especially in Chinese universities.

2.   Support for OA and IR research

One of the most important funding agencies for fundamental researching activities in China, the National Natural Science Foundation of China (NFSC) has assigned some projects to research open access related issues. For example, the National Science Library (NSL), Chinese Academy of Sciences (CAS) started a project called "Research on Operating Model and Policy Mechanism for Open Access of Science and Technology Information" in 2006.

The Ministry of Science and Technology (MOST) also supported a few OA-related projects to research Intellectual Properties and other issues about OA. Other funding agencies, such as the National Social Science Fund (NSSF), also supported OA-related research projects.

In the summer of 2007, the Center for Science and Technology Development (CSTD) of the Ministry of Education (MOE) started a special fund called FSSP (Special Fund for Fast Sharing of Science Paper in Net Era). The FSSP fund supported 20 projects that year and continued to support another 20 projects in 2008. This paper also originates from a FSSP funded project.

3.   Literature Study

To better understand the development trend of OA and IR in China, we investigated literature written in Chinese, mainly through searching the China Academic

Journals Full-text Database (CAJ) (www.cnki.org). For institutional repositories in Chinese universities, we also confirmed detailed information through phone interviews with several insiders.

There are two different Chinese translations for Open Access. Given that almost all academic papers written in Chinese have an English name and abstract in the database, therefore we used the English words "Open Access" to search in "Title" with an "exact match" option. Searching covered all journals in the database. For the same reason, we searched "institutional repository" and "institutional repositories" in the "Keyword" section instead.

Table 1. Published OA and IR research articles in CAJ database per year.

Year	No. of OA Articles	No. of IR Articles
2003	0(1)	0
2004	2	1
2005	29	4
2006	55	14
2007	66	21
2008	69	42
Total	221	82

In fact, the first information about OA came from a conference summary on Library Science and Informatics Dynamics, an internal magazine at that time, in 2003. Thus, we highlighted this fact in brackets. In June 2005, The International Conference on Strategies and Policies on Open Access to Scientific Information conference was held in Beijing, attracting significant attention and causing rocket soaring of OA research papers. This high rate of paper writing continued until the end of 2006.

The first paper introducing the concept of institutional repository in China was published in 2004 [3]. The total number of IR research papers is less than those for OA. Of course, OA can be discussed more broadly than IR. The latter is more about implementation and practice.

The iPRES (International Conference on Preservation of Digital Objects) conference was held twice in Beijing, in 2004 and 2007, respectively. Thus, we can expect more articles about IR in the future, with more repositories to be established.

4.   Institutional Repositories in Chinese Universities

The aim of the OA movement, and the consequent IR implementation, conforms to the mission of universities, including creation and dissemination of knowledge. In western countries, universities have always been one of the key players in open access publishing. In particular, they take an active role in author self-archiving: universities provide many of the open access repositories to which authors can post articles destined for or published in subscription-based journals [4]. However, Chinese universities act slowly.

There are 27 Chinese IRs registered at the ROAR site, separately listed under China (mainland), Hong Kong, and Taiwan. Among them, three are from Hong Kong universities. Sixteen comes from Taiwan, with 15 being university IRs.

There are only 9 registered IRs from Mainland China, while only 3 are from universities and one was abandoned. Xiamen University IR, as the earliest and most established one, has only 3,432 records. In fact, the Xiamen IR is still in an experimental phase without an OAI-compliant interface yet. By searching and telephone interviews, the author found another 4 experimental IRs in Chinese universities, which are also shown in Table 2.

Table 2. Institutional repositories in mainland Chinese universities.

	Institution	URL	Alive	Status	Records	Note
1	Xiamen University	http://dspace.xmu.edu.cn/	Yes	Exp	3,432	Registered
2	Zhejiang University	http://dspace.zju.edu.cn/	Yes	Exp	11	Registered
3	Beijing Univ of S&T: Physics Prints	http://202.204.49.252/ustben/	NR			Registered, Abandoned
4	IR @Tsinghua	http://oaps.lib.tsinghua.edu.cn/	Yes	Exp	463	
5	PKUSpace	http://www.pkuspace.com/	Yes	Exp	NA	
6	Embedded System Lab@USTC	http://embedded.ustcsz.edu.cn:8080/dspace/	Yes	Exp	927	
7	Shijiazhuang University	NA	NR	Exp	NA	Internal Test Only

Note: Exp:Experimental; NR: Not Reachable; NA: Not Available.

5. Discussion

The institutional repository serves as an infrastructure for a university's participation in the open access movement. Someone even considered that it was inevitable that most academic institutions would eventually deploy IRs to provide access to digital materials [5]. However, the development of OA in China, and more specifically IR construction in Chinese universities, is slow. Many factors contribute to this.

5.1. Education and Promotion

Researches show that most papers about OA are published in LIS journals, reflecting on the fact that awareness of OA is still low among general academic researchers. This leads to concept confusion and misunderstanding about OA and IR. For example, many people still do not know that OA conforms with traditional peer-review, which is the core for OA in order to be meaningful for academics. Many just confuse OA with BBS, Blog, Wiki, or other kinds of web applications that allow users to put their messages online without formal quality assurance.

The concept of institutional repository covers a lot of materials, including academic papers, theses, working data and other things, often closely related with content management and digital asset management. In developing countries like China, the author suggests that Chinese universities drive green OA deposit first by constructing IRs. In any case, general awareness of the concept and advantages of OA and IR is so important that there is still a lot of work to be done to promote OA and IR in China.

5.2. Government Policies

In all countries, government support is very important for any nationwide movement. The development of OA and IR in China is no exception. This suggests that education and promotion among government officials is essential [6].

Although national funding agencies in China have supported some research projects to investigate the OA phenomena, they have not stipulated any policies yet, whether suggested or mandated policies. Funding agencies should mandate that papers originated from their funds have to be deposited in institutional repositories within a reasonable period of time.

Furthermore, lack of close-loop control for government S&T funds, i.e. no sufficient supervision from taxpayers in China, may be another important reason.

5.3. University Policies

University administrators should be more aware of the benefits of having an institutional repository. In addition to increasing the scientific research impact and thus the reputation of the university, institutional repositories can also facilitate internal and external research assessment tasks, including faculty performance evaluation executed each year, enabling universities to continuously monitor and improve their own productivity and impact using old and new scientometric indices of research impact [7].

To streamline the deployment, developing policies is critical for an IR to set the goals and to communicate with various stakeholders, but the policies needed to be lenient and flexible [5]. The success of institutional repositories inherently depends on the participation of faculty, be it voluntary or mandated [8]. This requires more thorough understanding of Open Access, close cooperation between different departments, faculty, administrators, as well as well-planned policies and supporting infrastructure.

6.   Conclusions

Chinese universities, as the direct beneficiaries and potential contributors of OA, should learn experiences from their western counterparts, and participate more actively to drive the development of OA in China. According to the experience from the U.S., European and other western countries, construction of institutional repositories through an appropriate mandate policy is one of the most feasible ways to drive the development of Open Access in China. With carefully planned polices, institutional repositories can meet internal and external needs while avoiding complexities associated with other OA options.

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