Open Mind, Open Access: The New Development

of Resource Sharing in China

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In June 2006, National Library of China launched the "Open Access Repository of Library and Information Science (OARLIS)." Announcing its inauguration, the Repository stated its objectives as "to advocate open access concept, to advance open access practices and to promote dissemination and exchange of scholarly information." The Open Access Repository of Library and Information Science is probably the most recent occurrence of a Chinese response to the Openness movement that has gained increasing momentum in the western world.

The National Library's Repository is the fourth open access repository and the first disciplinary repository in China. Before that, there were three multidisciplinary open access repositories, namely the *Qiji wenku* preprint repository http://www.qiji.cn/eprint (2003), the *Sciencepaper* http://www.paper.edu.cn/index.html (2003) and the *China Preprint Service* http://prep.istic.ac.cn/eprint/index.jsp (2004). The *Qiji wenku* was the first, and was initiated by a group of young scientist as to follow the successful model of arXiv. The other two are both government-sponsored preprint repositories. The *Sciencepaper* have been experimental for more than three years. It is also the largest of the four. With financial support from the government, this repository now also publishes a print counterpart, and is accompanied by a similar repository for meeting and proceedings.

Recently, there have been intellectual and diplomatic activities to promote open access as well. In 2003 and 2004, China Scientists Delegate, led by the president of China Academy of Sciences, Lu Yongxiang, signed the Berlin Declarations to support open access to scientific information. The number of research articles on open access and related issues is on the rise. The heated interests in open access was marked by an endorsement of 70,000 Chinese dollars in 2005 to a grant proposal presented and led by Chen Li --the Associate Director of National Library of China and the advocate and mastermind of OARLIS-- to study open access and library services. The project, Open Access and the Future of the Library, was set to be completed in May 2007; and the result will be published in a book form. In that same year, the International Conference on Strategies and Policies for Open Access to Scientific Information was held in Beijing. Melissa

Hagemann of the Open Society Institute (OSI), and George Strawn of the National Science Foundation and Paul Uhlir of the U.S. National Academies were among the invited guests to speak in the meeting.

With all these promotional efforts, the Openness movement may seem well recognized and encouraged in China just like in the rest of the world. I should also note here that, since 1999, the Chinese government has started placing government information on their sites for access. It is easier than ever before to locate government information, documents and statistics -- both at the national level and at state levels. One would expect to see these efforts translate into the proliferation of open access contents, including open access journals, open access repositories and institute repositories. However, the development of the open access and open sources in China has been rather slow and the awareness; and the involvement of scholars in open access publishing has been rather dull. There are no open access journals aside from the twenty-some institutions that joined together to provide open access to institutional scientific journals of these institutions, initiated by the Academic Natural Science Journal Institute at www.oajs.org. According to Directory Open Access Repositories (DOAR), there are only two institutional repositories, both in Hong Kong. The OARLIS has loaded only about 25 articles since its launch in June 2006. *Qiji wenku* includes, as of March 10, 2007, 3220 articles in total; and the Preprint includes both Chinese and international repositories. The international one (SINDAP) is much more comprehensive than the domestic one, in which the [humanities subjects includes about several hundred articles. Only the *Sciencepaper Online*, the largest repository among the four, is receiving 500 articles monthly.

The slow development may be due to the technical or other design issues of the repositories. Three of them are multidisciplinary in nature, a model most commonly found in Institutional Repositories. However, the diverse subject coverage works for IR as it is limited to the scholarly publications from a given institution, but it does not really work for repositories in general, since it is too broad and lacks a focal point. These three repositories act more like data storage without a complete inventory, as each subject area includes papers from various random sources with no established review mechanism. Moreover, the services offered -- like providing data stamps for publications -- imply that these repositories serve authors more than consumers. Although there are well-defined subject areas, most of the areas do not have a sufficient supply of research articles to generate enough interest and traffic. Other issues include a lack of clear rights statement or guidelines. As Liu Haixia, Fang Ping & Hu Dehua's study indicates, 30.9% of authors surveyed do not use

the OA repository because of copyright issues. A relatively high percentage of people (38.1%) believed that free research Online may violate copyright laws. This study indicates a lack of knowledge about how to transfer or to negotiate rights with publishers. Among the four repositories, only *Qiji wenku* provides relatively clear instruction on copyright issues, such as how to reserve online rights when submitting papers to print journals. The other three only include a statement that the repository does not obtain any rights from authors, and authors are free to publish their papers anywhere else. There is no information about how to deal with the copyright issue, or where to find more information. This may discourage authors from posting their articles to the repositories. The concept of balancing the users' right to access information and the information creators' or holders' interest must also be fully understood. Sometimes, it is likely that authors do not have enough information about what to do. Other problems, such as broken links and lack of persistent accessibility, are also significant flaws of these repositories.

While these problems are crucial and require attention, the slow development of OA in China may be examined from more fundamental perspectives. In his article, Francis Heylighen attributes the success of OA development to the nature of the information, arguing that the incentives one needs to provide free information are relative few. The alternative economic model of OA is different from the conventional theory of marketing, as the OA model does not include incentives such as 'competition and marketing'. His economic model of OA development may as well be used to explain some of the reasons that why OA movement in China has yet to be developed.

Open source, open content and open access, as Chris Armbruster believes, "are set to fundamentally alter the conditions of knowledge production and distribution," [1] and lying at the core of the OA movement is the idea of information sharing and knowledge networking. According to Heylighen, information has a property of being *non-rivalry*, which means when one uses a particular piece of information, that transaction will not in any way preclude somebody else from using it at the same time. Once the information is made available on the internet, it is "intrinsically not a scarce good, as it can be replicated virtually without cost." However, information also has the property of *partial excludability*, which allows one to exclude others from using the same information through copyright laws for various reasons, such as competition. Before the "dot com" merged on the Internet, the information on the Internet was free and "the reigning culture among its

users was one of freedom, cooperation and sharing, not of competition and exclusion."[2]

The hesitancy to share information products for free can be explained with the concerns of "free rider" issues. We all take advantages of information that is open access and free of charge on the Internet. We do that very often without paying back intellectually or monetarily -- nor we make contribution to its improvement. But when many people begin to put their own information products up for free access-- i.e. an research article, a laboratory report, or a presentation --they might become more concerned with those 'free riders', wondering: what advantages can they take without working hard, while we have spent our time and energy, sometimes even money, to produce this information? Why should it be so easy for them? In Heylighen's theory, the OA development in many cases is "non-reciprocity" and the "free rider" issue should not be a problem, because of the alternative economic model of OA development.

Heylighen think that OA economics is different from conventional economic models of exchange. Instead of assuming that property rights are needed as an incentive for production, the OA movement has its own set of incentives that make people willing to share and network.[3] The incentives he listed are the factor that there is no or little cost for sharing information, the good feeling of contributing to the community, and the reputation gained in a given information community. In China, many institutions tie their grants to academic performance. Whoever gets the most grants will be benefited the most in promotion and, probably, also gain a greater reputation. The competition for grants is extremely severe. In this environment, scholars' willingness to share their ideas is relatively low. According to a recent study, among the scholars, 25.6% never even thought about putting their papers on Internet; and 30.9% were afraid that OA may encourage "free riders" or even plagiarism.[4] The "goodness" feeling from contributing to the community alone, though important, is not a strong enough incentive for people to openly share their ideas, research outcomes or scientific findings, since many are concerned the inappropriate use of their information, or the misuse of their information in competitions for grants, awards, etc. The incentives of OA need to be promoted and accepted in order to ensure the success of the OA movement in China.

Another reason that Heylighen thinks OA development will be successful is the social or organizational structure which he calls it "self-organization through stigmergy." He explains: "A process is stigmergic if the work (*ergon* in Greek) done by one agent provides a stimulus (*stigma*) that entices other

agents to continue the job."[5] In this modern paradox of OA, a sense of community and the collective efforts are two key elements. This community can be virtual, and members of the community can be any one from any where. When one member develops an idea, or posts his or her work, it may stimulate another member's idea or invite feedback in the end for a better outcome. Just now I am presenting a paper on China OA development, and my paper was stimulated by Heylighen's theory, which was put up on the Internet open access -- so this very work illustrates how productive 'self-organization through stigmergy' can be. Another good example of community building is *First Monday*, an open access journal devoted to digital and information networking. Many leaders of the field, like Cliford Lynch, publish their articles in this peer-reviewed online journal. In China, such communities have yet to be built. The OARLIS is a good attempt, but it needs more 'agents' to continue the job and to create a community around it. Perhaps change it into an online journal and peer-reviewing it might encourage its growth

The paradox of OA is that it also allocates recognition of individuals within the community. Those who display high quality work will gain authority within the community and attract more people to the community. Heylighen considers the allocation of recognition and feedback as the main driver behind the success of OA development. Recognition is an essential part of the feedback process. A journal needs to have a healthy and trust worthy peer-review system in place to give feedback that is meaningful and productive. In China, many publications do not have a peer-review process. In traditional journal publishing, the editorial board has the authority, and when such a board includes well recognized members its reputation becomes notable and trustworthy. However, in the OA scenario, all four repositories have no or little review system, so it takes more time to build trust around them. Authors use them mainly to get a stamp of their publication date. When there is little or no scholarly exchange, the incentive may be lost. Many studies have indicated that "development of a good reputation in the field is indeed concrete incentive for many open source developers."[6] Quality is the most important factor that can sway the reputation of an OA repository. To address this issue, the SciencePaper Online in 2005 added a function to allow ranking by viewers and began to establish a review system. *Qiji wenku* is also trying to address the quality issue of its repository. However because of the mutildisciplinary nature of these repositories, such a review process could be overwhelming.[7] The development of OA repositories or any type of OA sources in China requires building strong OA

communities and obtaining intellectual trust from both authors and users -- a goal which has yet to be achieved.

On the other hand, once a work is loaded to the site of a community, it is immediately scrutinized by the members of the community that are interested in it. This can generate discussions, attract critical analysis or receive friendly feedback. Not all people are readily willing to put themselves or their work under such a close examination, or to face criticism which eventually might enhance theirs works. One needs both courage and an open mind to do that. In China, because there is no well established peer-review system, the peer-review process often turns into an unnecessary scholarly argument in the best case scenario, or personal attacks in the worse. Many authors were afraid that their work might not be accepted by the publishers once they put it on to the Internet for open access.[8] The benefits of open access are indirect in many ways; they are not always obvious. Especially in China, OA repositories are not considered publications, thus public recognition, as a main incentive of the open access, may seem too far for many to reach.

No matter how little one needs to replicate information, there are initial costs to get a project off the ground. Many of these funds are from public funds or government-based resources. Thus, the government's policy over open access movement can be very decisive. In many countries, including Europe and US, government policies recently have become increasingly supportive of open access development. For example, the US Sabo Bill requires all government-funded research publications should be available to the public. US NIH requires all final manuscripts, upon acceptance of publication, should be made digitally available to the public free of charge in its National Library of Medicine repository. China has a different scenario; almost all of the projects are funded by the government. Some large institutions, such as Qinghua University receives millions of dollars from the government to build inclusive mass databases-- such as China Academic Journal, the full-text journal database-- and most of them are proprietary. The National Digital Library was established as a for-profit cooperation. Except the two government-supported preprint repositories, there have not been any significant policy or strategic steps taken toward open access. All these suggest that although there are diplomatic actions and experiments of *Sciencepaper Online*, the open access movement is not on the Chinese government's radar. That alone may well explain the slow development of open access in China.

Open Access is not simply to build a few repositories or publish some open access journals. As Chen Li points out, open access is a philosophy which is based on the freedom of information exchange and access; and it is also an action and a development and it is more a reality.[9] Open access, complementing the cyberinfrustructure movement of information and knowledge transmission and delivery, advocates scholarly resource sharing; the cooperation among information providers, creators and consumers; and the implication of online copyright in a digital environment. In his report of next wave of information technology, Atkins states that the openness movement includes "open source software and the types of social structures that produce it; open standards; open content including courseware, digital repositories, and the creative commons; academic alliances for creating academic middleware; open intellectual property policies more generally; keeping the Internet architecture open; and a growing sense among academic leaders that the university should serve as a counterbalance to the overly restrictive objectives of the digital rights movement.'" While many of these already have been made available, such as open standards and software, the open intellectual property policies, the incentives of open access development and the culture of sharing and networking are something China needs to find it own path to develop.

Reference:

Heylighen, Francis "Why is Open Access Development so Successful? Stigmergic organization and the economics of information" To appear in: B. Lutterbeck, M. Bärwolff & R. A. Gehring (eds.), Open Source Jahrbuch 2007, Lehmanns Media, 2007. Accessed March 10, 2007 at http://pcp.vub.ac.be/HEYL.html.

[1] Chris Armbruster, "Cyberscience and the knowledge-based economy, open access and trade publishing: From contradiction to compatibility with nonexclusive copyright licensing" LCA 2006 WP 04, accessed March 10, 2007 from http://ssrn.com/author=434782.

[2] Francis Heylighen, p. 2.

[3] Heylighen, p. 3.

4 Liu Haixia, Fang Ping & Hu Dehua, "Kaifang cunqu yanjiu jinzhan shuping" (A Brief review of the development of Open Access), *Tushu yu qingbao* (Books and Information), 2006 v. 4, p. 13.

5 Heylighen, p. 7.

6 *Ibid*., p. 6.

7 Ji Yanjiang, "Qiji wenku ji qi lixiang" (Qiji Repository and its Dream), hyperlink.

8 Liu Haixia, Fang Ping and Hu Dehua, p. 13.

9 email from Chen Li. July 27, 2006.