

# How international readers view Chinese academic journals: a survey of Chinese-speaking scholars in the UK

To find out how international users gain access to and use Chinese-language academic journals, 37 Chinese mother-tongue scholars in the UK were interviewed. The results show that their usage of journals published in China in the Chinese language, although quite varied based on their disciplines, is limited, except for a few scholars from engineering and applied technology. The reasons why more than 70% of the respondents do

not look up and use Chinese journals, although they say that they pay close attention to China's research progress, are complicated. These reasons, as illustrated by the research, are examined in detail, and issues of quality, access, language and preconception are among the aspects discussed. The results show that the most pressing matters of the moment are to improve accessibility and to minimize the language barriers.



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## Introduction

As part of a larger study of the usage of Chinese-language scholarly journals both within and outside China, a sample of mother-tongue Chinese-speaking scholars working in the UK was surveyed. An increasing number of native speakers of Chinese are working in British universities as academics, research staff, research students and taught postgraduate (Master's degree) students. The majority of these people come from the People's Republic of China, and many of them live and work in the UK for a number of years. Although we have not sought to measure the total number of researchers in the UK who can read Chinese, it is clear that the number of potential users of Chinese-language academic journals living and working outside China has been increasing steadily in recent years. Usually, the results and effects of the international communication of Chinese academic journals are assessed by using the 'total citations' and 'impact factor' data from index databases such as the Science Citation Index

or the Social Science Citation Index published by Thomson ISI. However, the current authors consider that the extent to which readers outside China retrieve and use Chinese academic literature can reflect its international communication situation directly. The data from the index databases are secondary or indirect indicators of the usage situation. Because these secondary or indirect indicators are more available and more easily measured, they are used for analysis more often, and accordingly there are many reports or research articles about such analyses<sup>1,2,3</sup>. However, there are few reports about how Chinese-speaking readers living outside China actually look up and use Chinese academic journals.

China produces over 9,000 periodicals, including almost 7,000 academic journals: the totals from 2005 were 9,074 periodicals, of which 5,387 were science and technology journals<sup>3</sup>. In recent years, most Chinese academic journals have been published in electronic versions with English

article titles and abstracts, and disseminated through the Internet. But what is the effect of this dissemination? Do readers outside China who are native speakers of Chinese use them? Can they access Chinese journals easily? How do they estimate their academic value? To answer these questions, an interview survey of native Chinese-speaking scholars who now work in the United Kingdom was conducted during March to July 2006.

## Methods

The 37 invited interviewees were chosen from three universities, Loughborough University (LU), the University of Nottingham (NU) and the University of Sheffield (SU). Their titles or positions and their disciplines are shown in Table 1 and Table 2. The distribution among disciplines reflects the distribution of native Chinese speakers found in these three universities; in particular, Chinese speakers working in the biological and health sciences are rare in these institutions.

The length of time they have lived outside China ranged from 1 to 21 years, with an overall average of 7.7 years.

The questions for investigating their usage of Chinese-language academic journals published in mainland China were divided into four categories. First: *'How do the scholars use them, how much do they use them in their studies and research work, and how do they assess the value of them for their studies or research work?'*; second: *'By what channel do they get access to them, and can they get access to them easily?'*; third: *'Are there any barriers in academic communication between the Chinese and the English language?'*; fourth: *'What are their perspectives about editing and*

Title or position	No.
staff (lecturer or researcher)	18
post-doctoral or PhD student	17
postgraduate student (Master's degree)	2
Total	37

Table 2. Job titles of the respondents

*publishing problems or weak points in Chinese academic journals?'*

The interview methods used were face-to-face interview with audio recording, or telephone interviews with written recording. The analysis of the records of the interviews and telephone calls with the 37 scholars is reported in this paper.

Some statistical methods such as the *t*-test were used in the data analysis.

## Results

### *Purpose and motivation to retrieve and use the Chinese journal literature*

When asked *'Do you retrieve and use Chinese journal literature in your work and study?'*, about 14% of the scholars said that they use it sometimes, about 16% said that they use it a little, 70% said they do not use it at all in their research or study, and none said that they used it a lot (Table 3). This seems to say that overseas Chinese scholars use the Chinese-language academic journal literature only to a small extent in their academic reading.

*What is the reason or purpose for which they use or do not use Chinese journals?* The groups who use them to some degree or use them a little presented their reasons or purposes as shown in Table 4. The do-not-use group's reasons are shown in Table 5.

Broad subject	Number of persons	Percentage
chemistry and chemical engineering	10	27%
computer sciences and IT	4	11%
economics, business and management	4	11%
engineering and technology	4	11%
environmental sciences	4	11%
humanities	1	3%
materials science	2	5%
mathematics	3	8%
physics	2	5%
social sciences	3	8%
<b>Total</b>	<b>37</b>	<b>100%</b>

Table 1. The discipline composition of the respondents

Group no.	How much do they use	Number of persons	Percentage	Average years abroad	The research field of the scholars and the number of respondents included
1	Use sometimes – about 10% of the literature that I read is Chinese	5	14%	11.4	chemistry and chemical engineering-1; economics, business and management-2; engineering and technology -2
2	Use a little – about 1% of the literature that I read is Chinese	6	16%	11.2	chemistry and chemical engineering-8; engineering and technology-1; material sciences-2; mathematics-1; social sciences-1;
3	Nothing at all (or use nothing in my academic reading)	26	70%	6.2	chemistry and chemical engineering-8; computer science and IT-4; economics, business and management-2; engineering and technology-1; environmental sciences-4; humanities-1; mathematics-2; physics-2; social sciences-2

Table 3. Number of scholars who use/do not use Chinese journals

Group no.	The reasons or purposes	The research field of the scholars
1	I read and pay attention to the research work in China mainland because it has value to refer to	chemistry and chemical engineering-2; economics, business and management-1; engineering and technology-1; social sciences-1
2	In my field China has advanced research and high level scholarly products	chemistry and chemical engineering-1

Table 4. Reasons why or purposes for which scholars use Chinese journals

Group no.	The reasons	The research field of the scholars
1	Chinese journals have lower quality than those published in Western countries; they are not valuable to refer to	chemistry and chemical engineering-1; computer science and IT-1; economics, business and management-1; environmental sciences-1; materials science-1
2	Articles produced in China with high quality are published in overseas journals. We see them frequently, so to read Chinese journals is not necessary	chemistry & chemical engineering-6; computer science and IT-1; materials science-1; physics-2
3	Cannot see any reports, or there is no research in my field in China	computer science and IT-1; economics, business and management-1; humanities-1; materials science-1; social sciences-2
4	Cannot get access to the Chinese literature	environmental sciences-3

Table 5. Reasons why scholars do not use Chinese journals

On the whole, their attitude to the use of Chinese journals is negative, but most respondents have a positive attitude concerning research progress in China. Their answers to the question 'Do you keep aware of research developments in China?' are divided into two kinds. One is 'Yes, I get information through reading the Chinese journals', while the other is 'Yes, I get information through reading articles produced by Chinese authors but published in foreign journals'.

One scholar said: 'In my area (engineering and technology), China has got a large development pace recently. Their research is not lower than that here, especially their university research force. They have much advanced application technology. For example, the *Journal of Beijing University of Aeronautics and Astronautics* is one which I often read, with high level quality research work. It carries 1–2 good articles in my area per issue on average.'

Other answers from scholars were: ‘We often see that many authors from China have published their articles in foreign journals; sometimes they co-work with foreign authors.’ ‘The research in China has got a great development. We can see that through the articles exported.’ ‘In some foreign journals, almost half of the articles are produced by Chinese authors, or even 70%–80% in some cases’ (the respondents concerned are from: chemistry & chemical engineering; computer science and IT; economics, business and management; materials science; physics).

Scholars from mathematics and Mandarin language education said that they want to keep aware of Chinese research progress but cannot find a way to get access to the relevant literature.

When they were asked ‘Do you use Chinese journals directly in your teaching and research?’, there were a few positive answers. One scholar from LU said: ‘I use photocopies of articles from Chinese journals as supplementary reading in my teaching module. The students must read them, including English-speaking students. They can read the formulas, figures and diagrams.’ A lecturer from LU said: ‘A company from England had me translate a Chinese article for them. It was concerned with mining technology. There have been advanced mining techniques, in which the British companies are interested, in the central plains areas of China, as well as advanced pharmacy engineering.’ A lecturer from NU said: ‘My colleague, a Hispanic professor, even recommended me a Chinese article which his student brought from China, and he valued it highly.’ A researcher

from NU said: ‘My colleague from Ethiopia needed to refer to a Chinese journal named *Yunnan Plant Research*. He entrusted me with retrieving it from a Chinese database.’

The three answer groups shown in Table 3 differ in the lengths of time that the scholars have been away from China. Group 3, who answered ‘nothing at all’, had on average been away from China for 6.2 years, a shorter time than from the other two groups (11.4 years and 11.2 years for group 1 and group 2 respectively). The *t*-test shows that the differences from group 3 are statistically significant, *p* = 0.033 and *p* = 0.026 respectively for group 1 and group 2.

**What channels do they use to get access to Chinese journals?**

When it comes to the channel or approach they use to retrieve or access Chinese journals, the questions are: ‘Have you ever tried to get Chinese journal literature?’ ‘Do you know any famous databases of China, such as CNKI (China National Knowledge Infrastructure) and Wanfang Data?’ ‘Can you retrieve or gain access to Chinese journals easily? By which channels do you gain access?’ ‘Is there any barrier or inconvenience you met when you did it?’ Most of the interviewees showed their interest in answering these questions. Based on their different experiences on searching and using Chinese journal literature, they have roughly five answer categories as shown in Table 6.

One scholar said: ‘I tried to identify a Chinese journal article on behalf of a British colleague and got some titles or abstracts concerned through Google, but failed to get the full text of it.’

Group no.	Answer categories	The research field of the scholars
1	Want to access Chinese journals but there is a lack of channels to get to them	chemistry & chemical engineering-1; computer science and IT-2; economics, business and management-1; engineering and technology-1; humanities-1
2	No channels to get to access to Chinese journal available	chemistry & chemical engineering-1; computer science and IT-1; environmental sciences-3; social sciences-1
3	Only abstracts are available through logon to the Chinese journal databases. There are charges and members’ licence barriers in getting access to the full texts of articles	chemistry & chemical engineering-2; computer science and IT-1; economics, business and management-1; mathematics-1; materials science-1; physics-2
4	The charges are very expensive for getting Chinese literature, and inconvenient payment methods and bad delivery service	chemistry & chemical engineering-3; economics, business and management-1; engineering and technology-1
5	In the UK, university library services and inter-library loans are available to access the broad English-language literature of the world quite easily. ‘Forego what is easy and seek what is difficult’ is not a wise choice	chemistry & chemical engineering-2; engineering and technology-1; environment sciences-3; physics-2

Table 6. Are there any convenient channels to gain access to Chinese journals?

A researcher from NU said: 'Some of articles published in Chinese journals are good in quality and high level. You can only find the abstracts of these articles through Internet and you have to pay for the full texts. The question is that you can't find a convenient way to pay. The channel for communication somehow seems to be monopolized. I have even bought a Chinese book online but never received the book until months after paying. In contrast, you can enjoy very convenient service here. Many times I get the literature soon when I subscribe from the British Library. Men tend to choose an easy way to go.'

Another researcher from NU said: 'It is expensive to retrieve Chinese literature, about 0.5 yuan per page, plus there is no money transfer service. In contrast, we can enjoy free e-journal reading and downloading in the university library here and the ATHENS allowance to access all the British libraries. Subscribing information from the British Library is so convenient that I frequently get materials on behalf of my Chinese friends.'

*Which Chinese journals and e-journal databases they pay attention to often* Some Chinese journals that respondents mentioned they often read and pay close attention to are: *Journal of Beijing University of Aeronautics and Astronautics, Journal of Hebei University of Engineering, Internal Combustion Engine, Economic Research Journal, Economic Tribune, Economic Observer, Progress in Natural Science, Journal of Engineering Thermophysics, China Renmin University Duplication Literature, and Journal of Fuel Chemistry and Technology.*

Only nine scholars said that they were aware of the Wanfang Digital Periodicals (including scholars in fields of chemical engineering; computer science; economics; engineering and technology). These nine had an average length of time away from China of only 4.3 years. Two of them had been abroad for ten years but the other seven had been living abroad for three years or less, which suggests that scholars who left China a long time ago may tend to be unaware of Wanfang. No-one knew of the CNKI.

#### *Language issues in communication*

Scholars who come from different subject areas have very different perceptions of the language issues facing Chinese journals in international communication.

*Language is not a problem in academic communication of this subject* In some long-established fields, a lot of the academic literature has been translated between different languages. Overseas Chinese-speaking scholars can understand the technical terminology and equivalent jargon in both the Chinese and the English language. Foreign scholars unable to read Chinese can understand the formulas, figures, diagrams and graphs and so on, because the technical terminologies and expressions are universal in all parts of the world. So articles in different languages are not difficult to read (scholars who said so came from the fields of chemical engineering-1; engineering and technology-3; and they had lived in the UK for 12.3 years on average).

A scholar from a fuel subject said: 'In my field articles in different language can be understood roughly. For example I often read German articles and can catch the main meaning'.

Another scholar from mechanics said: 'I encourage my English-speaking students to read Chinese articles. They can read the formulas, figures and diagrams, as well as the English abstracts with which many Chinese articles are published. Many technical terminologies and formulas are a common language in engineering. Students should break through language barriers to absorb knowledge from all parts of the world.'

*Language is a great problem in academic communication of this subject* The scholars in new and developing subjects do not know the equivalent professional words and technical terminology in Chinese for new subjects. These subjects have generally been developed in western countries, and hence the specialized terminology is created originally in English as well. If a scholar left China before the new terminology came into use, they may not know the equivalent Chinese words. Also, new subjects are developing very fast, so that the communication between different languages cannot match the speed of development of science. In the English academic environment, Chinese scholars abroad thus may know only the English professional terminology, and not the Chinese (scholars who said so came from fields of computer science; statistical economics; energy resources and the environment; networks and control; and they had lived in the UK for 10.2 years on average).

*The commonly used languages of international academic communication* Many respondents mentioned that this is now an English-dominant scientific and technological communication era, in which English is generally recognized as the first language of science and technology. Anyone who wants to enter international communication must adopt English as the carrier of information, as do many non-Anglophone countries advanced in science and technology. China should not expect to be an exception.

A scholar argued: 'To a high degree, the fact that journals published in Chinese are not regarded highly by international academic society is an issue caused by the language barrier. However, if the communication language is English, articles produced in China are recognized as good work and valued higher than those in Chinese. For example, the *Journal of Mechanical Engineering (English Version)* is accepted as a good journal here in the UK. This phenomenon is a prejudice caused by the language barrier, but the barrier does exist realistically. This situation still exists in science- and technology-advanced countries such as Germany, France, Japan, Italy and so on. The impact of the articles published in the native language of these countries is not satisfactory. These are four of the most advanced countries in science and technology in the world. Articles produced in France are published mainly in English, not French. Journals in French are seldom seen in scholarly publishing. The *German Journal of Aeronautics and Astronautics* ranks first in German journals but ranks only about 20th in the whole world. It used to be published in German, but has to be published bilingually in German and English now, with double the number of pages. Chinese journals are not an exception unless they do not want to enter the international communication.'

Scholars from the School of Chemistry in NU said: 'Journals in Chinese cannot attract foreign readers because of the existing language barriers. There is similar situation in Japan, and they usually publish their good articles in foreign journals.'

Scholars from the subject areas of energy resources and nanotechnology materials said: '70% to 80% of Japanese university and institute scholars can communicate academically in English. Their number of students and researchers who study or work abroad is a higher proportion of the Japanese population than that in China. So the internationalized degree of their academic journals is higher than that of China.'

## Discussion

### *Different attitudes towards using Chinese journals based on the scholars' different backgrounds*

It is obvious that the different situations in using Chinese journals are based on the scholars' different estimates of the academic value of them, according to the results. Data in Table 3, Table 4 and Table 5 show that two factors contribute to the attitudes of the respondents towards Chinese journals. One is their subject background and the other is their length of time abroad. In general, the fact that only a few scholars within certain subject fields have a positive attitude towards using and valuing Chinese journals may imply that in these fields China has achieved an advanced level, so that the journals in these areas have higher value to refer to. However, we have no firm evidence to support this hypothesis.

The significant difference in length of time for which scholars have been abroad seems, on the surface, to imply that the shorter the time they have been away from China, the less they use its journals. But when further analysis is made, it is found that within the group giving the 'nothing at all' answer (Table 3, group 3), nearly half (i.e. 12) of the scholars have been abroad for less than four years and are postgraduate or postdoctoral researchers. These 12 scholars, who have been studying in the UK for a quite short time, are not positive about using Chinese journals, based on some individual reasons. Studying Western advanced science and technology is their main task, and they only recently left China, so that they have no urgent need to look up material they are quite familiar with. Furthermore, some of them have brought Chinese material with them (as one scholar said), some of them know that the necessary material in their field of study is not available in China (respondents from Social sciences answered this in Table 5, group 3) and some of them wanted to find Chinese literature but had failed (for the reasons, see Table 6).

Overall, the respondents' attitude towards using Chinese journals is negative, in whatever groups they fall, so they have no strong motivation to use the journals. However, most of them have a positive attitude towards China's standing in research. About half of the scholars made remarks such as 'being concerned with sci-tech development and research progress in China' and 'wanting to keep an awareness of the research developments

of China very much.' They consider that today, many shining accomplishments can be seen in China. This seems to indicate that, somehow, they realize that China has seen rapid development and achieved high-level results in many research fields. Since many of them do not use Chinese journals, their information about China's development must come from somewhere other than journals. Or at least, Chinese journals are not their main sources of information.

But what are the sources? Some scholars said that high-quality articles produced in China are published in foreign journals, and they see them frequently (Table 5). They believe that high-quality articles are almost always published outside China or in English-version journals inside China. Some Chinese domestic observers have held the same opinion<sup>3,4</sup>. These phenomena set people thinking whether lower quality (or reference value) is the sole reason for their not using Chinese journals, and whether the articles published outside China are truly representative of the full spectrum of its impressive domestic achievements. But the authors of this paper argue that the overseas scholars' underestimation of Chinese journals is not mainly because their value is low, as the respondents said, but mainly due to other reasons, such as the problems with communication.

#### *Communication without easy channels and convenient service*

Half of the respondents reported that they had a variety of unhappy experiences in getting access to Chinese journals or had been impressed by how difficult it is to access Chinese journals with the existing barriers. (Table 6). The authors believe this to be one of the fundamental reasons why they do not want to use Chinese journals.

The overseas Chinese-speaking scholars are almost completely separated from the Chinese journal literature. They study or work in an English-dominant environment, and so they generally are not able to keep contact with it. The fact that not one of the scholars had heard about CNKI and only nine, who had mostly been away from China for only a short time, knew about the Wanfang Digital Periodicals, even though both are famous Chinese central e-journal databases, bears out that perspective. As a matter of fact, some of them wished to access the Chinese literature, but had failed to find a way to access it (Table 6).

One of the reasons for the insufficient visibility and accessibility of Chinese journals in the international academic world is the fact that there are no good dissemination initiatives in China for its international communication. For example, almost no library in UK universities has provided access to China's central digital databases, despite the fact that in some universities there are many potential users, i.e. scholars who major in Asian culture or even Chinese culture, as a librarian from SU mentioned. Some scholars complained that it is difficult to get full-text materials online because of the expensive charges, the inconvenient payment methods, the poor delivery service and so on. A few of them had to have their colleagues in China retrieve Chinese materials on their behalf. In contrast, they obtain English literature in the UK or even through US services rather easily. These difficulties made them lose interest in accessing Chinese journals. If accessing Chinese journals abroad was as easy and simple as getting English journals here, this survey would possibly have had rather different results.

There are also communication 'blanks' in some research fields. Some scholars indicated that no-one is doing relevant research in their fields in China, while the reality might be just the opposite. For example, a scholar said that there is no research on Mandarin language education in mainland China. However, there are lots of research outputs on this topic in China, and numerous articles on the topic are published in China every year<sup>5,6</sup>. It is the communication barrier that blocks the visibility of Chinese literature in the international academic world. This reminds us that there are some gaps in the international communication of Chinese literature that need to be filled.

#### *Language issues – another communication barrier*

Scholars who come from different subject areas held almost opposite perceptions on language issues in Chinese literature. Scholars who think that articles in their fields in different languages can be understood at a basic level, and that the professional words and terminologies are common between languages in the world, come mainly from engineering and professions with a long history. On the other hand, scholars who think that there are serious technical-word communication barriers come mainly from new emerging technological professions that are developing fast. These two groups' lengths of residence in the UK have no

significant difference (*t*-test result  $p = 0.60$ ). Furthermore, it was found that the holders of the first opinion are included in the group who use Chinese journals to some degree, while the holders of the second opinion are included in the do-not-use group (Table 3), except one from the energy resource and environmental subject area. This situation indicates two points. First, terminology in different languages needs time and process to exchange and communicate. Subjects with a long history have had a long enough time and opportunity to translate their literature and terminology, so that there are common means of expression and terminology standards with which the scholars of these areas can understand the same meaning easily, whatever parts of the world they come from<sup>7</sup>. On the contrary, rapidly developing disciplines have not had enough time and opportunity to translate their literature and terminology, so that language becomes a problem in professional communication. Second, when the language issue is a problem, the use of an academic journal must be difficult for users who speak another language. This reminds us that the reasons why the scholars do not want to use Chinese journals are not only their lower reputation for quality, as the respondents stated in this investigation, but also the language barriers within communication. In this case, the literature's language carrier issue plays a more important part than the meaning it conveys.

The language and communication issues were reflected further in another questionnaire survey conducted by authors of this paper at the same time as this investigation, which will be fully reported in another paper. About 64% and 61% respectively of the Chinese-speaking respondents living in China ( $n = 370$ ) and overseas ( $n = 50$ ) agreed or strongly agreed that the biggest obstacles between China and international scholarly communication are language and poor communication, whilst about 33% and 50% respectively agreed that the biggest obstacles are cultural differences and high expenses.

#### *The 'Tip of the Iceberg' phenomenon and prejudice*

Some of the interviewees stated that they read Chinese authors' articles published outside China instead of the ones published inside because of the difference in academic value (Table 5). Objectively, many articles published outside China have reached a high academic level. However, it is a bit too subjective a conclusion to say that high-level articles

by Chinese authors are only published outside China and that articles published inside China are all of low reference value. It is in fact the case that about 1 million articles, published in more than 4,000 STM and 2,000 philosophy and sociology periodicals<sup>8</sup> every year in China, contain much creative and innovative work, and doubtless contribute greatly to the diversity of international academic research. The reasons why many of these articles, that might potentially be excellent, have not been published outside include the following: the authors have only poor English writing skills, the authors have not ever contacted outside journals<sup>9</sup>, the format of the articles does not match that of the outside journals, the large number of articles which cannot all be accepted outside, and so on. As a respondent said: 'In China there are many outstanding works, belonging to application implemental engineering, which are not necessarily published outside but inside instead. It may be because of the authors' poor English level. I don't think the articles in Chinese must be inferior in academic quality and the English ones must be fine.' It can be said that the quality of articles should not be estimated by the language carrier they use. Moreover, the articles published outside cannot represent the whole body of Chinese journal articles. Only 5% of all the scholarly articles emanating from China are published in English, and it is the observation of one of the authors (LRX), from twenty years' experience as an editor of scholarly journals, that a large proportion of the authors of good quality Chinese research articles do not have a good enough command of English to be able to write their papers in English.

Scholars interviewed who hold the 'good-outside and bad-inside' opinion on the one hand also complain of the difficulty in gaining access to Chinese journals (including the subjects of chemistry and chemical engineering; computer science and IT; economics; environmental science; mathematics; materials science; physics; their time of residence in the UK is 6.7 years on average) and quote language problems. They seem to be arguing against themselves! Since they do not keep in contact with Chinese journals, how do they know that Chinese journal articles have a low quality level? How can they decide that all good work is published outside China? If they do not read Chinese journal articles, how can they compare the inside and outside ones objectively? It is obvious that to make a subjective conclusion of 'good-

outside and bad-inside' is a prejudice to some degree, just as a scholar mentioned above. In other words, they just saw the part of the 'iceberg' floating out of the water's surface, but ignored the main body of research achievements of China, which might be submerged under the water. Even overseas Chinese scholars, let alone international academic society, do not approve of the work carried by the Chinese language, and have an 'iceberg' view of Chinese journals.

## Conclusions

The most likely potential international readers of Chinese journals – overseas Chinese-speaking scholars – put a low value on them and have low usage of them, except for a few scholars of engineering and applied technology. The reasons why they do not use them actively, but are nevertheless concerned with China's research progress with more enthusiasm, seem complex. On the one hand, from the communication point of view, it is a reality that there are no smooth channels and convenient services in place for them to get access to Chinese journals and there are barriers existing in the communication of professional words and technical terminology. These are the key reasons they do not use Chinese journals. Chinese has not been accepted as a common language in international scholarly communication, so a Chinese journal, no matter how high its academic quality, cannot gain sufficient impact in the international academic community. This is not only because foreign readers do not read it, but also because Chinese-speaking readers abroad do not pay attention to it either. Whereas, if published in English at the same content quality level, it would gain more acceptance. In other words, only by publishing in English can work become known and accepted by the international scholarly community, as English is the common language in communication. For Chinese journals, this is beyond doubt a prejudice and a misunderstanding. This predicament which the Chinese journals are in is similar to the one which other non-English language journals are in too<sup>10</sup>.

Quite a small proportion of all research information coming out of China is published in English – about 5% – and like the part of iceberg floating out of water's surface, it cannot show the whole picture regarding research and development

in today's China while its main body is carried by Chinese-language journals. Unfortunately, the main body of the 'ice-mountain' is submerged under the 'ocean' of international academic communication. Communication obstacles lead either to the 'tip of the iceberg' phenomenon or to language prejudice. To remove the obstacles, Chinese scholarly publishing societies should devote their efforts to developing electronic publishing and network dissemination, to practicing open access<sup>11,12,13</sup>, and to providing varied communication channels and good services, so as to end the foreign readers' separation from Chinese journals and to satisfy their need to gain access to them. At the same time, they should take note of the importance of language, and lay emphasis on professional translation, either English–Chinese or Chinese–English, to increase both the quality and the quantity of English abstracts of Chinese articles, and promote as much as possible the use of English in scholarly publication. This is the most pressing matter of the moment<sup>14</sup> to ensure that the international accessibility and usability of Chinese journals are improved. Although various initiatives have been started<sup>15</sup>, among them Higher Education Press's working with Springer, another Springer programme of translation of Chinese articles, and the provision of the references in Chinese articles in English to improve their accessibility, the evidence from the current study is that these are still little known amongst overseas Chinese scholars.

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Article received 3 December 2007; revised 7 February 2008; accepted 12 February 2008; published online March 2008

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