

Scientific Publication in China: An Overview and Some Thoughts on Improvement

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Scientific publications reflect the scientific output of a country. Scientific journals are one of the most effective and important ways for scientists to communicate the results of their research. The quality of scientific journals is an important indicator of the scientific power of a nation. The purpose of this article is to summarize the status of scientific journal publishing in China and to mention and comment on some efforts to improve scientific writing in China.

Facts and Figures

Today in China, there are more than 8000 academic journals, of which more than 4600 can be considered scientific.¹ About 1400 cover health science (medicine and public health).²

Most scientific journals in China are supported by federal, regional, or local governments. However, as in the West, some scientific journals are owned by professional associations. There are, to my knowledge, no privately owned scientific journals. As in the West, some journals—mainly those supported by our national government—are regarded as high-prestige journals, and authors preferentially select these journals for their best papers. Lists (in Chinese) of those top journals can be found at www.periodicals.net.cn, www.tydata.com, and www.cnki.net/index.htm. Such top-tier journals include the 67 journals published by the Chinese Medical Association. Those journals and most other academic journals are indexed by major indexing services in China.

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Most scientific journals in China are published monthly, bimonthly, or quarterly. A few, however, are published twice a month. The average time to publication is 14.1 months.³ Most journals are available only in print form or only in electronic form.

Most scientific journals in China are published in Chinese; a few have English translations of abstracts for research articles. Some 189 scientific journals are published in English, of which 29 are health-science journals.⁴ Most articles published in English-language scientific journals in China are indexed by Science Citation Index and Engineering Index.⁵ English is the dominant language of scientific discourse, and 70% of scientific articles are published in English across the world.³ Therefore, I hope that scientists in China will try to write more of their papers in English.

The fact that most scientific journals in China are not published in English has meant that much of current scientific development in China is not readily available to non-Chinese-speaking scientists. In 1999, only 13, 96, 110, 117, 132, and 193 Chinese journals were indexed in the international index systems Science Citation Index; Engineering Index; Index of Science and Technology Programs; Science Abstracts; Center for Biophotonics, Science and Technology; and Abstract Journal, respectively.⁶ As of June 2001, 62 Chinese journals (44 in English) were indexed in the Science Citation Index Expanded.⁷

The impact factor of Chinese scientific journals is relatively low. In 1999, the top-cited journal—*Mining and Geologica Sinica*—had an impact factor of 1.487,¹ and the average number of citations per article published in the Chinese journals covered by Science Citation Index was 0.326.⁷ One reason for the low impact factor is that Chinese scientists tend

to use relatively few references in their publications (average, 6.6 references per article¹). A second reason is that scientists in China, like those in other countries, prefer to publish their best papers in major or top English-language journals. In fact, for such purposes as promotion to senior positions, Chinese scientists must have published in Western journals. According to the Institute of Science and Technology of China, the number of articles written by Chinese scientists and published in non-Chinese journals increased from 13,134 in 1995 to 24,476 in 1999—a 95% increase.⁶

Improving Scientific Writing in China

To improve scientific publishing in China, the government has instituted initiatives to improve scientific writing. A format for scientific and technical reports, degree theses, and scientific papers has been developed (GB7713-87). The recommendations closely follow Western standards, including using the structured abstract for biomedical research articles. Unfortunately, Chinese colleges and universities have few scientific-writing courses, so improvement in scientific writing seems likely to be slow. Most first-time authors writing in Chinese for publication in China simply follow the format usually used in the journal to which they are submitting their manuscripts.

A few books about biomedical writing have now been published in China. Also, a program, based in China, to teach biomedical writing and editing has been established with grants from the China Medical Board of New York. The purpose of this program, which began in 1996, is to increase publication of Chinese and other Asian research in English-language biomedical journals both by providing instruction in biomedical writing and by developing editors at the researchers' institutions. Through that program, I am beginning to teach a biomedical-writing course


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at our college. Health-science journals in China could do more to improve scientific communication by supporting standards set by the government and by such bodies as the International Committee of Medical Journal Editors.

Typically, the introduction section and the discussion section of Chinese articles prepared for health-science journals in China are weakly organized. The introduction section of the paper is often incomplete, so editors and readers do not understand the point of the paper. Western editors envisage the introduction as being rather like a funnel, beginning with what is known about the particular problem, leading to what is unknown and important to find out, and ending with the objectives of the research. Chinese authors typically begin the discussion with a reiteration of well-known knowledge, with little attempt to indicate how their research adds to the body of knowledge. The discussion section rarely discusses the limitations of the research.

As mentioned above, typical Chinese manuscripts contain few references. Although that may be a long-standing tradition in Chinese publishing, it also may occur because many university and

local libraries in China lack extensive collections of world literature, most articles posted on the World Wide Web are not in free-access scientific journals, and, to my knowledge, many authors in China are unaware of international Web sites that provide free access to journals, such as Health InterNetwork Access to Research Initiative (HINARI; www.healthinternetwork.org/scipub.php) and the Directory of Open Access Journals (www.doaj.org). Access to journal articles will be a continuing problem in China. I hope that the government of China will expand free or inexpensive Web access to journals to all scientific researchers and that a way can be found to inform researchers of the free Web sites, especially those associated with the Budapest Open Access Initiative (www.soros.org/openaccess).

Changes in the social and economic environment in China will profoundly affect scientific research and publishing in China in the next decade. I hope that exchange between Chinese editors and those from other countries will continue to increase, thus facilitating the international communication of science. 

Acknowledgment

I thank John Hoey for his many helpful comments on an earlier version of this article.

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(Note: All references are in Chinese.)