

Scholarly Communication and International Access in Korea¹

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1. General Background

The Korean peninsula lies between China and Japan. The land area of Korea is almost equal to that of the state of Utah or Minnesota. Korea was divided into two (South Korea and North Korea) at the end of the World War II--and it still remains divided to this day. South Korea occupies 45% of the total land, with an estimated population of almost 50 million. Korea has a small land and few natural resources. The most and the best resource Korea has is its people—and their resilience, intelligence, and an extraordinary passion for learning.

Having experienced colonization for 35 years (1910-1945) and the devastation of the Korean War for three years (1950-1953), Korea was one of the world's poorest countries in the 1960s. Over the next three decades, however, Koreans worked hard and achieved an unprecedented economic prosperity.

In 1996, South Korea joined the Organization for Economic Cooperation and Development (OECD) as its 29th member. According to the *OECD Factbook 2006*, South Korea's per capita GDP was US\$20,935.

As of 2005, school attendance stood at 100% at the elementary level, 97.4% at the middle school level, 95.8% at the high school level, and 71.1% at the college level. All elementary graduates advance to middle school, and 82.1% of high school graduates advance to college or university. These figures place South Korea among the most educated countries in the world

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Widely acknowledged as the most densely-wired information technology powerhouse in the world, South Korea today has the world's highest number of Internet subscribers per 100 households (77).

Since Korea's commercialization of the Internet in 1994, the number of Internet users in Korea has rapidly increased. Broadband service has grown from 3 million in 1998 to 33.01 million by the end of 2005. The number of broadband internet subscribers has currently reached 12.19 million. In other words, almost 70% of Koreans use the Internet and almost 80% of the households subscribe to the Internet.

Korea ranks 2nd in terms of 'technology infrastructure' in IMD (International Institute of Management Development)'s Growth Competitiveness Index (May 2005). As for the Digital Opportunity Index of ITU (International Telecommunication Union), Korea has ranked at the top for two consecutive years (2005, 2006). Such rapid progress in "informatization" contributes to the advancement of all sectors of the society, including the government, businesses, the economy, and the entire society and culture in general.

2. Universities

Over the past 12 years (1996-2006) universities have been the main source of new knowledge, providing 76.47% of the total scholarly output in science and technology of Korea, followed by government-sponsored research centers (14.34%) and businesses (8.00%). Universities also provided 82.15% of all primary authors, and their publications were cited most often (4.68 citations per publication). Universities employ 71.3% of all Ph.D. holders in Korea (Government-sponsored research centers employ 13.7% and industries employ 15.1%).

In 2006, there were 400 higher-education institutions, including 175 four-year universities. The number of professors and researchers employed by higher educational institutions was 52,136. Including graduate students, as many as 154,000 persons in higher education produce most of Korea's intellectual output in the form of dissertations, articles, and books.

3. Scholarly Associations

Along with universities, academic/scholarly associations play an important role in all stages of scholarly communication. They create, consume, publish, and disseminate knowledge. In Korea, most of scholarly journals are published by scholarly associations rather than by commercial publishers. Therefore, the associations form the core of scholarly communication in Korea. Scholarly associations also hold conferences that provide venues for semi-formal or informal scholarly communication among domestic and international scholars.

According to the Korea Research Foundation's website <www.krf.or.kr>, there are 2,411 scholarly associations in Korea with a combined membership of over 1.11 million. In terms of disciplines, 798 associations are in the social sciences, 625 in the humanities, 276 in the medical sciences, 227 in engineering, 177 in the arts and physical education, 129 in the natural sciences, and 97 are multidisciplinary.

Only 61% of these associations publish journals, 89% of which publish five or more times a year. Eighty percent of the associations hold conferences four or more times a year. About half of these associations present 100 or more papers a year at these conferences. Social sciences associations hold conferences most frequently, followed by the humanities. Of the associations that hold international conferences, 48% do so four or more times a year and about 37% of associations presented 100 or more papers at international conferences.

4. Support for R&D and Publications

In Korea, the terms "Scholarly Information", "Research Output", or "R&D" usually refer to science, technology, and medicine (STM). This is because the country as a whole is preoccupied by its progress in these fields. Korean policy makers believe that STM are the driving force in today's knowledge-based society. If Korea was a late-developer in the industrial age, its ambition now is to become a leader in the 21st century. For this reason, the government support has focused on STM.

One common index to measure Korea's investment in STM is the ratio between the Gross Expenditure on R&D (GERD) and the Gross Domestic

Product (GDP). In 2001, Korea ranked at the 4th with 2.84%. The average for all OECD countries were 2.33%.

Another index measures the number of researchers per 1,000 adults. Korea ranked at no. 12 with 6.2 persons at the end of 2000, a close behind the OECD average, 6.3.

In terms of the number of publications, according to Science Citation Index Expanded (SCIE), in 2007, Korea ranked 17th with 35 publications. In the 2006 edition of the Science Citation Index, Korea ranked at no. 11 with 22,750 papers. In National Science Indicators, Korea ranked at no. 13.

Over the past 12 years (1995-2006), only 13.77% of research by Korean scientists was published in 48 domestic journals. The rest were published in 6,235 overseas journals.

5. Evaluation of Research

As part of Korea's globalization efforts, Korean researchers are expected to compete with the rest of the world. Accordingly, academic evaluation process has become standardized and much more rigorous compared to the past when it used to be loose and subjective. Each university has its own standards and guidelines for appointment, promotion, and tenure decisions; salary raises; allocation of research funds, etc. However, the system used by the Korea Research Foundation (KRF) exerts its heavy influence on the evaluation systems in all other institutions. Publishing is most important criterion in Faculty evaluation; and under the current system, where and how often to publish can be more important than what to publish. In other words, the quality of a publication is judged not by the work itself, but by the medium that carries the work. For domestic journals, only those that have met certain quality standards of the Korea Research Foundation count. There are 902 "certified" journals and 533 "candidate" journals (total 1,435), providing publication venues for scholars in the humanities, social sciences, and basic sciences. These 1,435 KRF journals form the basis for the Korean Citation Index (KCI), which is freely searchable at the Korea Research Foundation's Web site, <http://www.krf.or.kr/kci/>. Many of the articles (over 45%) are available in full-text from the Associations'

Websites that publish the journals. On the other hand, for scientists, publishing in the Science Citation Index (SCI) journals is expected.

6. Some Activities and Efforts for scholarly communication in Korea

Libraries

As of Dec 2005, Korea had 11,839 libraries altogether, including two national libraries, 438 college/university libraries, and 589 special libraries (affiliated with research institutes, government bodies, for-profit or non-profit organizations). The rest were public (514) and school libraries (10,297).

Two national libraries-- the National Library of Korea (NLK) and the National Assembly Library of Korea (NALK)-- play important roles in collecting, preserving, and compiling national bibliographies and in leadership. The two libraries try to complement each other's services by dividing collection development and digitization focuses: the NLK concentrates on the humanities while the NALK on social sciences.

Bibliographic Utility: RISS

The Research Information Service System (RISS) www.riss4u.net is the scholarly arm of the Korean Education and Research Information Service (KERIS), a national service organization for education and research programs. Similar to OCLC, RISS is the largest academic bibliographic utility in Korea. Its databases and services include the union catalog of more than 7.5 million records from 385 academic libraries and 120 special libraries; more than 930,000 articles from more than 4,300 domestic journals (74% of all journals), many of them full text; more than 470,000 full text dissertations from some 150 universities and 20,000 foreign dissertations on Korea or by Koreans; interlibrary loans/document delivery services; foreign databases, etc. Recently, KERIS announced a new fee-based service targeted for overseas libraries called *RISS International*, which is basically RISS with an English interface..

The Korea Institute of Science and Technology Information (KISTI) was established in 1962 as a STM counterpart of KERIS. KISTI conducts research on technology, policies, and standardization concerning on information management and dissemination. KISTI built a supercomputer infrastructure for national R&D programs, constructed the High-Performance Research Network, and provides science and technology information databases services.

Online Publishing

The Scholarly Society Automation Project provides one-stop service for all processes related to running a scholarly society. As part of the project, the Korea Institute of Science and Technology Information (KISTI) developed a system called KISTI-ACOMS (Article Contribution Management System). This system provides automated services for the following functions: membership management, article submission, peer review, communication for review status, managing the submitted articles, online publishing of the accepted articles, bibliographic and full-text searching and access to the society's publications, and conferencing functions.

dCollection

dCollection basically refers to an institutional repositories consortium, sponsored and facilitated by the Korean Education & Research Information Service (KERIS). KERIS developed and provided software to participating universities (currently 60 and growing). In this system, the authors directly submit their works along with metadata to their universities using the software developed by KERIS. The files are converted into the appropriate format and stored in the repository within the university. The metadata, along with the location information of the work, are integrated into RISS. In this cooperative program, each participating university collects, catalogs, houses, preserves, and disseminates the intellectual output of the institution in the digital form. These could include materials such as research journal articles and theses and dissertations. The main objective for dCollection is to provide open access to institutional research

output by self-archiving it, thereby enhancing scholarly communication while reducing costs.

Commercial Database Services

A handful of companies compete for a share of the scholarly database market. Among them, the following companies are best known.

The Korean Studies Information Inc. Ltd. (KSI) was established in 1992. Its Web database is called KISS (Korean Studies Information Service System) <http://kiss.kstudy.com>. KSI's most popular product is its Full text Online Journals, which contains over 1,000,000 research articles from 3,500 publications covering all subject areas since 1945. Coverage begins with the first issue of publication and continues through the current issue, with no gaps. Approximately 100,000 items are added each year.

Other important company is Nuri Media (www.nuri.co.kr). Nuri's full text journal service is called DBPia, which offers 866 journals (631,533 articles) in 11 subject fields. KRPia is a Korean studies database, consisted of many digitized titles of classical works and dictionaries in Korean studies. These databases are available through institutional license agreements only, through IP addresses. For independent scholars who have no institutional affiliations, Nuri provides a document delivery service, in partnership with Kyobo Book Center, the largest bookstore in Korea.

Consortia for Resource Sharing

Since the Korean financial crisis that started in 1997, libraries had to face big budget cuts. In response, many consortia were formed with or without the government's backing. Some of them are nationwide in scope, while others operate within certain geographic boundaries. Most of these cooperative programs are not limited to online resources but also include print collections with a document delivery service component.

KERIS and KISTI provide leadership and oversight for collective purchasing agreements for foreign databases. KERIS focuses on the humanities and social sciences databases overseeing 98 consortia for 163 libraries. KISTI specializes in sciences and technology databases. As part of the National Digital Science Library (NDSL) project, KISTI formed the

Korean Electronic Site License Initiative (KESLI), which was modeled after the Nationwide Electronic Site License Initiative (NESLI) of the United Kingdom. KESLI supports 89 consortia for 381 libraries.

Patrons can submit Inter- Library Loan (ILL) or Document Delivery Service (DDS) requests directly online through RISS or KISTI. While KERIS is limited to domestic ILL/DDS, the scope of KISTI's NDSL is international.

Foreign Research Information Centers for paper journals

Another organized effort involves the creation of regional centers for the purpose of systematically identifying and securing at least one subscription for potentially important foreign journals in a given subject. The first such Center, the Electronic and Telecommunication Engineering Database Center, was established at the Kyungbuk National University in 2006 with the financial support of the Ministry of Education and Human Resources. The Center subscribes to 838 foreign journals (and the number is growing), and supplies articles nationally through a document delivery system upon request. The plan is to create similar centers for 10 other subject categories at 10 major research universities.

Open Access and Institutional Repository

Most of the Korean domestic journals are published by non-profit scholarly associations, which are supplied to individuals and institutions at inexpensive subscription prices. In that sense, as far as domestic journals are concerned, Korean libraries do not have the subscription crises faced by their western counterparts. Still, open access and institutional repository are of interest to Korean libraries and scholars for the following two reasons: 1. Korean scholars depend a great deal on foreign journals, and libraries must meet their needs; 2. The Korean copyright laws require libraries to pay usage fees when copyrighted works in the digital format are printed or transmitted. For these reasons, open access and institutional repository are being actively explored and implemented, such as the aforementioned dCollection project.

While interest in open access and institutional repository is increasing,

a new phenomenon is also emerging in Korea. Scholarly associations in Korea are now contracting with foreign companies such as Elsevier to publish their journals. This is an effective way, they reason, for Korean scholarly associations to distribute their research output worldwide and to become a player in the global scholarly communication.