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Comparative Literacy: The Approach to Library Research from an International Perspective

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Seton Hall University (SHU) is a mid-sized, Catholic university located in South Orange, New Jersey. The dynamic environment on campus is due, in part, to the university's many initiatives, one of which is a partnership with the Academy of Sciences in China. The University Library is no exception; it has participated in an exchange program with the Library of the Academy of Sciences (LCAS) in Beijing since 1983. Last spring, two SHU librarians, Dr. Xue-Ming Bao and I were given the opportunity to visit the LCAS for two weeks. We shared information about library procedures in the United States with our Chinese counterparts and returned to the United States impressed by their commitment to state-of-the-art technologies and pedagogies.

The exchange program with the LCAS in Beijing is but one of three initiatives taken by Seton Hall librarians to share information about perceptions and practices involving information literacy abroad. The other two involve: 1. a collaboration with the Bochum University Library at the University of Bochum Germany, in which we explored pedagogies employed during information literacy instruction sessions, and 2. an exploration of the behavioral differences between American and Danish students while doing academic research, based on use of the SWIM (Streaming Webbased Information Modules) tutorial.

The purpose of this essay is to report on our collaborations with librarians in other parts of the world. It is hoped that the knowledge learned and shared during our international partnerships in a variety of venues can contribute to an understanding of how information literacy training and learning vary, based on cultural differences between Western and Eastern (or European and American) academic institutions.

Information Literacy at Seton Hall University

For the past ten years, librarians at the university have been aggressively involved in library instruction. More recently, as in many colleges and universities in the United States, the recent developments in information technology there have stimulated

questions among teaching faculty, librarians, and students alike about the validity of the old, 50 minute bibliographic instruction model, which consisted basically of a "show and tell" book session, accompanied by a brief library tour. Increasingly computer-savvy students and the ubiquity of electronic library sparked demand from all involved for new models of library instruction that would address users' need for more confidence, skill, and independence in the research process. Thus, library faculty at Seton Hall began to examine and adopt new models of library, or information literacy, training.

The librarians involved themselves in several initiatives at Seton Hall. They took advantage of a CDI (Computer Development Initiative) grant bestowed by the Teaching Learning and Technology Center (TLTC). Here they partnered with faculty from other departments to improve research pedagogies through online tutorials, mentoring and tutoring students on a course by course basis, using our course management system, Blackboard. Members of the faculty and of the faculty senate, representative librarians were elected to a new committee to revamp the core curriculum. In this venue, they campaigned to educate the university community on the necessity of information literacy training for students (and faculty) on campus.

In essence, information literacy took on a life of its own and became a major focus of the library's mission. Librarians have migrated from behind the reference desk into ubiquity around campus. The CDI grant enabled Seton Hall librarians, English, and Freshman Studies faculty to collaborate on developing an aggressive approach toward instilling information literacy training into the freshman experience. Librarians developed online tutorials that addressed the use of the OPAC, an introduction to research, and a more mature approach to the research process. Moreover, librarians, in partnership with the TLTC, designed a scheduling database to ensure their participation in all Freshman English classes.

The success of these internal partnerships sparked an interest in expanding our collaborative efforts beyond the university. Was this part of a worldwide trend? How did libraries in other parts of the world approach information literacy? To what degree did they feel a need to educate their users, and how did their users, in turn, feel about librarians as participants in the educational process?

Our Partnership with China

The University Library at Seton Hall has long been host to delegations and exchange librarians from the LCAS in Beijing, China. In 1983, the deputy director of the Chinese Academy of Sciences Library, while studying at Columbia University's Library School, encountered a Seton Hall librarian and began to discuss the possibility of an exchange program between respective libraries. Directors of both libraries negotiated the agreement that initiated the official exchange program with the LCAS in Beijing.¹ The purpose of the collaboration was to exchange ideas about library services, philosophies, and technologies. In the 1980s, several librarians from Seton Hall visited the LCAS for a

period ranging from several weeks to six months. They gave lectures and toured the country. In exchange, the Seton Hall University Libraries hosted Chinese librarians. Some stayed as long as six months. Mentored by members of the library faculty, they worked in various library departments at Seton Hall, attended library conferences, and toured major libraries in the United States. The visiting scholars received a salary and accommodations. In exchange, they were expected to work in their areas of specialization at Seton Hall and to write a summary report about their professional experience as exchange scholars. The mentor was responsible for overseeing their progress and for arranging travel to conferences and other libraries in the United States.

In the last ten years or so, the LCAS has sent at least six visiting scholars to our library. During that time, Seton Hall had sent only one exchange scholar to the LCAS. In the spring of 2004, under the directorship of a new library administration, the Seton Hall library contacted the LCAS to examine the possibility of sending two exchange-scholar librarians to China. I was fortunate to have been chosen, along with my colleague, Dr. Xue-Ming Bao, to visit the LCAS.

The LCAS's library services are guided by the President of the Chinese Academy of Sciences. However, the LCAS has its own library director, which is considered an immensely important position. Its organizational chart has a silo design. Within the LCAS are such departments as Information Services, IT, Collection Development, etc., each major department having a department head and each department functioning independently of the others. Within the departments, each worker is clearly subordinate and accountable to his/her department head. Productivity reports are common.

While in China, Dr. Bao and I gave presentations on information literacy, held information exchange sessions with departments in the LCAS, and visited other, important libraries in China. We received stipends and housing. Each day was a work day. We would meet with our assigned department each morning for lecture and exchange experience sessions. In the afternoons, we would visit major libraries in Beijing or give presentations to our Chinese colleagues. Tables 1-3 outline our professional activities (Table 1: departmental information-exchange within the LCAS; Table 2: our lecture topics, and Table 3: libraries visited) during our two-week stay.

In addition to the LCAS, we had the opportunity to visit the Capital Library of China, Peking University Library, the Library of the Chinese Academy of Social Sciences, the National Science and Technology Library, et al. All libraries had several things in common: 1. a user-centered approach; 2. evidence of a love of Chinese cultural history, including archives of which they all were proud; and 3. a push toward digitization.

TABLE 1: Exchange Discussions:

Date	LCAS Department	Topic
May 18	Information Service Department	Service sections, standards, reader's equipment
May 20	IT Department	Development of library automation system; website assessment
May 21	Education and Research-Development Department	Major issues and challenges; information literacy; instructional tutorials; continuing education
May 27	Collection Development Department	Collection policies; cooperative collections; collection integration
May 31	CSDL (Chinese Digital Library) management center	Structure and development of digital libraries; major issues and challenges

TABLE 2: Our Presentation Topics:

Date	Librarian	Topic
May 19	Beth Bloom	<i>Information Literacy and Pedagogy from a Librarian's Point of View</i>
May 19	Dr. Xue-Ming Bao	<i>Development of Virtual Reference in American Academic Libraries</i>
May 28	Beth Bloom	<i>Core-Curriculum and the Library</i>
May 28	Dr. Xue-Ming Bao	<i>Changing Behavior of Internet Users in an American Library</i>
May 31	Beth Bloom	<i>Information Literacy Initiatives and Collaboration</i>

TABLE 3: Libraries and Information Centers Visited:

Date	Library Visited
May 19	National Library of China
May 20	Beijing Capital Library
May 21	Tsinghua University Library
May 21	Peking University Library
May 24	NSTL (National Science and Technology Library)
May 27	Information and Documentation Center of the Chinese Academy of Social Science
May 28	ISTIC (Institute of Scientific and Technical Information of China)

The User-Centered Approach:

The LCAS articulated its commitment to service in its promotional material, which states that the LCAS has a “Commitment to Service, Devotion to Innovation.” Its mission is “knowledge dispersion and research service.” Its philosophy is “user-centered,” and the criterion for measurement is “user satisfaction.” It has open stacks, a general reading area, a periodical browsing room, and closed stacks, which contain Chinese classics, Western language publications prior to 1965, and Japanese and Russian publications. The library also trains library or information science students for masters or doctoral degrees, sponsors continuing education for librarians and visiting scholars, and edits/publishes 10 journals in the natural and information sciences.²

In turn, the Capital Library of China (CLCN) is open “365 days per year, providing all-around quality services for the public. Therefore, the library becomes a ‘classroom’ for the citizens’ lifetime study.” It is ranked as one of the four cultural landmarks in Beijing; its architectural design suggests an open book. It provides such services as: searching; information consultation and research; press clipping service; education and training; knowledge navigation on the Internet; and lending and reading services. It is part of the Beijing Public Library Information Sharing Network: a documentation and knowledge service system covering all of Beijing, with CLCN as the central data processing center.^{3,4}

Archived Chinese Cultural History:

Nearly every library we visited proudly (and rightfully so) showed us their archival collections. While visiting the university of Peking library, for example, we were escorted into an underground vault, which contained drawings, treatises, illustrations, etc. some documents dating back to the thirteenth century.

The Push toward Digitization:

This trend is articulated in the LCAS's promotional material, which states that one of its major goals is to complete a digitalized national science library "to construct an open and cooperative science and technology and information service system to support scientific research and the national innovative system, linking large libraries and information institutions at home and abroad and creating a distributed and universally accessible information environment for scientists."⁵ The LCAS provides virtual reference service (answers within three days), full-text document delivery services, and online retrieval and consulting, including patent product and market information surveys, etc. through STN or DIALOG.

Our exchange discussions within the LCAS were fruitful. Since the LCAS has a Ph.D. program in librarianship, graduate students were included in our departmental meetings. Based on these discussions, it is clear that the library is committed to providing high-quality service in all areas of librarianship, using state-of-the-art technologies. Our Chinese colleagues were very interested in how their functions and procedures compared to those at Seton Hall. In particular, we had much opportunity to discuss information literacy policies and practices.

As part of my duties, I had prepared three lectures on: 1. Information Literacy and Pedagogy; 2. Core Curriculum and the Library; and 3. Information Literacy and Collaboration. There was much discussion during the first two lectures. The audience showed great interest in how Seton Hall had built up its information literacy program. However, with each lecture, the audience grew more and more silent.

Apparently, the concept of information literacy in China differs, both conceptually and in approach, from that practiced by librarians in the United States and evidenced in our literature. There is great interest in information literacy, but more in using the one-session, 50 minute model. I did not encounter anyone who was involved in planning an entire course. In the United States, we have begun to focus on pedagogies, on protracted partnerships with teaching faculty. Our librarians increasingly seek legitimacy in the classroom, contributing sections of exams and acting as mentors and specialists in information. I did not encounter anyone who was involved in these initiatives in China.

Several audience members even questioned the library's place in developing a university core curriculum.

By the third lecture, in which I discussed librarian collaboration in the educational process and in the classroom, I sensed that I had lost the audience so completely that I stopped the lecture and asked them what the problem was. They responded that they could not see how librarians could challenge teaching faculty, or that teaching faculty had anything to learn from librarians. The librarians I spoke to did not see themselves equal to teaching faculty. I sensed that the librarians and students in the audience viewed teaching faculty as authority figures. I tried to engage the audience in a discussion about changing librarians' image from a service-oriented, but detached, information guide into pedagogical partner with teaching faculty. They seemed to have difficulty accepting the fact that they might challenge or contribute to the coursework of teaching faculty. They asked me what I thought librarians could teach faculty—what I thought a faculty member might learn from a librarian.

This made me question how much librarians are valued in Chinese society. In the libraries I visited, I sensed a high degree of service orientation. However, many libraries still do not have user education programs, because a traditional attitude in China is that libraries are for reading and study, but not instruction or reference help.⁶ Moreover, in discussions with my Chinese colleagues, I was surprised to discover that the MLS is not a requirement for employment in an academic library. Relatively few academic librarians have masters or doctoral degrees. Senior managers in academic libraries often have on-the-job training during their acquisition of MLS or doctoral degrees. They also get additional training from visiting scholars and exchange visitation programs.⁷ Although Peking University Library has more than 200 staff, for example, only two have doctoral and only about 30 have masters degrees.⁸ In instances of smaller libraries, there might even be no resident MLSs.⁹ According to Hanrong Wang, et al, many Chinese libraries do have an established reference system and also employ subject specialists who are required to have at least a masters degree in their subject specialty, but those subject specialists are not officially trained in library school.¹⁰

To what degree does this affect information literacy? I was pleased to find that academic libraries are increasingly more open to the concept of user education and services. Reference service has become more important than ever. Universities have begun to require courses titled "literature searching and utilization" that focus on information-seeking skills for undergraduates "through teaching and practice."¹¹

Indeed, the LCAS is committed to developing its information literacy track in its graduate courses. A focused movement in this and other Chinese libraries toward efficient and effective user education, coupled with an increase in qualified librarians, will effectively solve some of their information literacy issues. With strong commitment, China will parallel its economic global influence with its ability to have a strong information literacy standing in the world.

Our Partnership with the University of Bochum

The collaboration with the library at the Ruhr University Bochum, Germany, goes back to 2002, when its director, Dr. Erda Lapp, met Professor Marta Deyrup and me at the LIDA (Libraries in the Information Age) conference in Dubrovnik, Croatia. We learned that we were all involved in developing IL programs in our respective universities. Bochum University had recently revised their study program and required a new information competence unit in their Bachelor's program. Learning that Marta Deyrup and I were presenting on how our CDI grant enhanced our information literacy program, Dr. Lapp suggested that we exchange information on our respective projects. Within a year, Dr. Lapp arranged a visit to the SHU library in order to learn more about our information literacy program first-hand.

In our collaborations with Dr. Lapp, we had extensive discussion in which we examined differences between information literacy instruction and practice in the United States and that in Germany. At Seton Hall, the librarians were focusing on infusing information literacy into the curriculum by acting as guest lecturers in all freshman and many other classes. Dr. Lapp, however, had developed an intensive course titled "Information Competence in the Age of the Internet," in which students learned literature searching in its various guises: search-query and search-strategy formulation, terminology, information source evaluation, etc.

We decided to give a selected group of students both at Seton Hall and at Bochum the same assignment, *The influence of rising nationalism on world stability*, and then discuss the perceived problems that arose in performing the required research for the project. We were interested in students' attitudes about searching Google, their opinions on complexities of library research, and how we might simplify the research process. In addition, we wanted to know how the students dealt with such a complicated topic, how they defined their terms, how they divided up the segments of the topic, how they narrowed it down, and if they were satisfied with their results.

We planned an international video conference between students at the library in Bochum and Seton Hall. Unfortunately, because we at Seton Hall did not teach a specific course, and because we had to rely on various teaching faculty to gather a cohort of students from various classrooms, we were unable to amass a group of students who could follow through in this project. Since Dr. Lapp was teaching a course with a dedicated group of students, she was able to find participants. "Sabrina" was the student spokesperson for the Bochum library.

The students' papers developed from seminar themes. They could choose their own topic based on the question at hand. "Sabrina's" topic was "terrorism". She divided the question into two parts: stability and nationalism. Then she tried to connect the two aspects of the question. As do most of the students in Bochum, the student attempted to solve the research issues by herself. Similarly to past practice in China, students in Germany generally don't ask the librarians for help, as they assume that they are to work mostly on their own, without much help from librarians. Germany doesn't have an

equivalent of LCSH; thus, students rely on keywording in their chosen databases. Sabrina found that it was difficult to find the proper search terms and choose appropriate databases. However, her participation in the course taught her about various finding aids, one of which was the PCI (Periodicals Content Index) which she used for guidance.

When asked about student search habits in Germany, “Sabrina” reported that the students tend to start their online research before thinking through the problem or research process. Similarly to students in the United States, many of the German students expected to find the answers to their research problems and the perfect articles at the touch of a button. They were not prepared for the complexities of online searching. Indeed, statistics have shown that “information seeking behavior of [German] students and university staff clearly demonstrated that searching in databases and on the Internet is very much governed by chance.”¹²

Although there is variation in library practice in Germany, the structure and expectations of academic libraries generally differ from those in the United States. It is typical for older German universities to have a central library staffed by librarians, flanked by departmental libraries that have no resident librarians. The University of Bochum reflects this model.¹³ However, it is understood there that the students are to work mostly on their own. Library reference in Germany traditionally existed to assist users in finding sources of information, but not answer specific factual questions (this might be because many academic libraries often hire library workers with advanced degrees in certain curricular areas but without library education).¹⁴ More recently, the increase in the amount and complexity of online and other electronic information formats has caused a redirection in Germany to such new online user aids as the virtual reference desk.¹⁵

Fortunately, the University library at Bochum is one of the relatively few that offer (but unfortunately do not require) an “Information Competence” course. By participating in this course, “Sabrina” learned the value of an articulated information literacy program. In addition to the required coursework, she also learned the value of and utilized the accompanying course tutorial. Most fortuitously, she discovered that she could ask for assistance from librarians—and that they were friendly and helpful.

When asked to evaluate the course, “Sabrina” commented that this course should be a requirement for all students. She felt, however, that the class needs more promotion and advertising; its excellence alone is not enough to get the word out. In addition, there should be flyers and posters that inform the student body about the benefits of taking such a course. Encouraged by the quality of reference service, “Sabrina” also suggested that the librarians have road shows: workshops in the humanities, medicine, and engineering.

“Sabrina’s” difficulty navigating through the morass of available electronic information is similar to that of students in the United States. We are fortunate to be in a society where librarians are essential to general education and core curriculum planning, and where information literacy programs are gaining credence. Likewise, Bunzell and

Poll express the hope that the findings mentioned above about the information seeking habits of German students will arouse “some interest in the university world and might help libraries to be seen as partners in information literacy programs.”¹⁶

It is ironic that with all the advances made in the United States regarding attitudes about information literacy, we at Seton Hall were unable to benefit because we do not have a dedicated information literacy course; whereas Dr. Lapp was able to capitalize on the relative uniqueness of her situation in Germany. She had the fortitude to develop and have an accepted information competence course for credit. Thus, she had students who could participate in the study, where we did not.

Dr. Lapp and the librarians at Seton Hall are continuing our partnership and collaboration in the development of our respective information literacy programs. She has planned to visit SHU again in the near future, to observe how we incorporate and infuse information literacy into the core curriculum. We, in turn intend to continue interviewing and conferencing with participants of the “information competence” program at Bochum.

Our Partnership with Denmark

The third partnership to be discussed in this paper is that between Seton Hall and librarians at Aalborg University Library in Denmark. In order to enhance the quality of student research, writing, and scholarship, Niels Jørgen Blaabjerg and Niels-Henrik Gylstorff have developed the SWIM (Streaming Web-based Information Modules) online library instruction module. This is a reflection of a new trend in Denmark to digitize library access, services, and resources.

In 1999, the Aalborg University library launched the MILE project, which was a series of on-line tutorials divided into heterogeneous, independent modules developed in order to supplement perfunctory library tours for new students. Although library services were accessible through the Internet, it had become clear to the developers that students were no more adept at understanding information structures and at satisfactory information retrieval than before the ubiquitous Web. SWIM was developed as the next installment of the MILE project. Its modules were more homogeneous, designed so that they could be viewed in context with each other. The ultimate goal was to train students to incorporate “information literacy into the student’s information retrieval process.”¹⁷ Based on a streaming-server technology, the modules allow the user direct access to video and other multimedia sequences using the Internet.

In 2003, Dr. Carol Kuhlthau, author of *Seeking Meaning: a Process Approach to Library and Information Services*¹⁸ and associate professor at the Rutgers School of Information and Library Services, was invited to visit the library at Aalborg, since SWIM was developed with the Kuhlthau learning process model in mind.¹⁹ In addition to getting Kuhlthau’s feedback on their project, Blaabjerg and Gylstorff sought her help in finding an American cohort with which they could test their product. Thus Dr. Kuhlthau

contacted librarians at Seton Hall University to see if they were interested in partnering with Blaabjerg et al. We arranged a series of videoconferences, in which Dr. Kuhlthau, Marta Deyrup, and I discussed the specifics and logistics of the program and partnership with our Danish counterparts. They sent us the first SWIM modules, initially only one of which was translated from Danish into English.

The modules consist of actors posing as students with three distinct personalities and work preferences. The audience is introduced to each student individually, accompanied by descriptions of the student's personality, likes and dislikes, favorite activities, food, hobbies, etc. Then we see the students together in the library. They have just been assigned a project. Thus follows a series of vignettes in which the students discuss, sometimes heatedly, how to solve problems as they arise in various stages of the research process. As the audience members view each vignette and problem, they are to give their opinion on which student they agree with. Then the process based on that choice follows, and so on. A second part consists of five "information modules" that explain different phases in the search process.²⁰

After we reviewed what we could of the modules, we held videoconferences with the Danish librarians in order to work on further steps. They decided to seek grants to fund full translation of the modules into English, and have just informed us that the funding request is a success. The Danish Electronic Research Library (their national library authority) has provided funding for further development of SWIM. The new project will have several applications: 1. to be an "English version of SWIM based on international collaboration between project partners in order to create a larger dissemination of the SWIM concept", and 2. "to create a web application that could be used as a tool for students and teachers as well to integrate their information resources/information searching process into their learning process and use it as a learning management tool."²¹

The main purpose of SWIM is to give students/users of the programme a higher degree of information literacy, which they will be able to use independent of specific information resources, time and place, and that will give them the necessary skills to support their own lifelong learning process. SWIM will give the user the experience of a clear connection between learning and information search. SWIM facilitates the user's reflection on his/her information search and information need.²²

We are still in the throes of determining just how this collaboration will proceed. As of the writing of this paper, future videoconferences are being planned. We are also planning to host Blaabjerg and Gylstorff when they visit Seton Hall in May, 2005.

SWIM seems to be a timely supplement to a national trend in Denmark. Education and library services there are free for all users. This supports the tradition of formal cooperation among various segments of the Danish library system. Coupled with this is a focused move toward digitization of library holdings and reference, and of consortial access to licensed and other forms of information resources, free to all users.²³ Given this freedom of access to an enormous amount of information, without having to

visit library as place, and given the absence direct librarian contact, library users must become more facile in their approach toward research.

What is most remarkable, however, is the assumption made by SWIM developers that information literacy training cannot be successfully incorporated into the learning process based on the present models of librarian encounters with college students. It is noteworthy that SWIM's developers perceived library tours as problematic, noting that they were of a general nature, and that they focused on honing students' library skills, and omitted "reference to specific professional ways of presenting a problem," which directly addressed students' immediate needs. This raises the question of whether or not protracted information literacy courses are even a part of the curriculum in Denmark. Is the only model the 50 minute encounter or merely a library tour? What part do reference librarians play in the education of college students? How are they perceived? Are reference librarians considered faculty? To what extent do they participate in helping students develop research questions and find appropriate search strategies and resources?

Such questions have sparked much discussion in the United States on library instruction both at the (real or virtual) reference desk and in the classroom. Entire conferences are devoted to discussing techniques and pedagogies that will help students and scholars alike to improve their ability to negotiate and successfully navigate the morass of available information. Organizations such as the ACRL have devised Information Literacy standards and assessment tools to measure and improve the quality of library instruction. In the United States, academic librarians have a unique opportunity to help students at all levels of academic sophistication—to focus them when they are confused about how to articulate their research questions—to guide them when they are overwhelmed by the task of selecting and using resources appropriate for their topics. Thus, more than ever before, they are valuing themselves and demanding more acceptance as essential partners in the academic experience.

Our colleagues in China, Germany, and Denmark, as well, are aware of the problems library users face in a world where information may be plentiful but appropriate resources are hard to find. In each case, they are developing their own ways to solve them. In China, where one might question the value librarians place on themselves as viable partners in the academic educational process, the students and librarians at the LCAS have indicated a strong commitment to improving reference service and information literacy training. In Germany, where students do not habitually consult librarians with their research difficulties, our colleagues at Bochum have accomplished something we could not at Seton Hall; they are teaching an Information Literacy course for credit and simultaneously changing attitudes about librarians. Finally, in Denmark, the librarians at Aalborg have approached information literacy training in a most exciting way. They are attempting to find a global solution through the application of the SWIM online model, which they hope can be translated into a multitude of languages.

Our collaboration with librarians from other parts of the world has indicated to us a global commitment toward effecting quality information literacy training. Although there might be other causes, this trend would appear to be a consequence of the confusion

caused by the glut of available electronic information. The experiences described in this paper have suggested that there is no one best way to approach information literacy training, because different cultures and societies have differing demands and needs. Indeed, librarians and information literacy trainers can also apply this on the local level, because each class can be a global microcosm, and perhaps diverse international approaches may be applied to heterogeneous groupings within the classroom.

Each society must recognize the need for this training and understand that librarians are best equipped to provide such. Only when societies value librarians for the skill, expertise, and understanding of information and its structures, and only when societies recognize that librarians are best equipped to give or control information literacy instruction, will library users and students be most empowered to do the best research.

Endnotes

¹ Martin Kesselman and Irwin Weintraub (eds.), *Global Librarianship* (New York: Marcel Dekker, Inc., 2004), 94.

² LCAS Promotional Literature, inside cover.

³ CLCN Promotional Literature, inside cover.

⁴ Many of these libraries are members of CERNET (the China Education and Research Network) and CALIS (the China Academic Library and Information System), information resources and document sharing systems.

⁵ LCAS Promotional Literature, inside cover.

⁶ Hanrong Wang et al., "Current Status of Reference Services in Academic Libraries in Mainland China: A Web Analysis," *The International Information & Library Review* 36, (2004), 109.

⁷ Jianzhong Wu and R. Huang, "International Perspectives: The Academic Library Development in China," *The Journal of Academic Librarianship* 29, no. 4 (2003), 253.

⁷ Ibid.

⁹ Ibid.

¹⁰ Wang, 109.

¹¹ Wu, 252.

¹² Juergen Bunzel and R. Poll, "German Academic Libraries: Tradition and Change," *The Journal of Academic Librarianship* 28, no. 6 (2002), 423.

¹³Ibid., 420.

¹⁴Ibid., 423.

¹⁵Ibid.

¹⁶Ibid.

¹⁷Aalborg University Library, *SWIM: Streaming Web-based Information Modules* (2003), 2.

¹⁸Carol Collier Kuhlthau, *Seeking Meaning: A Process Approach to Library and Information Services* (Norwood, NJ: Ablex, 1996).

¹⁹The Information Search Process ranges from anxiety and uncertainty to confidence. “The affective symptoms of uncertainty, confusion, and frustration are associated with vague, unclear thoughts about a topic or question. As knowledge states shift to more clearly focused thoughts, a parallel shift occurs in feelings of increased confidence.” (Kuhlthau, 111). This “uncertainty principle” is accompanied by six corollaries: process, formulation, redundancy, mood, prediction, and interest.

²⁰Aalborg, University Library, *SWIM: Streaming Web-based Information Modules* (2003) 2.

²¹Aalborg University Library. *DEF Project Application: Learning Objects Web*. Aalborg University (2004), 3.

²²Ibid., 13.

²³Niels Ole Pors, “Perspectives on Managing Change in Danish Libraries,” *The Journal of Academic Librarianship* 29, no. 6 (2003), 411-412.

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