

# Emerging Responses to the Science Journal Crisis

## Duane Webster

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*[Mr Webster's paper was presented at the 65th IFLA Council and General Conference, Bangkok, Thailand, 20-28 August 1999.]*

## Context

**L**ibrarians are acutely aware of the dynamics in the market for academic journals. ARL (Association of Research Libraries) has



reported that between 1986 and 1997, the cost of scholarly journals increased an extraordinary 169%.<sup>1</sup> Over that same period, the cost of monographs increased by 64%. These dramatic increases do not have parallels elsewhere in the academy or the economy generally. For example, the consumer price index increased 46% during this same period. Even the price of health care increased by only 84%. The increase in the cost of journals is more than three times the rate of inflation and nearly twice the rate of growth in health care costs. These price trends for publications combine with the continuing growth in new knowledge and the creation of new formats for information that require added investments. The Washington Post recently described this as a vast uncharted ocean of information with 50,000 books published every year in America and over 400,000 journals published annually around the world.<sup>2</sup>

It is apparent that the problems of cost and availability are most acute among the science journals. Here the title costs range in the USD

5,000 to USD 20,000 annually. With limited use, there is often an unjustifiable high cost per use. These items absorb a large share of total acquisitions and pressure other interests and needs within the academy.

The ARL studies of the changing characteristics of library collections are complemented by a variety of supporting price studies. Recently, for example, a Cornell Faculty Taskforce completed a study on journal prices in agriculture and life sciences.<sup>3</sup> The purpose of the study was to investigate changes in journal prices, comparing 1988 prices with prices in 1994. This study revealed that commercial publishers had a much higher rate of increase over the period studied than the societies and association publishers. Furthermore, the most costly titles were those published by commercial publishers. Craig Adler, Chair of the Faculty Taskforce on Journal Price Study and the Cornell Vice Provost for Life Sciences, is "so alarmed that he is encouraging scientists not to submit articles to the most highly priced journals."<sup>4</sup>

This explosion in the cost and the quantity of science journals, however, is familiar territory; the phenomenon has been described and analyzed in conference after conference, report after report. Many in the academy have grown tired of the complaints and the numbers. Increasingly, there is a sense that the academy must do more than complain and blame. It is the time for careful thought and tough-minded strategic responses. These strategic responses must be based on a sound understanding of the causal factors contributing to the crisis.

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### Causes

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The central cause of the science-pricing crisis is the imperfect marketplace that characterizes STM publishing. The imperfect marketplace is exploited by commercial publishers who have learned that if they control the supply they can

dictate prices. The faculty, on the other hand, often view the work of research and scholarship as essentially a free good. And the act of publication constitutes what many have termed "gift exchange" among a community of devotees bound by a common interest; the giving of such gifts is intended to win the regard of other members of the community.

Yet, increasingly, the intellectual property that is both an essential ingredient in the discovery process and an important outcome of research and scholarship is under the control of commercial publishers. This has happened because of a variety of factors including the complexity and difficulty associated with STM publishing as well as the skill of commercial publishers in wooing faculty with convenient publications, timely distribution, and credibility.

However, the operation of this gift exchange society creates an environment where the creators of knowledge experience none of the direct consequences of market failure. These contributors to a knowledge base, who are faculty of universities or colleges, expect their institution to provide the current information that makes possible their own engagement in a field. But universities, having made an initial outlay in the form of salaries and infrastructure to support faculty research, are then forced to pay exorbitant prices for the editing, production, and distribution functions that commercial publishers perform. With the growth in quantity and costs of new knowledge the university is finding it impossible to maintain the level of support deemed necessary. While members of the faculty regard publication as an exchange of free goods, the handful of publishers who are gaining control of intellectual property see opportunity for enlarged profits.<sup>5</sup>

In 1988, ARL contracted with the Economic Consulting Services (ECS) to conduct a serials prices study. ECS conducted an analysis of trends in average subscription

prices and publication costs over time. They looked at four major publishing firms and proved the hypothesis that, after adjustment for fluctuations in exchange rates, subscription prices paid by US libraries have risen at a rate greater than inflation in publishing costs, with the gap accruing to the publishers as incremental profit.<sup>6</sup>

In 1997, a 20-year study of scientific journals by Tenopir and King<sup>7</sup> came to a similar conclusion and attributed an unknown but significant proportion of price increases to the pricing practices of commercial publishers. Studies within individual disciplines have time and again demonstrated higher costs per character and per page of some commercially published journals when compared to journal titles published by societies or other non-profit groups.

Most recently, Mark McCabe, a former economist with the US Department of Justice (DOJ) reported the preliminary findings of the DOJ's work to develop a new model for understanding the competitive impact of publisher mergers on the academic journals market.<sup>8</sup> Librarians' outcry at the proposed Reed Elsevier/Wolters Kluwer merger encouraged the DOJ to look beyond its established criteria for evaluating publishing mergers and to explore whether other dynamics were operating that would permit mergers of relatively modest size to cause competitive harm and higher prices. Staff in over 50 ARL libraries provided DOJ with data on the holdings of over 3,000 journal titles for a ten-year period. These data, combined with that collected elsewhere by the DOJ, allowed McCabe and his colleagues to develop and test models by comparing projected effects with the actual effects of previous mergers and acquisitions. Based on this testing, McCabe outlined his new portfolio theory of journal pricing, suggesting that publisher mergers of relatively modest size can cause competitive harm. While the Reed Elsevier/Wolters Kluwer deal was ultimately abandoned by the companies, several other publisher

mergers have come before the DOJ. McCabe will continue his research for the DOJ, therefore, even as he takes on a new position as an assistant professor at the Georgia Institute of Technology.<sup>9</sup>

McCabe's work helps us to understand the dynamics of the marketplace in scholarly journals publishing. It provides an economic model suggesting that commercial publishers are employing the business strategies of consolidation and proliferation of titles to gain control of narrow subject portfolios. These strategies allow them to use exploitive pricing practices. It may lead the DOJ to some future action that will protect the academic community from the anti-competitive practices of some publishers. Most importantly, it will replace some of our speculations with fact, allowing us to develop even more effective strategies for challenging the status quo.

Brendan Wyly, a librarian in the Johnson Graduate School of Management Library at Cornell University, uses publicly available data to analyze the financial health of four major publicly traded companies that have significant scholarly publishing operations.<sup>10</sup> Wyly describes the measures of profitability found in these companies' annual reports and concludes that the profits of some of the major commercial publishers of scholarly journals are, in a word, exceptional. He also concludes that these profits confirm a lack of competition in the marketplace. His response is to call for a new system of scholarly communication, created primarily by universities, that provides the kinds of innovations that will lure authors away from commercial publishers and end reliance on journal purchasing in a non-competitive market.

Many believe the exploitive pricing practices of a few large commercial companies operating in a near monopolistic market are the fundamental cause of high prices. Changing the patterns of unreasonable price increases will require addressing the economic and

behavioral issues that allow this to happen.

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## Current Responses from Libraries

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Library responses to this growing body of research about the extent and nature of price increases for scholarly journals have been multifaceted. National and international library conferences have drawn attention to the research findings and explored possible solutions. On the local level, librarians have combined campus experience with the literature published about the research to help inform faculty and students about the financial challenges and choices inherent in managing serial collections. Over time, this process of informing and educating research library users, boards, and funding agencies has contributed to a broadening circle of awareness about dysfunctions in this marketplace. With this awareness has emerged a sense among the academic community that the entire system of scholarly communication is in danger of collapsing unless there is concerted effort by and within the community to promote less expensive channels for publication, dissemination, and archiving of scholarly research.

Beyond communication and education, libraries have made a number of concrete changes in operations as a result of these price trends. Libraries have had no choice but to cancel significant numbers of journal subscriptions and to reduce monographic purchasing, dramatically changing their traditional collecting practices. Increasingly short-term access to a wide range of required information is the institutional response rather than the more traditional approach of securing ownership of required knowledge resources with long-term access available as needed.

Libraries have directed significant energy toward improving document delivery models and designing better performing and less expensive interlibrary loan systems. Cooperative collection development and resource sharing is routine and

commonplace among state and regional groups of libraries with the promise of broader access to required information at a reasonable cost. Regional buying groups are being formed for the purpose of organizing library markets to lease to electronic information resources. Increasingly site licenses are providing immediate access to networked information resources on a temporary basis.

Some universities have informed specific publishers that the total spending on their journals is fixed by current spending, so that if they raise prices, subscriptions will be cancelled so that publishers' revenue from that institution remains fixed. This response assures faculty from other disciplines that the science journal budget will not consume an inappropriate proportion of the libraries acquisitions.

But, these responses seem to be short-term fixes of value largely to the local institution. The responses serve to inform and mobilize the staff, administrators and faculty but so far, they are not resulting in a moderation of the price trends experienced over the last several decades.

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## New Strategic Responses

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### *Pew Higher Education Roundtable*

In December 1997, a group of academic leaders met at Johns Hopkins to think about strategic responses to the science journal pricing problem. Sponsored by the Association of Research Libraries and the Association of American Universities, it was convened by the Pew Higher Education Roundtable.<sup>11</sup> These discussions concluded that now was the time for action based on a tough-minded understanding of the market for academic publications and a readiness to seize the opportunities new information technology offer. These leaders put forward five broad strategies requiring collaboration and concerted action to address the science pricing crisis.

The first strategy advanced by the Pew Roundtable discussions is to

find ways to separate the notions of quantity of publication from the quality of the publication in the tenure review and promotion processes within the academy. The concern here was that numbers of journal articles created by a faculty member may sometimes misrepresent successful intellectual productivity and contribute to the pressure to build and maintain large collections of resources that may be little used.

The second strategy is to promote the notion that Research Libraries should better define the market place and act as collective buyers of needed information products. The idea here is that more systematic purchasing on a local, regional, and national basis may provide savings and more influence in the market place.

The third strategy is to redefine the way universities manage the intellectual property rights created as a result of the faculty working within the support structures of a the academy. The intent here is to gain faculty support for taking back some of the rights to the intellectual property demanded by commercial publishers.

The fourth strategy is to exploit electronic publishing on the Web to provide the academy with the means of announcing and certifying new research results. The Pew Roundtable explored levels of distribution on the Web including announcements, pre-prints/drafts, and fully refereed publications. At some later point in the publication process, print versions would become available.

The fifth strategy is for higher education institutions and their faculty to redefine the process by which the scholarly community communicates advances in knowledge and to create an electronically mediated peer review process as a full complement to journal publication. This peer review process should be managed by the scholarly and scientific societies not by commercial publishers.

These several strategies as put forward by the Pew Roundtable are experiencing thoughtful responses from the community. For example, the library community is seriously considering the call to redefine acquisitions decision-making moving from comprehensive collecting to value-received based acquisitions systems.

Value-based acquisition systems are seen as a useful and distinct strategic response. In this approach utility of a title in relation to its price creates a ratio that helps determine whether the item should be purchased. Thus, utility, rather than other subjective criteria such as prestige or faculty preferences, serves as the determinant for purchase. According to Louisiana State University Library's Stanley Wilder, regardless of what we may think about their price, commercial publications are of less value to faculty than society publications when measured against the revenue they generate. Wilder presents the specific case of chemistry where he finds that commercially produced journals account for 74% of the revenue generated by a core set of chemistry titles but contribute only between 22-35% of the value. The response? He calls for a change in philosophy of those academic librarians who currently pursue comprehensiveness in collecting scientific and technical journal literature. He recommends instead placing value at the heart of scientific and technical collecting and relegating lower value literature to more cost-effective document-on-demand acquisition.<sup>12</sup>

#### *Scholarly Publishing and Academic Resources Coalition*

The Scholarly Publishing and Academic Resources Coalition (SPARC) was formed by ARL to create another strategy among many for addressing the complex issues involved in the current scholarly publishing system. SPARC is an alliance of libraries that fosters expanded competition in scholarly communication. Launched with support from membership of the ARL, SPARC creates partnerships

with publishers who are developing high-quality, economical alternatives to existing high-price publications. By partnering with publishers, SPARC aims to: 1) create a more competitive marketplace where the cost of journal acquisition and use is reduced, and publishers who are responsive to customer needs are rewarded; 2) ensure fair use of electronic resources, while strengthening the proprietary rights and privileges of authors; and 3) help apply technology to improve the process of scholarly communication and to reduce the costs of production and distribution. SPARC is influencing the marketplace positively by encouraging publishers to enter markets where the prices are highest and competition is needed most, primarily in the science, technical, and medical areas. Through its activities, SPARC reduces the risk to publisher-partners of entering the marketplace while providing faculty with prestigious and responsive alternatives to current publishing vehicles. To accomplish this, SPARC solicits and encourages the introduction of new publications of high quality and fair price; guarantees a subscription base and markets new products to potential subscribers; privileges start-up capital; and generates support for SPARC projects from distinguished faculty, educational organizations, professional societies, and scholarly publishers. To date three partnerships have been established and more are planned.<sup>13</sup>

As a second set of activities, SPARC plans to award grants that stimulate and accelerate creation of new university-based "scientific information communities" serving users in key fields of science, technology or medicine ("STM") (i.e., "discipline-based server model"). In this initiative, SPARC will enable projects that:

- offer a promising strategic response to addressing and overcoming Inefficiencies and inequities in the current, traditional scholarly Communication process, and

– warrant our support because of solid potential to transform the STM Information market, particularly as applies to the dissemination of research, to the benefit of science, academe and society at large.

## *National Electronic Article Repository*

The University of Kansas Provost David E. Shulenburg advances another strategic response to the science journal-pricing crisis. He proposes to solve the journal crisis by creating the National Electronic Article Repository (NEAR), a centralized, public-domain server that would manage the intellectual property rights associated with faculty publications. He argues that when a manuscript is prepared by a faculty member and is accepted for publication by a scholarly journal, a portion of the copyright of that manuscript be retained for inclusion in a single, publicly accessible repository after a lag following publication in the journal. At present, essentially all scholarly journals require that all rights to copyright pass from the author to the journal when a manuscript is accepted for publication. In this proposal, only the exclusive right to journal publication of the manuscript would pass to the journal. The author would retain the right to have the manuscript included in the NEAR 90 days after it appears in the journal.<sup>14</sup>

Shulenburg argues that by requiring authors' works to be submitted to NEAR within 90 days of publication, publishers would be forced to reassess the value they add and reduce prices accordingly. Shulenburg noted that he "no longer believes that solutions that fail to deal with ultimate ownership of scholarly communication, i.e., copyright, are viable." He notes that scholarly articles have market value, as demonstrated by the pricing practices and extraordinary profitability of commercial publishers. He is concerned that non-profit scholarly societies also recognize this market value and, judging by data collected at Kansas, have

begun to exploit it, as well. Shulenburg believes that limiting the rights that faculty authors can transfer to publishers (which would be required for the establishment of NEAR) limits the ability of publishers to control and exploit all possible value from journal articles.

## *Phelps' Alternative Method*

Yet another academic leader, Charles E. Phelps, Provost of the University of Rochester has offered ideas. He notes that the most important step in achieving effective competition for existing journals is to create an alternative mechanism to provide the refereeing/certification process now provided uniquely by the editorial boards of print journals. He observes that digital technologies allow the complete separation of the certification process from the other publication processes (reproduction, distribution, indexing, archiving, etc.).

Phelps proposes taking advantage of these new electronic capabilities to separate functions currently performed by the system of journal publication. He believes that by paying scholarly societies to conduct peer evaluation of manuscripts, functions such as publication and dissemination can be left to other entities, e.g., discipline- or university-based servers. This separation, or "decoupling", of functions breaks the link between the peer review process, which is essential to the academic enterprise, and the publication of a work, a link that is exploited by many publishers, as evidenced in their pricing practices. He characterizes the issue as "not whether the journals provide valuable services, they do without question, but rather whether the terms of trade are appropriate." Phelps suggests several steps that the university community should take: bringing faculty more closely into the collection decision mechanisms; creating criteria for libraries that reward access and consortial activity; evaluating faculty scholarship on the basis of quality, not quantity; and modifying the usual practice of total assignment of property rights.

But he concludes that "the issues of journal pricing can only be resolved by systematic and widespread introduction of vigorous competition into the world of publishing." Phelps believes that it is up to universities to introduce this competition and sees the decoupling proposal as one possible alternative.<sup>15</sup>

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## Conclusion

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The studies cited in this paper illustrate the issues librarians and researchers face in efforts to efficiently disseminate information specifically through scholarly journals. In exploring the rising cost of journals from a variety of vantage points, each study similarly concluded that exploitive pricing practices do exist among commercial publishers and that it has had a monopolizing effect on the academic journal market altogether. The Economic Consulting Service reported in 1989 that increased costs of production and the growing size of journal titles do not fully justify the increase in prices charged by major commercial publishers. The 20-year study conducted by Tenopir and King in 1997 attributed price increases to the pricing practices of commercial publishers. Mark McCabe reported in 1998 that the DOJ's work to develop a new model for understanding the competitive impact of publisher mergers on the academic journals market concluded that publisher mergers, even those modest in size, can cause competitive harm, allowing commercial publishers to use exploitive pricing practices.

The fundamental issues causing the science journal pricing problems can only be addressed by systematic and widespread introduction of vigorous competition into the world of STM publishing. These responses demonstrate that libraries and researchers are increasingly exploring alternative strategies that would do this. Some key strategies being implemented to promote competition in the scholarly journal market include: the Pew Roundtable Recommendations; value-based acqui-

sition systems; the Scholarly Publishing & Academic Resources Coalition; the National Electronic Article Repository; and the "decoupling" of functions between the peer review process and the publication of a work. Libraries, scholars, and publishers are working together to increase competition and bring prices down within the scholarly journals market.

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# Collecting Science Materials from Developing Regions: Universal Dilemma, Collaborative Solutions

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## **Transformation to the Information Age**

As science turns, so does the world. In the United States it is considered axiomatic that the advancement of basic science is relevant to the nation's welfare. Whether we like it or not, the Western world is a technological society, one highly dependent on science and its handmaiden, technology. Whether science is good or bad is moot; what is not debatable is that it has significantly changed the world in which we live, and that it is likely to continue to do so for the foreseeable future. It has even challenged the basic tenets of some religions; for some even replacing the need for religion, causing Albert Einstein to caution that "science without religion is lame, religion without science is blind."

As the world confronts the transformation to the Information Age, it is already obvious that science will once again "spin off" technologies that will have both desired and undesirable effects. The Industrial Age, in which science amplified muscle power through the inventions of wondrous machines, also left a legacy of environmental degradation and worldwide pollution. While forecasters easily predicted the train, plane and automobile, who could have predicted the traffic jam, the multiple vehicle collisions, the polluted air, our very cities being built around the car (the machine that kills and maims annually more people than all of the wars!)?

The Information Age, spawned largely by the advent of computers that could manipulate mountains of raw data and amplify the power of brains in a manner similar to the Industrial Age's amplification of muscles, has changed the world even more dramatically than the machines of the Industrial Age.

With the introduction of the commercial microcomputer less than 20 years ago and the subsequent growth of the Internet, the worldwide exchange of information has burgeoned to the point that we are, indeed, both "drowning in a sea of information" and "drinking from an information fire hose".

The worldwide glut of "information and knowledge currently doubles every year and is expected to double every 73 days by the year 2020."<sup>1</sup> Like the unforeseen consequences of the proliferation of the automobile, what are the consequences of a world smothered in inaccessible information? In unauthenticated information?

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## **Loss of Information**

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One of the consequences is the improper storage and inevitable deterioration and loss of much information, including information about science itself. Whatever your philosophical position is on science and technology, not to mention the Information Age, I suspect that you would not want the history of science to be lost because we failed to collect, store and preserve its materials. But in much of the world, including the Western world, the scientific record is not only being shunted aside, its longevity is also being compromised by inadequate storage. In the rush to keep up with the unrelenting production of scientific knowledge and the costs associated with it, we are now at that point where very few institutions have the financial resources to store and preserve the vast amounts of information that the scientific-technical-medical (STM) field is currently generating. In astronomy, for example, hundreds of thousands of computer-generated charts and documents are piling up, unread, and in peril of being lost or destroyed because there is no money to spend

on proper storage facilities. The information cup runneth over!

### Price Increases in STM Materials

While we are all too familiar with the exorbitant price increases over the past two decades for purchasing STM materials (most libraries are paying more and getting less for their acquisitions expenditures), it bears repeating that "increases in STM journal prices have been responsible for fueling the 147% increase in STM journals from 1986 to 1996." <sup>2</sup> And, "during the same decade, as a result of library budgets not keeping up with such increases, 7% fewer journals and 21% fewer monographs were acquired on average across North America's 100 largest research libraries."<sup>3</sup> The cost of scientific subscriptions to "journal and serial titles alone is now stated to be seven times more than that of arts and humanities titles and twice as much as social science titles."<sup>4</sup> This crisis in scholarly communication shows no sign of slowing and has had the pernicious effect over the past decade of decimating science collections to the point that the fortunate are holding steady while most are declining in their ability to offer credible support for scientific research. All the while, the number of STM publications available worldwide continues to increase.

### Loss of Unique Materials

Even though there have been heroic efforts to salvage at least a core STM collection from the numerous cycles of "review and cancel" strategies (dictated by years of insufficient funding), the collection money in science libraries has migrated to the "for-profit publishers" for high-demand titles, which are increasingly English language journals reporting work done in the United States and Western Europe. Predictably, the end results have been not only more homogeneous collections nationwide but also a continuing loss of the peripheral and unique materials that so often are the hall-

mark of an excellent research library.

Nonetheless, long-held titles have been cancelled and receipt reduced to only one or two libraries and, in some instances, to no holding library at all! Peripheral titles cancelled are often in other languages or from other regions; though generally not costly, such titles, if cancelled in sufficient number, yield enough money to retain subscriptions to core titles. And that, in a nutshell, is what has happened to US academic science collections: they have been pared to the commercial core, but at the loss of a considerable number of peripheral titles that often narrow the scientific inquiry.

Because a title is considered "peripheral" to a core collection, however, does not mean that it is not a valuable publication, or that it should not be held at all. On the contrary, many so-called scientific peripheral titles, especially from the developing nations, are of the utmost value. In certain areas of science, the developing nations are the only ones addressing certain scientific issues. Because the results of science have so many social, political and economic ramifications, it is of the utmost importance to the global village that a dialogue involving all the participants be encouraged and recorded. Paraphrasing the great English Poet, John Milton, "Science, like Virtue, must sully itself in Reality and walk unfettered among the Truths of Inquiry." In something as important to the world body as science and its technological outcomes, national concepts of superior science are to be avoided, if at all possible.

Also, many disciplines of science are based on the ability to examine as many aspects of the problem as is possible. For example, in the area of bio-diversity any lack of information about the animal and plant species on this planet (or others) makes understanding the "balance of nature" incomplete, and potentially dangerous when the inevitable technological or biologi-

cal "tweaking" of the environment becomes involved.

And research in many scientific disciplines, like the earth sciences, requires an incredibly diverse array of materials from as many areas of the world as is possible. Many of these areas are remote, sometimes inaccessible due to political problems, or are regions that have been seldom studied at all. In these instances, the only available information comes from relatively obscure, peripheral sources. This material may be absolutely critical not only for those studying the area directly, but also to scientists needing analogues from around the world or seeking global correlations. So it is essential that scientific publications be international in scope to balance the various biases of the individual countries.

It is equally important that retrospective holdings for these peripheral titles be retained, somewhere, as well. After all, since science is always building on what was done before, it is valuable to save the historical infrastructure. And, one could argue that these titles are important so that not only former paths of research can be traced but also (hopefully) that they might lead forward in different directions.

Adding to the fiscal problems regarding scientific research, as if the situation was not already calamitous enough, most research libraries are spending nearly one-third less on preservation than they did just a few years ago. And, "total preservation staff (at the 11<sup>5</sup> Association of Research Libraries) has sharply declined to 1,742 FTEs (Full Time Equivalents) in 1996-97 from 1,879 in 1995-96, falling back to the staffing levels reported in 1989-90."<sup>5</sup> One of the reasons given for this decline is the withdrawal of grant funding.

It is quite clear to all but the most myopic that the traditional concept of a library is no longer valid, that no one library, be it Harvard or the Library of Congress, can conceivably collect all the information now being generated, let alone guaran-



tee its preservation. Is not one of the central reasons for libraries that they would be repositories and archives of the historical record?

One of the possible ways to ameliorate some of this dilemma is accelerated resource sharing and preservation, but it must be effective resource sharing; otherwise it will only result in the "expeditious pooling of poverty", which is the unfortunate result of too many consortia. Since the Center for Research Libraries (CRL) has operated similar programmes in the past 50 years to assist librarians, bibliographers and researchers to join together to do what they could not easily do, or do at all, regarding access and preservation of peripheral materials, we wondered if the crisis facing the collecting of STM materials might be eased by applying cooperative lessons learned from the past.

## Science Research Materials Project

In a serendipitous moment at the 1998 IFLA Conference in Amsterdam, two of the participants in the present Science Research Materials Project (SRMP) initiative met for the first time and struck a conversation that became the impetus for the development of a plan to make accessible and to preserve the scientific and technical materials of the developing nations. Building on its already extensive holdings in these areas (holding over 4,000 current subscriptions to such materials and retrospective holdings of over 10,000 journals), CRL brought together science librarians (see list below) from various scientific disciplines to form a Working Group.

The SRMP Working Group was charged with a thorough examination of CRL's present STM holdings, and asked to rationalize its collecting policies both to promote concerted cooperative collections of these materials at the national/international level, and to establish a desiderata list of STM titles recommended for immediate preservation. Recognizing that the

cost of STM materials has created a crisis for research libraries attempting to sustain credible core collections, and that competent research is not only being impaired but also that the very history of the scientific enterprise is being lost, CRL proposed a cooperative approach that includes both the centralized CRL facility and the distributed collections of the SRMP participants (who do not have to be CRL members in order to belong to the SRMP).

Utilizing such a collaborative strategy the international community has an opportunity to address a significant problem regarding STM materials. Whether a title is central or peripheral to a science collection, it requires staff time to acquire and otherwise process; in fact, it could be argued that peripheral titles generally involve more-than-average effort to acquire, and, although they are not usually expensive per title, because of the staff time involved, they can actually be quite costly to an individual institution to acquire. In short, much of the scientific record is at risk of being lost not just from natural and human disasters but from simple attrition of efforts to gather and retain copies in sufficient numbers in various sites.

The cooperative solution proposed by the creation of the SRMP would benefit science librarians and scholars in the scientific disciplines through:

- a larger pool of acquisitions funds to support rarely held scientific materials generated by scholarly societies and related publishers from around the world;
- an environmentally controlled collection archive for access and preservation;
- an enhanced ability to build and maintain local collections with the assurance that complementary, rarely held materials in a safe, secure print and/or electronic archive would be readily accessible to its local clientele;
- a widely accessible electronic and traditional delivery mechanism;

- an expanded opportunity to seek grants and endowments to collect and preserve unique scientific information; and
- a framework, complementary to efforts such as ARL's SPARC, for librarians and scholars to foster cooperative projects to lower costs involved in expanding the availability of science and technology publications.

## SRMP Activities

Initially, SRMP activities will be limited to the collection and preservation of unique science materials, especially serials, in the following disciplines: biology, physics, agriculture, astronomy, chemistry, environmental studies, geo-sciences, mathematics, and physics. Later, more scientific disciplines will be added.

As mentioned earlier, its planning and implementation would incorporate the substantial holdings of CRL's journal collections. From this core collection, SRMP would progress to build collaboratively an international conspectus of collecting agreements for the preservation and access of rarely-held, unique science materials. Participating institutions would integrate their local collection development policies with the one to be engineered by SRMP.

The SRMP Working Group will initiate a general discussion among science librarians, interested scholars and researchers nationwide on the perceived areas of need and the scope of the project. The Working Group will then draft a project programme statement, initiate work plans, and issue a general invitation to participation.

The SRMP will aggressively seek external funds from granting agencies and endowments/contributions from relevant donors, commercial vendors, and publishers to undertake its work and to increase acquisitions and preservation programmes. Based on CRL's highly successful Area Studies Microform Project (AMP) model, the SRMP will develop operational bylaws and

a coordinated project work plan, including alternative funding models to defray administrative and access costs to the expanded STM holdings at CRL. The CRL Vice President for Collection Programs, or designated Program Officer, will be a permanent ex officio member and CRL liaison.

Currently, the CRL SRMP Working Group consists of the following librarians and institutions:

- Ross Atkinson (Cornell University Library, Ithaca, NY)
- Linda Musser (Pennsylvania State University, University Park, PA)
- Bonita Perry (Smithsonian Institution Libraries)
- Lucy Rowland (University of Georgia, Athens, GA)
- Susan Starr (University of California-San Diego, CA)
- David Stern (Yale University, New Haven, CT)

- Gary Wiggins (Indiana University, Bloomington, IN)
- Patricia Yocum (University of Michigan, Ann Arbor, MI)
- Kathleen Zar (University of Chicago, Chicago, IL).

While the SRMP is just getting started, we believe that it will provide a collaborative forum to address some of the major fiscal difficulties confronting the collecting of STM materials. And we would like to take this opportunity to invite those of you who share our problems and concerns to contact us by way of the SRMP Web site <<http://www.crl.uchicago.edu>>, which is mounted on the CRL server, to explore ways of extending this concept to the international community. If we work together, we may be able to not only preserve and access the historical record concerning science, but perhaps even influence the costs of acquiring this

material. Your voice in this matter would be most welcome.

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# The Economic Crisis and other Challenges in Accessing to Science and Technological Information in Asia

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## Economic Crisis

A recent report from the International Development Research Center states that "the most vital difference between developed and



developing, rich and poor nations, is the knowledge gap - the capacity to generate, acquire, disseminate and use scientific and technical knowledge." This reemphasizes an earlier point made by Malaysia's Prime Minister Mahathir Mohammed who said, "It can be no accident that there is today no wealthy developed country that is information-poor, and no information-rich country that is poor and underdeveloped."<sup>1</sup> The greatest challenge for Asia, then, was set at the beginning of this decade at a time when some economies were experiencing double digit growth while others were robust and growing.

But the economic bubble was not to continue. What has happened in Asia during the last two years has halted a pattern of unprecedented growth of the previous half dozen years. The world's economic crisis shook Asia first, in July of 1996, and has crossed borders and continents, with shock waves reverberating to this day. It has forced gov-

ernments to reexamine economic policies and priorities and has had an impact upon individual institutional budgets. This crisis is simply the latest challenge for many developing countries which have traditionally relied upon the oral tradition, rather than even print-on-paper for information dissemination.

It has been argued that the growth in information service is a significant factor underlying the economic well-being of countries and is therefore a major indicator of success or failure of the economies of developing countries.<sup>2</sup> Some few decision makers in Asia now recognize that timely access to information is one of the most important factors in economic recovery and growth. While some have not yet reached the point, several are developing, or in some cases arguing for strengthening, national information policies with the goal of recapturing the momentum that once drove the so-called "Tigers of Asia", as well as others that were newly emerging when the crisis hit. Just at the point when many Asian countries were moving into what one might call the third phase of development, having moved from the sole reliance on the oral tradition through an exclusive reliance on print-on-paper sources into establishing technological infrastructures with strong economies and an opportunity to become knowledge rich, they were faced with new challenges, primarily financial because of this economic downturn. As an example, in Thailand most large academic libraries, before the crisis became obvious, had newly installed integrated systems; most are INNOPAC systems by III. At the time of the free-fall of their currency those libraries' new priority had become further networking by developing resource-sharing schemes and identifying strengths of collections and assigning institu-

tional responsibilities for subject representation and journal coverage, either through subscription or by license. Further, two previously independent networks, THAILINET, formerly covering only Bangkok metropolitan universities, and PULINET, composed of provincial universities, began initial steps in their merger. Cooperation and resource sharing were reaching a sophisticated level for libraries in Thailand, which were building upon previously developed bibliographic tools, such as union catalogues and union list of serials.<sup>3</sup> An early example of that cooperation was the Ministry of Science, Technology and the Environment (MOSTE) efforts in the establishment of a network linking databases and sharing union catalogues of books and journals, as well as CD-ROMs. Access to databases in science and technology are now available through these efforts. Full-text CD-ROM journals and online full-text access to their science and technology literature are also available, while online bibliographic searches for non-Thai materials, through such services as OCLC's First Search and CARL UnCover are common among a number of academic institutions. Further, the National Electronics and Computer Technology Center (NECTEC), through MOSTE, has provided valuable funding to both academic and special libraries in establishing networks. The Ministry of University Affairs and the Ministry of Education have also provided economic support and guidelines through various committees of professionals.

A similar pattern can be identified in other countries of the area. For instance, in the Philippines the TIN-LIB system by IME had been installed in many of the larger academic libraries and cooperative networks have been developed with similar goals. With the costs of powerful hardware and sophisticated software many libraries, both large and small, in countries of the region still use PC-based hardware and Micro CDS/ISIS software, which is free from UNESCO to library organizations in developing countries.

If there is a positive side to this economic crisis, it is that many institutions, either through conviction or design, now are concentrating on coordinating information strategies at both the local organizational level and the national level. This greater emphasis upon cooperation and coordination of resources and services, particularly in the scientific and technical areas, presents librarians and other information managers with new challenges to provide timely, accurate, relevant, accessible, as well as cost-effective information to their by-now information-dependent societies. In this process governments and organizations are being forced to consider the value of information and not simply the cost of acquiring it. We all know that two questions are essential in this debate of value. First, "What does it cost to have the materials and services available?" But equally important is the question of "What does it cost not to have access to the information necessary for the organization or individual to meet a goal or make a vital decision?" I am reminded of a statement by Oscar Wilde who once wrote, "nowadays people know the price of everything and the value of nothing." Decision makers in Asia are all too slowly beginning to recognize the economic benefits of access to information.

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### **Libraries' Response to the Economic Crisis**

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At the same time Asian libraries are simultaneously struggling in an effort to remain current with the explosion of print-on-paper resources and their accelerating costs, while introducing new technologies and training staffs to more speedily access the vast array of information sources while coping with the cost of both. It is unfortunate that just as libraries began to explore the use of new technologies to make a breakthrough, they also began to experience a period of accelerated inflation in the regular cost of scientific and technical resources and the deflation of local currencies. Additional financial resources are easy to justify yet dif-

ficult to secure in the current environment, particularly with fluctuating currencies. A good example is what has happened here in our host country, Thailand. In July 1997 the Thai government decided to allow the local currency, the Baht, to float. Previous to that point the exchange rate was about 25 Baht per US dollar. Distressingly, at one point last year the Baht reached a 50 Baht per dollar exchange rate, reflecting a 100% increase in the purchasing price of foreign materials. Of course that inflation trend is not limited to one country or even to the Asian region. During the past two years "40% of the world's economies have been tugged from robust growth into recession or depression."<sup>4</sup> What institution can maintain library resource development with that rate of increase? Many libraries in Asia have been obliged to cancel research journal titles and to pull back on full-text online journal licenses, a trend that could result in not being able to keep pace with scholarly output. The pinch is being felt by all countries in the region, from the so-called "Five Tigers" to Japan and China, and certainly by those whose economies are less well off. Academic libraries now are continuously, not just occasionally, reviewing what is core in their institutions' curriculum offerings and adhering strictly to those factors as guidelines in purchasing materials and subscribing to the periodical literature. Tough choices are being made. Needless to say, those prohibitive costs produce shortage of resources that ultimately limits services. On top of all of this, an Asian library's ability to support information needs of users is severely threatened by current forces that seek to create a total Internet commerce. The current debate, reflected in the deliberations of the World Intellectual Property Organization, focuses on considerations about copyright of databases.<sup>5</sup> Encouragingly for libraries in Asia, while the whole issue of "fair use" has yet to be determined, the preamble of a proposed new copyright treaty discussed by WIPO recognizes the need to maintain a balance between the interests of the authors and the

larger public interest, particularly education, research and access to information.

## Other Challenges to Access

In addition to the economic situation, many other challenges in providing access to scientific and technical materials can be identified in Asian as institutions try to develop comprehensive access. Again, I reemphasize that Asia is not alone in this struggle, but it is definitely more pronounced in some countries of the region. These manifest challenges include the following.

### *Uneven Distribution of Wealth in the Area*

There seems to be a widening gap in resource development among countries and those with the weakest economies and information infrastructure are becoming even more dependent upon the richer countries of Asia, on non-governmental organizations (NGOs), and elsewhere for new knowledge. This simply emphasizes the uneven development with weaker countries remaining weaker because their need to absorb new technology requires a greater proportion of effort in the form of funds for training and other start-up costs.<sup>6</sup>

### *Cultural Issues*

Cultural issues play a major role. There is concern regarding the availability and accessibility of domestic or local information in the international arena, which of course raises the companion issue of the relationship between open information flow as opposed to other national interests. Examples of this are evident in at least one neighboring country where access to the Internet is still officially not available, the reason most often cited being cultural. External influence on genuine domestic resources is also viewed with a certain amount of resentment. Cultural sovereignty, including the values relating to indigenous heritage, customs, language, and national security are

arguing points in this scenario. This reminds us that, although information production and information industries are global, information policies are local. For example, a local telecommunications policy has an impact on the use of information within the general economy and this perpetuates debate on the effects of international data transfer, with these cultural issues being the ones most exploited for political arguments. Several countries have limited access to the Internet for various reasons. Arguing on another side, think about scientific and technical information on the Internet. Isn't it almost assumed that everyone knows English? In addition, influences from foreign broadcasting, imported radio and TV programmes, films and other foreign language products of the information industry are rampant. The "right to know" debates are couched in terms of cultural issues and national security. In this region there is a visible clash between the need to exchange information and cultural value protection. This even includes the area of remote sensing. Remote sensing is viewed by some as a threat to developing countries because those countries have little control over the use of data collected by satellite.

### *Lack of Organized Access*

Lack of organized access poses problems. This includes insufficient classification or retrieval systems with a need to develop and apply common standards. An example is that of our colleagues in Vietnam and Mongolia who wish to facilitate wider access to their resources. Having decided to abandon the formerly used BBK system, they are currently engaged in efforts to determine which existing classification system is most appropriate for the development of their library and information systems. There is also the problem of machine-readable record formats to follow the same standards. Challenges to be conquered include adapting systems to local scripts, whether it is CJK (Chinese, Japanese, Korean), or another non-romanized script, including Thai. Thai professionals

have successfully overcome most of those obstacles that they initially faced when developing online systems. Most people know that Thai is not a romanized script and that it possesses rather unique characteristics - the script is written continuously, no break between words or sentences, and vowels are written before, after, above and below the consonants. Besides the organization of materials, there is a more basic lack of depth in many collections. In some countries, as far as collections are concerned, they are not sufficient in quality, particularly the serials collections which have gaps and duplications at the national level. A few countries have been unable to purchase materials for the past several years, or have been limited to UNESCO coupons for purchasing. There is little funding for books, periodicals and other materials in Laos, Cambodia and Myanmar. Government taxes also constrain development in some situations. For instance, a few years ago the National Library of Laos, a government entity, received a donations of bookshelves from the Buddhist Society of Japan but was unable to install the shelves because the library lacked funds to pay the import taxes imposed by the government and therefore they languished in a warehouse. There are also examples of no legal deposit law and no bibliographic control through national bibliographies, both important factors in the development of information services. Those shortcomings mean that sometimes needed information may be in existence but not available, since there is no place to look for it, even if it is in print. It is even more astounding to realize that only about 1% of all the bibliographic and numeric databases in existence are produced in developing countries.

### *Lack of Technological Sophistication*

Lack of technical sophistication, including compatibility of systems, unreliability of telecommunications and in some cases interrupted electrical supply, insufficient maintenance of equipment, and even

shortage of supplies plagues efforts in some locations. In some countries there are not enough telephone lines for institutions to develop basic online networks. Lacking in some instances is an infrastructure to ensure continuity of access. Traditional methods of information collection, processing, storage and dissemination are prevalent in some countries.

### *Denial of Access*

In Asia, copyright tends to be viewed as denial of access. Of course, no discussion of barriers would be complete without some brief mention of this. It is a major issue because intellectual property is a basic national information policy issue. In the meantime there is ineffective enforcement of intellectual property laws evidenced in the indiscriminate and sometimes wholesale copying of whole texts. Positive decisions relating to fair use of electronic resources and a revisit to interpretation of copyrighted printed materials could greatly enhance access in many Asian countries. There must be "the balancing of the rights to use information resources with the rights to control the use of them."<sup>7</sup> The main purpose of copyright legislation is "not to reward authors, but to promote the progress of science and useful arts," as a ruling by the US Supreme Court so eloquently stated. Resolution of how the rights of distribution should be adapted to digital technology and networking will resolve many headaches.

### *Lack of a Critical Mass of Professionals*

Finally, there is lack of a critical mass of professionals. This is my abiding theme. In several countries, there is a severe shortage of educated information professionals who can develop the services to store, process, analyze, package and deliver scientific and technical information. "Effective management of information requires professionals who understand information, how it is created, organized, sought and used by people in both their work lives and their professional lives.

One of the most important activities in an information society is to maintain a cadre of qualified information professionals."<sup>8</sup> Of course that cadre must be up to date with both resources and technology; this requires a commitment to continuing education on the part of the individual and further staff development support on the part of the individual organization. Such a pattern is not yet ingrained in Asia. Obsolescence is one of the most serious problems facing the profession everywhere, but particularly here. "Obsolescence is the degree to which professionals and other workers lack up-to-date knowledge or skills necessary to maintain effective performance in current roles."<sup>9</sup> The causes of obsolescence are many, but include: "1) the information explosion and dynamic change stimulated by the knowledge revolution; 2) personal characteristics, particularly those which are psychological in nature; and 3) the work environment and climate."<sup>11</sup> Several of the countries surrounding Thailand have no library science programmes or, in some instances, very basic library science programmes staffed with faculty now reaching or passed retirement age and whose credentials were earned 40 or 50 years ago and who have had little or no exposure to advanced technologies.

## Conclusion

Still, the greatest threat to access for libraries in Asia is not technology, but rather in the cost and pricing and the eventual policies and regulations that enforce it, while the greatest frustration, for professionals trying to facilitate access, is to find that full-text scientific and technical information cited in bibliographic databases remains outside the financial grasp of many of those libraries. The education of professionals and individuals users regarding their own use or misuse of information can contribute greatly to resolving the problem, perhaps even more than the development of complex systems or the introduction of advanced technologies.

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## Appendix 1

### *Libraries' Response*

Basic resource sharing and interlibrary cooperation has a long history in this part of the world. Recent developments illustrate a continuing commitment. This is not intended to be a comprehensive listing, simply an example of the development of systems to access scientific and technical information in Asia.

*Bangladesh:* BANDASOC (Bangladesh National Scientific and Technical Documentation Center) provides Science and Technology information to scientists, technologists, industrialists, planners and policy makers to develop the country's economic welfare, through BANSLINK (the Bangladesh National Scientific and Library Information Network).

*China:* ISTIC (Institute of Science and Technical Information of China) collects

and processes Chinese and other materials, as well as develops databases of Chinese materials and coordinates a national online network. NSTC (the National Scientific and Technical Commission) is responsible for collecting and distributing government information in those subject areas and the DSTI (Department of Scientific and Technical Information) of the State Scientific and Technical Commission is responsible for scientific and technical information services in the country.

**India:** INSDOC (Indian National Scientific Documentation Center) is responsible for developing relevant sources of information in the field of science and technology to complement and supplement all other national-level sources; to develop appropriate linkages with information systems throughout the country; to establish a national repository for all reports and scientific works in India (both published and unpublished). Its National Science Library has built a substantial collection of Indian scientific literature. NISSAT (National Information Systems in Science and Technology) functions as the national focal point for the field of science and technology information.

**Indonesia:** PDIN - one part of the Indonesian National Scientific Documentation Center - is a national network for library, documentation and information sciences is a designated centre and the national focal point for 1) development of national collections of literature and provides information transfer and 2) manages the science and technology literature of Indonesia, produced by Indonesia through the national bibliography. It also 3) promotes regional and global cooperation to transfer scientific and technological information for national development.

**Japan:** NSCIS (National Center for Science Information Systems) is similar to others discussed here.

**Korea:** KIST (Korean Institute of Science and Technology) is responsible for disseminating technological information, and the National Technological Information System operates a centralized database and is supported by the KAIST (Korean Advanced Institute of Science and Technology).

**Malaysia:** MASTIC (Malaysian Science and Technology Information Center) acquires and organizes science and technology materials and conducts information processing and analysis. MOSTE (Ministry of Science, Technology and the Environment) supports the JARING (Joint Advanced Research Integrated Networking) project to exchange scientific and technical information.

**Pakistan:** PASTIC (Pakistan Scientific and Technical Information Center) offers the same coordinating activities as those mentioned above.

**Philippines:** DOST (Department of Science and Technology) supports a network to: 1) build library resources and services and 2) provide connectivity by means of the information highway in the Philippines. Its ESEP (Engineering and Science Education Project) was made possible through a loan from the World Bank (as are several of the other projects mentioned here). The Asia Development Bank also provides major funding for such activities). The S&T InfoWeb is the basis for science and technology information and communication services in the Philippines. It is developed and maintained by the Science and Technology Information Institute, an agency of the Department of Science and Technology. Their NISST (the National Information System for Science and Technology) integrates the science and technology information system into one database.

**Thailand:** NECTEC (the National Electronics and Computer Technology Center) provides funds, through the Ministry of Science, Technology and the Environment (MOSTE) to create library net-

works at the national level. NIDCST (National Documentation Center for Science and Technology), in addition to those organizations already mentioned in the paper, is involved in coordinating scientific and technical information.

**Vietnam:** MoSTE (The Ministry of Science, Technology and the Environment) is responsible for management of science, technology and the environment at the national level and, through its National Center for Science And Technology Information and Documentation (NACESTID), is responsible for the nationwide network of scientific and technical information and supports a Scientific and Technological Information network. The SCITEC database describes Vietnamese documents and articles in the science and technology area.

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# LIBECON2000 and the Future of International Library Statistics

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## Brief Description of LIBECON2000

Libraries are developing an ever-increasing role in the supply of knowledge and it is estimated that at the beginning of the decade in the main countries of Europe, total expenditure on libraries amounted to 8.45 billion euros per year. Rapid progress in methods of distributing knowledge by electronic means is being made and librarians are playing a key role in managing this information revolution. In this context, we have a concern to monitor the economic place which libraries occupy and it is the objective of LIBECON2000 to provide the appropriate statistical evidence to better inform policy judgments and investment appraisals by international, national and local governments. A network of contacts representing the 474,000 staff employed in the libraries' industry has been established to coordinate the return of statistical information on a regular basis and these data, and useful source references, are maintained on the LIBECON2000 Web site.<sup>1</sup>

The LIBECON2000 project is funded by the European Commission until late 2000, by which time a rich source of important research material will have been collated. This will provide the basis for a "Millennium Study" of the economic importance of libraries. The work is being undertaken by the National Library of the Czech Republic; the Library Information Statistics Unit, and the Institute of Public Finance which compiles all statistics for local government services in the United Kingdom. By the time this article appears, the "Millennium Study" should be completed and available on the Web site. Cooperation from colleagues in most countries has been excellent and the result is a rich and easily accessible statistical resource of value to practitioners, policy makers, researchers and pri-

vate sector firm selling into this market.

The project collects statistical data about European libraries and publishes the data on the Web and in print. Neither activity is unique. UNESCO, which pioneered standardization in this field, has also been publishing library statistics of many countries for many years and latterly has aimed to cover the six standard sectors on a three-year cycle. There are a number of sites where library statistics can be found, though few European countries are covered in this way. This material is ideal for Web publishing which can:

- overcome language barriers;
- potentially achieve more rapid publication than print (though LIBECON currently draws mainly on published sources);
- achieve wider dissemination than print sources to users who are scattered and mainly require facts rather than whole publications; and
- facilitate communication between producers and users.

What LIBECON2000 does is both more extensive and more limited than what UNESCO has done. It is more limited in that it covers only 29 countries (comprising EU members, signatories to the European Free Trade Agreement (EFTA) and the Association Agreement with the EU in Central & Eastern Europe (C&EE)), whereas UNESCO aims to cover the whole world. It is more extensive in that it asks more questions and attaches importance to financial data which are presented in standardized form (euros) and not in national currencies. It also has the resources to check more thoroughly with its sources and, unlike UNESCO, it grosses up to account for missing data and provides a bibliography, list of contacts and translations of major column headings in the original publications. Like UNESCO, LIBECON



2000 surveys countries, not libraries. In other words, it does not undertake primary survey work. It also goes beyond UNESCO in publishing a commentary on trends. Previous publications in the series include *Library Economics in Europe*<sup>2</sup> and *Library Economics in Central and Eastern Europe*.<sup>3</sup> The data, though not the text from these publications, is on the LIBECON 2000 Web site <www.libecon2000.org>. The Web site is being updated all the time with new data as it becomes available. A commentary on the trends up to 1998 will be delivered at the end of 1999 and will be published on the Web site and possibly in print.

A major objective of LIBECON2000 is to create a virtual community of those who create and use library statistics of European countries. The European focus of the project arises from the policy aims of its funding body, the European Commission, and the work could usefully be extended more widely if a way could be found to do so. The discussion area of the Web site is of course open to all, but the project is mainly in contact with European practitioners and, of course, international bodies with an interest in this area. A major problem in assembling meaningful statistics is gaining access to information prepared to consistent definitions. ISO, the worldwide federation of national standards bodies (ISO member bodies), undertakes the work of preparing International Standards through its technical committees. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work of refining the definitions, and LIBECON2000 will seek to inform the standards debate. Its ability to do this arises from the fact that it is one of the few organizations to have attempted to collate and compare library statistics from many countries and it has first-hand experience of the pitfalls.

### Some Problems and Some Answers

Gathering consistent information about the part played by libraries in

developing the information resources within Europe is a difficult process and involves overcoming a number of practical problems. The major problem relevant to this article is that one can only collect data which exists - unless one has the budget for primary survey work, which would not be appropriate even if it were affordable, as it would involve an additional survey burden and redoing the work of the responsible agencies at national, or, in some cases, provincial level. Using existing data presents some or all of the following problems, the position varying from country to country:

- Missing data, for example:
  - sectors<sup>4</sup> missing (e.g., no survey or sampling of school libraries in many countries);
  - sectors incomplete (libraries missing);
  - sectors not internationally comparable (the Other Major Non-Specialized and the Specialized Sectors give the most headaches);
  - data not available (questions not asked or not answered).
- Language problems.

To improve the quality of the data, all of these problems need to be addressed.

*Missing sectors* can probably only be addressed at the national level by would-be users of the data bringing pressure to bear on the relevant authorities and institutions to undertake the work. LIBECON 2000 has had some success in a number of countries both in stimulating coverage of sectors which were not previously covered and in widening the scope of pre-existing surveys and promoting the adoption of standardized definitions. Public libraries, national libraries and higher education libraries are usually, but not always, covered in Europe. Coverage of schools and of the other two sectors is much rarer.

*Incomplete sectors* (i.e., sectors which need to be grossed up) is also best tackled at national level but is not commonly attempted in the published documents. LIBECON 2000 aims to do this using the advice of informed local sources. It

is possible that a section in a revised ISO 2789 recommending that this be done and outlining an approved methodology could over time be influential and beneficial.

The remaining two problems are standardization issues, though not easy to solve. The problem of *sectors not being internationally comparable* only partly relates to the way the definitions are applied. An example of this would be where one country decides to include only libraries above a certain size, and another aims for complete coverage; or where one includes all specialized libraries, and another excludes those in the private sector. A more deep-seated difficulty arises when the institutional geography of countries is not aligned. Some countries may have many "other major non-specialized libraries" with a knock-on effect on, for example, the national or public or higher education sectors. Libraries of academies of science in some countries of Eastern Europe are an example of this. The fact that the term "major" is not defined in the Standard adds to the problem. Ideally there needs to be an implementation forum where countries discuss such questions and find the best practical compromises.

The problem of *non-availability* of data is one which the revisers of ISO 2789 are aiming to tackle. Reading between the lines of the preface to ISO 2789, it seems clear that its authors had a limited objective in mind, namely to standardize the definitions used in the UNESCO questionnaire. If UNESCO did not ask the question, then the authors did not attempt to define it. The UNESCO questionnaire has become the de facto standard for library statistical questionnaires, and many countries do not venture outside its limits even though there is much more data which could usefully be collected for use at national level and some which seems essential at international level. UNESCO pioneered this area by adopting the *Recommendation Concerning the International Standardisation of Library Statistics* in 1970, which led to the

publication of the first edition of the ISO Standard in 1974. Everyone interested in this field has reason to be grateful to UNESCO and of course UNESCO neither requests nor implies that national questionnaires be limited to the areas covered by its own forms. Unfortunately, some countries do confine their efforts at national level to answering the UNESCO questions. Arguably, this could be overcome, as it has been in many countries, by librarians and other would-be users of the data agreeing to national definitions for topics not covered by ISO 2789 and ensuring their adoption, but it would be influential if ISO were to widen the range of its definitions somewhat to minimize reinvention of the wheel. There is also a need at this time, recognized by ISO, to widen the range of definitions in order to begin to recognize recent technological developments. Most European libraries, for example, would not now be thought by their users to reach adequate standards without pervasive use of ICT including access to networked resources and the Internet. Whilst definitions in this area remain somewhat problematic, it is clearly essential to tackle these questions. It would also be useful if the revised ISO 2789 were to make recommendations about the presentation of the data. The use of graphs, ratios, and time series in national publications would improve many of them enormously, and there are examples of good practice on which

to build. A recommendation from ISO that library statistical publications include an English summary and a translation of the column headings would solve the language problem for many people. A translation of definitions would please the connoisseurs! A recommendation for parallel publication on the Web would also be welcome.

### Some Future Challenges

The future of this activity (the collection and publication of library statistics on an international basis) is surrounded by some uncertainties at the time of writing. UNESCO, which has pioneered this work since the 1970s, has reduced the numbers of its statistical staff and it is not clear what the consequences of this might be for library and other cultural statistics. EUROSTAT, which collects statistics for the European Union, has recently been asked to compile cultural statistics at the EU level but has not included libraries in its programme. The European Commission (DG13) has supported a number of LIBECON surveys since 1983, regarding them as an essential underpinning to its extensive research activities in the libraries field and it is hoped, though by no means certain, that LIBECON2000 will be successful in obtaining a new lease of life under the Fifth Framework Programme. If it were to carry on, it would be better if, in

some respects, at least it could extend its activities beyond Europe, perhaps with funding from other sources.

At the same time, libraries and the world of information are changing rapidly as technologies change and governments emphasize the role of libraries in supporting education, social inclusion and economic growth as well as the more traditional cultural role. Digitization is going ahead on a large scale in some countries, increasingly undertaken by libraries but not measured in the statistics. Questionnaires are routinely used to measure quality and user satisfaction but are not yet recommended for use in the library statistics standard. Connectivity and access to electronic content are other major current concerns which the current statistics do not address.

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# Collecting Data Sensibly in Information Settings

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## The Focus on Statistics

A major management activity in libraries at the end of the 20th century was data collection and the production of statistics. For the



most part library managers believe that more is better. More data will lead to more useful information, which will produce more informed decisions and, therefore, a more adequately managed service. The underlying assumption is that data about library activities can be transformed into useful information, and that the information will become management knowledge.

It is understandable, then, that data collection is viewed by many as the most basic activity in the management process. But it is less understandable that on the whole managers tend on to view the data collection, interpretation, application process as something to be accepted without question, and that many simply apply this model time after time without considering whether there might be a better way to collect and utilize data. To a social scientist whose primary interest is research methodologies and whose primary employment is teaching Library and Information Science (LIS) students about research, it is a worrying state of affairs that has been with us for several decades.

The principal purpose of this article is to suggest that information professionals might profitably consider using not only quantitative but also qualitative data collection and analysis methods in order to achieve greater reliability and deeper meaning in their investigations. A secondary purpose is to highlight some of the dangers inherent in the unquestioning acceptance of the data collection and interpretation process.

Quantitative variables tell how much or how many of a particular characteristic or attribute are present in an object, event, person or phenomenon. One example is the number of computers available for students to use on a campus. Qualitative variables classify an object, event, person or phenomenon into categories with respect to the attributes by which they differ. For example, the language of publication of a given journal title may be English, French, Hebrew or Spanish.<sup>1</sup>

By looking beyond "how much" and "how many" to the attributes of the people, things and activities being counted, librarians cannot help but have a more useful understanding of their organizations and their work.

This is not a new concern, nor are the solutions offered in this article unique; but no matter what has been said in the past, the problem remains and it seems worthwhile to rehearse the realities yet again. One of my Victoria University colleagues, Rowena Cullen, has queried the value of relying on quantitative data alone in the context of her research on performance measurement. Thus, discussing the work by Pratt and Altman<sup>2</sup> and by the Library and Information Statistics Unit (LISU),<sup>3</sup> she wonders about the reliability of library statistics alone as a reliable measure of library activity, and especially whether such data can enable much correlation between inputs and outputs. "In particular, substantial

issues of user satisfaction with their library/information services are touched on by only a small percentage of studies included here, although the authors comment in several places that further analysis is possible and indeed desirable."<sup>4</sup>

Cullen goes on in her paper to demonstrate that a library is a social construct and that, therefore, performance measurement is also a social construct. This then means that we need to be looking at a matrix incorporating values, focus and purpose - three axes essential in understanding the library as social construct. In my view the social construct is a means of viewing libraries and information organizations, and when we are in the realm of social constructs non-quantitative methods of data collection and analysis become more meaningful. This is especially so in three areas: library users, collections and services (or enquiries). Each of these is discussed in turn.

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### **Can Users Be Counted Meaningfully?**

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Data collection is built on the assumption that it is possible to arrive at a fair representation of the objects/population under investigation. In a library such an assumption must be questioned when it is applied to the user population of a particular library service. As an example, suppose we are interested in the number of people using the library. How do we count or measure this? One simple way is just to count those entering or leaving the building, either mechanically or manually. And many libraries do precisely this - how many annual reports proudly boast that "in 199X the library was visited by XXXX users"? But what does this tell us? Were these casual users, serious scholars making intensive use of sophisticated search services, students looking for materials on a reading list, elderly people using the library as a social centre, parents taking advantage of programmes for their children? In other words, counting people tells

us very little, as it does not specify the various categories of users and thus the demands they are likely to make on the service. This is a prime example of data being unable to generate meaningful statistics or information of any value, because it adopts such a crude perception of the user population. The basic assumption is flawed, the data are flawed, and thus the interpretation must be equally flawed.

What we really want is a profile of actual users of a library - who they are, what they expect when they enter the library, what use they make of the facilities and services, what they think of the facilities and services, why they might choose to access the library electronically or in person, etc. None of this very useful data is obtainable by a simple counting of users. Furthermore, no amount of counting, even the most sophisticated and detailed survey of users, can tell us anything about the potential users or the non-users, yet surely this sort of information is what managers really want. They want, or at least they need, to know about the potential market for their services so that they can produce a management plan for tapping into this reserve. Even in such a library-conscious country as Australia, with more than 60% of the population using public libraries (whatever "using" might mean), there is a very large non-user population that we need to draw into our service. Even the most accomplished researcher will tell you that collecting this more useful, and therefore more sophisticated, data on users and non-users is fraught with difficulties, and that it is a time-consuming and expensive proposition. But as yet there is no substitute for this.

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### **What Is the Value of Counting Holdings?**

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If I am correct in querying the value of counting users, as distinct from counting distinctive cohorts of users and determining their assessment of particular services, is it possible to shift our focus from people to

objects - specifically, holdings (however defined)?

It is almost a Biblical truth in libraries, especially since the "good old days" when the Clapp-Jordan formula was in its ascendance, that counting the size of a book collection gives us data that are meaningful in quantitative and qualitative terms.<sup>5</sup> Again, almost every annual report states that "the size of the collections has now reached X number of books, Y number of current serial subscriptions, Z number of electronic resources." But what is the relationship between the size or quantity of a collection and its quality? This is a question which invariably frustrates statisticians, because it calls into question the value of the statistical enterprise. But, as with users, we as information professionals must be primarily interested in values and meanings, whether we are looking at users or collections.

Assuming that there is a relationship between quantity and quality, and I certainly do not make this assumption, it is necessary to question the value of data on holdings as assuming any relationship between size and level of service. To compensate for this, many libraries count loans or number of uses of books, reference materials, journals, CD-ROMs, etc. However, any counting of loans or uses is easily skewed by an unusual and out-of-the-ordinary use by a scholar working on a one-off project, by a borrower with a passing fancy in a particular topic, etc. It might also be questioned, in an era of entrepreneurial focus and value-added service, whether loans or uses of library materials is a valid indicator of much.

It is possible, of course, to enhance data on loans and uses by introducing some sort of quality indicators into collections. This tends to mean a ranking system of some sort, usually one which matches items in a local collection against some external measure. In New Zealand this might mean that Wellington City Library, for instance, puts a higher value on its items which are also

held in the New York Public Library. Or a university library might rank publications of prestigious academic publishers and UN agencies above popular novels or local government publications. But is a library or information service meant to be responsive to the needs of a specific local community, or is it in the business of measuring itself against national or international criteria? That is, for the Wellington City Library it may be, perhaps even ought to be, that materials unique to its collection, and not those also in the New York Public Library, are most relevant to local user requirements.

In other words, to count holdings, whether of books or any other medium, is not a measure of demand; to count uses is not a measure of the level or quality of use, only that items have been taken off the shelves or accessed electronically, perhaps because nothing "better" is available. But is this begging the question? For too many librarians levels of demand for services is not a significant issue, whereas size of holdings or number of uses is.

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## Are Enquiries a Substitute for Counting Users or Holdings?

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Counting users and collections may give us some data, albeit of limited value, but one feels compelled to reiterate that too many library services hide behind such raw figures, and rely on these as a substitute for meaningful data analysis. One alternative adopted by some institutions is to count user enquiries (of staff, of electronic systems or other question-answering modes). Some excellent examples of this can be found in *Libraries in the Workplace*, one of those excellent reports generated by David Spiller and LISU associates. How many searches (end-user and mediated) do you estimate were made from the library/information centre? How many enquiries do you estimate were answered from the library/information centre?<sup>6</sup>

When asking about the number of enquiries, libraries tend to record the number of queries over a given period of time, or observe perceived user interactions with inanimate information resources. As always with data collection, it is relatively easy for the data to be skewed or distorted by the recorder, usually a member of the library staff, who may well feel threatened by the procedure and therefore may pad the figures to make the enquiry service look busier than it actually is. For example, a staff member may intentionally alter the figures to include a larger number of queries than were actually made; or, more typically, a simple directional request may be treated as a query, when in reality the staff are to be counting only information requests.

As with stock circulation questions, we want to know something about the level of queries. Are all queries equal? No. Do some take more time and greater effort? Of course. So why not ask questions that generate data about the time and amount of detail provided in response to queries?

Consider how much richer the data might be if the following question were asked: Of the total number of enquiries answered from the library/information centre, what percentage do you estimate took the following amount of time (then state a range of times, from 1 minute to 10 minutes, etc.)? Or what about asking for information on the type of query: Was it recreational, informational, research-oriented? Would questions such as these give us better insights into the nature, depth and quality of service being provided?

As enquiry systems become increasingly automated, it is relatively straightforward to build recording mechanisms into electronic systems, allowing for retrieval of data on length of queries, amount of data retrieved, etc. While we are on the topic of automated systems, there is also the matter of counting user-machine interactions. Here it is more difficult to corrupt the data, or

at least easier to eliminate non-informational queries from the count.

At the other extreme is collecting data about perceived user interactions, which is notoriously unreliable because of its dependence on detached, unobtrusive observation. This method of data collection is particularly open to bias, especially in a library setting where cheap labor (i.e., student observers) is employed. This can lead to the "...selective recording of observational data. Certain objects and relations may more likely be recorded by observers with different interests, biases and backgrounds."<sup>7</sup> In other words, observation skills are essential, and to the extent that these are flawed, the data will be flawed. Allan Kellehear's excellent work on observation contains a number of caveats about this data collection techniques, all of which can be summarized as follows: the observer must be skilled in observing and must never impute any motives to the observed interaction or behavior. In an information setting the natural tendency is to assume that an interaction is in some way task-related (a user is seeking information for a specific purpose), and this is to impute a motive that may well not exist.

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## The Problem with the Stakeholders...

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Of course, one problem with academics who plead for richer data collection techniques is that, as all practitioners know, we live in ivory towers far removed from the "real world". Indeed. And it has to be recognized that in that "real world" the stakeholders for whom much data collection and analysis are undertaken simply do not want to have much detail, do not want to have to think about data, and just want a simple table that shows how institution X is better than institution Y ("better" meaning a bigger budget, more reference transactions, larger bookstock, etc.). That is, we need to recognize that data collection is driven to a considerable extent by those to whom the practi-

tioners are accountable, and those to whom we are accountable as often as not have bean-counting mentalities.

Whether the stakeholders are administrative, managerial, political or financial, it is important to recognize that they have the power to dictate what data we collect, how the data are used and how they are presented. Every library or information service is accountable to someone else in that they depend on that someone for funding, for their very *raison d'être*. The "someone else" needs to understand the information needs of libraries. If external stakeholders are allowed to dictate data collection needs and presentation standards, then it is totally realistic to expect them to structure these for their own interests rather than for those of the library - and why shouldn't they?

The increasing sophistication of automated library systems, and the greater ease with which numeric data can be collected (on users, on collections, on expenditures, on transactions) means that we are becoming more wedded than ever to simple quantification as a means of evaluation. As this occurs, stakeholders believe more rigidly that data can be collected most simply by means of a keystroke here, a command there. Consequently, it becomes less likely that we can break out of the number-crunching mold, because our controllers continue to see this as the most effective way of evaluating our services. Also, it must be admitted, software which ought to aid in the analysis of qualitative data (which are not simple to analyze) simply lacks the user-friendliness and ease of interpretation required in data analysis. Despite the positive assessments by evaluators such as Miles and Huberman<sup>8</sup> of qualitative data analysis software, one remains sceptical of most commercially-available packages. Computer software, after all, uses technical processing methods for qualitative data that intrinsically are more suited to other, more time-consuming methods.

There is a significant distinction to be made between efficiency (the lowest per unit cost of something) and effectiveness (successful accomplishment of a task or mission). Our stakeholders almost invariably are efficiency-driven, and the technology that enhances data collection and analysis certainly enhances efficiency (and only efficiency). We information professionals, in contrast, are members of a service industry in which successful accomplishment of our mission, effectiveness, should be paramount.

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### What Can Be Done?

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There are a number of implications in the preceding discussion about what we might do to change the situation from number-driven, efficiency-conscious data collection and analysis to more context-sensitive, sense-making collecting and analytical techniques. All of these are offered not as alternatives, but as enhancements to, the standard statistical measures employed universally in the information sector.

- Look seriously at the genuine shortcomings of quantitative data collection and analysis methods and seek to incorporate qualitative methods that permit deeper understanding of library users, collections and services.
- Focus less on users as a genus, more on specific categories of users and profiles of their wants and needs.
- Focus less on numerical aspects of collections and more on acceptable indicators of collection quality.
- Focus less on simple user enquiries and more on the nature and level of these enquiries.
- Employ qualitative data collection methods in full awareness of the problems associated with achieving value-free use of these methods.
- Foster an awareness among stakeholders that efficiency and effectiveness are not equivalent concepts, and that effectiveness in the information sector is a greater good than efficiency.

- Work with software developers in creating qualitative data software that are more acceptable in terms of user friendliness and analytical capabilities.

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### Conclusion

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A recent paper by Dole and Hurych<sup>9</sup> discusses "new measurements" for library evaluation, especially with regard to electronic resources. The authors provide an excellent review of conventional measures and also offer clear insights into current developments. It is heartening to see that use-based measures are being considered, but depressing that these form a very small component of conventional cost-, time- and transaction-based measures. If this is the future of data collection in libraries, then I am not convinced that we will see much improvement in what I regard as a less-than-adequate situation.

More promising is some work being encouraged by the US-based Coalition for Networked Information <<http://www.cni.org>>, and in particular by Charles McClure. In *Assessing the Academic Networked Environment: Strategies and Options* he and Cynthia Lopata present a network assessment manual which is largely qualitative in its approach, and which makes a strong case for using qualitative methods in assessing academic networks.<sup>10</sup> However, this seems not to have been greeted with universal acclaim, and certainly has not made much of an impact on the data-collecting community.

In the final analysis what we are arguing for is a greater awareness among library professionals that meaningful data are contextual; and that meaning depends on interpretation; that they are derived from variables that are complex and difficult to measure; and that understanding is an inductive process. This differs from, but is not necessarily in conflict with, the traditional quantitative approach of the statistician which assumes the possibility of identifying and mea-

suring variables in a relatively straightforward manner, that norms and consensus can be derived from the data by deduction.<sup>11</sup> Both have their place in information work, but please let us not emphasize one at the expense of the other - or rather continue to emphasize one (quantitative) at the expense of the other (qualitative).

Remember the classic work by Webb on unobtrusive measures, in which Chapter 8 contained a statistician's impassioned plea for researchers to use "all available weapons of attack".<sup>12</sup> More than 30 years later, it is high time that information professionals heed the call and look beyond their numbers to sources of potentially deeper meaning.

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# Information Literacy in the Electronic Arts Library: Strategies for the Hybrid Professional

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**"To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed**



information." This definition comes directly from the American Library Association's "Final Report of the Presidential Committee on Information Literacy".<sup>1</sup> Two arts schools from opposite sides of the globe which have acknowledged the critical role of information literacy at the administration level are the Institute of the Arts at the Australian National University, where



the Library is implementing an action plan to achieve the goals of improving student and raising staff information literacy,<sup>2</sup> and the California Institute of the Arts, where the Dean of Library and Information Resources has demonstrated a commitment to the use of technology in the curriculum on many levels, including hiring an Instruction Librarian devoted to designing instructional programmes based on the tenets of information literacy.

The turn-of-the-millennium library calls for information literacy to be applied in a world of vast formats, including traditional print sources, digital media and online information. We use this electronic, nearly 21st century context as a springboard for a discussion of how the academic arts library can best serve users' needs by adapting information technologies toward reaching a goal of an information literate user population. A new brand of librarian, a "Hybrid Professional", is required to combine the traditional knowledge base and research principles of the librarian with competencies and leadership in technology. The librarian becomes the hybrid professional when responsibilities evolve to include each of the following: an understanding of library resources, both traditional and electronic; knowledge of hardware and software for multiple platforms; subject knowledge; teaching ability; a public relations sensibility for keeping administration aware of users' needs, and to conduct outreach; and a forward-looking approach to collection development. A significant new responsibility for the hybrid professional is the ability to work closely with the systems personnel who are responsible for maintaining hardware and networks. The hybrid professional must have a user-driven perspective, and must be an advocate for users' needs when it comes to the installation and maintenance of resources.

The advent of electronic information has created opportunities, as well as mandates, for applying the framework of information literacy in the library as a bridge to the cur-

riculum. Strategies from the following areas of opportunity will be addressed: 1) the Help Desk, formerly the traditional reference desk; 2) a formal, for-credit course on Information Literacy; and 3) the concept of the InfoLab. The skills required to implement each of these services demonstrate the transition from librarian to hybrid professional.

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## Help Desk

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At the California Institute of the Arts, the library's reference desk was transformed into the more versatile "help desk" in January 1999. Because the library is the centre of all campus networks (the Institute has a population of 1100 full-time students), and is the home of campus servers as well as network services staff, the library needed to address the large number of questions from Institute students, faculty, and staff concerning hardware and software problems, e-mail, and networking. These questions far outnumbered the traffic of reference questions, either in person, via telephone, or via e-mail, which came to the library.

The solution has been to create the help desk, staffed by a technologically savvy student knowledgeable in the various operating systems used on campus, with the ability to troubleshoot computer problems, to answer frequently asked reference and directional questions, and, most importantly, to refer difficult questions as appropriate to librarians (for reference and research needs) or network services staff (for hardware and network needs). This "triage" style of assisting users has proved to be useful in that it enables librarians to spend more time designing instructional programmes, and performing collection development. A help desk e-mail address was also established and has since been used a great deal, particularly on weekends, which further demonstrates the need for this kind of support. It is envisioned that eventually this student position will be replaced with a part-time or full-time permanent

staff position, in order to provide better continuity for the Institute's technical support needs.

The demand for this type of user support illustrates the growing use of computers and technology on campus, and also the central role in which the library plays in students' computing life. We have seen the transition from a traditional notion of "literacy", as it relates to library reference, to much more technology-based assistance. Insofar as information literacy includes the ability to locate and use information which is increasingly available in electronic form, access to, and instruction in, hardware, software, and networks have become vital roles of the library. The help desk model includes assisting users by teaching them on a one-on-one basis, providing an environment of encouragement which allows people to use technology to apply to their own interests, becoming independent learners. The help desk thus supports information literacy in a variety of ways.

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## Credit Course on Information Literacy

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Also at the California Institute of the Arts, a formal, 2-credit course on library and Internet research, called Critical Studies 114, has been taught by librarians for the past several years. The course serves as an introduction to the tenets and skills of information literacy. Students become familiar with the variety of resources available; are required to obtain an e-mail account; learn to formulate search strategies; learn to evaluate information; and compile an annotated bibliography on a topic related to their major. Support by administration for this course, which is taught by a librarian, demonstrates that information literacy is recognized as a necessary part of the curriculum. While the course is not required, it is significant to note that a growing number of American colleges and universities offer for-credit courses on information literacy. The next step for Critical Studies 114 is to increase

enrollment from approximately 12 students each semester to perhaps 25. In addition, librarians are working to include an assignment or component related to the library in the English composition course required of all entering freshmen. This will introduce all students to the library early in their career at the Institute, and expose every student to the concepts of information literacy.

Moving to the other side of the globe, at the Institute of the Arts Library in Canberra, Australia (an arts school of 700 full-time students who range from diploma students to Ph. Ds, and 500 part-time students in music and the visual arts), all foundation, or freshman, students receive an initial orientation to the library and an introduction to access to electronic information as well as a research skills tutorial later in the year. These orientations are required as part of the Art Theory course component. The students use the library intensively as they are dependent upon the library for their visual and text information in its myriad formats. The Director describes it as the "hub" of the Art School.

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### The InfoLab

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The advent of the Web changed forever the approach to accessing information. A recent initiative has been to create the "InfoLab" to provide electronic access to information resources as well as increased word processing and e-mail facilities. In late 1998, the Institute of the Arts Library put forward a proposal to create a computer lab supported by the ANU's Teaching Learning and Training Support Unit (TLTSU) in partnership with IT services within the Institute of the Arts. Space for the new InfoLab has been provided in a central location where it can be featured as an innovation of the School of Art.

While demonstrations using the Internet are provided within the Library's seminar room using digital projection, and hands-on training workshops in using electronic databases, journals, and the Web for

research purposes are provided in the InfoLab with its multi-platform computers allowing for student preferences. Drop-in sessions are held where students who may lack computer skills, Internet skills and information-seeking skills are given assistance. Often the students' approach is task-oriented and crisis-driven. The Drop-in session offers a service at the student's point of need in a simple and user friendly environment. The next step will be to provide a Web-based self-help package to enable students to learn information skills in the visual arts at their own pace and convenience.

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### Conclusion

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The skills necessary to provide services such as the help desk, a credit course on information literacy, and the InfoLab, are markedly more diverse than traditional skills required of librarians. Both Institutes have identified competencies for a librarian capable of managing facilities such as the InfoLab and training students in both information literacy and technology literacy. These skills include the development and delivery of courses which cover library resources, both traditional and electronic; the use of a variety of software packages and computer platforms; innovative approaches to communicate ideas to staff, faculty, and students; the ability to solve problems, use mathematical techniques, and apply statistics; and to work independently and in teams. The knowledge base is equally important. The hybrid professional needs to have a breadth of knowledge about the subject, its organization both in the traditional literature and in electronic resources in order to apply the most effective search strategies. Finally, often intensive collaboration with systems personnel, who may not have a first-hand understanding of users' needs, is vital.

It has been said that the electronic library will render the librarian obsolete. This is not at all the case; in fact, the proliferation of electronic resources available for use in arts libraries has created an increased

need for human interaction.<sup>3</sup> Librarians have been called upon to re-invent themselves as hybrid professionals. The impact of the convergence of technologies which mediate knowledge, as it heightens educational potential, has compelled us to evolve. It falls to us as arts librarians, in collaboration with academic and network staff, to translate new formats into a set of strategic actions to allow visual arts students to acquire the necessary skills to become information literate. This is our imperative, not only as it relates to their studies, but also in their future careers as lifelong learners.

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# Prison Librarians Needed: A Challenging Career for Those with the Right Professional and Human Skills

Vibeke Lehmann

Vibeke Lehmann received her Ph.D. in Comparative Literature from the University of Maryland in 1973; and her MLS also from the University of Maryland in 1975. From 1976 until 1979 she was Chief Librarian at the US Congressional Budget Office, and in 1984 became Library Services Coordinator at Wisconsin's Department of Corrections, a position she still holds. Her duties there include the administration of Wisconsin's 27 libraries in prisons and mental health facilities; planning of new institution libraries in adult and juvenile institutions; planning and implementation of automated circulation, online catalogues and interlibrary loan systems; development of systemwide policies and procedures; grant development and administration; budget development and administration; strategic planning; and staff training and development. She has been a member of the American Library Association (ALA) since 1981, and served as Chair of ALA's Library Service to Prisoners Forum from 1994 to 1995. She has been a member of IFLA's Section of Libraries Serving Disadvantaged Persons since 1995, and served as its Secretary and Treasurer from 1995 until 1997. Ms Lehmann is co-author of *Library Standards for Adult Correctional Institutions*, published by ALA in 1992; and has written numerous book reviews and articles published in the USA and the UK. Ms Lehmann has made numerous presentations at workshops, conferences, professional meetings, library schools and community groups. She may be contacted at the Wisconsin Department of Corrections, POB 7925, Madison, Wisconsin 53707, USA (fax: +(1-608) 2665069; e-mail: vibeke.lehmann@doc.state.wi.us).

[Ms Lehmann's paper was presented at the 65th IFLA Council and General Conference, Bangkok, Thailand, 20-28 August 1999.]

## Background on Prison Libraries and their Patrons

Incarcerated persons generally have the same reading interests and information needs as individuals in the free world; they can, however,



be considered disadvantaged by the mere fact that they do not have physical access to libraries in the outside community. Demographic data show that they are further disadvantaged by a disproportionately high level of illiteracy, lack of educational attainment, insufficient vocational skills, and a high rate of mental illness and emotional instability. This is certainly the case in North America and Western Europe, the geographical areas with which this author is most familiar.

Very little research has been published on the nature and extent of prison libraries in other parts of the world, so any generalizations and conclusions made in this article pertain primarily to the situation in the United States, Canada, and Western Europe. In these countries most prisons provide access to reading materials for recreational, educational, and informational purposes, and many have well established libraries that function much like

regular public libraries or combined public/school libraries. In the United States alone there are over 900 libraries in correctional facilities (prisons) operated by state and federal government authorities, as well as hundreds more library service arrangements in local jails and detention centres.

Much progress has been made over the last three decades in both North America and Europe in developing professionally staffed prison libraries, mainly through the efforts of national library associations, state library agencies, public library systems/authorities, and academic institutions. The governance model for prison libraries may be in the form of contracted services between public libraries and/or institutions of higher learning; operation solely by the prison authority; and formal or informal arrangements by volunteer groups. It is not unusual to see a combination of these service methods in a single institution. Regardless of the funding and staffing source, librarians who choose to work in prisons face some very special challenges. Before examining the professional and human factors that determine if a professional librarian can function effectively and be successful in the prison environment, it is useful to take a look the purpose of imprisonment today, the size and composition of incarcerated population groups, and the needs the library can fill for both inmate users and prison staff.

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## The Purpose of Imprisonment Today

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Over time, the Western world has seen changes in the philosophy of what constitutes the nature and purpose of incarceration in society. Today there is still considerable difference among nations on this issue, a fact that is reflected in their widely varying incarceration rates.

The pendulum has swung back and forth between emphasis on rehabilitation and punishment/retribution. Today most Western nations attempt to strike a balance between rehabilitation of the offender and public safety. Recently the concept of "restorative justice" (making the victim "whole") has begun to influence prison programmes. Rehabilitation, i.e., preparing the offender to function productively as a law-abiding citizen in society, is very costly and programmes such as academic and vocational education, drug and alcohol treatment, and psychological and social services usually suffer when incarceration rates rise. The United States today has the dubious distinction of having doubled its incarceration rate in the 1985-95 decade, although overall crime rates have remained virtually unchanged. According to data by the US Bureau of Justice Statistics, the U.S. incarceration rate is 600 per 100,000, surpassed only by Russia with 690. In contrast, the incarceration rate in Scandinavia is 62, the Netherlands 65, Germany 85, Spain 105, and Japan 37 per 100,000. With a total prison and jail population today of over 1.5 million, the United States has experienced a major prison construction boom over the last 15 years. Most of these new facilities include a library with general interest materials and legal collections. Hundreds of new prison librarian and support staff positions have been created, but the supply of qualified candidates has not kept up with demand.

Professional librarians work in both adult and juvenile institutions and their patrons range in age from school children to older adults. In the United States, the fastest growing inmate group is the elderly, primarily due to increasingly longer sentences, less frequent use of parole, and the higher percentage of the incarcerated population being violent offenders. Due to overcrowding, non-violent offenders are more likely to be supervised in less restrictive community settings. The incarceration rate of racial/ethnic minorities is disproportionately high and the percentage of non- or limited English-speaking inmates

is growing, primarily Hispanics and Southeast Asians. In some states, the percentage of inmates with drug and alcohol treatment needs is as high as 60% to 70%. A large number of inmates (between 50% and 60%) have not completed high school, and many adults and juveniles associate the traditional school system with a long string of academic and personal failures. This fact is, of course, related to the offenders' lack of vocational skills and their inability to find and maintain gainful employment in today's technology dominated job market. The next logical step in this vicious circle is often the commitment of a crime.

One can safely say that incarcerated persons have a large number of unmet needs, which translate into a high demand for information, learning materials, and self-improvement resources; the library, in cooperation with other prison programmes, can play a vital role in meeting these needs. An inmate who wants to use his time constructively is likely to become an avid library user, and when the time comes to prepare for release, the prison library can provide him with a wealth of job and career-related materials as well as community information that may help him survive the first critical months on the outside.

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### The Modern Prison Library

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What constitutes the most important roles of a modern prison library? They are not very different from those of a public library. In 1992, Rhea Joyce Rubin developed a library planning model specifically for prison libraries that has been used in the states of Massachusetts and Wisconsin in the United States. This model evolved from the widely used *Planning and Role Setting in Public Libraries*<sup>1</sup> and *Output Measures for Public Libraries*.<sup>2</sup> Rubin's *Planning Process for Wisconsin Institution Libraries: A Workbook* identifies the following possible roles for the prison library:

- Popular reading materials centre (circulation of recreational reading materials);
- Independent learning centre (assistance in self-directed reading for lifelong learning and personal needs, information on careers and vocational skills, reference services, and assistance with correspondence courses);
- Formal education support centre (information on educational opportunities, and materials and services supporting adult basic education, English for non-native speakers, vocational education, and post-secondary education courses);
- Leisure and recreation activities centre (book discussions, film showings, cultural programmes, chess club);
- Legal information centre (legal research tools, case materials, legal forms);
- Treatment programme support centre (resources to support substance abuse and anger control programmes);
- Information centre on outside community (reentry information, contact information, social service agency referrals);
- Personal retreat centre (place for patrons to find privacy, quiet, and independent choice);
- Staff research centre (resource provider or clearinghouse for work-related materials and information; and
- School curriculum support centre (in juvenile facilities, provide materials that supplement textbooks and enhance classroom activities and study).<sup>3</sup>

Because of limited civilian staff, funding, and space, no single prison library can perform all of these roles. Often the librarian is the only professional employed and all support staff are inmate workers. The librarian must manage all aspects of the library operation and is forced to concentrate on services that have the most impact and serve the largest number of patrons. Other factors influence the decision of which roles to emphasize. They include the size and security level of the institution; the method of library access (restricted or free);

the demographics of the inmate population; the length of sentences they are serving; and the range and nature of other activities and services available, such as treatment and educational programmes, social services, and inmate employment opportunities.

Whether the selection of primary and secondary roles is the result of a thorough needs assessment or simply dictated by necessity, the fact is that the majority of prison libraries in the United States see their primary functions as a popular materials centre and a legal information centre. The support role for independent learning is also very important, as is that of a community information centre. Inmates use libraries very heavily - up to 10 times as much as people on the outside. If the library has a current and well-balanced collection, indicators like circulation per capita and collection turnover rate (average annual circulation per item) can be very high in a prison library.<sup>4</sup>

The library programme does not function independently but operates within the larger prison environment, whose mission and security policies often conflict with the library profession's code of ethics and its belief in free access to information. The prison environment is a nontraditional and inhospitable territory with priorities that challenge "traditional" librarianship and philosophies. How does one provide information freely in a tightly controlled environment with rules and regulations governing almost all aspects of daily life? How does one encourage library patrons to make choices about their reading matter and the pursuit of individual interests, when in almost all other aspects of their lives they have no autonomy? How does one meet the information and diverse reading needs of a large multicultural population?

In a major US study of prison libraries, Marjorie LeDonne observed: "I have come to realize that while space, time, money, training, and adequate support staff are

all important, the key to quality correctional library service is the turn of mind, the energy and the sense of dedication which the librarian ... brings to the job."<sup>5</sup> In other words, it takes a very special person with not only a sound educational background, but also certain human qualities. It is easier to define and quantify the academic requirements than the more intangible human skills; existing standards and guidelines mainly deal with the former.

### Preparation and Attitude

The 1995 *IFLA Guidelines for Library Services to Prisoners*<sup>6</sup> and the fairly recent US *Library Standards for Adult Correctional Institutions*<sup>7</sup> and the British *Guidelines for Prison Libraries*<sup>8</sup> all address library staff qualifications and staffing levels. The IFLA document states that the person employed as librarian should have "the necessary qualifications in library science skills and the ability to work effectively in a prison environment". It also emphasizes the importance of being aware of prisoners' immediate and potential needs.

The US standards are very specific as to academic qualifications and work experience for all library staff. They call for a library director with an ALA-accredited MLS or equivalent and two years' experience in a professional capacity in a library. This position should act as department head and direct all library services and operations in the institution. Familiarity with all aspects of library management is required. Staffing levels are indicated in accordance with institution size, and where additional professional positions are called for, the basic academic qualification is likewise an ALA-accredited MLS degree. In addition to the specific academic and work experience, the standards state that library staff at all levels shall be selected for their ability to work in a correctional environment. The standards also recommend that each state employ a central coordinator of prison library services with extensive administrative and consultant experience. Research by this

author indicates that 22 of the 50 states have such a position; where it does not exist, many of the prison library-related functions are performed by the consultant in the state library agency who works with other disadvantaged population groups.

The newly revised British guidelines are also very helpful in defining the qualifications of professional library staff and library security staff. The publication even includes a specific training programme for each position, which each new employee must undergo. For the librarian, these "induction" modules include orientation on job responsibilities and organizational structure. The guidelines were developed according to the governance model in the UK, under which the national Prison Service contracts with local public library authorities for staffing. The prison librarian must be a Chartered Member of the Library Association and should also be a member of the Prison Libraries Group of the Library Association. The guidelines call for the head librarian to be recognized as a supervisor and to be a member of the prison management team. The requirements for prison library officer (combining security and library specific functions) and library orderly are also included.

In the state of Wisconsin, USA, this author developed the generic correctional librarian position description on which the civil service exam is based. The vast majority of position functions and responsibilities fall under the definition of traditional library management and service, such as reference and information retrieval, collection development, readers' advisory, circulation, interlibrary loan, bibliographic instruction, and patron programmes (strong emphasis on adult literacy programmes). Only about 10% of the time is taken up with prison specific activities, such as inmate supervision, disciplinary hearings, and prison committees. All librarians are required to participate in regular training related to information technology, library skills, and correctional issues.

In 1995-96, IFLA's Section of Libraries Serving Disadvantaged Persons conducted an international survey of library schools to gather information on the extent to which their curricula included courses or components on how to provide library services to disadvantaged persons. Prisoners were one of the 13 disadvantaged population groups identified. Of the 88 library schools that responded, only 24 indicated that they included service to prisoners in their curricula.<sup>9</sup> This survey and extensive information obtained from conversation and correspondence with library school faculty in the United States, Canada and Europe, confirm this author's belief that prison librarianship is still not widely recognized as a viable career option. And even those academic institutions that do teach courses on how to serve users with special needs or include reference to such services in their general courses do not necessarily encourage careers in prison librarianship.

In the United States, correctional agencies have difficulty in hiring qualified librarians in spite of aggressive recruitment. And the salaries and benefits are generally competitive with the public library sector. To make library school students more aware of existing prison libraries and their growing number of patrons, Linda Lucas Walling of the University of South Carolina, USA, has developed a special course on correctional librarianship. The objectives of the course are to make the students able to

- identify and discuss issues related to contemporary corrections;
- identify and discuss issues related to contemporary librarianship in correctional institutions;
- discuss the relationship between the library and the institution;
- describe the differences and similarities among correctional, public and school libraries; and
- discuss basic activities and services typically carried out in libraries in correctional institutions.

The textbook for the course is *Libraries Inside: A Practical Guide*

for *Prison Librarians*,<sup>10</sup> one of the few recent publications covering all aspects of prison libraries. An eight-part video series and nine audiotapes were also developed in conjunction with the course. This author has used these resources for orientation of new prison librarians.

The similarities between prison libraries and public libraries are greater than the differences. A broad academic education in traditional librarianship that includes course work in outreach services, literacy, multicultural resources, legal collections, and materials for the learning disabled, is probably the best foundation on which to build a career in prison librarianship. If this training also provides the opportunity to pursue special interest topics, a practicum or internship in a prison library, so much the better. Experienced prison librarians can also provide library school students with insight into their work world through lectures, seminars, and symposia. In the state of Wisconsin, such cooperation exists between the Department of Corrections and the state's two ALA-accredited library schools. The Department has also provided occasional part-time jobs for library school students.

Experience has shown that new prison librarians have a better chance for success if they have additional education or work experience in other areas such as psychology, criminology, teaching, social work, or counselling. It also helps to have worked a few years in a non-prison library. Since many prison librarians work in relative isolation from colleagues in the outside world, it is very important that they be involved in professional associations, meet with other prison and non-prison librarians for mutual support and problem solving, participate in workshops to upgrade skills, and have the opportunity to communicate with other professionals through e-mail and electronic discussion groups. Having a mentor programme that pairs a new librarian with an experienced professional is also very helpful. All the academic training, networking,

and work experience, however, will not guarantee a librarian success in a prison environment. Certain other human skills are absolutely essential, and not all of them can be taught!

It is important to understand that many people do not have the personality needed to work in a prison. All prison staff must understand the purpose of the organization and the dynamics of the prison community. They must have the ability to internalize basic values and goals while working effectively within this environment often filled with ambiguity. The work requires flexibility, patience, emotional stability, a high tolerance for stress, and a sense of humor.

In prison crises occur regularly and one must adjust quickly to changing situations, such as a lockdown, sudden transfer of inmate workers, irrational outbursts, unexpected budget cuts, and equipment breakdown. Not losing one's cool is essential, since it may appear as a weakness that can be exploited. Stressful situations abound, since inmates are very needy, demanding and impatient. One patron will often monopolize the librarian's attention with the result that other pressing tasks are postponed. Support from the administration may not always be forthcoming, and the prison bureaucracy may seem formidable. Some administrative decisions may appear arbitrary. A sense of humor is essential; it relieves stress and defuses tense situations. Humor also improves relationships with inmates and co-workers and can reduce the inevitable barrier between security and programme staff. It helps a person see problems in perspective and avoid "burnout", an occupational hazard generally defined as a state of indifference or cynicism resulting from frustration and a feeling of helplessness. Being mentally able to leave work behind at the end of the day helps one stay sane.

Librarians are service providers. If they do not have a genuine desire to help, they are in the wrong job! In the prison milieu, the antagonis-

tic mentality of the "powerful against the powerless" is pervasive. By being responsive to needs and interests, the librarian can have much impact on the inmates' lives while exemplifying the exception to the hostility rule. The library is one of the few places in the prison where the inmate can feel at ease and be confident that his requests will be attended to. This responsiveness makes the librarian and the library appreciated.

Helpfulness is related to sincerity. Doing what one promises establishes credibility -- if the librarian does not have it, no inmate will respect him or the library. Fairness and tolerance are equally important. The librarian must be comfortable working with persons from many different social, racial and cultural backgrounds and must be able to leave any personal biases aside when selecting materials and responding to inmate preferences and interests. Treating everyone fairly without showing favoritism is equally important; that also means following policies and procedures to the letter, both with inmate patrons and inmate library workers. All inmates should receive the same treatment regardless of the offense committed, and the librarian should be able to respect them as individual human beings. Making exceptions opens one to manipulation and the loss of control. Fairness, however, does not exclude firmness and assertiveness - these are other personality traits that enable the librarian to be effective. And in order to be considered a mature professional, the librarian should always exhibit good judgment and be willing to make decisions and take responsibility.

Certain human skills can make working with inmates much easier. Good communications skills can be learned and are essential when dealing with a culturally diverse population. This includes the ability to listen and understand non-verbal clues. Library staff interact with many sociopaths and persons with behavior disorders, and almost all inmates have personal problems. It takes a wise person to draw the line

between showing empathy and getting emotionally involved in the inmates' personal problems.

Problem-solving skills are equally important and are also related to the provision of good reference and referral service. And it helps to use common sense and rational thinking in dealing with demands that are often irrational.

Teaching skills are most useful. Most inmates are not "traditional" library users and need to learn how to use the library and the available technology. Inmate library workers must also be trained and closely supervised. It is important to develop professional relationships with the workers, since their cooperation and support are essential to the smooth operation of the library.

Librarians must have expertise in public relations and marketing techniques. Library services must be promoted to potential patrons who, although they constitute a "captive" audience, will not necessarily use the library.

Censorship is a touchy subject with prison librarians. In spite of their personal commitment to free access to information, they must recognize that certain materials may pose a threat to institution security, e.g., topics on bomb making, prison escapes, and martial arts. Being able to accept that certain restrictions are imposed on the selection of materials can make the difference in whether or not one survives on the job.

With so many demands on one's time, the librarian must learn how to see the big picture, to plan and set priorities. One must accept that it is impossible to satisfy all people all the time; this author has seen several prison libraries fall to pieces, while the librarian was drowning in details.

There are, however, many rewards for a good prison librarian. This person must take satisfaction in providing direct services and creating a library suited to the specific needs of a diverse and receptive

group. The majority of the inmates value the library and appreciate what the librarian does. Many become library users for the first time in prison and see a whole new world open up. There are success stories of inmates who have learned to read with the help of a librarian or a library literacy programme.

Inmate library workers often test a new librarian, but once he or she has passed the test by being fair, firm, and respectful of the workers as individuals, they usually become very protective and staunch promoters of the library.

It may sound trite, but it is indeed gratifying to know that one has made a difference in someone's life and is remembered with fondness, like a Wisconsin inmate who responded to a library survey with the following comment: "The librarian is a good and sincere person who makes me think of many new things - although she won't let me chew gum!"

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# Librarians and E-Commerce: Making E-Commerce Work for You

*Lesley Ellen Harris*

Lesley Ellen Harris is a copyright and e-commerce lawyer/consultant, author of the book, *Digital Property: Currency of the 21st Century*, and editor of the *Copyright and New Media Law Newsletter: For Librarians and Information Professionals*. She is currently preparing a set of four e-reports, the E-LAM Reports on e-commerce for libraries, archives and museums. Ms Harris may be contacted via e-mail at <libraries@copyrightlaws.com> or by visiting her Web site at <<http://copyrightlaws.com>>.

## Description of E-Commerce

**I**nstitutions and organizations such as libraries and other non-profit organizations are beginning to use e-commerce to do a variety of activ-



ities ranging from collecting fees to distributing materials to patrons. This article will explain what e-commerce is and how your library can successfully use e-commerce to achieve its goals.

### *What is E-Commerce?*

Electronic commerce or e-commerce is commonly understood as making money from Web transactions. However, it is really about using the Web to make money.

E-commerce may involve the following:

- financial transactions that are conducted electronically;
- paying online for a service or product that is delivered offline to the customer;
- marketing online while delivery or payment of the service or product is made offline;
- online promotion encouraging people to visit your institution and pay an admission fee or make a voluntary contribution.

For the purposes of this article, there are three main categories of e-commerce: 1) indirect commerce, 2) direct commerce, and 3) digital commerce.

Indirect e-commerce refers to using the Web to make money without collecting actual payments on your Web site. For example, online promotion leading people to visit your library may be considered indirect e-commerce.

Direct e-commerce refers to actual financial transactions that take place on your Web site (i.e., online credit card payment) or at least financial transactions that are initiated in your site (i.e., where someone prints a payment form which is faxed to you with their credit card number).

Digital commerce refers to content or services that are purchased and delivered online. An example would be content such as text, images, video and sound clips, or services like consulting and research which can be purchased and delivered online.

### *How Is It Important to Librarians around the World?*

Among one of the top priorities of libraries is serve to educate the public. Making a profit is generally not the primary goal for most libraries around the world. However, this does not mean that e-commerce is not important for libraries and librarians. E-commerce has the potential to enhance and encourage the goals of libraries in the 21st century. Libraries become more approachable on the Internet; new ways of satisfying your library's mandate can be developed; and your client base can grow substantially. Libraries, for example, can improve their patron's access to information. E-commerce, at the least, can be used as a method of cost recovery for libraries, and at

the most, can open up all kinds of exciting possibilities and new-found revenue.

### How E-Commerce Can Be Used Effectively by Librarians

Now that you have an idea of how important e-commerce is, it is important to examine how you as a librarian can effectively use e-commerce in your library to achieve your library's goals.

#### What Are Your Library's Goals?

Every library has different expectations and needs when becoming involved with the Internet and e-commerce. It is important that you establish your library's goals early and assess progress often. There are a number of objectives that may involve e-commerce in some of the forms discussed above. One of your goals may be to increase revenue. However, a number of other objectives are also important to think about. These may involve increasing efficiency and improving services to your patrons. The challenge for your library is to identify its strengths, translate them into an electronic environment, and improve on the overall level of service offered to the patrons accessing the library in any medium.

Here are some common online and offline (i.e., goals predating and/or exclusive of the Internet) goals for you to think about. How many of them apply to your library? Can you think of any others?

- Increase revenue
- Build a database and provide access to that database
- Increase efficiency
- Develop new information resources
- Provide better quality service (open 7 days a week, 24 hours a day)
- Market your institution - services, your physical premises, and your virtual library
- Support curriculum
- Teaching/instruction

- Consolidate your services
- Provide equal access to information
- Increase speed of delivery of information
- Increase your market size
- Develop a community among groups and individuals
- Find alternative revenue streams (online revenue may be additional to other revenue such as memberships, etc.)
- Increase productivity
- Serve customers better
- Lower administration costs
- Provide value-added services
- Filter information.

#### How Can E-Commerce Accomplish These Goals?

*Setting up an e-commerce strategy.* Once you have determined what your library's goals are, you must develop a strategy to accomplish these goals. An e-commerce strategy is a well thought-out document clearly setting out how e-commerce and the online environment may help your institution make money directly or indirectly from the Internet. It is based on your current offline and online goals and provides a step-by-step process of initiating or improving your library's e-commerce and online activities. It should be customized to meet your library's needs. Your strategy will provide a blueprint of how best to implement e-commerce in your library and will help convince others in your library of the importance of your presence online.

*Things to consider when developing an e-commerce strategy.* The following list sets forth some important things you should consider when developing an e-commerce strategy for your library.

- 1 Determine your library's primary goal in relation to e-commerce.
- 2 Study how others have met this goal. Examine other Web sites and ask yourself what you like about their e-commerce and how you would change it.
- 3 Register your domain name. Your name is the key to e-commerce,

so select and register an appropriate domain name or names.

- 4 Determine five non-remunerative services/content appropriate for your library's Web site. Will these bring people to your Web site who may be interested in your paying services?
- 5 Determine five remunerative services/content appropriate for your library's Web site. Why will people pay? Speed? Reasonable pricing? Quality and reliability of services/content? Is it more detailed or customized than what is available for free on the Internet?
- 6 Assess your technical capabilities. Do you need to train digital workers, hire employees or work with consultants?
- 7 What are your monetary realities? What is your budget for setting up an e-commerce site?
- 8 Should you sell from your own Web site? Do you have loyal customers to your Web site? Do you have a good relationship with an online vendor?
- 9 When is the best time to launch your e-commerce initiative?
- 10 How will you collect payments? Credit cards or cheques? Digital cash? Over the telephone?
- 11 Do you want to make money without "selling" from your Web site? Banner ads displaying content on a commissioned basis (i.e., content owner sells content and institution obtains a portion of the monies obtained); affiliate relationships (i.e., where you receive monies for people clicking on an icon on your site to get to another site).
- 12 Establish both online and offline marketing plan. Mail out, brochures, traditional press; register with search engines every 6-8 weeks, third party Web sites and/or links to your Web site, e-mail broadcasts.
- 13 Examine the legal issues - intellectual property (i.e., trademarks, copyright), taxation, privacy, advertising.

*Examples of e-commerce in libraries.* Many libraries throughout

the world have successfully used e-commerce either directly or indirectly. An example of using e-commerce indirectly is the Seattle Public Library. It answers questions from library card holders and allow new patrons to apply for a library card online (see <<http://www.spl.org/quickinfo/formexpl.html>>). The Toronto Public Library also provides answers to questions. It has a separate section for questions posed by children and one for questions posed by adults (see <<http://www.mtrl.toronto.on.ca/centres/answer/index.html>>). The US Library of Congress has also used indirect e-commerce by including its catalogue holdings on its Web site (see

<<http://lcweb.loc.gov/homepage/online.html>>.)

An example of a library using direct e-commerce is the National Library of New Zealand which provides online ordering and payment of publications (see <<http://www.natlib.govt.nz/secure/nlshop/order.html>>). The Toronto Public library is another good example of direct e-commerce. It provides a custom research service for patrons (see <<http://www.mtrl.toronto.on.ca/centres/srch4fee/index.html>>). The Library of Virginia allows patrons to adopt a book (e.g., damaged books). There is an online form with credit card payment which you

must mail or fax to the library (see <<http://www.leo.vsla.edu/foundation/adform.html>>).

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### Conclusion

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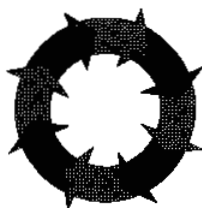
E-commerce has been used successfully by libraries throughout the world. Once you have ascertained your library's goals, the next step is to establish your e-commerce strategy, taking the checklist items into consideration. Whether your goals are to increase revenue or to improve service to patrons, a comprehensive e-commerce strategy can help your library successfully attain its goals.

*Cash-free interlibrary loan transactions?*

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