COMMENT AND OPINION

Information literacy*

Let me start by saying that I believe we could have chosen no better profession in which to be engaged during this past decade than librarianship. Technological breakthroughs, which we would not even have envisioned five years ago, are reality today. I also believe that the next decade will be equally exciting, not because of technological changes, but because of people challenges. Can we, within our profession, make the human adjustments necessary truly to take advantage of the opportunities inherent in the information society and in newer technology? Can we tame the new machinery into being a servant of our institutions rather than their driver? Can we provide the leadership necessary to bring our faculty and students along with us? The technology will not go away, but how well it is used to accomplish campus and societal goals will, to a large extent, depend on us.

Let's talk about information literacy: what it is and where it is going on a national level. As many of you may know, the educational reform reports starting with *A Nation at Risk* in 1983—with only two exceptions—ignored the issues of the information society, information resources, and librarians [1]. The first exception to this appeared in Frank Newman's 1985 publication, *Higher Education and the American Resurgence.* In it he said,

library personnel, while now fully competent to handle the library automation that has taken place, have neither the education nor the emotional commitment to prepare for the shift in

outlook required to change from owning, cataloging, and lending, to becoming electronic data sleuths ready to link a student or faculty member to someone else's data bank [2].

His statement was driven by conversations with a few librarians who, as representatives of the very large research libraries, had driving concerns at that point in time for bibliographic control, preservation, and taking over computer centers. He inferred from the few that the rest of us had nothing to contribute to the major issues confronting higher education. Fortunately, Frank has somewhat changed his mind since then, as evidenced by his editorial in the July/August 1987 issue of *Change* [3].

As the reform movement started phasing down, the University of Colorado and Columbia University joined forces to hold a national symposium to bring together leaders from higher education and librarianship to explore aggressively, for the first time, the role of libraries in the search for academic excellence. The papers from that conference have been published by Scarecrow Press and should be read in the context of trying to set up a dialog between higher education leaders and librarians [4].

One of the symposium participants was Margaret Chisholm who, as incoming president of the American Library Association (ALA) in 1987, asked me if it would be possible to pull together a group of educational leaders at both the K–12 and higher educational levels to further explore with librarians issues related to information literacy. We were successful in doing this, and I trust that all of you have read the ALA Presidential Committee on Information Literacy Final Report [5]. If not, I urge you to obtain a copy. It has been

positively received by people outside of the profession, perhaps because it was not written for librarians or to justify library use, or perhaps because the committee members included people like the executive directors of the American Association for Colleges of Teacher Education, the American Association of School Administrators, and the Council of Chief State School Officers.

The report defines information-literate people as those who know when they have a need for information, can identify information needed to address a given problem or issue, can find needed information, and can evaluate and organize it to address effectively the problem or issue at hand. Information literacy is, in fact, the first component on the continuum of critical thinking skills. In this information age, it does not matter how well people can analyze or synthesize; if they do not start with an adequate, accurate, and up-to-date body of information, they will not come up with a good answer.

The report further addresses resource-based learning as a means of empowerment to accomplish the educational goals set out in the reform reports—in particular, to prepare people for lifelong learning, to prepare them for active citizenship, and to increase business competitiveness. Resource-based learning occurs when teachers become facilitators of learning, helping students to learn from the information resources of the real world, such as books, journals, television, and online databases.

Scope

Let me make two distinctions here. First, information literacy encompasses computer literacy. A person who is comfortable and adept with

using computers but is not a knowledgeable user of print and media resources is *not* information literate. Second, just saying information literacy instead of library instruction is not enough. Indeed, where librarians and faculty work together to create an information-rich environment in which students are required to take responsibility for finding resources from which to learn, librarians may actually do themselves out of most of their direct student teaching responsibilities. The change will be from teaching students to being partners with faculty in the learning process.

One of the recommendations of the ALA information literacy report was establishing a coalition of national organizations that would continue to promote the concept of information literacy. ALA provided some seed money to get the coalition started, and the National Forum on Information Literacy has met three times to date. The forum has decided to target particular groups whose objectives and priorities can be significantly enhanced by an understanding of information literacy issues; higher education is, of course, one of those targeted groups.

These, plus a number of other efforts, promise to keep information literacy an active issue among academicians. For example, some of you may have read the book that University of Colorado President Gordon Gee and I wrote and that was published under the auspices of the American Council on Education [6]. What is to be noted here is the sponsorship of this publication. It constitutes an acknowledgment at the national level of the importance of information and libraries in the lives of our institutions. The American Association of Higher Education is actively supporting the formation of an action community on information literacy.

Management of resources

Also emerging as a national library issue among academicians is the question of how information resources should be managed. For example, the American Conference of Academic Deans had a workshop on this topic in January 1990 and is planning others. Its members are looking at the management of information resources in terms of combining libraries, academic computing, and related resources. There is a growing concern that something needs to happen, but nobody seems quite sure what.

This issue is at the heart of why I left the University of Colorado and moved to Towson State University. Towson has decided to meet this issue head-on by creating an Office of Information Resources that pulls together the library, telephones, telecommunications, media, office, and academic computing; and I get to help them figure out what that means! Moreover, Towson leadership is interested in promoting effective information management skills for all its students. We are not sure what that means, but it will probably parallel efforts in other curricular areas, such as writing.

Many administrators are focused on organizational and management concerns, simply because financial resources will not allow the library to go off in one direction and the computing center in another. However, I believe that moving toward better campus management of information resources can provide an ideal opportunity for library entrepreneurs to promote information literacy within the curriculum. Increased attention on the management of information resources among academic leaders and their growing concern for measuring student outcomes and critical

thinking skills have created a unique window of opportunity in which librarians could emerge as campus leaders in the management of information. If not, I fear that the next round of educational reform reports still will not address the realities of the information society within education.

Librarians whose responsibilities include concern for health-related resources are in a particularly good position to demonstrate the benefits of both good management of campus information resources and the benefits of good information consumerism.

Let's talk first about campus management of information resources. You are all probably more acquainted with the Integrated Academic Information Management Systems (IAIMS) program than I am. This program is the first and, as far as I know, the only nationally initiated effort to promote coordination and enhancement of information services and systems on campuses. These projects and the variation of them being undertaken at New York University will provide valuable models, not only for health sciences campuses, but for all academic institutions.

I am fortunate to have two interesting health sciences library projects near me in Maryland. The University of Maryland at Baltimore is applying for phase three of an IAIMS project in which they plan to create concrete models of information accessing among the schools on campus. The campus has already established an information policy committee that includes deans, the head of the library, and the head of computing. Their efforts resulted in a strategic plan directed at providing an easy, uncomplicated way for all campus personnel to access needed information. The system is based on microcomputers, and the librarians have assumed responsibility for the training of users. Phase three

would expand the family of databases available, including providing access to clinic information from shock trauma, the university hospital, and the cancer center. The main concepts are to allow doctors, nurses, and research personnel, for example, access to patient information simultaneously with information from other files and to allow all such personnel to move in a transparent fashion from one database to another. There are also difficult policy issues to be dealt with in phase three, such as access to patient files and database ownership.

Even closer to Towson, last year Johns Hopkins University received a grant from the Council on Library Resources (CLR) to support its Laboratory for Applied Research in Academic Information. Quoting from the February issue of *CLR Reports*:

The overall objective of the Laboratory is to investigate and develop the means needed by the Hopkins medical faculty to create or acquire, store, distribute, and use biomedical knowledge in electronic form. Over the next five to eight years, the Welch [Medical] Library seeks to develop the Laboratory into an academic division with research, service, and teaching responsibilities. The Library intends to move toward this goal by pursuing three interconnected strategies: (1) strengthening the research program in full-text knowledge management to include a human factors component; (2) expanding the development and field-testing beyond human genetics and ambulatory medicine to other scholarly fields and disciplines; and (3) developing a professional training program, beginning with continuing education seminars and summer institutes [7].

Johns Hopkins University began this project with a textbook outline and then moved to an online searchable file into which it is now incorporating scientific data in a relational form that will serve bench scientists—particularly those mapping the human ge-

nome. I shall not go further into the results to date of this ambitious project. However, the project certainly illustrates one kind of information management, indeed, leadership, role that librarians can play on their campuses; moreover, given the research emphasis of Johns Hopkins, it is an entirely suitable one for the Welch Medical Library. Both this and the University of Maryland efforts should produce exciting benefits for campus personnel as well as inspiration for other campuses.

Beyond such campus information management projects, there is another way that health sciences librarians can play a much-needed leadership role. The value of information always increases significantly when related to people's health. A good example of this was contained in a 1987 *Library Journal* editorial by John Berry. In it Berry related his misgivings about a recommended medical procedure and how one reason he decided to go ahead with it was because of an online search which "showed statistically that, at worst, it was relatively safe and, at best, it was highly successful" [8]. Berry clearly felt an urgency about this research; of course, most people facing such a decision would not have known how to obtain the search results that helped him make his decision. Also acknowledging the "urgent" nature of health-related information, the ALA Presidential Committee on Information Literacy included two health-related issues in its report to drive home the vital importance of information to individuals—one related to nursing care for a parent and one to young people considering becoming sexually active [9].

The information consumer

Because information that affects one's own or one's loved ones'

health far transcends in emotional weight other information needs, librarians who deal with health sciences resources are in a unique position to increase people's understanding of and appreciation for the need to become effective information consumers. At the heart of this learning process are the issues raised by Haynes regarding the help that clinicians need in keeping up-to-date and gaining rapid access to information that is directly relevant to their patients' situations [10]. Just preserving and providing access to information is simply not enough for doctors, nor for most people today. The challenge is, as Haynes stated, to help people be able to fend better for themselves (i.e., help them to become information literate) and to provide ongoing services which meet those criteria of up-to-dateness, rapid access, and relevance.

Is it too much to suggest that librarians—particularly in the health sciences—should take leadership roles in helping their institutions, churches, local action committees, and other groups organize health-related information to be as easily accessible as possible? Shouldn't librarians provide leadership in helping people become information literate enough to use that information, and in so doing, raise people's awareness of how they can also become more effective information consumers in other areas of their lives? In Colorado, for example, the addition of the University of Colorado health sciences collection to the Colorado Alliance of Research Libraries (CARL) System allowed a heretofore unparalleled access to monographic health sciences information across the state, and has since resulted in five Denver-area hospitals and the Association of Operating Room Nurses participating in a system that provides access to many databases beyond the health sciences collections catalogs.

You might say: "Hey, leave me out of this. I've got a full-time job as it is, and that job has nothing to do with solving the larger information problems of my community or state." Let's argue that point for a moment.

Many of you may have heard Harlan Cleveland speak at ALA's annual conference a few years ago. Cleveland is a well known and respected expert on the information society. If you have not as yet done so, I encourage you to read his book, *The Knowledge Executive* [11]. In it he describes the kind of leader needed for this time of overabundant and fragmented information, when generalists are needed who can make connections and provide leadership to coordinate the efforts of highly specialized experts. His whole book shouted "librarians" to me, but nowhere in it did the words "librarian," "information specialist," or "libraries" appear. However, shortly after his ALA appearance, Cleveland wrote an article for the *Minneapolis Star Tribune* in which he stated:

Librarians, along with journalists, tend the critical valves in the people's information pipeline ... but librarians have a generalist (which is to say, a leadership) responsibility: They can bring to bear not only the news of the day and the arguments of the moment, but the wisdom of the ages. They have the most reason to understand that using a reference system is a way to unleash the searcher's insight.

As each new information technology comes on line, it's the librarians who should be educating the rest of us about it [12].

Even better, the headline read: "Where the leaders are: librarians bring it all together."

This same recognition was paid to librarians in a science fiction series I read recently. Sometime after colonizing a new planet, Captain Duncan Roderick decided to add the librarian, Miss Burr, to his small, inner, planning group.

He had found that Evangeline Burr was an exceptional woman. In an era of specialization, Evangeline possessed more interdisciplinary knowledge than any person he'd ever known. And if she didn't have the facts in her mind, she could find them quickly. He'd made a note to himself to start utilizing Evangeline as a bridge between the various scientific fields; there'd been instances back on Earth when a discovery that seemed insignificant in one field would have opened entirely new avenues of speculation and progress in another field if people had but known about it [13].

While currently there may be a few public acknowledgments of librarians as the natural leaders in the information society (you'd be amazed at all the adventures that Evangeline undertakes!), the fact remains that—for better or for worse—we are about the best thing available by way of leadership. The information society needs connectors. That's you. That's me.

You may not see yourself as a colonizer of a new planet. You may not see yourself as a community leader. But I do hope you will at least perceive yourself as the much-needed good salt of Matthew 5: 13 [14]—preserving information and enhancing its value for others. For, if enough librarians are not willing to permeate their surroundings with their talents and expertise, then all society will lose.

You *can* be the much-needed salt that enhances information use within your campus and community. If you have not already done so, please do make the commitment to such a leadership role before leaving this conference.

Patricia Senn Breivik, D.L.S.
Associate Vice-President for
Information Resources
Towson State University
Towson, Maryland 21204-7097

References

1. A nation at risk. Washington, DC: National Commission on Excellence in Education, 1983.
2. NEWMAN F. Higher education and the American resurgence. Princeton, NJ: Princeton University Press, 1986: 152.
3. NEWMAN F. Adapting academic libraries to the future. Change 1987 Jul/Aug;19(4):4–5.
4. BREIVIK PS, WEDGEWORTH R. Libraries and the search for academic excellence. Metuchen, NJ: Scarecrow Press, 1988.
5. AMERICAN LIBRARY ASSOCIATION. Presidential Committee on Information Literacy Final Report. Chicago: The Association, 1989.
6. BREIVIK PS, GEE EG. Information literacy: revolution in the library. New York: Macmillan, 1989.
7. Recent grants. CLR Reports 1989 Feb; 3(1):3.
8. BERRY J. Experts and libraries. Libr J 1987 Apr 1;112(6):4.
9. AMERICAN LIBRARY ASSOCIATION, op. cit.
10. HAYNES RB. What medical librarians might do to help clinical end users in the 1990s. Keynote address, Track II: Information services: the changing environment of information services. Presented May 21, 1990, at the Ninetieth Annual Meeting of the Medical Library Association, Detroit, Michigan. (Ed. note: See also Walker CJ, McKibbon KA, Haynes RB, Ramsden MF. Problems encountered by clinical end users of MEDLINE and GRATE-FUL MED. Bull Med Libr Assoc 1991 Jan;79(1):67–9.)
11. CLEVELAND H. The knowledge executive: leadership in an information society. New York: Truman Talley Books/E.P. Dutton, 1985.
12. CLEVELAND H. Where the leaders are: librarians bring it all together. Minn Star Trib 1988 Aug 14;vii(132): 23A.
13. INNES E. The golden world. New York: Bantam Books, 1986:179.
14. The gospel according to Matthew; 5-13:7. In: The new English bible with apocrypha. Oxford: Oxford University Press, 1970.