

1996

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ScholarWorks Citation

Ranger, Kim L. and Waggoner, Kathryn L., "Information Literacy: Its Role in Higher Education and Lifelong Learning" (1996). *Scholarly Papers and Articles*. 21.

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INFORMATION LITERACY: ITS ROLE IN HIGHER EDUCATION AND LIFELONG LEARNING

by Kathryn Waggoner and Kim Ranger

Last spring the Library's response to the GVSU General Education Subcommittee's "General Education Survey" stated: "The Library faculty believes that information literacy is a primary goal of general education. . . . Whatever program the rest of the faculty decides to adopt, information literacy should be a key part, and GVSU Library faculty as information professionals should play a key role. . . . Information literacy should be taught at every level since the development of advanced subject expertise requires increasingly sophisticated information retrieval skills." This article provides a rationale for our recommendation.

What is information literacy?

It is an understanding of how information is generated, organized, and disseminated; of how to retrieve and evaluate information; and of how to make effective and competent use of information. The *Final Report of the American Library Association Presidential Committee on Information Literacy* (1989, p. 4) defines an information literate person as someone who is "able to recognize when information is needed and" has "the ability to locate, evaluate, and use effectively the needed information." William Demo (1986, ERIC abstract) calls information literacy "a new intellectual skill that will enable us to be masters of new communications and information technologies." In the "Library Literacy" column of *RQ*, Craig Gibson (1995, p. 32) does not define information literacy as such but describes the research process:

The researcher must begin by posing a good research question and must use critical thinking skills to know what is a good question. . . . He or she must plan a flexible strategy or set of strategies that uses a variety of tools to locate information; the searcher must bring some disciplined thought to bear on developing the strategies and must make informed choices about tools and sources to use. Initial search results from databases must be screened with an eye for relevance, authoritativeness, and appropriateness. This, again, involves making informed choices. Further evaluation of the information must follow in greater depth, using criteria and good judgment. Ideally, the searcher will conclude with self-questioning about better ways of conducting the research next time, with development of appropriate standards for making better choices throughout the entire process.

This is obviously the research process of one who is information literate.

Why is information literacy important?

Sound decisions and beliefs are based on good information. "Good" information is accurate, written by people with expertise in the field, based on the latest findings (in most cases), intelligible, and relevant to the question or issue at hand. We live in an age of unprecedented information growth; but much of the information is unsubstantiated opinion or propaganda, based on faulty reasoning, distorted, biased, or simply untrue. Americans, ignorant of what good information is or how to find it or in too much of a hurry to learn, opt for whatever information is at hand. College students often use the first article, book, or Internet message they find. Students at off-campus sites, not all of which are rich in easily accessible information resources, may be even more susceptible to this problem. If they don't learn differently, they will continue this habit after graduation, frequently with disastrous results. For example:

Every day lack of timely and accurate information is costly to American businesses. . . . A manufacturing company had a research team of three scientists and four technicians working on a project, and at the end of a year the team felt it had a patentable invention in addition to a new product. Prior to filing the patent application, the company's patent attorney requested a literature search. While doing the search, the librarian found that the proposed application duplicated some of the work claimed in a patent that had been issued about a year before the team had begun its work. During the course of the project, the company had spent almost \$500,000 on the project, an outlay that could have been avoided if it had spent the approximately \$300 required to have a review of the literature completed before beginning the project. (*Final Report*, 1989, p. 6)

Information literacy is just as important to one's personal life as to one's professional life. Imagine, for example, someone whose elderly mother can no longer care for herself. What are the options? They must be found and evaluated before the best decision can be made. Finding the right information has a direct bearing on quality of life. Ignorance is not bliss, and what someone doesn't know can hurt him. "Even in areas where one can achieve an expertise, constantly changing and expanding information bases necessitate an ongoing struggle for individuals to keep up-to-date and in control of their daily information environment as well as with information from other fields which can affect the outcomes of their decisions." (*Final Report*, 1989, p. 5)

Why is information literacy difficult to achieve?

Just wading through all the information available today requires stamina. "A weekday edition of *The New York Times* contains more information than the average person was likely to come across in a lifetime in seventeenth century England."

(Wurman, 1989, p. 32) Yet the human brain does not process information any faster now than it did in the seventeenth century.

Technology is advancing faster than most people can keep up with. How many ways are there of disseminating information? Television, radio, newspapers, books, magazines, journals, the Internet, CD-ROM databases, diskettes, microfilm, videocassettes, online services such as Prodigy and America Online, interactive TV in some places, the telephone, personal communication, and more. Learning to access information from all these places is not easy. Further complicating the matter, there is not one way but many ways of finding information in all these sources. How many ways are there of finding information on the Internet, for example? There are gophers, WAIS, Usenet groups, FTP sites, listservs, e-mail, etc. There are web browsers, such as Netscape, Mosaic, Spry Mosaic, Cello, and Lynx. These are all different, with different protocols. Within a browser, there are multiple search engines: Webcrawler, Yahoo, Infoseek, Lycos, Alta Vista, and Open Text, to name only a few. There are also different ways of connecting to the Internet.

Is there one kind of software for searching CD-ROMs? No, there is not even one kind of CD-ROM. Some are textual, and some have images. Some have audio and/or video. Some are interactive. Some are full-text, and some yield only citations (some with abstracts and some not) to printed materials. Even if one learns how to search a particular database, tomorrow that database may be updated with new search features, or it may go from DOS-based to Windows-based, or it may change from only citations to full-text. It may even cease to be produced by one vendor with one kind of software and be produced by a different vendor with totally different software that has to be relearned. One day a government document must be read on microfilm; the next day it must be found on CD-ROM. Learning to search a database on Windows 3.1 is sufficient until Windows '95 comes out. The list goes on. The information industry has been highly impacted by technology; and this will not change in the near future, if ever.

Evaluating the plethora of information available on almost any subject also requires skill. Why is this author credible—what are her credentials? What is the date of the information in the source, and is that important in the subject area? Is the publisher reliable? For whom was the material written? Why was it written? How do the language and imagery contribute to the information—is it aimed at the emotional level, is it inflammatory or sensational? What biases are present in the author's assumptions? How did the author gather the data—did he use primary or secondary material? If primary, how was research conducted? Do charts/graphs/other illustrations actually substantiate or contribute to the text? Did the author document the sources she used? Is there an index or bibliography? All of these questions and more should be considered before accepting, quoting, or synthesizing the material.

How should information literacy be taught and by whom?

"Bibliographic Instruction (BI), which focuses on the need to make library patrons become more proficient in locating and using information, is a major contributor to information literacy." (*Information for a New Age*, 1995, ERIC abstract) Many

librarians have opted for the term "research education" in place of the old term "bibliographic instruction," which implies teaching about only the printed word, since today's librarians are versant in teaching about electronic sources of information as well. Some librarians even find the term "librarian" confining, conjuring up as it does the stereotypical older woman, gray hair in a bun, glasses perched on the end of her nose, and index finger at her lips, shushing everyone in sight. This image is totally asynchronous with the contemporary university librarian. The term "cybrarian" has been proposed as a replacement. Most of the GVSU library faculty, however, prefer "librarian" and hope that library patrons have a more sophisticated idea of what libraries are and of what librarians do.

Marti Guarin, Head Librarian at the Furnas Information Resource Center, Illinois Mathematics and Science Academy, gives three reasons why librarians should teach information literacy:

- Librarians' expertise is in organizing, accessing, evaluating, focusing, using and sharing information.
- We take graduate level studies to learn how to deal with information.
- Ours is the only interdisciplinary discipline; in an increasingly interdisciplinary world, discipline-based information studies will be limiting. (Bibliographic Instruction LISTSERV [BI-L], April 5, 1995)

It is a fair assumption that most or all university libraries teach information literacy at some level. The LOEX Clearinghouse for Library Instruction is an international "educational clearinghouse for all sorts of materials used in library instruction. . . . In late 1994, LOEX had approximately 600 member libraries in the U.S., Canada, the Caribbean, Europe, Australia, Israel, Lebanon, and South Africa. LOEX also sponsors an annual library instruction conference each May. This conference focuses on current issues in instruction and the proceedings are published." (LOEX web site, February 9, 1996) The LOEX of the West 1996 conference will take place in June at the University of Washington in Seattle. Its theme is "Collaboration and Instructional Design in a Virtual Environment." In its call for proposals for conference papers, workshops, etc., LOEX enumerated six areas of interest, among them, "The Role of Critical Thinking in Library Instruction" and "Instructional Design." One school of thought among librarians involved in research instruction is that critical thinking skills are crucial to managing information needs. Under "Instructional Design," LOEX called for "presentations on instructional or curricular design issues. Possible topics include the changing nature of research; technology and instruction; integrating information literacy skills into academic curricula; lifelong learning and library instruction." (Liz Babbitt, uwepb@u.washington.edu, BI-L, December 18, 1995) These issues are major concerns of research education librarians.

The critical thinking movement in research education is competing with the "back-to-basics" movement, which advocates teaching students how to use specific

information tools—e.g., how to use a particular library catalog, printed index, CD-ROM database, etc.—rather than concepts such as information structure and systems. Gibson points out the trouble with teaching only the basics:

Skills are usually tied to specific computers and search softwares, and teaching only skills creates a self-defeating situation where the student can't transfer any skill, knowledge, or competence across a variety of research problems. . . . The short-term, tool-oriented approach merely reinforces dependency because it does not seek to promote students' understanding of research questions, information systems, and their own information-seeking abilities and patterns. Teaching the basic skills while excluding teaching for understanding, which requires critical thinking on the part of instructor and students alike, perpetuates rote learning of rapidly proliferating and changing software tools. (1995, p. 31)

This is not to say that basic skills shouldn't be taught. They must be taught; but in order to equip students with the capability for lifelong learning, basic skills must be taught in a conceptual framework. Keyword, subject, boolean, and proximity searching, for examples, are going to be around in some form or other for a long time. Keyword searching may be called basic index searching, and subject searching may be called descriptor searching; but the concepts are the same. There will be enhancements and refinements all the time; but the "skeleton"—i.e., the theoretical model behind the way information is organized and accessed—is likely to remain. Searching is based on combining language elements (aka words!) in logical sequences; so it is the thought process involved in searching which is the most significant thing to learn.

Gibson asks and answers the crucial question in relation to critical thinking and research education:

Is it possible to teach critical thinking skills in an information environment characterized by multiple user interfaces and rapidly changing technological developments?

Yes, but only if we move past the mechanistic, tool-based model that is fixated precisely on teaching the plethora of user interfaces (which change often) as if the mechanics are the core of learning information skills. Learning to question well, reason out research problems, predict with confidence the location (or even the existence) of information, as well as evaluating the information found—these are the core skills. (1995, p. 33)

Why should information literacy be a part of general education?

Every effort should be made to ensure that every Grand Valley State University graduate is information literate. Without information literacy skills, graduates are ill-equipped for lifelong learning. They are ill-equipped to manage their information needs. We live in a rapidly changing, complex world. Information literacy is no longer

a matter of looking up a title in a card catalog, if it ever was. It is a difficult competency to acquire, but it is a necessity. "Because we have been hit by a tidal wave of information, what used to suffice as literacy no longer suffices; what used to count as effective knowledge no longer meets our needs; what used to pass as a good education no longer is adequate." (*Final Report*, 1989, p. 13)

Among the six recommendations of the American Library Association Presidential Committee on Information Literacy in 1989 is this one:

State Departments of Education, Commissions on Higher Education, and Academic Governing Boards should be responsible to ensure that a climate conducive to students' becoming information literate exists in their states and on their campuses. Of importance are two complementary issues: the development of an information literate citizenry and the move from textbook and lecture-style learning to resource-based learning. The latter is, in fact, the means to the former as well as to producing lifelong, independent, and self-directed learners. As is appropriate within their stated missions, such bodies are urged to do the following: to incorporate the spirit and intent of information literacy into curricular requirements, recommendations, and instructional materials. (*Final Report*, p. 15)

Gibson does not state specifically that information literacy should be part of the general education program in a university, but he does say that "instruction programs offered by libraries need more time and prominence within the curriculum. Teaching any subject with a critical thinking emphasis means more, not less, time because critical thinking is reflective and takes time." (1995, p. 31)

According to Maureen Pastine and Linda Wilson:

It is easy to forget subject content, dates, and facts taught. And what is accepted as truth today may be regarded as fallacy in future years based on further study and research. Thus, the ability to identify, locate, retrieve, evaluate, and use information in the life-long quest for learning becomes significant. (1992, pp. 95-96)

Cornell University is developing an entire information literacy curriculum (*ibid*, p. 103). That undertaking involves faculty from all units. Grand Valley should also infuse information literacy into the core curriculum, not just at the freshman level. Upper-level library instruction classes are being taught, but the number of classes requested could soon outstrip the librarians available to teach them.

What resources will be needed?

As stated in the Library's response to the "General Education Survey" last spring: "GVSU Library faculty, as full-time information professionals with accredited graduate degrees in library and information science and many years of experience in effective teaching of information skills are best equipped to teach the information literacy

component of the General Education Program." However, there are eleven librarians and almost 14,000 students. In order to incorporate an information literacy program into the General Education Program, the Library will need an increase in staff.

Time must be set aside to develop an effective information literacy program. Development of such a program should include a cooperative effort between the library faculty and faculty members from other divisions. Program development should also include a means of assessment. Released time as well as additional classroom space and equipment may be required.

Conclusion

From the *Final Report of the American Library Association Presidential Committee on Information Literacy*:

To respond effectively in an ever-changing environment, people need more than just a knowledge base, they also need techniques for exploring it, connecting it to other knowledge bases, and making practical use of it. In other words, the landscape upon which we used to stand has been transformed, and we are being forced to establish a new foundation called information literacy. Now knowledge—not minerals or agricultural products or manufactured goods—is this country's most precious commodity, and people who are information literate—who know how to acquire knowledge and use it—are America's most valuable resource. (1989, p. 13)

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