

# Access to scientific literature

The web can complement libraries, but not replace them.

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Not everything published is on the web, despite its description as “a gigantic digital library, a searchable 15 billion word encyclopedia”<sup>1</sup>. Only about 8% of all journals are online and only a fraction of books are available<sup>2</sup>. Thus, the web is a useful research tool but it is no substitute for a library. Library services have been greatly improved by computer automation and use of the web, but the web cannot replace all of the services offered by a good library.

It is true that scientists have increased access to a growing amount of information on the web that would otherwise have required frequent trips to the library. But it is a cause for concern that “researchers are increasingly becoming biased against locating some of the higher quality research”<sup>3</sup> simply because the desired article cannot be found on the web without payment. Apparently, a few researchers have experienced “interlibrary loan delays”<sup>4</sup> and were troubled by “substantial efforts in locating the source”<sup>4</sup>. However, access to the web and Internet in the past five years has greatly increased the speed of interlibrary loans and document delivery. Some articles arriving through document-delivery services such as Canada’s Institute for Scientific and Technical Information (CISTI) deliver in less than 24 hours, or even within an hour. New software such as ILLiad allows interlibrary loan departments to begin making requested articles electronically available for those who prefer to remain in their office.

## Restricted view

Rather than seeing the web as a replacement for their services, many academic and public libraries have embraced the web and its possibilities to enhance their services and improve resource sharing. The web is a powerful tool; librarians use it and recommend aspects of it daily to patrons who phone, e-mail or visit the library. Few libraries do not have a web presence and at least an online catalogue that can be accessed remotely. But the web is merely one of many ways of accessing information, all of which should be consulted when thoroughly researching a subject.

Frankly, anyone who relies on the web as their only research tool is not doing research of any real quality. This practice is analogous to trusting a mechanic who assures you that he can fix your car with just a screwdriver, no matter what the problem. A mechanic, like a good researcher, avails himself of all the tools needed to do his job properly.

There are several glaring problems with the notion of the web as a “gigantic digital

library”. First, the web is an uncatalogued mess and, despite what any search engine claims to do, none of them searches the entire web. Imagine a librarian telling you that there are 60 books on your subject, but he is only going to let you look at 12 of them<sup>2</sup>.

Second, not all search engines or robots are created equal. Each search engine and robot searches the web differently, and some prioritize their search results according to who paid to appear near the top of the list or by the number of ‘hits’ — the popularity of the site. Imagine a librarian saying “because you used this particular catalogue to look for them we aren’t going to rank them by relevance using your search terms. You see, this publisher paid us to have their book show up higher in the list and we used their possibly inaccurate descriptors to catalogue it. Perhaps the book is on your subject, but I can’t be sure.” Librarians use not only human understanding, but also unbiased tools to answer questions.

## Mixed results

Alexander Lebedev, an associate professor at Moscow State University, did an informal study called ‘Best search engines for finding scientific information on the web’<sup>5</sup> in 1996, which described the functionality of selected search engines using the number of documents returned as the primary parameter for a good search engine. Most librarians would suggest that web search engines are like library resources and should be matched to the type of query being made, rather than thought of as the same type of database. Nevertheless, Lebedev’s study does point out marked differences in the number and type of documents that are retrieved by different search engines. Lebedev states: “My estimates show that the

maximum number of documents which can be found in the net is less than 10% of the number that can be (found) using a good scientific database like INSPEC or CAS”<sup>5</sup>.

Third, libraries have guidelines and standards for collecting all materials, as well as cataloguing them; the web does not. Although it is true that obtaining conference papers, journal preprints and technical reports is not the primary focus of any library, such materials form a valuable part of any library’s collection, together with books and journals published before the advent of the web. A researcher might not have instant access to this material, but he should be able to obtain it promptly through the interlibrary loan system. There is no guarantee that the web can do the same, or that time spent searching it will result in anything more than eyestrain.

Some indexes and databases on the web provide free access to text or at least allow one to search their holdings, such as S. Lawrence and C. Giles’ ResearchIndex. I have often referred electrical engineers and computer scientists to ResearchIndex, but always in concert with other library resources. These free online databases are a tremendous asset to researchers and are excellent tools for locating new and supplementary material. However, they are no replacement for the resources of a library, nor do they come close to mimicking the skills of a professional librarian.

Finally, the idea that the web can be a replacement for a library ignores the most important characteristics of a library. A library is not merely a collection of books, or some vast warehouse of words, books, and journals; it is part of our cultural, historical and scientific memory. With the advent of the web, libraries are now connecting and sharing their collections and resources with each other. Thus an individual academic or public library can be the access point for people to explore their world and their history, and to enlist the aid of information professionals to help guide them through their journey. ■

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