

Nexus

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Caught in the Web

The Internet as a Research Tool

You type your keywords carefully in the box provided, click on the SEARCH button, and are informed directly by your personable Internet search engine that it has found 87,102 pages "for you"; sites that apparently have something to do with the topic you're researching - managing high blood pressure, for example. Lucky you. You've hit the jackpot. Sort of.

Welcome to the World Wide Web, and to a research process that will undoubtedly test your sanity (and your blood pressure). Take a moment to look at the prize list of "hits" in front of you. You'll have a hard time ignoring the flashy advertisement at the top of the screen, promoting an expensive American hypertension clinic. It's not there by coincidence. As you explore your list of sites you'll likely be mesmerized by the fancy bells and whistles on the snazzy, high-tech Web pages of the multinational pharmaceutical companies. You might even be tempted to send in your Visa number to the health food store with the pretty Web page offering a great deal on a hot new alternative therapy. You'll come across the Web pages of people offering medical advice based on their personal experiences, and you may encounter the sparse home pages of quacks who've whipped up a little cure for your ailment in their basements. You'll also find an abundance of dead links that go nowhere, and chances are good that you'll come across Web pages that have absolutely nothing to do with your topic - perhaps with pictures of questionable value, that you probably shouldn't have looked at.

Don't give up yet. Somewhere in this chaos you'll encounter some fine Web sites with precisely the information you're after. It will take a bit of patience, however, and sometimes a lot of it. You'll eventually find the Web pages of the Canadian Heart Foundation and

the American Heart Association and related organizations that offer a wealth of information on your topic. Conference proceedings outlining the latest research efforts will be at your disposal, as will be journal articles, indexes, government reports and good, solid material from academic sites worldwide.

An Abundance of Information

In short, there's abundant, excellent information on the Internet on any subject imaginable - inconceivable just a few years ago. It all depends on what you're looking for, of course, but you'll probably walk away from a research session on the Web with some valuable pieces of information. No doubt, you'll also walk away thinking: that World Wide Web is one hell of a mess. It's that feeling, obviously, that prompted Robert Fulford to label the Web as "the biggest library in the world, but run by drunken librarians."¹ (He also wrote that he loved its "unpredictable anarchy.") The World Wide Web and its method of organization are almost impossible to describe. For an extremely simple analogy, think of an immense field filled with an incalculable amount of information in every conceivable format: books, journals, software, pictures, videos. Almost every subject and concept is contained in the items in this field. All this material has been created by people with widely varying capabilities, with no submission standards required whatsoever.

Also imagine an army of people - including a large number of sober librarians (and robots) - all working furiously to bring some order to this mess. Some sort items into separate stacks by topic, while others build tools to help organize and find the information contained in this material. Another crew has the continuous task of bringing more pieces into the field.

Considering the nightmarish proportions of this job (and the fact that the Web as we know it hasn't been around for much more than five or six years), this industrious group of tool-makers, organizers, caretakers and providers is doing a pretty good job of taming the information that makes up the World Wide Web. They endlessly sort and index this mess, and most importantly, provide us with an assortment of tools that we can use to dig through a mass of information that has never existed before in such quantity.

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Faculty Focus

A new section entitled "Faculty Focus" has been added to the Home Page to highlight information and services specifically designed for faculty. Included in this section is information about audio-visual services, current awareness initiatives, class orientations, ordering titles for the collection and a listing of subject librarians, in addition to other more general information about the library.

www.library.ryerson.ca

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Search Engines

These handy tools are called *Search Engines*, and they come with funny names like *Dogpile*, *Yahoo! Hotbot* and *Excite* - titles that hardly instill a great deal of confidence in their abilities. A large assortment of search engines exists at the moment; new ones are being developed all the time. Many of these search tools have been developed and are maintained by big corporations such as Digital (now Compaq); others have grown from the hobbies of perky young college students who are just a few dollars short of becoming billionaires.

Tools are generally tailored for the individual jobs they do, and some do these jobs better than others. The same rule applies to the Web search engines. Simply put, the search engine's job is to help you locate information on the Web by providing you with a list of Web pages that match the topic you are researching. Search engines have their strengths and weaknesses (often related to the size of the database and the quality of the indexing), and you'll find that the quality and quantity of the information retrieved vary greatly from one engine to another. You'll soon discover a search engine that you favour, but it's very important to know that several search engines and types of search engines must be used together to do a decent job.

Research has shown that no one search engine indexes more than one-third of the estimated 320 million "indexable" Web pages currently in existence.² When you submit your topic to a search engine, it will search only for Web pages that it has extracted from the Web and placed in its own database; it is not searching the "whole" Web. These databases are often updated daily, usually with the aid of computer software (sometimes called robots) that constantly roam the Web seeking new pages to add to their respective collections. Some search engines contain over 140 million pages in their databases, while others hold a scant 30 million.

Three Types

Although there are many different search engines to work with, there are generally only three broad types of Internet search tools to know about: the *Subject Classified Directories*, the generic *Search Engines* and the multi-tasking *Meta Search Engines*. (These distinctions are

actually quite loose, for you'll find that a large number of search engines - like *Yahoo!* - serve as both classified directories and as search engines).

The *Subject Classified Directories* are probably the easiest of the tools to use. These tools are also known as *Mediated Search Engines* - mediated in that somebody or something has created a list of Web sites and classified them by subject, allowing you to search for Web resources using a step-by-step process. Search engines in this group include *Yahoo!* (www.yahoo.com), *EINET Galaxy* (www.einet.net) and *Argus Clearinghouse* (www.clearinghouse.net). *Yahoo! Canada* (www.yahoo.ca) largely focuses on Canadian Web resources and is an offshoot of the U.S.-based *Yahoo!*

A typical subject classified directory will present you with a list of fairly broad subject headings (Arts & Humanities, Health, Science, Social Science, etc.) Once you click on a specific subject

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heading (Science) you will be presented with another list of related sub-headings (Chemistry, Biology, Physics...) until a list of Web links appears relating to the specific topic chosen (Physics). You can continue pursuing links to the more specific subjects within Physics (Atomic Physics, Biophysics, Chaos, Photonics, etc.) until you find something appropriate.

Varying Quality

As usual, you'll find that the quality of the information contained in the subject classified directories will vary greatly. Many of these mediated search engines are based on the submission of sites by anybody - no credentials needed. Consequently no mechanism is in place for filtering for quality, and coverage of academic resources can be spotty. *Yahoo!* is such a beast, and although its index is very extensive, the quality of its links is sometimes questionable. Unfortunately, *Yahoo!'s* presence is so large - it's even spawned a glossy monthly magazine - that many people consider it to be the ultimate Web subject directory and search no further.

If you're willing to sacrifice quantity for quality, it's best to head to a more sophisticated subject directory like the *Argus Clearinghouse* (www.clearinghouse.net). Although this directory is based on site submissions (like *Yahoo!*), the sites are of better quality because they are most often submitted by subject specialists. Additionally, *Argus Clearinghouse* is maintained by a group of well-qualified people including librarians, experts in a variety of fields, and experienced researchers. These individuals examine each submitted Web site against a set of criteria (currency of content, intended audience, technical performance, etc.), and rate each site with 1 to 5 checkmarks for each criterion. Although this directory is limited in size, the resources listed are generally superb. For a similar type of subject directory, try *The Mining Company* at (www.miningco.com).

Database Searching Skills

You may want to brush up on your database searching skills before you start using this next group of Web search tools - the generically labeled *Search Engines*. Whereas the subject classified directories lead you step-by-step to a selection of Web sites, you usually chart your own course when you use a search engine. You are given greater flexibility when using these tools and can conduct very sophisticated Web searches by submitting specific topics and combining those topics to retrieve even more detailed results. However, the success of your search rests considerably on your familiarity with *Boolean* logic, the art of combining concepts using the tiny but powerful words, AND, OR and NOT, as in: (cats *or* felines) *and* (dogs *or* canines) *not* (puppies *or* kittens). (Most search engines offer fairly decent help screens should you need a crash course.)

The search tools in this group include *AltaVista* (www.altavista.com), *Hotbot* (www.hotbot.com), *Lycos* (www.lycos.com), *Northern Light* (www.northernlight.com) and *Webcrawler* (www.webcrawler.com). *AltaVista*, *Hotbot* and *Northern Light* have the most comprehensive databases, each containing over 100 million Web pages. Each of the three search engines has managed to index approximately one-third of the Web, but this does not mean that the whole Web has been covered by them. Although the searching mechanisms of each search engine are based on Boolean logic, you

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Library Technical Services in the Electronic Information Age

It takes more than a computer to give people real service.

Sheila S. Intner.
"Putting the Service in Technical Services."

In this era of networked information, full-text databases and Web-delivered university courses, electronic resources have assumed an important role in academic libraries, and consequently in library technical services. Technical Services operations include the identification and acquisition of materials and their organization within existing collections for retrieval on demand. These functions have evolved from print-based to electronic processes.

Not long ago, the Ryerson Library Technical Services Departmental Acquisitions staff, like the rest of the Library, worked in a totally paper-based environment. They completed order forms on paper; typed long lists to send to publishers and vendors; and maintained filing cabinets stuffed with statistics sheets and other documents - all kept on paper. In the cataloguing area of technical services, call-number tables and cataloguing rules were also paper-based. But then, most of the items catalogued were produced on paper.

Times have changed

Two developments drove most of the change: the growth of large, easily accessible databases and the need to reduce costs and avoid duplication. The watchword in libraries has always been: "Never type the same information twice when you can retrieve it from an existing place." The more keystrokes saved, the faster the work gets done. To that end, cataloguers and acquisitions staff from universities, government bodies or private companies created massive databases of bibliographic records. Apart from being numerous, these records were often in machine-readable (MARC) bibliographic format.

These records form the basis for many activities of the modern technical services operation. A MARC record is retrieved or created when our acquisitions staff order a

book. This record later forms the basis for the record that appears in the library catalogue. Once again, minimal typing is required.

Cataloguing

Cataloguers on the Library staff create descriptions for information units, be they videos, CD-ROMs, books or Web pages. These descriptions are shared with other libraries, participating in a global shift to collective, standardized cataloguing, that has resulted in a large pool of shared records. The growth of large and easily accessible databases of records has enabled cataloguers across the planet to reduce duplication of effort and to increase productivity as well as quality. The result is faster description and access to information for the Ryerson community.

EDI is coming

When staff order items, the information about the requested material is frequently e-mailed, faxed or otherwise electronically transmitted to the vendor or publisher. However, in future, the information exchange and payment may be handled through EDI (Electronic Data Interchange) technology, an integrated interface to the library catalogue system, to help streamline the acquisition process. Products that are EDI-enabled will seamlessly send and receive varied transactions such as orders, invoices, claims and responses for both serials and monographs. These interfaces must be established between library and vendor and this presents a current challenge for both parties.



Photo by Dave Upham

Some of our Technical Services Staff
Clockwise from top left:

Maria Nunes, Jackie Tam, Laurie Woods, Carmen Brown, Daniel Phelan & Glen Clifford

The development of client-server technology and Web-based catalogues has turned library catalogues into gateways to the Internet. Ryerson's catalogue has a Web interface which makes it possible to add hypertext links from the records in the Ryerson Library database directly to Internet resources. Thus, many valuable networked files are now searchable by author, title, subject and keyword. Records describing electronic journals, Web sites, and databases which support the university's research and teaching interests are added on an ongoing basis. Databases of periodical or serial records are also used for ordering and cataloguing. They are often associated with the vendor or subscription agent that supplies the many subscriptions to libraries.

Conclusion

The lead role in Technical Services belongs to the staff. Staff are continuously building knowledge and skills and adapting workflow to a networked environment. Books are still ordered, but staff are also choosing Internet content providers, purchasing online indexes to the literature of various disciplines, and evaluating new information products for their content and scope. Skilled people bridge the gap between these bibliographic and administrative operations and service to the campus.

Service to Ryerson students and faculty is the central purpose of the Technical Services Department and great service requires human judgment and creativity. Technical Services continues to develop, acquire and manage collections, and to control and preserve materials. The approach has changed, but the core goals remain very much the same.

SOURCES AND NOTES

Intner, Sheila S, "Putting the Service in Technical Services," *ALCTS Newsletter* 9(4-6) 1998.

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will find little consistency in the way each one is searched, and mastering the idiosyncracies of one search engine does not necessarily allow for a seamless passage to the next. You will have the freedom, however, to tailor your search strategies as you wish. You'll still end up with an incredible amount of junk, but the quality of your search results will improve considerably as you gain greater familiarity with the workings of these powerful search tools.

If you're in a hurry, you might want to try out some of the *Meta Search Engines*. Working with the knowledge that each search engine will deliver wildly different results, meta search engines package a number of single search engines together and allow you to search the whole group simultaneously. *Metacrawler* (www.metacrawler.com), *Dogpile* (www.dogpile.com) and *SavvySearch* (www.savvysearch.com) are included in this group. Once you provide the meta search engine with your search terms, it sends you a tally of search results as they apply to each search engine in its bundled package. These search engines work well if you want an overview of your topic as it's treated on the Web, but they generally can't take full advantage of the advanced searching techniques offered by many of individual search engines like *AltaVista* or *Hotbot*. Consequently, search results can be skimpy and inconsistent.

Hidden Internet

If, after all this, you're not convinced that the Web is the place you want to be, you might consider giving the *Hidden Internet* a try. The Hidden Internet tends to be a "civilized" place in which to do research. In this little corner of the Web you will find no flashing screens and loud noises. The search engines don't have silly names, nor do they try to hawk goods and services. The information you retrieve is generally scholarly and sensibly classified, plentiful but not overwhelming. There's a fairly good chance you'll be able to pull in the article you want to read in full-text format, graphics included. What makes this all possible? Money, of course. You're paying handsomely for this luxury service, or at least your library or institution is. A number of excellent services of this type are available through the Ryerson Library to Ryerson community members. With names like *EbscoHost* and *Proquest* and *Cambridge Scientific Abstracts*, they provide abundant

information through the World Wide Web for faculty and students on an incredible range of topics. A complete list of these resources is available at www.ryerson.ca/library/indexes.html.

We read in journals and hear at conferences that the World Wide Web will soon become a highly organized resource of quality material. The trashy part will still exist, of course, but higher quality material will become easier to access. The wheat will be separated from the chaff, so to speak. Search engines will become increasingly sophisticated and more adept at filtering out unwanted material. You'll also encounter "push" technology. Whereas most information providers currently offer a "pull" model of information retrieval (you, the Web-surfer, "pull" information off a server at a remote location), you will soon find more providers offering a "push" model, in which you can customize information and have it delivered on a regular basis. (Examples of push models include *My Yahoo!* (my.yahoo.com) and *Pointcast* (www.pointcast.ca.) And then there's the *Internet II* which is currently being built by a group of universities. This second Internet infrastructure will provide an exclusive network for the research community and will be dedicated solely to educational use.

For the moment, however, we're mostly stuck with the tools at hand. Becoming familiar with the methods of these search engines, along with their strengths and weaknesses, will greatly help your research efforts. You'll still come away from the Web frustrated (and with more than you bargained for), but you'll have gained some control over the information in this labyrinth, and somehow the whole thing won't seem like its run by those messy, drunken librarians.

SOURCES AND NOTES

1. Fulford, Robert, "OBSERVER: Plugging into the Core of the Apple Computer's Appeal," *Globe and Mail* 13 Aug. 1997, metro ed.: C1
2. Lawrence, Steve and C. Lee Giles, "Searching the World Wide Web," *Science* 280.5360 (1998): 98-100.

The Ryerson Library Web page (www.ryerson.ca/library/search.html) provides an excellent list of search engines.

For excellent coverage of all aspects of Web search engines, go to the Search Engine Showdown Web at <http://cu.imt.net/~notess/search/index.html>.

For help using the World Wide Web for research call Don Kinder at ext 6899 (dkinder@acs.ryerson.ca)

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Free Interlibrary Loan to Faculty
Offer Extended to August 1999

In recognition of our users' needs for interlibrary loan borrowing for study, teaching and research, the Library is pleased to extend the offer of free interlibrary loans to faculty and graduate students. This service will continue on a trial basis until the end of August 1999. Funds for this service are generously supplied by the Associate Vice President, Academic, with matching funds from the Library.

For Undergraduates

The Library has decided to extend free interlibrary loan for undergraduates as well. The formal trial for students which began in September 1998 will continue until the end of the academic year.

How to Request an Interlibrary Loan

You can request an interlibrary loan in person at the Interlibrary Loans Department on the 2nd floor of the Library building, 350 Victoria Street (at Gould).

Remote Requests

Alternately, from the comfort of your home, lab or office, you can now complete and send in a Web-based interlibrary loan request form. For full details visit the Ryerson Library's homepage (www.library.ryerson.ca) and scroll down to select Interlibrary Loan Request Form.

One more reason to use a valuable resource - your Ryerson Library

Happy New Year
from the Ryerson Library Staff

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The following people have been instrumental in the production of this issue:

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