

# RESEARCH AND DOCUMENTATION *in the* ELECTRONIC AGE

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*A Bedford Booklet*

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# Research and Documentation in the Electronic Age

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With research sources by

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## Contents

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<b>Introduction</b>	<b>1</b>
<b>PART I. RESEARCH RESOURCES</b>	<b>2</b>
<b>Library Research</b>	<b>2</b>
Getting Started: Focusing Your Search	2
Refining Your Search	3
Evaluating Sources	5
<b>Research on the Internet</b>	<b>6</b>
Advantages and Drawbacks to the Internet	7
Browsing the World Wide Web	8
Using General Directories to Find Internet Sources	9
Using Search Engines to Find Internet Sources	10
Planning an Internet Search Strategy	12
Evaluating Internet Sources	14
Combining Internet and Library Resources in Research	16
<b>Researching in the Humanities</b>	<b>19</b>
General Resources in the Humanities	20
General Internet Resources in the Humanities	20
Art and Architecture	21
Classics	23
Literature and Linguistics	25
Music	27
Philosophy	29
Religion	30
Theater, Dance, and Film	32
<b>Researching in History</b>	<b>35</b>
General Resources in History	36
General Internet Resources in History	37
World History	37

American History	39
Primary Sources	42
<b>Researching in the Social Sciences</b>	<b>46</b>
General Resources in the Social Sciences	47
Statistical Sources in the Social Sciences	47
General Internet Resources in the Social Sciences	48
Anthropology	49
Communications	50
Economics	52
Ethnic Studies	53
Geography	56
Political Science	58
Psychology	61
Sociology	62
Women's Studies	64
<b>Researching in the Sciences</b>	<b>66</b>
General Resources in the Sciences	67
General Internet Resources in the Sciences	68
Biology	68
Chemistry	70
Environmental Sciences	72
Geology	74
Mathematics	76
Physics and Astronomy	77
<b>PART II. HOW TO DOCUMENT SOURCES</b>	<b>80</b>
<b>Internet Sources: ACW Style</b>	<b>80</b>
<b>The Humanities: MLA Style</b>	<b>83</b>
MLA In-Text Citations	83
<b>DIRECTORY TO MLA IN-TEXT CITATIONS</b>	<b>84</b>
MLA Information Notes	89
MLA List of Works Cited	90
<b>DIRECTORY TO MLA LIST OF WORKS CITED</b>	<b>92</b>
Sample MLA paper	109

<b>History: Chicago Style</b>	<b>112</b>
<i>Chicago</i> -Style Footnotes or Endnotes	112
<b>DIRECTORY TO CHICAGO-STYLE NOTES</b>	<b>114</b>
<i>Chicago</i> -Style Bibliography	123
<b>DIRECTORY TO CHICAGO-STYLE</b>	
<b>BIBLIOGRAPHY</b>	<b>124</b>
Sample <i>Chicago</i> paper	132
<b>The Social Sciences: APA Style</b>	<b>136</b>
APA In-Text Citations	136
<b>DIRECTORY TO APA IN-TEXT CITATIONS</b>	<b>137</b>
APA References (Bibliographic List)	140
<b>DIRECTORY TO APA LIST OF REFERENCES</b>	<b>142</b>
Sample APA paper	147
<b>The Sciences: CBE Style</b>	<b>150</b>
CBE Reference List	151
<b>DIRECTORY TO CBE REFERENCE LIST</b>	<b>152</b>
Sample CBE paper	156
<b>A List of Style Manuals</b>	<b>159</b>

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## Introduction

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This ancillary to Diana Hacker's handbooks is intended to be consulted for quick reference as you research and document papers across the curriculum.

Part I gives an overview of library and Internet research and includes detailed listings of library sources and Internet sites in the disciplines. Part II includes documentation styles used across the disciplines: MLA style (the humanities), ACW style (Internet sources), *Chicago* style (history), APA style (social sciences), and CBE style (biology and other sciences). All of these style sections include advice on documenting electronic sources, but we've also provided addresses for Internet sites that offer such guidance.

This booklet is also available online at <http://www.bedfordbooks.com/rd/index.html>.

## PART I. RESEARCH RESOURCES

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### Library Research

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For detailed advice on conducting library research, consult *The Bedford Handbook*, *A Writer's Reference*, or *Rules for Writers*. This section offers briefer advice, for quick reference.

#### GETTING STARTED: FOCUSING YOUR SEARCH

Once you have settled on a possible topic, do some preliminary research to help you focus your search for sources related to your topic. In other words, learn enough about your topic to decide how you might approach it: maybe an angle from which you might examine it or some question about it that you propose to answer. Consider trying several of these strategies to begin defining your focus:

- Write down a number of key terms related to your topic, including synonyms and words describing related topics. Because there are so many ways to express any idea, the trick is to find terms that will link you to useful resources, whether through the library catalog or an index.
- Use your key words to begin a search in the library's computerized book catalog. If you aren't successful with the key words on your list, turn to the *Library of Congress Subject Headings*, volumes that list the terms catalogers use, or ask a librarian for help.
- Use your key words to begin a search in the library's computerized periodical indexes. Again, if your key words



lead nowhere, consult the *Library of Congress Subject Headings* or ask a librarian for help.

- Read about your topic in a general or specialized encyclopedia or in sources such as *CQ Researcher*, which contains digests of recent articles on contemporary issues, or *Opposing Viewpoints Series*, which compiles recent articles on controversial social issues and current events.

Sometimes just reading related headings and subheadings in a book catalog or a periodical index can give you a sense of your subject's natural subdivisions. One of these subheadings can sometimes help you focus your topic — at least in a preliminary way — before you have read a single book or article.

## REFINING YOUR SEARCH

With a focused topic in mind, you are ready to refine your search. At this point you may want to talk to a reference librarian, who may be able to quickly suggest reference books, bibliographies, databases, and other research materials. Each library has its own strengths, and those are best known to people who work there.

If you use an electronic database in your research — and you almost certainly will — spend a little time getting to know how it works. Find out if you can combine terms (using *and*, *or*, and *not*) to narrow or expand a search or to exclude concepts from it. See if you can put a wildcard ending on a root word to widen the search (using *psycholog\**, for example, to search all at once for *psychology*, *psychologist*, *psychological*, and so on). Check to see if you can limit a search by type of publication (for example, *book review* or *not book review*) or by publication date.

## Primary sources

Primary sources — original accounts rather than secondhand analysis — might be found in government document collections; published as collected letters, diaries, or speeches; or available in microfilm series of historical documents. To find primary sources, try searching the catalog using the names of prominent figures as authors (not as subjects or in titles). When searching by subject, combine the search term you are using with the term *documents* or *sources*. For some projects you might even be able to use one-of-a-kind materials from a local historical society or your college archives.

## Bibliographies and cited sources

Many scholarly books and articles contain bibliographies, lists of works that the author has formally cited or recommends as relevant readings on a subject. Even a popular press account might lead you to sources such as recent studies and reports.

## Specialized references

In addition to providing an overview of your topic when you are planning your search, reference materials can help you find specific information as your research becomes more focused. For example, if you are interested in interviewing a National Rifle Association spokesperson for a paper on gun control, you could consult the *Encyclopedia of Associations* for the NRA's phone number and for background information on the organization. If you want to track down a range of scholarly articles on your subject — more than you might find in general periodical indexes — you might consult a journal index like *Humanities Index*, *Public Affairs Information Service Bulletin*, or *Social Sciences Index*. A librarian can help you find the right reference materials to suit your specific needs.

## EVALUATING SOURCES

With all of the research options available, make sure you keep sight of your focus as your understanding of a topic evolves and deepens. You don't need to look at all of the available sources, but only good ones that answer the questions you have posed for yourself. Evaluate sources as you find them, making sure they are relevant, current, written for an appropriate audience, and authoritative. When you aren't an expert, it may seem daunting to evaluate the work others have published, but a book's table of contents or an article's opening paragraphs often will give you enough information to determine the work's relevance. The type of language it uses will help you decide if it is scholarly enough and yet not too highly technical for your purposes. Information given about the author might help you decide how much of an authority he or she is. If you have particular questions about a book or periodical, you can find assessments in *Book Review Digest*, *Book Review Index*, or *Magazines for Libraries*.

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## **Research on the Internet**

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The Internet, which started in the 1970s as a Defense Department computer network, has become a vast, worldwide communications medium for individuals, businesses, and other organizations. Essentially, the Internet has three main functions: remote access to other computers, communication, and transfer of files from one computer to another.

### **Remote access**

Anyone with an Internet connection and the right software can make computer files available to anyone else on the Internet. You can use such remote access to search library catalogs across the country or look at World Wide Web pages of organizations anywhere in the world. For in-depth research projects you may want to search the catalog of a regional research library other than your own. Check with your library for a list of other libraries with Internet-accessible catalogs and for interlibrary loan policies.

### **Communication**

The Internet allows one-on-one, instantaneous or nearly instantaneous communication through electronic mail (e-mail), discussion lists, newsgroups, and chat rooms. E-mail is generally used for business and personal correspondence. Discussion lists are usually focused on a common or obscure topic (such as baseball history or T. S. Eliot); members of a list post messages that are automatically routed to all other members of the list. Newsgroup messages are public postings that can be read by anyone, rather like messages pinned to an enormous set of bulletin boards. Chat rooms allow real-time communication (sending, receiving, and responding to messages) among participants. In addition, MUDs (multi-

user domains) and MOOs (multi-user object-oriented domains) create spaces in which participants can move around and manipulate objects.

### **File transfer**

File transfer protocol (FTP) allows for the copying of files between computers via the Internet. Users can transfer (download) software for use on their own computers, transfer files from university and business archives, and download documents accessed through the World Wide Web. A program called Archie can search FTP archives by subject. Much of the function of FTP has been taken over by Web browsers (see p. 8), which make transfer easier and quicker.

## **ADVANTAGES AND DRAWBACKS TO THE INTERNET**

Several features of the Internet make it especially useful for researchers: Documents available on the Internet are revised and updated frequently, texts and databases can be searched by key word, and information can be downloaded or printed easily. Texts that are linked on the World Wide Web can be found with a single mouse click. In these ways, the Internet may seem more conducive to research than the library.

But the researcher today can't rely entirely on the Internet, for it covers only some subjects better than others. For example, you might find more thorough, up-to-date coverage of popular culture, computer science, and government information sources on the Internet than in your library. But if you're looking for insightful commentary on a novel, research reports on a topic in psychology, or a reliable and unbiased account of a political movement, you may find Internet resources lacking the depth, objectivity, and careful attention to editorial matters that you can expect in traditionally published scholarship. There are no editors who

choose what will be published on the Internet, and no one checks the material for accuracy. The Internet is a highly democratic and innovative form of publication, so researchers must evaluate Internet sources carefully.

Another difficulty is that Internet resources aren't organized the way books are in a library. No one selects and catalogs the documents that appear on the Internet; individuals, organizations, and companies put together information that instantly becomes available in one great sea of information. While searches can be executed conveniently and quickly, no one ensures a genuine match of meaning between key words and documents. These shortcomings pose certain challenges for researchers, but they aren't insurmountable. By using selective resource directories and carefully honed search strategies and by evaluating sources carefully and critically, you can make productive use of the Internet.

## **BROWSING THE WORLD WIDE WEB**

The earliest system for accessing information from remote computers via the Internet was known as a "gopher," a text-based program that is organized hierarchically. Recently the World Wide Web has made finding and retrieving information much easier and more flexible. The World Wide Web is a collection of documents, or "pages," organized not hierarchically but through "hypertext links," connections between documents or parts of documents anywhere on the Web. Accessed through a browser program (also known as a client program), such as Netscape or Mosaic, the Web offers color graphics, varied page layout, embedded movie clips, sound files, animation, and easy movement from one document to another. Each Web page has its own URL (uniform resource locator), the address through which it is accessed by the browser. URLs for Web pages always begin with *http://*. URLs for documents using the gopher system begin

with *gopher://*. (You can save the URL of a page you want to find again by using the “bookmark” or “favorites” function on your browser.)

## **USING GENERAL DIRECTORIES TO FIND INTERNET SOURCES**

One way to start a search on the Internet is to find a good directory of selected sites related to your topic. Several general directories can lead you to such sites, and their contents can be searched by key word. Be aware that the content and quality of directories is uneven. Some are frequently updated with new information; others contain many sites that no longer exist or have moved. Some focus on sites that are primarily informational, while others seek out the popular, the entertaining, or the bizarre. Some include only sites that meet standards for content and organization, while others are less selective. Some directories to a range of sources across the disciplines are listed here; discipline-specific directories are listed with the resources for each discipline.

### **GENERAL DIRECTORIES TO INTERNET SOURCES**

*The Argus Clearinghouse.* <http://www.clearinghouse.net>

A directory of subject guides to resources in a variety of disciplines, with an emphasis on scholarly uses of Internet materials.

*Directory of Scholarly and Professional E-Conferences.* 6th ed. <http://n2h2.com/KOVACS>

This site lists and describes academic and professional discussion groups available through the Internet. It is a good place to learn about electronic conversations going on in a given academic discipline.

*Internet Public Library.* <http://www.ipl.org>

A well-selected, annotated collection of Internet resources hosted by the School of Information at the University of Michigan. Of particular note is the “ready reference” collection.

*Liszt*. <http://www.liszt.com>

A database of various Internet discussion lists. It allows for searching by topic or browsing by category and includes helpful information on how to select and subscribe to lists and, in many cases, reviews and descriptions of them.

*Scholarly Journals Distributed via the World Wide Web*. By Robert C. Spragg. <http://info.lib.uh.edu/wj/webjour.html>

An alphabetical list of publicly accessible journals with scholarly content.

*U.S. Federal Government Agencies: A List of Federal Agencies on the Internet*. <http://www.lib.lsu.edu/gov/fedgov.html>

A well-organized list of links to government agencies on the Internet. The list of agencies and subagencies is arranged hierarchically.

*The World Wide Web Virtual Library*. <http://www.w3.org/pub/DataSources/bySubject/Overview.html>

A catalog of guides to Internet resources by subject. Organized by the World Wide Web Consortium, the guides are created and maintained by people around the world.

*Yahoo!* <http://www.yahoo.com>

A constantly updated and vast subject guide to the World Wide Web, organized by category in a menu structure. The site offers links to other sites as well as a means of searching the *Yahoo!* index by key words in the URL, title, or description.

## **USING SEARCH ENGINES TO FIND INTERNET SOURCES**

Search engines are programs that match key words to Web sites that include those terms. Not all search engines work the same way or cover the same ground. Some make fairly precise connections to the key words, while others make cruder matches. Some search only the first page of Web sites, and others dig a little deeper.

Search engines can be highly inaccurate on several counts. First, they match only the words you put in and



don't take into account the many different words that might describe the same thing. Because search engines don't have a standard vocabulary for subject headings, you may have to search by several related key words to find relevant sites. Second, search engines may pick up many sites that happen to use a key word even though it is not actually a subject of the site. Third, a search may result in several different matches that may only be pointers to the same item.

The list of search results includes some information that can help you decide which sites are promising and which are probably irrelevant. Titles of Web sites offer information, of course, but so do their URLs. The first part of the URL (between the double slash mark and the first single slash mark, if there is one) includes domain names, separated by periods. The final domain name indicates what type of institution sponsors the site or which country it is located in. If the final domain name is *.edu*, the site is at an educational institution. The ending *.org* indicates a nonprofit organization, *.com* indicates a commercial site, and *.gov* indicates a U.S. federal government agency. Foreign sites typically include an abbreviation of the originating country: for example, *.ca* for Canada, *.fr* for France, *.jp* for Japan. Sites based at primary and secondary schools often include *.k12* in their addresses. Your list might include several URLs that begin with the same domain names but end with different characters; these are related pages from one site. You may want to choose the one with the shortest URL; it is probably the first page to which the others are linked.

Most search engines provide, along with title and URL, some contextual information about the sites they find, sometimes a descriptive annotation or the first words that appear in the site. This information is often enough to tell you whether the site is worth a look.

The following list provides several general-purpose search engines and some that search for particular kinds of information.