

CHAPTER 31

Finding and Evaluating Sources

31a What is a source?

A **source** is any form of information that provides ideas, examples, information, or evidence. For a research paper, sources can be books, articles, Web pages, Internet files, CD-ROMs, videos, lectures, and other types of communication. Sources can also be interviews, surveys, or direct observations, such as when you attend a performance or visit a museum. Sources differ greatly in terms of how accurate and reliable they are. To be able to use sources responsibly for your research, you need to judge each source's trustworthiness and quality. This chapter explains how to locate and then evaluate sources.

A source is either *primary* or *secondary*. A **primary source** is original work such as firsthand reports of experiments, observations, or other research projects; field research you carry out yourself; and documents like letters, diaries, novels, poems, short stories, autobiographies, and journals. When you use a primary source, no one comes between you and the material.

A **secondary source** reports, describes, comments on, or analyzes someone else's work. This information comes to you secondhand. That is, someone other than the primary source relays the information, adding a layer between you and the original material. This does not mean secondary sources are inferior to primary sources. Indeed, scholars and other experts are excellent secondary sources. However, you need to evaluate secondary sources carefully to make sure that what's being relayed to you isn't distorted or biased in the process. Turn to 31j for detailed guidelines for evaluating sources.

31b What is a search strategy?

A **search strategy** is an organized procedure for locating and assembling information for your research. You find this information in two places: on the Internet and in the library. Developing a strategy for your search is crucial. An effective, successful search strategy results from your working systematically and thoroughly to find material that helps to answer your RESEARCH QUESTION. A good search strategy helps you structure your research work so that you don't mistake activity for productivity.

No two research processes are exactly alike. Be guided by your personal needs as you adapt the search strategies I explain. Most of all, know that no search strategy is as tidy as I describe here. Following are three frequently used designs.

The **expert method** is useful when you know your specific topic. Begin by reading articles or books by an expert in the field. Of course, this means

that you have to know who the experts are, and sometimes that's difficult. Talk with people who are generally knowledgeable about your topic, learn what you can from them, and ask them to refer you to work by experts on the topic. (For example, if you're interested in researching artificial intelligence, a computer science instructor may be able to tell you who are the leading experts on that topic.) Alternatively or in addition, INTERVIEW an expert, either in person, on the phone, or through e-mail. Turn to 31i for detailed advice about conducting effective interviews.

The **chaining method** is useful when you know your general topic and need to narrow it to a more specific, manageable topic. Start with reference books and bibliographies from current articles or Web sites. These references will lead you to additional sources. Keep up the chain, watching closely for sources that are mentioned frequently. The frequency is usually evidence that the sources are probably expert and well respected. As you work, your general topic usually begins to group and divide itself into subtopics, one of which might serve as the topic of your research paper. If such division and grouping doesn't emerge for you, take a break of a few hours so that you can reconsider the material with fresh eyes.

The **layering method** is useful when you need to find your own topic. You layer information by first consulting general sources and then finding ones that are more specific. You try to relate the information you gather to other scholarly sources in the same subject area. Chandra Johnson, the student whose research paper appears in 33e, started with the layering method and soon combined it with chaining.

You, too, may find yourself switching or combining methods. This is perfectly acceptable. "Flexibility with focus" is the guiding principle for experienced researchers. Complete your search as soon as possible after you get the assignment. Discovering early in the process what sources are available allows you time to find those that are harder to locate; to use interlibrary loan if an item isn't available in your library or online; to wait for someone to return checked-out books you need; or to schedule interviews, arrange visits, or conduct surveys.

31c How do I find sources?

You want to start your search strategy by consulting library and online sources on your topic. To do this, you need to figure out the keywords (31c.4) and subject categories that can lead you to useful material.

The **library** building is where generations of college students have traditionally gone to find sources. Today, the **Internet**, which includes the World Wide Web and additional files, greatly expands the ways you can access information. At the library, you find books, periodicals, and lists of sources in catalogs, indexes, and databases. While many college libraries offer home pages to give you remote access to their holdings via Internet connections, the library building itself continues to be a vital place for all research. One key

advantage of going to the library is your chance to consult with librarians. They trained for their profession by learning how to advise students and other researchers about using library resources to greatest advantage. Never hesitate to ask questions about how to proceed or where to find a resource.

Catalogs list sources—usually books—that the library owns (see 31d). **Indexes** list articles in periodicals; each index covers a specific topic area (see 31e). Catalogs and indexes exist mainly in electronic format; less commonly, some catalogs and indexes are still in print format. **Databases** always exist electronically (see 31c.1). They consist of one or more indexes and contain extensive lists of articles, reports, and books. You can access and search electronic catalogs, indexes, and databases from computers in the library or by connecting to the library online. You can also subscribe to databases, but this can be expensive. At most colleges, your tuition pays for access to online library resources, so take advantage of them.

If you're accessing a database by connecting to the library online, you need to use a **browser**, a software program that gives you access to the Web and the search engines located there. Netscape Navigator™ and Microsoft Internet Explorer™ are the two most frequently used browsers.

31c.1 Using databases

Each entry in a database contains bibliographic information, including a title, author, date of publication, and publisher (in the case of books or reports) or periodical (in the case of articles). The entry might also provide an abstract, or summary, of the material. Once you locate an entry that seems promising, you might need to read a print copy of the source. Some databases provide the full texts of the articles they cite. Other databases allow you to purchase full copies of the sources you find. If you're on a tight budget, try to purchase only what looks truly useful. You can request materials that are not in your library through interlibrary loan (31g).

Sources that you identify through scholarly databases are almost always more reliable and appropriate than sources you find through simply browsing the World Wide Web. Some scholarly research is available from World Wide Web sites, while others reside at Internet sites not necessarily part of the Web. The reliability of scholarly databases stems from their origins: Only experts and professionals who recognize works of merit compile them.

The best way to access a database at your library is to go to your college library's Web site, whether you're online in the library, at home, or in a dormitory. Each home page of a library shows the resources available through that Web site. More might be available at the library building itself. Sections 31d and 31e explain how to use the catalog to find books and periodicals (newspapers, magazines, and journals). Most college libraries subscribe to one or more database services, such as EBSCO, FirstSearch, and IBIS. Because the college pays for these services, you don't have to, but you'll need an ID or password to use them. Commonly, your student number



serves as your ID, but check with a librarian to see what's required at your college.

EXERCISE 31-1 Working either individually or as part of a group, access your library's Web site. You may do this either by going to the library itself or by connecting to the library online. List all of the types of information available. In particular, list the indexes and databases you can search and the subject areas each one covers. Note whether any of the databases have full-text versions of articles. Note if the library's Web site has any online "help" or "search suggestions."

31c.2 Searching the World Wide Web

The **World Wide Web** is organized around pages (called *Web pages*) that are linked together electronically. A group of pages that an individual or organization has created and linked together is called a **Web site**. The main page in a Web site (called the *home page*) acts as a table of contents. Although the Web contains billions of pages, including a great many books and periodical articles, only a fraction of these sources are available on the Web without subscribing or paying a fee. Therefore, searching library databases remains your most important method of finding many scholarly sources. However, the principles for searching the World Wide Web are much like those for searching databases (31c.1). You start with a broad subject and narrow it to arrive at a suitable topic for an academic research paper.

Once you use a browser to get on the Web, you can search for sites by using a **SEARCH ENGINE** (31c.3) or by typing an address (called a **URL**, for Universal Resource Locator) into the search box.

 **ALERT:** When you read, write, or type a URL, the Modern Language Association (MLA) tells you to surround it with angle brackets. For example, <http://www.prenhall.com/troyka> is the URL for our publisher's Web site about our books, including this handbook. The brackets separate a URL from sentence punctuation so that no one mistakes it as part of the URL. However, never use angle brackets when you type a URL in the locator box at the top of your computer screen. 

31c.3 Using search engines

Search engines are programs designed to hunt the World Wide Web and Internet files for sources on specific topics that you identify by using keywords (31c.4). When you use a search engine, you generally can access materials in one of two ways: through keyword searches (31c.4) and through subject directories (31c.5).

EXERCISE 31-2 Use at least three different search engines to search online for the same topic. List the different results for each search engine, and also note the strengths and weaknesses of each. (Pay attention to usefulness,

ease of use, and so on.) Write a brief report on your findings. You may wish to try this exercise with a second topic before drawing your conclusions.

31c.4 Using keywords

When searching for sources online or in library databases, **keywords**, also called *descriptors* or *identifiers*, are your lifeline to success. Keywords are the main words in a source's title or the words that the author or editor has identified as central to that source. Without keywords, you'd have no way to access sources listed in online or electronic database book catalogs and periodical indexes. Similarly, to find information on the World Wide Web or on the Internet, keywords are essential. Because Web search engines, such as Yahoo, often look for any occurrence of a word in the title or body of a page, you need to take particular care with keyword searches on the Web.

When you use keywords to search for Web sources, chances are you'll come up with a large or even overwhelming number of sources. Much of what turns up won't be relevant to your topic. As a result, you need to figure out which items on the list might be useful. Whenever possible, narrow your list of keywords by using **BOOLEAN EXPRESSIONS**. Your other alternative is to use a "try and see" approach. Whichever approach you use, always keep a record of poor and good keywords for your **TOPIC** in your research log so that you'll remember which keywords do and do not work well for you on each topic. This process might seem tedious at times, but don't get discouraged. If you're stumped, try asking a friend who's experienced with online searches or a research librarian for help.

As you become more adept at using keywords, your searches will become more directed and less time-consuming. The two main ways to make keyword searches more efficient are using guided searches and using Boolean expressions.

Using guided searches

Using **guided searches** means that you search a database or search engine by answering prompts provided, usually by filling in a form on the screen. Guided searches often allow you to select a range of dates of publication (for example, after 2002 or between 1990 and 1995) and to specify only a certain language (such as English) or a certain format (such as books).

Using Boolean expressions

Using **Boolean expressions** means that you search a database or search engine by using keyword combinations that narrow and refine your search. To combine keywords, you use the words **AND**, **OR**, **NOT**, and **NEAR** or the symbols that represent those words. Boolean expressions, generally placed between keywords, instruct the search engine to list only those Web sites in

which your keywords appear in certain combinations and to ignore others. Other commands similarly help you go directly to the sources you most need.

Box 31-1 explains ways to search with keywords more effectively, using the subject of artificial intelligence as an example. Simply typing the words *intelligence computers emotions* would yield pages that include any of these words—and not necessarily in that order. Imagine the staggeringly long list of pages you’d get for the word *computers* alone, and then almost triple that

BOX 31-1 SUMMARY


Refining keyword searches

AND or the + (“plus”) symbol: Narrows the focus of your search because both keywords must be found. If you want to find information on the role of emotions in artificial intelligence, try the expression *artificial AND intelligence AND emotions*. While some search engines, such as Google.com, don’t require the word *AND* between terms because they assume that two or more terms are always connected by *AND*, most require it. When in doubt, definitely use *AND*.

NOT or the – (“minus”) symbol: Narrows a search by excluding texts containing the specified word or phrase. If you want to eliminate robots from your search, type *artificial AND intelligence AND emotions NOT robots*.

OR: Expands a search’s boundaries by including more than one keyword. If you want to expand your search to include sources about artificial intelligence in either computers or robots, try the expression *artificial AND intelligence AND emotions AND computers OR robots*. You’ll get pages mentioning artificial intelligence and emotions only if they mention computers or robots.

NEAR: Indicates that the keywords may be found close to each other or on either side of each other. However, depending on the search engine, *NEAR* produces hits that are found only in the same sentence or on the same page. For example, entering *intelligence NEAR emotions* will yield only pages in which the words “intelligence” and “emotions” are very close to one another.

(): These are parentheses that group two or more expressions together. For example, *(artificial intelligence AND emotions) AND (Turing Test OR Chinese Room)* would find documents about artificial intelligence and emotions along with either the Turing Test or the Chinese Room Test. (Chandra Johnson’s research paper in section 33e explains that these are two tests for judging whether people can regard a computer as “intelligent.”)

“ ”: These are quotation marks that direct a search engine to match your exact word order on a Web page. For example, a search for “*robots that* →

Refining keyword searches (*continued*)

think” will find pages that contain the exact phrase *robots that think*. However, it won’t return pages with the phrase *thinking robots*. Also, if you search for *James Joyce* without using quotation marks, most engines will return all pages containing the words *James* and *Joyce* anywhere in the document; however, a search using “*James Joyce*” brings you closer to finding Web sites about the Irish writer.

°: The asterisk functions as a wildcard in some search engines. It allows you to look for sites by listing only the first few letters of a keyword. This approach, known as a *truncated search*, is helpful when a term comes in varying forms. For example, a Yahoo search for *cogni*° would turn up directory entries for both *cognitive* and *cognition*. You can also direct the search engine to look for variants of a keyword by using the wildcard symbol ° in place of either the word ending or some of the letters in the word. For example, a truncated search for *wom*°*n* would return hits for *woman* and *women*. Please note that not all search engines allow wildcarding; Google.com, for example, does not. A few search engines use specialized symbols such as ? or : instead of the ° for wildcarding.

number when you include the two other seemingly unrelated words in your list. In contrast, note the huge amount of weeding out that the Boolean expressions allow.

To conduct a keyword search, type a word or group of words in the search box on the opening page of the search engine, and click on the “Search” or “Enter” button. The engine scans for your word(s) in Web pages, and then lists sites that contain them. Because the Web has billions of pages, a search on even a moderately common topic may produce thousands of **hits**—sites listed or visited in a search. Not every hit will be what you are looking for. Very general terms may appear on thousands of Web sites. If a search engine finds thousands of hits for your keyword, do not give up. Instead, try more specific keywords, use a guided or “advanced” search feature, or use the strategies listed in Box 31-1 for refining a keyword search.

EXERCISE 31-3 Use a search engine of your choice to search for sources on “artificial intelligence.” For each option below, record how many hits occur.

1. Enter the word *artificial*.
2. Enter the word *intelligence*.
3. Enter the phrase *artificial AND intelligence*.
4. Enter the phrase “*artificial intelligence*” (in quotation marks).

5. Enter the search phrase “*artificial intelligence*” *computers emotions*.
6. Explore adding other words to your search phrase or using Boolean expressions (Box 31-1).
7. Repeat this exercise by searching for another topic that interests you.

31c.5 Using subject directories

Subject directories included on most search engines’ home pages provide a good alternative to keyword searches. These directories are lists of topics (Education, Computing, Entertainment, and so on) or resources and services (Shopping, Travel, and so on), with links to Web sites on those topics and resources. Most search engines’ home pages have one or more subject directories.

Clicking on a general category within a subject directory will take you to lists of increasingly specific categories. Eventually, you will get a list of Web pages on the most specific subtopic you select. These search engines also allow you to click on a category and enter keywords for a search. For example, suppose that you are using yahoo.com to search for information on *artificial intelligence*. As the figure above shows, you would first go to Yahoo’s general category of *science*. Under *science* you would find the category of *computer science*, and within *computer science* you would find a link to *artificial intelligence*, a page that lists nineteen additional categories and dozens of sources.

Several subject directories exist independently of search engines. Box 31-2 lists the Internet addresses of some directories. One useful directory is the *Librarians’ Index to the Internet (LII)*. To use the *LII*, type its URL, <<http://lii.org>>, in the browser’s search box. The first screen you see is the lii.org home page. You’ll see a number of broad topic areas, and when you click on one of them, you’ll see a number of subtopics. As you refine your search, you’ll eventually come to specific pages. One advantage of the *LII* is that professional librarians have gathered the pages.

Box 31-3 summarizes the information in this section by providing some general guidelines for using search engines and directories with keywords.

BOX 31-2 SUMMARY



Addresses for subject directories

<i>Educator’s Reference Desk</i> (contains ERIC)	< http://www.eduref.org >
<i>Infomine</i>	< http://infomine.ucr.edu >
<i>Internet Public Library</i>	< http://www.ipl.org >
<i>Librarians’ Index to the Internet</i>	< http://lii.org >
<i>Library of Congress</i>	< http://lcweb.loc.gov >
<i>Refdesk.com</i>	< http://www.refdesk.com >

BOX 31-3 SUMMARY



Tips on using search engines and directories

- Use keyword searches only when you have a very specific, narrow topic with unique keywords. If you enter a general topic in most search engines, you will be overwhelmed with thousands of returns. If this happens, switch to a subject directory or see if using additional keywords or Boolean expressions sufficiently restricts the number of hits.
- Most search engines attempt to search as much of the Web as possible. But because the World Wide Web is vast and unorganized, different search engines will give different results for the same search. Try using more than one search engine, or use a **metasearch engine**, one that searches several search engines at once. (Google.com and Dogpile.com are metasearch engines.)
- Always check the “Help” screen for the search engine you use. As with the rest of the Web, search engines add or change features frequently.
- Specify that the search engine list results by “ranking.” If you do not, the search results will be returned in random order, and the most important source may be last.
- If possible, limit the date range. For example, you can often ask to see only pages that were updated in the past six months or one year.
- When you find a useful site, go to the toolbar at the top of the screen and click on “Bookmark” (or “Favorites”) and then click on “Add.” Doing so allows you to return to a good source easily by opening “Bookmarks” or “Favorites” and double-clicking on the address.
- Use the “History” or “Go” function to track the sites you visit, in case you want to revisit one you previously thought was not helpful. You can also move a site from “History” to “Bookmark.”

31d How do I find books?

A library’s **book catalog**, which lists its holdings (its entire collection), exists as a computer database in almost every modern library. You can find a book by searching by **author**, by **title**, by **subject**, and by **KEYWORD**. The Library of Congress in Washington, DC, is the largest library in the world and, as you might expect, it has the largest catalog.

Suppose a source recommends that you find a book by the **author** Antonio Damasio, but you don’t know its title. You can search the catalog for books by this author. A screen on your library’s computer will have a place

for you to type “Damasio, Antonio” in a space for “author.” (Usually, you enter last name, then first name, but check which system your library uses.) If your library owns any books by Antonio Damasio, the computer will display their titles and other bibliographic information, such as the library call number. Then you can use the call number to request the book or to find it yourself.

Among the books you might find when searching for “Damasio, Antonio” is *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* (New York: Harcourt Brace, 1999). Suppose you know that book’s **title**, but not its author, and want to see if your library owns a copy. A screen on your library’s computer will have a place for you to type in the title; in some systems, you usually do not type words like *the* or *a*, so that in this case, you would type in only “Feeling of What Happens.”

Suppose, however, you don’t know an author’s name or a book title. You only have a research topic, and you need to find sources. In this case, you need to search by **subject**, using the terms listed in the *Library of Congress Subject Headings (LCSH)*. The *LCSH* is a multivolume catalog, available as an electronic database (for a fee) and in book form, and it’s located in the reference section of every library. The *LCSH* lists only **subject headings**, which are organized from most general to most narrow. Suppose you’re researching the topic of “consciousness.” If you enter that term into a space for subject searches in your own library’s “Search” screen, *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* by Antonio Damasio will be listed, whether available in your library or through interlibrary loan.

Finally, you may wish to search by **KEYWORD** in your library’s holdings. You could find Damasio’s book using the keywords “feeling,” “body,” “emotion,” “consciousness,” “intelligence,” “mind,” and so on.

An entry in the library’s book catalog contains a great deal of useful information: a book’s title, author, publisher, date and place of publication, and length, along with its location in the library. A full record catalog entry (a complete set of information about the source rather than a brief listing that may have only author, title, and call number) lists additional subjects covered in that book. The list of additional subjects can provide valuable clues for further searching.

Some libraries allow you to print out this information, send it to your e-mail account, or download it to a disk. Whether you choose one of these options or copy the information yourself directly into your **WORKING BIBLIOGRAPHY**, it is crucial to record the **call number** exactly as it appears, with all numbers, letters, and decimal points. The call number tells where the book is located in the library’s stacks (storage shelves).

A call number is especially crucial in a library or special collection with *closed stacks* (that is, a library where you fill in a call slip, hand it in at the call desk, and wait for the book to arrive). Such libraries don’t permit you to browse the stacks, so you have to rely entirely on the book catalog. If you fill in the wrong number or an incomplete number, your wait will be in vain.

31e How do I find periodicals?

Periodicals are magazines and journals published at set intervals during the year. To use periodicals efficiently, consult indexes to periodicals. These indexes allow you to search by subject and author. Most exist as online databases, which are updated frequently. Some indexes are published on CD-ROMs, and a few are published only in print.

Using indexes

Your library's home page generally provides different ways to access various indexes. For example, users who select "Show Databases" under "By Subject" will see an alphabetical list of subject areas, beginning "General Indexes, Agriculture, Anthropology, Art, Biography," and so on. When you choose a subject area, you'll see a list of all the databases for that area. It's important to choose the right index for your search, because the wrong index may miss some of the best sources for your paper. The following paragraphs and boxes describe the contents of commonly used indexes.

Most indexes exist in electronic format. However, to use them you have to subscribe, which means pay a fee to search them. Fortunately, your library likely subscribes to several of the indexes that you'll need, and you can access them through the library's Web site. The URL for accessing each index online will vary from college to college.

General indexes to periodicals list articles in journals, magazines, and newspapers. Large libraries have many general indexes. Find out how to log on by consulting the librarian in your college library. Among them are the following:

- *The Readers' Guide to Periodical Literature* (online at *Readers' Guide Abstracts*) is the best known index, though its uses are limited for college-level research because it doesn't include scholarly journals. Some libraries still have the print volumes. This index includes over two hundred magazines and journals for general readers. Nevertheless, you can try it to find topics, get a broad overview, and narrow a subject. Chandra Johnson used this guide in the initial stages of her student research paper, shown in 33e.
- *Periodical Abstracts* indexes general and academic journals in business, current affairs, psychology, religion, and many other areas.
- *NewsBank* covers over four hundred US newspapers. It has full-text coverage from 1993 on. NewsBank also offers reproductions of articles from 1980 to 1992, but they are stored on microfiche, not online, in some libraries.

Specialized indexes are more appropriate than general indexes for most college-level research. Specialized indexes list articles in journals published by and for expert, academic, or professional readers. Many specialized indexes include the abstract, or summary, that is printed at the beginning of each scholarly article. Box 31-4 provides examples of specialized indexes.

You search periodical indexes by using **KEYWORDS**.

BOX 31-4 SUMMARY



Examples of specialized indexes

*Art Abstracts**Business Abstracts**Education Full Text**General Science Abstracts**Humanities Index**MLA International Bibliography of Books and Articles in the Modern
Languages and Literatures**Music Index Online**PsycINFO**Social Sciences Abstracts***Locating the articles themselves**

Periodical indexes help you locate the titles of specific articles on your topic. Once you have the listing, though, how do you get your hands on the article itself? Sometimes you can find an online version of the article to read, copy to a disk, or print. Frequently, however, you need to find a paper copy of the periodical.

To do this, you begin by checking what periodicals your college library lists in its online catalogs. This list might be in the library's catalog, or the list might be available separately; ask how your library lists periodicals. In either case, search for the periodical name you want (for example, *American Literature* or *The Economist*), not for the article's author or title. If your library subscribes to that periodical, you use its call number to find its location in the library. You then need to find the specific article you want by looking for the issue in which the article you're looking for is printed.

Few libraries subscribe to all the periodicals listed in specialized indexes. Although you may not be able to locate every periodical and article you find listed in the indexes, the interlibrary loan system (generally free of charge) or document delivery (generally at a small cost to the student) allows you to request that your library get it from another library (31g).

31f How do I use reference works?

Reference works include encyclopedias, almanacs, yearbooks, fact books, atlases, dictionaries, biographical reference works, and bibliographies. Some references are *general*, providing information on a vast number of subjects,

but without any depth. Others are *specialized*, providing information on selected topics, often for more expert or professional audiences.

31f.1 General reference works

Reference works are the starting point for many college and other advanced researchers—but they're no more than a starting point. **General reference works** contain basic information and are therefore insufficient for academic research. Still, because they can give you an overall picture, they're one of the best places to find useful **KEYWORDS** for subject headings and online catalog searches. In addition, general reference works are excellent sources for finding examples and verifying facts. Most widely used reference works are available in electronic versions, either on CD-ROMs or, more commonly, online. Check your library's Web site to see if the reference work you want is available online through a subscription or license the library has purchased. Alternatively, you can search the Web by entering the work's name to see if it is available there. (For example, *Encyclopaedia Britannica* is at <<http://www.britannica.com>>.) Be aware that often you have to pay a fee for works you don't access through the library.

General encyclopedias

Articles in multivolume general encyclopedias, such as the *Encyclopaedia Britannica*, summarize information on a wide variety of subjects. The articles can give you helpful background information and the names of major figures and experts in the field. Best of all, many articles end with a brief bibliography of major works on the subject. General encyclopedias aren't the place to look for information on recent events or current research, although sometimes they cover a field's ongoing controversies up until the date that the reference was published.

To locate information in an encyclopedia, start with the index volume. (If you are using an online version, type the keywords into the search screen.) An index volume gives you the volume number or letter and the page numbers for your topic. The letters *bib* at the end of an index entry mean that the article contains a bibliography, which makes the entry especially worth checking for the additional sources it can lead you to. If you can't find what you are looking for, try alternative subject headings or **KEYWORDS**.

Almanacs, yearbooks, fact books

Almanacs, yearbooks, and fact books are huge compilations of facts in many subject areas. They're often available both in print and online. They're excellent for verifying information from other sources and, in some cases, for finding supporting facts and figures on the subject you're investigating. Almanacs, such as *The World Almanac*, present capsule accounts of a year's events and data about government, politics, economics, science and technology, sports,

and many other categories. *Facts on File*, which is indexed online by Lexis-Nexis™, covers world events in a weekly digest and in an annual one-volume yearbook. The annual *Statistical Abstract of the United States* (accessed online through <<http://www.census.gov>>) contains a wealth of data on the United States. *Demographic Yearbook* and the *United Nations Statistical Yearbook* carry worldwide data.

Atlases and gazetteers

Atlases (such as *The Times Atlas of the World*) contain maps of our planet's continents, seas, and skies. Gazetteers (such as *The Columbia Gazetteer of the World*, available online for a fee at <<http://www.columbiagazetteer.org>>) provide comprehensive geographical information on topography, climates, populations, migrations, natural resources, crops, and so on.

Dictionaries

Dictionaries define words and terms. In addition to general dictionaries, specialized dictionaries exist in many academic disciplines to define words and phrases specific to a field.

Biographical reference works

Biographical reference books give brief factual information about famous people—their accomplishments along with pertinent events and dates in their lives. Biographical references include the *Who's Who* series, *The Dictionary of American Biography*, and many others. Specialized biographical references in various fields are also available.

Bibliographies

Bibliographies list books, articles, documents, films, and other resources and provide publication information so that you can find those sources. Some bibliographies are comprehensive and list sources on a wide range of topics. Others list only sources on a particular subject. Specialized bibliographies can be very helpful in your research process. Annotated or critical bibliographies describe and evaluate the works that they list. These resources are increasingly available online but require you either to access them through a library's paid subscription service or to pay a fee each time you use them.

31f.2 Specialized reference works

Specialized reference works provide more authoritative and specific information than do general reference works. Specialized reference works are usually appropriate for college-level research because the information is more advanced and detailed. They can be invaluable for introducing you to the controversies and KEYWORDS in a subject area. In particular, finding

authors' names in such books can help you begin to accumulate a list of credible authors.

Here are a few examples of specialized references:

Encyclopedia of Banking and Finance

Handbook of Modern Marketing

New Grove Dictionary of Music and Musicians

Oxford Companion to Art

Dictionary of American Biography

An Encyclopedia of World History

A Dictionary of Literary Terms

Oxford Companion to American Literature

Encyclopedia of Philosophy

Encyclopedia of Religion

Political Science Bibliographies

Encyclopedia of Chemistry

Encyclopedia of the Biological Sciences

Encyclopedia of Psychology

International Encyclopedia of Film

Oxford Companion to the Theatre

Because hundreds of one-volume works are highly specific (for example, *Encyclopedia of Divorce*, *Encyclopedia of Aging*, and *Encyclopedia Dictionary of Psychology*), we haven't listed them here. Check what specialized reference books your college library has available that might help you in your search.

31g What if my library doesn't have a source I need?

Almost no library owns every book on every topic or subscribes to every periodical. However, many libraries are connected electronically to other libraries' book catalogs, giving you access to additional holdings. Some states link their public and private colleges and universities into one system, and some libraries use the Internet to connect to colleges and universities outside their state systems. Librarians can request materials from other libraries through interlibrary loan (generally free of charge). Alternatively, your college may have a different document delivery system (generally at a cost to you).

31h How do I find government documents?

Government publications are available in astounding variety. You can find information on laws and legal decisions, regulations, population, weather patterns, agriculture, national parks, education, and health, to name just a few topics. Since the middle 1990s, most government documents have been available through the World Wide Web. The Government Printing Office (GPO) maintains a *Catalog of U.S. Government Publications* online at <<http://www.gpoaccess.gov/cgp/index.html>>. The GPO site has a searchable database. Information about legislation is also available at the Web site THOMAS, a service of the Library of Congress, which you can access at <<http://thomas.loc.gov/>>. A directory of all federal government sites that provide statistical information is at <<http://www.fedstats.gov>>.

The LexisNexis database service provides access to a huge number of other governmental reports and documents. For example, it includes the *Congressional Information Service (CIS)*, which indexes all papers produced by US congressional panels and committees. These documents include the texts of hearings (for example, testimony about homelessness) and reports (for example, a comparative study of temporary shelters for homeless people).

31i What is field research?

Field research is primary research in that it involves going into real-life situations to observe, survey, interview, or be part of some activity firsthand. A field researcher might, for example, go to a factory, a lecture, a day care center, or a mall—anywhere that people are engaged in their everyday activities. A field researcher might also conduct interviews of experts and other identified individuals. Because field research yields original data, you can consider it a **PRIMARY SOURCE**.

Conducting field research takes advance planning. Be sure to allow time to gather the data you want, **ANALYZE** it, and then **SYNTHESIZE** it with other sources and with your own knowledge and experience. In general, the activity of field research makes selective notetaking difficult. Therefore, go over your notes right after your research session, while your memory is fresh, and highlight major categories of information. Also, fill in any details you might not have written down. What doesn't seem useful one day might become important later.

Field research many times involves events that can't be revisited. Therefore, record as much information as possible during your research and decide afterward what information you can use. If conditions make taking notes impossible (for example, a dark performance hall), the instant you have an opportunity, find a quiet place and write down notes as fully as you can.

DOCUMENTATION is as important for field research as it is for all other research. Interviews and some performances involve another person's words,

concepts, and insights. To document correctly, use the guidelines in Chapter 32 for documenting quotations, paraphrases, and summaries. If you include your own work (creating an original questionnaire, for example), say that it's yours in your paper and list it, as you would any source, in the WORKS CITED (MLA style) or REFERENCES (APA style) at the end of your paper.

Observing and surveying

To observe effectively, you must avoid injecting yourself into the situation. You should try to remain objective so that you can see things clearly. A report from someone with a bias in one direction or another makes the material useless. For observations of behavior (for example, the audience at a sporting event or elementary school children at play during recess), you can take notes during the activity. Permission to videotape instead of taking notes is hard to get because of privacy concerns.

If you intend to go to an event such as a concert or a play, buy your tickets immediately and be ready with alternative dates if you can't get your first choice. Similarly, if you intend to visit a museum, go as soon as possible so that you can go back again as needed.

If you want to survey a group of people on an issue, allow time to write, reflect on, and revise a questionnaire. Provide time to test the questionnaire on a few people and revise ineffective or ambiguous questions. For detailed information on the mechanics of creating a questionnaire, see Box 40-1 in 40a.

Interviewing an expert

An expert can offer valuable information, a new point of view, and firsthand facts, statistics, and examples. Probably the best place to start is with the faculty at your college. Your teachers are also scholars and researchers who have expertise in many areas. They may suggest good print and online sources, as well as other experts to contact. Indeed, your family and friends might qualify as experts, if they have been involved in any way with an issue you are researching.

Make every attempt to conduct interviews in person so that you can observe body language and facial expressions as you talk. However, if distance is a problem, you can conduct interviews over the phone or online.

To interview someone in a large corporation or an institution (an insurance company or a hospital, for example), your best approach is to contact the public relations office or customer service department. Professional organizations, such as the American Bar Association (a lawyer group), often have special staff to respond to researchers. Also, public officials are sometimes available for interviews, and many federal and state government offices have full-time representatives to provide information to the public.

Perhaps even more than for other kinds of field research, you definitely need to plan far ahead for interviews. It takes time to set up an appointment so that you can fit your research needs into other people's schedules. Part of planning is having a solid knowledge of your topic—you don't want to waste others' time or try their patience by asking for information you should have gathered before the interview. Don't expect your interview to replace your doing research yourself.

Although you might not always be granted the interviews you seek, you can assume that many people remember their own experiences doing academic research, and they're open to trying to help. Box 31-5 provides specific suggestions for interviewing an expert.

BOX 31-5 CHECKLIST**Taking notes during interviews**

- Rehearse how to ask your questions without reading them (perhaps highlight the key word in red). Looking your interviewee in the eye as you ask questions is invaluable for establishing ease and trust. If you are interviewing on the telephone, be organized and precise.
- Create a shortcut symbol or letter for key terms you expect to hear during the interview. This cuts down on your time needed to look away from your interviewee.
- Take careful notes, listening especially for key names, books, or other print or online sources.
- Avoid using a tiny notebook or small sheets of paper. Standard 8½-by-11-inch paper allows you sufficient room to write without having to turn pages often.
- Bring extra pens (in case one runs out of ink) or pencils (in case one breaks).
- Never depend on tape recording an interview. People have become very reluctant to permit anyone to record them. If you want to ask permission in advance when you schedule the interview, or if you want to ask in person when you arrive for the interview, never imply that recording is essential to you or the research. (Indeed, increasingly reports have reached instructors that when tape recording is mentioned, the interviewee cancels the appointment on the spot.)
- If conditions make notetaking impossible, write detailed notes as soon afterward as you possibly can. In all cases, go over and fill in your notes while your memory is fresh so you can highlight major categories of information.

31j How do I evaluate sources?

Finding a source is only part of your effort. Your next step is to evaluate the quality of each source you find. First, decide whether the information in the source relates to your topic in more than a vague, general sense. Ask how a source might help you answer your research question (30c). Finally, using the criteria in Box 31-6, evaluate each source with a cold, critical eye.

BOX 31-6 SUMMARY**Evaluating sources**

1. **Is the source authoritative?** Generally, encyclopedias, textbooks, and academic journals (*The American Scholar*, *Journal of Counseling and Development*) are authoritative. Books published by university presses (Northwestern University Press) and by publishers that specialize in scholarly books are also trustworthy. Material published in newspapers, in general-readership magazines (*Newsweek*, *U.S. News and World Report*), and by large commercial publishers (Prentice Hall) may be reliable, but you want to apply the other criteria in this list with special care, cross-checking names and facts whenever possible. If the same information appears in different sources, it is likely reliable. Web sites maintained by professional organizations, such as the National Council of Teachers of English at <<http://www.ncte.org>>, are authoritative.
2. **Is the author an expert?** Biographical material in the article or book may tell you if the author is an expert on the topic. Look up the author's expertise in a reputable, up-to-date biographical dictionary in your college library. Alternatively, enter the author's name in an Internet search engine. Look to see if the author has a degree in this field and whether he or she is affiliated with a reliable institution. Also, if an author is often cited by professionals in the field and published in journals, he or she is probably considered an expert.
3. **Is the source current?** Check the publication date. Research is ongoing in most fields, and information is often modified or replaced by new findings. Check databases and online subject directories to see if newer sources are available.
4. **Does the source support its information sufficiently?** Are its assertions or claims supported with sufficient evidence? If the author expresses a point of view but offers little evidence to back up that position or resorts to logical fallacies, reject the source. Use wise judgment, and don't take chances.
5. **Is the author's tone balanced?** Use your critical thinking skills when you evaluate a source (see Chapter 5). If the TONE is unbiased and the reasoning is logical, the source is probably useful.

The unregulated nature of the Web creates special responsibilities for online researchers. You need to evaluate Web sources particularly carefully for two reasons. First, since anyone can post anything on the Web, some sources you find may very well be plagiarized. Second, many sources on the Web have been written by individuals posing as experts and giving false or misleading information.

You are always accountable for the sources you choose. To evaluate an online source, use the list in Box 31-7. These criteria can help you separate the sources you want to look at more closely from those not likely to be reputable. Most sites also contain material that will help you assess their credibility, such as a bibliography, links to the author or editor, or a description of the sponsoring organization. You want to discard sites that do not contain such verifying information, however useful they may seem. To err on the side of caution is far better than to use a corrupt source.

BOX 31-7 SUMMARY

Judging the reliability of an online site

Reliable sites are

- **from educational, not-for-profit, or government organizations.** One sign is an Internet address ending in *.edu*, *.org*, *.gov*, or a country abbreviation such as *.us* or *.uk*. However, if any of these organizations fail to list their sources, don't use them. After all, many colleges and universities now host student Web sites, which also end in *.edu*.
- **from expert authors.** Experts have degrees or credentials in their field that you can check. See if their names appear in other reliable sources, in bibliographies on your topic, or in reference books in your college's library. Check whether the site's author gives an e-mail address for questions or comments.
- **from reliable print sources.** Online versions of the *New York Times*, *Time* magazine, and other publications that are produced by the publisher are just as reliable as the print versions.
- **well supported with evidence and presented in a balanced, unbiased fashion.**
- **current or recently updated.**



Judging the reliability of an online site (continued)

Questionable sites are

- **from commercial organizations advertising to sell a product (.com); Web sites that are advertisements or personal pages; junk mail.** These sites may or may not list sources. If they fail to, don't use them. If they do, check that the sources are legitimate, not a front for some commercial enterprise.
- **from anonymous authors or authors without identifiable credentials.** Chat rooms, Usenet, discussion groups, bulletin boards, and similar networks are questionable because they don't give credentials or other qualifying information.
- **second-hand excerpts and quotations.** Materials (such as a quotation taken from the *New York Times*) that appear on a site that is not the official site of the publisher may be edited in a biased or inaccurate manner. Such sources may be incomplete and inaccurate.
- **unsupported or biased.** These sites carry declarations and assertions that have little or no supporting evidence.
- **old** or from a Web site that hasn't been updated in a year or more.

An important question to ask about any Web site is why the information exists and why it was put on the Internet. Be sure to question the motives of the site's author, especially if you are being asked to take a specific action. Box 31-8 summarizes the questions to ask about online sites.

Most sites also contain material that will help you assess their credibility, such as a bibliography or links to the author or editor. Sites that do not contain such verifying information should be discarded, however useful they may seem. It is far better to err on the side of caution than to use a plagiarized source.

BOX 31-8 SUMMARY



Evaluating each online source

Evaluating Authority

1. Is an author named? Are credentials listed for the author? (Look for an academic degree, an e-mail address at an academic or other institution, a credentials page, a list of publications. The last part of an e-mail address can be informative: *.edu* is an address at an educational site;



Evaluating each online source (*continued*)

.gov is an address at a government site; and .com is an address at a commercial or business site.) Be careful: Many colleges and universities now host student Web sites. These sites often end with .edu, as do regular academic sites.

2. Is the author recognized as an authority in reputable print sources? Is the author cited in any bibliographies found in print sources?
3. Do you recognize the author as an authority from other research on your topic? Is the site cross-referenced to other credible and authoritative sites?

Evaluating Reliability

4. Do you detect from the language or layout of information either bias or an unbalanced presentation?
5. Ask, Why does the information exist? Who gains from it? Why was it written? Why was it put on the Internet?
6. Are you asked to take action of any kind? If yes, don't use the source unless you're sure the site isn't trying to manipulate you toward its bias. For example, the World Wildlife Fund can ask for contributions and still maintain a Web site that contains reliable information. Conversely, a hate group can't be trusted to be objective.
7. Is the material outdated? Is the date recent, or was the last update recent?
8. Does the author give an e-mail address for questions or comments?

Evaluating Value

9. Is the information well supported with evidence? Or do the authors express points of view without backing up their position with solid evidence?
10. Remember to read online sources using reflective reading (5c and 5d) and reasoning (5a and 5b). Is the TONE unbiased (5c.2 and 20g) and the reasoning logical (5g)?