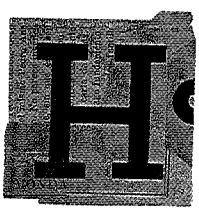
SIXTEEN

Finding Sources, Considering Research Methods



OW DO YOU PICK A GOOD RESTAURANT to take relatives to when they visit? Would you check local blogs or websites for reviews or just ask your friends for a recommendation? How do you find information to help you decide which tablet computer to buy? Would you test-drive different models at different stores? go to trusted websites or technology publications that provide neutral reviews? talk to tech-savvy friends? consult a manufacturer's website? How would you find information on the East Coast Women's Roller Derby Week for an article you're writing for the school paper? Would you search the internet for women's roller derby leagues? contact a league administrative office and request printed materials? interview women who play on the local team? These are all matters of finding sources, the subject of this chapter.

Considering What Kinds of Sources You'll Need

Any time that you search for information, the decisions you make about what types of sources you look for, where you look for them, and how authoritative you need them to be will be guided by your **PURPOSE**,

Research sources vary by topic and discipline: interviews, observations (both in the outdoors and in the lab), library databases and printed resources, and archives can all prove valuable to your research project.

AUDIENCE, and other elements of the RHETORICAL SITUATION. For the research you do in college, an important part of the rhetorical situation may be the discipline you are working in; for example, scientists tend to value research done through observation and experimentation whereas historians tend to value research done in libraries and archives. For academic research, you'll also want to keep several other kinds of distinctions in mind in looking for sources: the differences between primary and secondary sources, between scholarly and popular sources, and between older and more current sources.

Primary and secondary sources. PRIMARY SOURCES are original documents or materials, firsthand accounts of events, or field research like interviews or observations. SECONDARY SOURCES are texts that analyze and interpret primary sources; they offer background and context that can help you gain perspective on your topic. Secondary sources on a subject might include scholarly books and journal articles about the topic, magazine and newspaper reviews, government research reports, or annotated bibliographies.

Whether a particular source is considered primary or secondary often depends on what the topic is. If you are analyzing an artistic work, say a film, the film itself is obviously a primary source, while A. O. Scott's review of the film is a secondary source. But if you are researching Scott's work as a critic, then his review would be a primary source.

This distinction between primary and secondary sources leads to a similar one between primary and secondary research. *Primary research* calls on you to engage personally and directly with your topic, whether by working in laboratories; by conducting interviews, observations, case studies, and surveys; or by doing your own analyses of literary or artistic works, other kinds of documents, or physical artifacts. *Secondary research* is when you study research done by others, usually through the library or on the internet.

Scholarly and popular sources. Popular, nonacademic, sources such as magazine articles or websites you find by running a search on your topic can play an important role at the start of your research project. For instance, you might consult *Wikipedia* while figuring out your RESEARCH QUESTION to see if a topic you're interested in but know little about seems viable. But for most academic assignments, you will quickly want to turn to scholarly sources, such as books and journal articles, for your secondary research.

Such research sources usually have been peer-reviewed—critically read and evaluated by established experts in the discipline.

Older and more current sources. You will need to determine whether older or more current sources are appropriate for your purpose. Although you will always want to investigate the latest news and research about your topic, sometimes older works will serve as essential sources of information. Your purpose and your discipline may dictate the use of older or more current sources.

Analyzing your assignment and the rest of your rhetorical situation can help you make appropriate decisions about the kinds of sources that will work best for your project. For academic projects, you'll need to think particularly about the level of credibility your sources need to have. Your professors may expect you to search for sources available only in the library, read books and articles published by scholars in your discipline, interview experts or conduct surveys on your topic, or rely primarily on academic research that is published in scholarly journals.

For some projects, however, the best research strategy may involve culling sources from various places—scholarly journals and popular magazines, the library and the web, books and individuals. For a report on the impact of recent floods on small farms in your area, for example, you may need to conduct background research via the library on the local climate and agriculture; search online for news reports, photographs, and videos that document the floods; and conduct interviews with local farmers affected by the floods. This chapter provides guidance that will help you to search for sources on the internet and through the library, and also to conduct research in the field.

USING KEYWORDS AND ADVANCED SEARCH FUNCTIONS

When looking for sources on the internet or through the library, you'll need to know how to use keywords and search functions effectively in order to identify useful, relevant sources among the vast amount of information that's likely available on your topic. Following are some guidelines for conducting searches using search sites, library catalogs, and electronic indexes and databases.

Keyword Searches

Most search sites, library catalogs, and databases will allow you to conduct keyword searches. In catalogs and databases, keyword searches usually cover multiple fields, including authors, titles, and descriptions of each source. Keyword searches allow you to use words and phrases you've identified to locate sources—but keep in mind that you may need to adjust your keywords or use synonyms if your initial searches don't yield useful results. If searching for *women's sports injuries* doesn't yield much, try *female athlete injuries*. You may also need to try broader keywords (*women sports medicine*). If your search returns too many results, try narrowing your term (*women's sports injuries soccer*).

Following are some advanced search techniques that can help focus your search. *Google* and many search sites provide their own advanced-search options—allowing you to limit searches, for example, to items published only during a particular time period.

Quotation marks can be used around terms to search for an exact phrase, such as "International Monetary Fund" or "obesity in American high schools." Using quotation marks may exclude useful results, however—for example, searching for "factory farms" may omit results with "factory farming" in a library search.

Wildcard searches allow you to insert a symbol (usually *?* or *) in the middle or at the end of a word to retrieve multiple forms of that word. For example, typing in *wom?n* would retrieve both *woman* and *women*.

Truncation allows symbols such as *?* or * to stand in for missing letters: for example, typing in *ethnograph** would retrieve *ethnography, ethnographic, ethnographer,* and so on.

Boolean operators (AND, OR, and NOT) let you refine your search by combining keywords in different ways to include or exclude certain terms.

Using AND narrows a search to include all terms joined by AND; using OR broadens a search to include items with any of the terms joined by OR; and using NOT limits a search to exclude items with any term preceded by NOT. For example, if you're researching solar energy, typing in *alternative energy* will bring up many more options than *alternative energy AND solar,* which reduces the number to only those that include the term *solar.* Typing in *alternative energy NOT wind* narrows the search to results that exclude the term *wind.*

Parentheses allow you to combine Boolean searches in a more complex way. For example, a search for *alternative energy AND (solar OR wind),* yields only those items that contain both *alternative energy* and *solar* or both *alternative energy* and *wind.* And *alternative energy NOT (solar OR wind)* yields only items that contain *alternative energy* but do not contain either *solar* or *wind;* this kind of search might be useful, for example, if you are specifically researching forms of alternative energy other than solar or wind energy.

Plus and minus signs are used by some search sites instead of AND and NOT. Using a plus sign (+) in front of words and phrases indicates that those exact words must appear, so *+"alternative energy" +solar* will bring up results that include both terms. The minus sign (a hyphen) excludes results, so *+"alternative energy" -solar* brings up sources in which *alternative energy* is included but *solar* is not. Searching for *+"alternative energy" -solar -biofuel* excludes results with both *solar* and *biofuel.*

Author, Title, and Subject Searches

Most library catalogs and many databases are searchable by author, title, and subject as well as by keyword. Using the author and title fields allows you to go directly to a source when you know its title or author. To do an effective subject search, it helps to know what cataloging system the library uses—most commonly the Library of Congress Subject Headings (LCSH) or the National Library of Medicine's Medical Subject Headings (MeSH). Subject heading searches use what is called "left-hand truncation," which means that you can access a list of headings by entering the first term. These

types of searches require terms that are specific to their lists. For example, if you're searching for material on the American Civil War, and you search for the subject *civil war,* you'll get a long list that begins with your term and branches to the right, like this:

NUM	MARK	SUBJECTS (1-43 OF 43)	YEAR	ENTRIES 105 FOUND
1		Civil War -- See Also the narrower term Insurgency		1
2	☐	Civil War		42
3	☐	Civil War Africa	2000	1
4	☐	Civil War Africa Case Studies	c2006	1
5	☐	Civil War Africa Sub Saharan		2
6	☐	Civil War Africa Sub Saharan Case Studies	2002	1
7	☐	Civil War Africa Sub Saharan History 20th Century		3
8	☐	Civil War Africa Sub Saharan History 20th Century Congresses	2000	1
9	☐	Civil War Africa West	2002	1

These results are too broad for your topic. If you then go back to the subject search page and type in *American Civil War,* you'll get this result.

> **" American Civil War 1861 1865 "** is not used in this library's catalog.
> **United States History Civil War, 1861-1865** is used instead.
> Try a search for United States History Civil War, 1861-1865 .

Subject searches allow an overview of your library's holdings on a topic. To get help in narrowing the topic more specifically, check with a reference librarian or consult the LCSH manuals (sometimes available on the search page). Once you know that the LCSH list uses "United States History" to begin subject headings in this field, then you'll be on the right track and may get this search result.

NUM	MARK	SUBJECTS (1-50 OF 272)	YEAR	ENTRIES 2422 FOUND
1		United States History Civil War 1861 1865 -- See Also the narrower term Northwestern Conspiracy, 1864		1
2	☐	United States History Civil War 1861 1865		293
3	☐	United States History Civil War 1861 1865 19th Century		3
4	☐	United States History Civil War 1861 1865 African American Troops Sources	1982	1
5	☐	United States History Civil War 1861 1865 African Americans		25
6	☐	United States History Civil War 1861 1865 African Americans Juvenile Fiction	c2002	1
7	☐	United States History Civil War 1861 1865 African Americans Juvenile Literature		4
8	☐	United States History Civil War 1861 1865 African Americans Sources		5
9		*United States History Civil War 1861 1865 Afro Americans* -- See United States History Civil War, 1861-1865 African Americans		1

SEARCHING ON THE INTERNET

Many students turn to the internet to begin their research, and understandably so; you can quickly and easily use it to locate an array of sources from home, from school, from just about anywhere. As convenient and useful as the internet may be for research, however, information you find there poses risks for academic projects. Because almost anyone can post material on the internet, it's especially important to EVALUATE your sources carefully to determine how credible they are and to think carefully about whether your audience will consider them persuasive. *Wikipedia* or a blog by someone who's not an expert on the topic you're researching may be sufficient to satisfy your personal curiosity, but they are probably not suitable or reliable for academic work. Also, material on the internet may be less stable than electronic material available through the library, so you'll need to DOCUMENT your internet sources especially carefully, including bookmarking pages and noting the date you accessed them. Following are some general tips and guidelines for locating appropriate sources on the internet:

- ***Use a reliable, speedy browser*** that allows you to have multiple related pages open at the same time and that makes using bookmarks simple and easy, like Firefox or Google Chrome.

- ***Identify which search sites will be most relevant and useful*** for your search. For academic searches, try *Google Scholar* or *JURN*. *Google Scholar* locates peer-reviewed articles, books, abstracts, and technical reports by searching the websites of academic publishers, professional societies, and universities, as well as sites elsewhere on the web that make scholarly articles available. When these searches yield only an abstract, there may be a charge to access the full text; check to see whether you may be able to access it for free via your library. *Google Scholar* tends to produce more results in the sciences than in the humanities. *JURN* searches free, open-access electronic journals from academic publishers; it focuses on the arts and humanities. There are also a variety of search engines that can be useful for specific types of searches, including those devoted to maps or image searches (*Google Maps, Bing Images*), news (*Yahoo! News*), and so on. You can also use metasearch engines such as *Dogpile* and *MetaCrawler* to collect results from several search engines at once.

- ***Move from general concepts to more specific ones*** by configuring short, increasingly narrowed combinations of keywords. Most search engines also allow advanced searches that help you limit results by date, type of source, or other criteria; check the search tips (sometimes you'll need to click on Help or About) for guidelines that are specific to the search engine you're using.

Keep in mind that some search engines allow websites to pay for higher placement or ranking in search results, which means that what comes up first in a search may not be the most useful or relevant to your topic. If you have a good idea of what kind of material you're looking for or what kind of resources you need, you may find it's easier to go directly to specific sites or resources. Here are just a few of the kinds of online tools and sources that may prove helpful to you:

Open-access archives and databases. A variety of archives and databases that do not require a library subscription provide free access to books, articles, images, and other resources. For example, like *JURN*, the *Directory of Open Access Journals* is a database that allows you to search research journals that are freely available on the web. At the *Project Gutenberg* website, you can access over 36,000 ebooks and digitized texts that are freely available in the public domain. *InfoMine*, curated by librarians, collects a variety of useful information for academic research, including databases, directories, and ebooks and electronic journals.

Open-access directories and indexes. General subject directories such as those provided by *Google* and *Yahoo!* may be helpful in narrowing your topic or directing you to relevant sites. Additionally, many curated directories and indexes collect and evaluate online resources. For example, *ipl2* includes resources from the *Internet Public Library* and the *Librarians' Internet Index* and is maintained by librarians, provides subject directories, and allows keyword searches of websites.

Government sources. Official reports, legislative records, texts of laws, maps and photos, census data, and other information from federal, state, and local governments are available for free online. Check the websites of government departments and agencies for these resources; you can access such resources

for the U.S. government through *USA.gov*. In addition to government reports and documents, the *Library of Congress* website provides a large archive of photographs, maps, and other U.S. historical and cultural materials.

News sources. News organizations usually have websites that provide access to current and archived articles, photos, podcasts, videos, and streaming audio of broadcasts, as well as other resources. Some sites, like that of the *New York Times*, provide only limited access or require subscriptions, but much is available for free. News aggregators like *Google News* and *Bing News* collect articles on major stories and current events from a range of international or local news sources; often you can personalize such aggregators to track news on specific subjects.

Forums, discussion lists, and social media. You may be able to use online forums, discussion lists, and social media to communicate with groups of people who share an interest or expertise in specific topics. Many forums and discussion lists archive past posts and threads that you can search for material relevant to your topic; you can also join current discussions and post questions or requests for information. Check *Google Groups* to find forums and lists relevant to your topic. You may also be able to connect to such groups through social media tools like *Facebook* and *Twitter*; such connections allow you to stay updated about current events, media or press releases, commentary, and so on that are related to your topic. Because many forums, discussion lists, and social media allow users to participate anonymously, be sure to evaluate carefully any information you receive from such sources and try to confirm it elsewhere.

Blogs and wikis. Because blogs can include information that has not been reviewed, checked, or evaluated, many professors do not consider them reliable as academic sources. But they can be useful as starting points. Blogs that include comments posted by readers can reveal alternative perspectives on your topic; they may also direct you to events or other news not extensively covered by major news organizations. You can use blog directories such as *Technorati* to locate blogs relevant to your topic.

Similarly, because wikis allow any user to post and edit material and may have little or no editorial oversight, they may not be considered credible for academic work. But they can be useful for quick overviews and

often include links to additional sources. *Wikipedia*, for example, often includes references and links to sources for its articles at the end of the article.

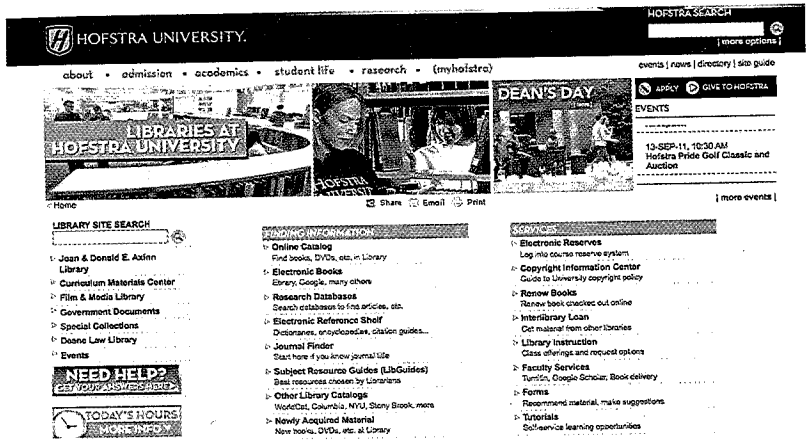
SEARCHING IN THE LIBRARY

Libraries provide access to a wealth of resources, many of them not easily available in other ways, ranging from reference works and bibliographies to **PRIMARY SOURCES** like letters, historical documents, rare books, and presidential papers to **SECONDARY SOURCES** such as books based on research, scholarly journals, and magazines. You can visit most college libraries online, and you can often access electronic resources such as indexes, databases, and the library catalog remotely. If you haven't already done so, take some time to familiarize yourself with the library resources available to you. Knowing what's available in the library and how to access it is crucial to conducting effective academic research. There are several possible ways to find out this information, including visiting the library website, taking a tour of the building(s), and—most useful of all—meeting with a librarian.

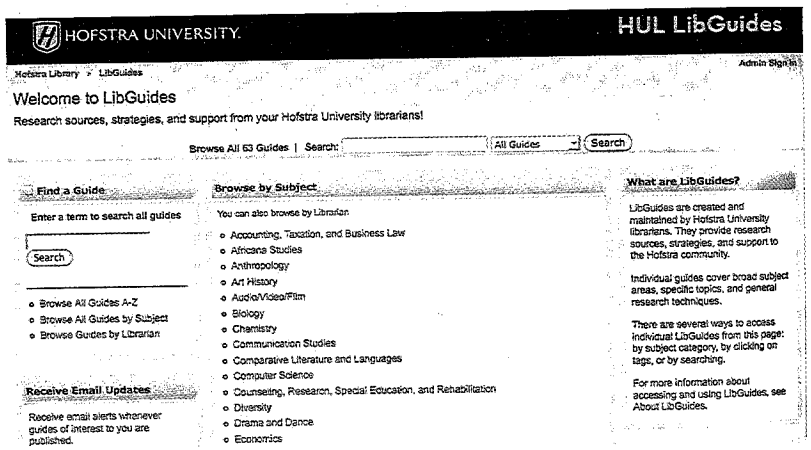
Library Websites

In addition to information about hours, location, and holdings, library websites often provide useful guides or tutorials to using the library, including specialized online sources to which it provides free access. You may also find out about special events, opportunities for tours or training sessions, and ways to use services such as course reserves—in which an instructor places materials on reserve for a class, thus assuring students in the class access to them. Another valuable service is interlibrary loan, which enables you to access materials in other libraries. (The time involved varies depending on whether your request involves books that must be delivered physically or files that can be delivered electronically.) Many college libraries also provide online research guides that list databases, references, websites, organizations, and other discipline- or subject-specific resources. The following image shows the homepage of Hofstra University's library system.

These screens show subject-related resources that help with subject searches discussed on pp. 342–43.



If you click on Subject Resource Guides (LibGuides), the sixth item under "Finding Information," you'll get the screen below, the library's discipline-specific subject list.



Library Tours

Because each school library is physically different, sign up to take a tour of yours; you'll learn the location of key materials and spaces, including electronic library catalogs, special collections, computer rooms, computers designated for searching databases, screening and other media rooms, meeting rooms, and so on. If there are no guided tours available, pick up a library map at the information desk and spend a little time exploring on your own.

Librarians as Resources

All college libraries provide reference librarians whose major responsibility is to help faculty and students with their research inquiries. While they will not do the research for you, reference librarians will help you identify where you can find materials specific to your research question or topic and how you can search for them most efficiently. Their advice can save you considerable time and frustration from looking in the wrong places or using search techniques that take longer than necessary.

In addition to reference librarians, many libraries have librarians who specialize in specific academic disciplines. Discipline (or subject) librarians work closely with academic departments to make sure that the appropriate journals, databases, and books for that discipline are in the library or quickly available to students and faculty; some disciplines may have their own library buildings separate from the main library.

Arrange a meeting with a reference or discipline librarian, and come to the meeting prepared to discuss your research question or topic. Also bring specific questions about library resources available on your topic.

Reference Works

Reference works available through your library, whether in print, online, or both, include encyclopedias, handbooks, bibliographies, atlases, directories of biographical information, and others. Such works can be helpful for gathering background information and understanding the larger context of your topic—or narrowing it if need be—as well as for getting leads to more specific sources.

General reference sources include general encyclopedias (*Encyclopaedia Britannica, Columbia Encyclopedia*), dictionaries (*Merriam-Webster's, Oxford English Dictionary*), almanacs (*The World Almanac and Book of Facts*), and atlases (*The National Atlas of Canada*), among others. Besides brief overviews of your topic, such sources can provide definitions of concepts and terms and geographic and historical background.

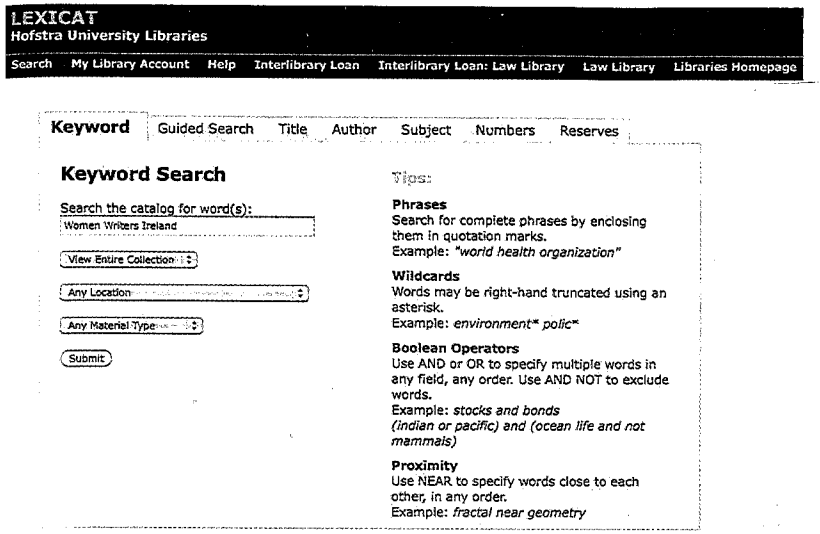
Specialized encyclopedias can give information more specifically related to your topic or discipline than general reference works, including not only overviews and definitions but also biographical information about key figures and bibliographies of sources related to your topic. Ask your reference or subject librarian to help you find specialized encyclopedias that might be useful to you.

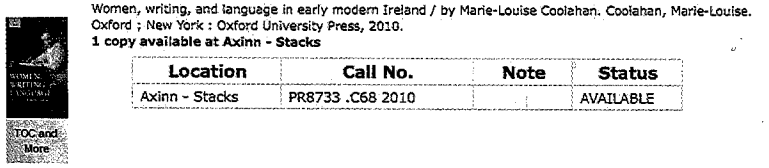
Bibliographies, also called lists of references or works cited, are lists of books, articles, and other publications that you can use to locate further sources on a topic. These appear at the end of books or scholarly articles; if you've located a useful source, check its bibliography to find additional sources related to your topic. Book-length, topic-specific bibliographies may be available for popular or widely researched subjects; ask your librarian about availability. Many bibliographies also include descriptive annotations for listed sources.

Library Catalogs

Most libraries have electronic catalogs that account for all their holdings; searching the catalog is the best method for locating books and other materials, such as audio and video recordings, that you can check out from or access through the library. The record for each item includes the author, title, and publication information (publisher, location, and year) and a physical description of the item; the record also shows where the item is located in the library (or a networked library) and whether or not it is currently available to be checked out. The electronic catalog also provides call numbers, which are necessary for physically locating the item in the library stacks and sometimes gives summaries or overviews of the contents of items.

You can search a library catalog by author, title, subject, or keyword. Here is an example of the results of a keyword search in the Hofstra University Library catalog for *women writers Ireland*. The first image shows the library search page; the second image shows the first book chosen from the short list of search results, the book's cover, and a link to the table of contents and other information about the book.





Library-Based Indexes and Databases

Articles from newspapers, magazines, and scholarly journals are available in your library in print or online or both, depending on the library and the periodical; you can locate such articles through indexes and databases to which the library subscribes. If you can't access an index electronically through your library, ask a reference librarian to help you locate the print version on the library shelves.

Indexes are listings by topic of popular and scholarly articles published in print and online. Because computerized indexing of most U.S. and international magazines and newspapers did not begin until around 1980, to find magazine and newspaper articles published before then, you'll most likely need to search print indexes such as the following:

- *The Readers' Guide to Periodical Literature*
- *Magazine Index*
- *National Newspaper Index*

Databases organize and provide access not only to listings (bibliographic citations) of articles but also, in many cases, to abstracts (brief summaries) and full texts. Your library likely has subscriptions to a number of general and subject-specific databases that you can access through its website.

General databases that cover a range of disciplines and topics and include scholarly articles, popular magazines, and news stories may be a good place to start. Here are a few of the most widely used:

- *Academic OneFile* (InfoTrac) provides access to more than 9,000 peer-reviewed journals, including full text for more than 6,000 of them. This database also offers the full text of the *New York Times* from 1985 on as well as podcasts and transcripts from CNN, CBC, and NPR.
- *Academic Search Complete* (EBSCO) includes more than 8,600 full-text periodicals from the humanities, arts, and sciences, of which more than 7,500 are peer-reviewed. It also offers indexing and abstracts for another 12,500 journals.
- *ArticleFirst* (OCLC) is an index of the items listed in the tables of contents of over 12,000 journals. It covers articles, news stories, letters, and items on many other topics. For most items, the database also provides a list of libraries that hold the journal.
- *JSTOR* is an archive of scanned copies of scholarly journals from many disciplines. It includes issues from further back in time than most other scholarly databases, but it does not include the most recent issues.

- *LexisNexis Academic* collects full-text documents from over 10,000 news, government, business, and legal sources. *Like Academic OneFile,* this database includes transcripts of broadcast news sources.
- *C Q Researcher* offers issue-focused reports, analyzing issues in the news and from business, the social sciences, and sciences.

Subject-specific databases are useful when you have a focused topic and research question. For example, if you are conducting research on sustainable farming efforts in urban areas, you might begin by searching databases that focus on food and nutrition, such as the *Food Science and Technology Abstracts.* If you are searching for information on trends in sports injuries among women athletes, you might search a sports research database like *SPORTDiscus with Full Text.* Below are a few more examples of subject-specific databases; ask a subject or reference librarian to direct you to those most relevant to your topic.

- *AGRIS,* from the UN Food and Agricultural Organization, provides bibliographic information and full text for a range of agricultural sources, including government and technical reports and conference papers.
- *IEEE Explore* provides access to more than 3 million full-text documents in computer science, electronics, and electrical engineering.
- *PsycINFO* provides indexes and abstracts for peer-reviewed sources in psychology and the behavioral sciences.
- *MLA International Bibliography* indexes scholarly books and articles related to literature, languages, linguistics, and folklore from around the world.
- *ERIC* (Educational Resource Information Center) provides bibliographic records for over 1.3 million journal articles, books, and other materials related to education.
- *SocINDEX,* a sociology-specific research database provided by EBSCO, includes over 2 million bibliographic records, a sociology-specific thesaurus, author profiles, indexing, and abstracts of journal articles.

CONDUCTING FIELD RESEARCH

Journalists who interview eyewitnesses, researchers who spend months observing the behavior of a particular population, historians who gather oral histories, and pollsters who conduct surveys on the general public's attitudes about current government policies are all engaging in field research. Depending on your research question, you may need to go "into the field" to conduct research, using data-gathering methods that rely on firsthand accounts. The three most common discovery methods for field research are observation, interviews, and surveys or questionnaires.

Keep in mind that conducting field research on human subjects may require prior approval from your college. Observing what kinds of clothing people wear to the mall may not need permission, but observing interactions in a private space like a doctor's office or doing any kind of field research with children probably will. Check with your instructor to find out if your project requires approval. If it does, be sure you understand the approval process and the time required to complete it.

Observations

Using observation as a field research method is more than casual people watching; you should have a clear sense of your purpose in observing and how doing so will best help you answer your research question. You'll need to concentrate and remain focused. Be sure to record your observations carefully, using notes, photographs, and other recording devices that are appropriate for the setting. Here are some guidelines for conducting effective observations:

1. Determine your purpose for observing. Is observation an appropriate method to pursue your research question? Do you expect to use the data to test your working thesis?
2. Plan ahead. Decide where you will observe, what materials you'll need, and make sure your equipment is ready and working. Also determine whether you'll need permission to observe, photograph, and/or record in a particular location; if so, secure appropriate permissions ahead of time, because you may need agreements from more than one person. Keep in mind that some sites, like church services, may not be appropriate places to take photographs or record video.

3. Record your observations. Take detailed descriptive notes, even if you are also recording audio or video; your notes will add necessary texture to any tape. Note who is present, any activities they engage in, and the details of the setting (such as the physical design of the space and the position of participants). Be sure to record the date, time, and location. As you observe, focus on recording and describing; save the interpretation and analysis for later when you go back and review your notes and recordings.
4. Be guided by your purpose for observing, but don't let that purpose restrain you—be open. Sometimes in the process of looking for one thing, you find something else that is equally interesting or important. On the other hand, don't always look for extraordinary behavior. The goal of observations is generally to look for the routine or the pattern, something that happens over and over again.
5. After your observation, take a moment to flesh out what you've recorded with notes about any additional thoughts or reflections you have. In particular, consider whether those you observe have changed their behavior because they are being monitored and, if so, how these changes may affect your data.

Interviews

You may find that the best way to answer your research question is to interview people who have a valuable perspective on your topic, such as experts on it or witnesses to or key participants in an event. Interviews can provide information that may not be available elsewhere; they can also complement other data-gathering methods, such as observations. Just as with observations, you'll need to consider your purpose for an interview and how the information you gain from it will speak to your research question. Will one interview provide the needed data, or will you need several? You'll also need to consider how qualified the potential interviewee is to address your research question. As a veteran of the war in Afghanistan, a friend or relative may not be the most credible source for a detailed analysis of the history of U.S. involvement in the region; print sources may be a better starting place for that type of background information. But your friend or relative probably *would* be a valuable, reliable source for a firsthand account of the

combat experience and could likely provide details based on his or her personal experience that you would never get from a book or an article. Following are a few guidelines for conducting successful interviews.

1. Plan to conduct your interviews well before your research project is due in case you have to do follow-up interviews. Contact interviewees early to set up appointments; remember that you will need to schedule interviews at their convenience.

2. Do some background research on your topic before the interview so that you can ask informed questions.

3. Write out a list of questions that you will ask in the interview. These questions should be directly related to your research. Avoid questions that are too general or encourage one-word answers like "yes" or "no" when you really want specific, detailed, extended answers. For example, don't ask, "Do you like music?" when you want specific details. Try asking "What kind of music do you like?" instead. Also avoid leading questions, ones that encourage the interviewee to give the answer that you want. The question "Don't you think the Yankees need to trade for stronger relief pitching?" allows the interviewee to disagree, but it still tries to suggest a particular response. A better question would be "What kind of changes do you think the Yankees need to make?" This question is specific enough to provide a focus yet open enough to let the interviewee answer freely.

4. Decide how you'll record the interview. Will you rely solely on your own note-taking abilities, or will you combine note taking with audio or video recording? Remember that you must ask permission before you tape any part of an interview.

5. If your interview requires any kind of electronic equipment, test it before the interview to make sure that it is working. There's nothing more frustrating than finding out that you've lost the data from a wonderful interview because batteries died or you pushed the wrong button. Potential equipment malfunction is a good reason to have a backup plan.

6. Be polite during the interview. Interviewees are doing you a favor by agreeing to speak with you.

7. Record the date, time, and location of every interview that you conduct, and write down contact information for the interviewee.

8. Send a thank-you note to anyone whom you interview.

9. Check facts, dates, and other information the interviewee provides, especially about anything controversial. If any of the information seems questionable, try to interview others who can corroborate it or provide another perspective.

Surveys and Questionnaires

You've probably been asked to participate in marketing surveys that review products or services, or maybe you've completed questionnaires for course evaluations. Such surveys and questionnaires can be a useful method of soliciting information from a large number of people. Most often they aren't meant to poll an entire population; rather, surveys and questionnaires usually target a representative sampling of a group, such as a sampling of college students from several different schools across the country. And unlike interviews, most surveys or questionnaires do not solicit detailed information from individuals; generally, researchers use them to gauge large-group trends and opinions on a rather narrow topic. Here are some tips for deciding when to use surveys and how to design and administer them:

Consider your purpose. How will you use the results of your survey in the essay you are writing? Will they provide essential support for your argument or anecdotal detail to make your discussion more lively, interesting, and grounded? Imagine, for instance, that you are arguing that your school's library should extend its hours. For survey results to play a meaningful role as major evidence, you will need to survey a representative sample of students on your campus. If, however, you simply hope that your survey will provide some expressions of student opinion on this topic, then a smaller survey will be fine.

Will a survey be an effective method for collecting information you need to address your research question? Will you complement it with other data-gathering methods? If you are trying to find out how first-year medical residents negotiate the challenges of their demanding schedule, a survey is not likely to provide you with the level of detail that you will need; in-

terviews might be more effective. However, if you are researching how the residents account for their time in a typical day, a survey would likely be your most expedient method.

Choose your sample. Consider whom you will contact for the survey; unless you are only after anecdotal information, you should aim to survey a representative sample of the targeted population—a small number of people who exhibit the characteristics of the larger population you want to gather information about. If you want to discover your college community's level of satisfaction with the campus dining services, for example, you'll need to solicit a sample that represents all the significant categories of people who use those services, including undergraduates, graduate students, faculty, administrative staff, and visitors, as well as the range of age, gender, ethnicity, and so on. To make your sample even more representative, you could categorize those who use the services according to when and where they eat on campus—for example, those who eat the majority of their meals in dormitory dining halls or those who occasionally eat in the student union cafeteria. Including only those who eat breakfast in the dining halls on weekends is not likely to give you a representative sample. Most important, decide *how many* people you will contact; generally, the larger proportion of the target population you sample, the more reliably you will be able to claim that your results represent trends in that population.

Choose your distribution method. Will you send a written survey through the mail? through email? Will you use an online service like *SurveyMonkey* or *KwikSurveys*? administer the survey over the phone or face-to-face? Choose a method that you think will yield the most results—and don't expect a 100 percent response rate. The acceptable response rate will depend on the size and quality of your sample. Researchers distribute surveys multiple times to get as many people in their targeted population to respond as they can.

Write the questions and an introduction, and test the survey. Respondents tend not to complete long or complicated surveys, so the best surveys include only a few questions and are easy to read. Use simple and unambiguous language, and avoid using jargon unless your survey is directed toward a specialized population who will understand it. Sequence questions from simple to complex unless there is a good reason not to do so. Also decide

what kind(s) of questions are most likely to yield the information you're after. Below you can see four examples of typical survey questions: open-ended, multiple choice, agreement scale, and rating scale.

Open-ended

What genre of books do you like to read?

Where is your favorite place to read?

Multiple choice

Please select your favorite genre of book (check all that apply):
__ fiction __ autobiography __ self-help __ histories __ biography

Please indicate your favorite location for reading (check one):
__ coffee shop __ library __ home __ office __ other

Agreement scale

Indicate your level of agreement with the following statements.

	Strongly Agree	Agree	Strongly Disagree	Disagree
The library should provide both electronic and print versions of books whenever possible.	☐	☐	☐	☐
I am more likely to download a book electronically than I am to borrow a print book from the library.	☐	☐	☐	☐

Rating scale

How would you rate your satisfaction with materials available through the library?
__ Excellent __ Good __ Fair __ Poor

Your questions should be focused on one specific topic related to your research question. For example, undergraduate researcher Steven Leone believes that solar energy provided by Copper Indium Gallium Selenium (CIGS) film could

provide a serious alternative to fossil fuels as an energy source, but he understands the resistance many homeowners have to expensive solar installations. His project "The Likelihood of Homeowners to Implement CIGS Thin Film Solar Cells" is designed to discover the relationship between homeowners' socioeconomic status and their attitudes about alternative energy sources in order to gauge how likely they are to adopt this new technology. These are his survey questions. Notice that some call for short answers while others ask for more detailed responses.

1. What is your combined annual household income?
2. What is the highest level of education you have completed?
   __ high school __ some college __ college __ graduate school
3. How is your home currently heated?
4. How much are you currently spending each year on home energy costs?
5. Which is more important to you—saving money or going green? Why?
6. How knowledgeable are you about solar energy technology?
   __ very knowledgeable __ somewhat knowledgeable
   __ somewhat unfamiliar __ very unfamiliar
7. Have you considered using solar energy as your home energy source? Why or why not?
8. Thin-film solar cells cost significantly less than conventional solar installations and offer an energy-cost payback that is twice as fast. Does this information make it more likely you would implement this technology? If so, how much more likely?
   __ very likely __ somewhat likely
   __ somewhat unlikely __ very unlikely
9. Thin-film solar cells will increase the resale value of your home. Does this information make it more likely you would implement the technology? If so, how much more likely?
   __ very likely __ somewhat likely
   __ somewhat unlikely __ very unlikely

10. If thin-film solar cells were cost-efficient and easy to install, would you consider them to be a good investment for your home? Why or why not?

Leone's questions will provide him with data that he can analyze to determine patterns (education, income, lifestyle) of attitudes on his topic.

Once you're satisfied with your questions, write a brief introductory statement that indicates the purpose of the survey and gives an estimate of how long it will take to complete. Then ask a small pilot group to take it before you distribute it widely. Use their responses to revise questions that they find confusing or otherwise problematic, and add or eliminate questions as necessary.

Manage your results. When you are done collecting data, be sure to carefully store your responses. Then analyze your results. If you are using a print survey, one simple method is to use a blank survey and tally responses next to each question. You can also use a spreadsheet or a similar program to track your findings. If your survey includes open-ended questions, you may want to designate some responses to use as quotations when you present your results.

Evaluate your survey. When you present your results, be sure to acknowledge any shortcomings of your survey. What topics were not covered? What populations were not surveyed? Was your sample too small to be truly representative?