

infinitely easier. If you run into difficulties with your research or your writing, ask your instructor for help, or make an appointment with a writing tutor.

EXERCISE 3

Identify five potential problems you might encounter in the process of researching and writing your paper. Write them on a separate sheet of paper. For each problem, write at least one strategy for solving the problem or minimizing its effect on your project.

Writing at Work

In the workplace, documents prepared at the beginning of a project often include a detailed plan for risk management. When you manage a project, it makes sense to anticipate and prepare for potential setbacks. For example, to roll out a new product line, a software development company must strive to complete tasks on a schedule in order to meet the new product release date. The project manager may need to adjust the project plan if one or more tasks fall behind schedule.

KEY TAKEAWAYS

- To complete a research project successfully, a writer must carefully manage each phase of the process and break major steps into smaller tasks.
- Writers can plan a research project by setting up a schedule based on the deadline and by identifying useful project resources.
- Writers stay focused by using organizational tools that suit their needs.
- Anticipating and planning for potential setbacks can help writers avoid those setbacks or minimize their effect on the project schedule.

11.4 Strategies for Gathering Reliable Information

LEARNING OBJECTIVES

1. Distinguish between primary and secondary sources.
2. Identify strategies for locating relevant print and electronic resources efficiently.
3. Identify instances when it is appropriate to use human sources, such as interviews or eyewitness testimony.
4. Identify criteria for evaluating research resources.
5. Understand why many electronic resources are not reliable.

Now that you have planned your research project, you are ready to begin the research. This phase can be both exciting and challenging. As you read this section, you will learn ways to locate sources efficiently, so you have enough time to read the sources, take notes, and think about how to use the information.

Of course, the technological advances of the past few decades—particularly the rise of online media—mean that, as a twenty-first-century student, you have countless sources of information available at your fingertips. But how can you tell whether a source is reliable? This section will discuss strategies for evaluating sources critically so that you can be a media-savvy researcher.

In this section, you will locate and evaluate resources for your paper and begin taking notes. As you read, begin gathering print and electronic resources, identify at least eight to ten sources by the time you finish the chapter, and begin taking notes on your research findings.

Locating Useful Resources

When you chose a paper topic and determined your research questions, you conducted preliminary research to stimulate your thinking. Your research proposal included some general ideas for how to go about your research—for instance, interviewing an expert in the field or analyzing the content of popular magazines. You may even have identified a few potential sources. Now it is time to conduct a more focused, systematic search for informative primary and secondary sources.

Using Primary and Secondary Sources

Writers classify research resources in two categories: primary sources and secondary sources. *Primary sources* are direct, firsthand sources of information or data. For example, if you were writing a paper about the First Amendment right to freedom of speech, the text of the First Amendment in the Bill of Rights would be a primary source.

Other primary sources include the following:

- Research articles
- Literary texts
- Historical documents such as diaries or letters
- Autobiographies or other personal accounts

Secondary sources discuss, interpret, analyze, consolidate, or otherwise rework information from primary sources. In researching a paper about the First Amendment, you might read articles about legal cases that

involved First Amendment rights, or editorials expressing commentary on the First Amendment. These sources would be considered secondary sources because they are one step removed from the primary source of information.

The following are examples of secondary sources:

- Magazine articles
- Biographical books
- Literary and scientific reviews
- Television documentaries

Your topic and purpose determine whether you must cite both primary and secondary sources in your paper. Ask yourself which sources are most likely to provide the information that will answer your research questions. If you are writing a research paper about reality television shows, you will need to use some reality shows as a primary source, but secondary sources, such as a reviewer’s critique, are also important. If you are writing about the health effects of nicotine, you will probably want to read the published results of scientific studies, but secondary sources, such as magazine articles discussing the outcome of a recent study, may also be helpful.

Once you have thought about what kinds of sources are most likely to help you answer your research questions, you may begin your search for print and electronic resources. The challenge here is to conduct your search efficiently. Writers use strategies to help them find the sources that are most relevant and reliable while steering clear of sources that will not be useful.

Finding Print Resources

Print resources include a vast array of documents and publications. Regardless of your topic, you will consult some print resources as part of your research. (You will use electronic sources as well, but it is not wise to limit yourself to electronic sources only, because some potentially useful sources may be available only in print form.) [Table 11.1 "Library Print Resources"](#) lists different types of print resources available at public and university libraries.

Table 11.1 Library Print Resources

Resource Type	Description	Example(s)
Reference	Reference works provide a summary of information	<ul style="list-style-type: none"> • <i>The World Almanac and</i>



Resource Type	Description	Example(s)
works	<p>about a particular topic. Almanacs, encyclopedias, atlases, medical reference books, and scientific abstracts are examples of reference works. In some cases, reference books may not be checked out of a library.</p> <p>Note that reference works are many steps removed from original primary sources and are often brief, so these should be used only as a starting point when you gather information.</p>	<p><i>Book of Facts 2010</i></p> <ul style="list-style-type: none"> • <i>Diagnostic and Statistical Manual</i> published by the American Psychiatric Association
Nonfiction books	<p>Nonfiction books provide in-depth coverage of a topic. Trade books, biographies, and how-to guides are usually written for a general audience. Scholarly books and scientific studies are usually written for an audience that has specialized knowledge of a topic.</p>	<ul style="list-style-type: none"> • <i>The Low-Carb Solution: A Slimmer You in 30 Days</i> • <i>Carbohydrates, Fats and Proteins: Exploring the Relationship Between Macronutrient Ratios and Health Outcomes</i>
Periodicals and news sources	<p>These sources are published at regular intervals—daily, weekly, monthly, or quarterly. Newspapers, magazines, and academic journals are examples. Some periodicals provide articles on subjects of general interest, while others are more specialized.</p>	<ul style="list-style-type: none"> • <i>New York Times</i> • <i>PC Magazine</i> • <i>JAMA, The Journal of the American Medical Association</i>
Government publications	<p>Federal, state, and local government agencies publish information on a variety of topics. Government publications include reports, legislation, court documents, public records, statistics, studies, guides, programs, and forms.</p>	<ul style="list-style-type: none"> • <i>The Census 2000 Profile</i> • <i>The Business Relocation Package</i> published by the Philadelphia Chamber of Commerce
Business and nonprofit	<p>Businesses and nonprofit organizations produce publications designed to market a product, provide background about the organization, provide</p>	<ul style="list-style-type: none"> • A company's instruction manual explaining how to use a

Resource Type	Description	Example(s)
publications	information on topics connected to the organization, or promote a cause. These publications include reports, newsletters, advertisements, manuals, brochures, and other print documents.	<p>specific software program</p> <ul style="list-style-type: none"> • A news release published by the Sierra Club

Some of these resources are also widely available in electronic format. In addition to the resources noted in the table, library holdings may include primary texts such as historical documents, letters, and diaries.

Writing at Work

Businesses, government organizations, and nonprofit organizations produce published materials that range from brief advertisements and brochures to lengthy, detailed reports. In many cases, producing these publications requires research. A corporation’s annual report may include research about economic or industry trends. A charitable organization may use information from research in materials sent to potential donors.

Regardless of the industry you work in, you may be asked to assist in developing materials for publication. Often, incorporating research in these documents can make them more effective in informing or persuading readers.

Tip

As you gather information, strive for a balance of accessible, easy-to-read sources and more specialized, challenging sources. Relying solely on lightweight books and articles written for a general audience will drastically limit the range of useful, substantial information. On the other hand, restricting oneself to dense, scholarly works could make the process of researching extremely time-consuming and frustrating.

EXERCISE 1

Make a list of five types of print resources you could use to find information about your research topic. Include at least one primary source. Be as specific as possible—if you have a particular resource or type of resource in mind, describe it.

To find print resources efficiently, first identify the major concepts and terms you will use to conduct your search—that is, your *keywords*. These, along with the research questions you identified in [Chapter 11](#)

"Writing from Research: What Will I Learn?", Section 11.2 "Steps in Developing a Research Proposal", will help you find sources using any of the following methods:

- Using the library's online catalog or card catalog
- Using periodicals indexes and databases
- Consulting a reference librarian

You probably already have some keywords in mind based on your preliminary research and writing.

Another way to identify useful keywords is to visit the Library of Congress's website

at <http://id.loc.gov/authorities>. This site allows you to search for a topic and see the related subject headings used by the Library of Congress, including broader terms, narrower terms, and related terms.

Other libraries use these terms to classify materials. Knowing the most-used terms will help you speed up your keyword search.

Jorge used the Library of Congress site to identify general terms he could use to find resources about low-carb dieting. His search helped him identify potentially useful keywords and related topics, such as carbohydrates in human nutrition, glycemic index, and carbohydrates—metabolism. These terms helped Jorge refine his search.

Tip

Knowing the right keywords can sometimes make all the difference in conducting a successful search. If you have trouble finding sources on a topic, consult a librarian to see whether you need to modify your search terms.

EXERCISE 2

Visit the Library of Congress's website at <http://id.loc.gov/authorities> and conduct searches on a few terms related to your topic.

1. Review your search results and identify six to eight additional terms you might use when you conduct your research.
2. Print out the search results or save the results to your research folder on your computer or portable storage device.

Using Periodicals, Indexes, and Databases

Library catalogs can help you locate book-length sources, as well as some types of nonprint holdings, such as CDs, DVDs, and audio books. To locate shorter sources, such as magazine and journal articles, you will

need to use a periodical index or an online periodical database. These tools index the articles that appear in newspapers, magazines, and journals. Like catalogs, they provide publication information about an article and often allow users to access a summary or even the full text of the article.

Print indexes may be available in the periodicals section of your library. Increasingly, libraries use online databases that users can access through the library website. A single library may provide access to multiple periodical databases. These can range from general news databases to specialized databases. [Table 11.2 "Commonly Used Indexes and Databases"](#) describes some commonly used indexes and databases.

Table 11.2 Commonly Used Indexes and Databases

Resource	Format	Contents
<i>New York Times Index</i>	Print	Guide to articles published in the <i>New York Times</i>
ProQuest	Online	Database that archives content from newspapers, magazines, and dissertations
Psychlit, PsycINFO	Online	Databases that archive content from journals in psychology and psychiatry
Business Source Complete	Online	Database that archives business-related content from magazines and journals
MEDLINE, PubMed	Online	Databases that archive articles in medicine and health
EBSCOhost	Online	General database that provides access to articles on a wide variety of topics

Reading Popular and Scholarly Periodicals

When you search for periodicals, be sure to distinguish among different types. Mass-market publications, such as newspapers and popular magazines, differ from scholarly publications in their accessibility, audience, and purpose.

Newspapers and magazines are written for a broader audience than scholarly journals. Their content is usually quite accessible and easy to read. Trade magazines that target readers within a particular industry



may presume the reader has background knowledge, but these publications are still reader-friendly for a broader audience. Their purpose is to inform and, often, to entertain or persuade readers as well.

Scholarly or academic journals are written for a much smaller and more expert audience. The creators of these publications assume that most of their readers are already familiar with the main topic of the journal. The target audience is also highly educated. Informing is the primary purpose of a scholarly journal. While a journal article may advance an agenda or advocate a position, the content will still be presented in an objective style and formal tone. Entertaining readers with breezy comments and splashy graphics is not a priority.

Because of these differences, scholarly journals are more challenging to read. That doesn't mean you should avoid them. On the contrary, they can provide in-depth information unavailable elsewhere.

Because knowledgeable professionals carefully review the content before publication, scholarly journals are far more reliable than much of the information available in popular media. Seek out academic journals along with other resources. Just be prepared to spend a little more time processing the information.

Writing at Work

Periodicals databases are not just for students writing research papers. They also provide a valuable service to workers in various fields. The owner of a small business might use a database such as Business Source Premiere to find articles on management, finance, or trends within a particular industry. Health care professionals might consult databases such as MedLine to research a particular disease or medication. Regardless of what career path you plan to pursue, periodicals databases can be a useful tool for researching specific topics and identifying periodicals that will help you keep up with the latest news in your industry.

Consulting a Reference Librarian

Sifting through library stacks and database search results to find the information you need can be like trying to find a needle in a haystack. If you are not sure how you should begin your search, or if it is yielding too many or too few results, you are not alone. Many students find this process challenging, although it does get easier with experience. One way to learn better search strategies is to consult a reference librarian.

Reference librarians are intimately familiar with the systems libraries use to organize and classify information. They can help you locate a particular book in the library stacks, steer you toward useful

reference works, and provide tips on how to use databases and other electronic research tools. Take the time to see what resources you can find on your own, but if you encounter difficulties, ask for help. Many university librarians hold virtual office hours and are available for online chatting.

EXERCISE 3

Visit your library's website or consult with a reference librarian to determine what periodicals indexes or databases would be useful for your research. Depending on your topic, you may rely on a general news index, a specialized index for a particular subject area, or both. Search the catalog for your topic and related keywords. Print out or bookmark your search results.

1. Identify at least one to two relevant periodicals, indexes, or databases.
2. Conduct a keyword search to find potentially relevant articles on your topic.
3. Save your search results. If the index you are using provides article summaries, read these to determine how useful the articles are likely to be.
4. Identify at least three to five articles to review more closely. If the full article is available online, set aside time to read it. If not, plan to visit our library within the next few days to locate the articles you need.

Tip

One way to refine your keyword search is to use Boolean operators. These operators allow you to combine keywords, find variations on a word, and otherwise expand or limit your results. Here are some of the ways you can use Boolean operators:

- Combine keywords with **and** or + to limit results to citations that include both keywords—for example, **diet + nutrition**.
- Combine keywords with **not** or - to search for the first word without the second. This can help you eliminate irrelevant results based on words that are similar to your search term. For example, searching for **obesity not childhood** locates materials on obesity but excludes materials on childhood obesity.
- Enclose a phrase in quotation marks to search for an exact phrase, such as “**morbid obesity**.”
- Use parentheses to direct the order of operations in a search string. For example, since Type II diabetes is also known as adult-onset diabetes, you could search **(Type II or adult-onset) and diabetes** to limit your search results to articles on this form of the disease.

- Use a wildcard symbol such as #, ?, or \$ after a word to search for variations on a term. For instance, you might type **diabet#** to search for information on diabetes and diabetics. The specific symbol used varies with different databases.

Finding and Using Electronic Resources

With the expansion of technology and media over the past few decades, a wealth of information is available to you in electronic format. Some types of resources, such as a television documentary, may only be available electronically. Other resources—for instance, many newspapers and magazines—may be available in both print and electronic form. The following are some of the electronic sources you might consult:

- Online databases
- CD-ROMs
- Popular web search engines
- Websites maintained by businesses, universities, nonprofit organizations, or government agencies
- Newspapers, magazines, and journals published on the web
- E-books
- Audio books
- Industry blogs
- Radio and television programs and other audio and video recordings
- Online discussion groups

The techniques you use to locate print resources can also help you find electronic resources efficiently. Libraries usually include CD-ROMs, audio books, and audio and video recordings among their holdings. You can locate these materials in the catalog using a keyword search. The same Boolean operators used to refine database searches can help you filter your results in popular search engines.

Using Internet Search Engines Efficiently

When faced with the challenge of writing a research paper, some students rely on popular search engines as their first source of information. Typing a keyword or phrase into a search engine instantly pulls up links to dozens, hundreds, or even thousands of related websites—what could be easier? Unfortunately, despite its apparent convenience, this research strategy has the following drawbacks to consider:

- **Results do not always appear in order of reliability.** The first few hits that appear in search results may include sites whose content is not always reliable, such as online encyclopedias that can be edited by any user. Because websites are created by third parties, the search engine cannot tell you which sites have accurate information.
- **Results may be too numerous for you to use.** The amount of information available on the web is far greater than the amount of information housed within a particular library or database. Realistically, if your web search pulls up thousands of hits, you will not be able to visit every site—and the most useful sites may be buried deep within your search results.
- **Search engines are not connected to the results of the search.** Search engines find websites that people visit often and list the results in order of popularity. The search engine, then, is not connected to any of the results. When you cite a source found through a search engine, you do not need to cite the search engine. Only cite the source.

A general web search can provide a helpful overview of a topic and may pull up genuinely useful resources. To get the most out of a search engine, however, use strategies to make your search more efficient. Use multiple keywords and Boolean operators to limit your results. Click on the Advanced Search link on the homepage to find additional options for streamlining your search. Depending on the specific search engine you use, the following options may be available:

- Limit results to websites that have been updated within a particular time frame.
- Limit results by language or country.
- Limit results to scholarly works available online.
- Limit results by file type.
- Limit results to a particular domain type, such as .edu (school and university sites) or .gov (government sites). This is a quick way to filter out commercial sites, which can often lead to more objective results.

Use the Bookmarks or Favorites feature of your web browser to save and organize sites that look promising.

Using Other Information Sources: Interviews

With so many print and electronic media readily available, it is easy to overlook another valuable information resource: other people. Consider whether you could use a person or group as a primary

source. For instance, you might interview a professor who has expertise in a particular subject, a worker within a particular industry, or a representative from a political organization. Interviews can be a great way to get firsthand information.

To get the most out of an interview, you will need to plan ahead. Contact your subject early in the research process and explain your purpose for requesting an interview. Prepare detailed questions. Open-ended questions, rather than questions with simple yes-or-no answers, are more likely to lead to an in-depth discussion. Schedule a time to meet, and be sure to obtain your subject's permission to record the interview. Take careful notes and be ready to ask follow-up questions based on what you learn.

Tip

If scheduling an in-person meeting is difficult, consider arranging a telephone interview or asking your subject to respond to your questions via e-mail. Recognize that any of these formats takes time and effort. Be prompt and courteous, avoid going over the allotted interview time, and be flexible if your subject needs to reschedule.

Evaluating Research Resources

As you gather sources, you will need to examine them with a critical eye. Smart researchers continually ask themselves two questions: "Is this source relevant to my purpose?" and "Is this source reliable?" The first question will help you avoid wasting valuable time reading sources that stray too far from your specific topic and research questions. The second question will help you find accurate, trustworthy sources.

Determining Whether a Source Is Relevant

At this point in your research process, you may have identified dozens of potential sources. It is easy for writers to get so caught up in checking out books and printing out articles that they forget to ask themselves how they will use these resources in their research. Now is a good time to get a little ruthless. Reading and taking notes takes time and energy, so you will want to focus on the most relevant sources. To weed through your stack of books and articles, skim their contents. Read quickly with your research questions and subtopics in mind. [Table 11.3 "Tips for Skimming Books and Articles"](#) explains how to skim to get a quick sense of what topics are covered. If a book or article is not especially relevant, put it aside. You can always come back to it later if you need to.

Table 11.3 Tips for Skimming Books and Articles

Tips for Skimming Books	Tips for Skimming Articles
<ol style="list-style-type: none"> 1. Read the dust jacket and table of contents for a broad overview of the topics covered. 2. Use the index to locate more specific topics and see how thoroughly they are covered. 3. Flip through the book and look for subtitles or key terms that correspond to your research. 	<ol style="list-style-type: none"> 1. Skim the introduction and conclusion for summary material. 2. Skim through subheadings and text features such as sidebars. 3. Look for keywords related to your topic. 4. Journal articles often begin with an abstract or summary of the contents. Read it to determine the article's relevance to your research.

Determining Whether a Source Is Reliable

All information sources are not created equal. Sources can vary greatly in terms of how carefully they are researched, written, edited, and reviewed for accuracy. Common sense will help you identify obviously questionable sources, such as tabloids that feature tales of alien abductions, or personal websites with glaring typos. Sometimes, however, a source's reliability—or lack of it—is not so obvious. For more information about source reliability, see [Chapter 12 "Writing a Research Paper"](#).

To evaluate your research sources, you will use critical thinking skills consciously and deliberately. You will consider criteria such as the type of source, its intended purpose and audience, the author's (or authors') qualifications, the publication's reputation, any indications of bias or hidden agendas, how current the source is, and the overall quality of the writing, thinking, and design.

Evaluating Types of Sources

The different types of sources you will consult are written for distinct purposes and with different audiences in mind. This accounts for other differences, such as the following:

- How thoroughly the writers cover a given topic
- How carefully the writers research and document facts
- How editors review the work
- What biases or agendas affect the content

A journal article written for an academic audience for the purpose of expanding scholarship in a given field will take an approach quite different from a magazine feature written to inform a general audience. Textbooks, hard news articles, and websites approach a subject from different angles as well. To some extent, the type of source provides clues about its overall depth and reliability. [Table 11.4 "Source Rankings"](#) ranks different source types.

Table 11.4 Source Rankings

High-Quality Sources	
<p>These sources provide the most in-depth information. They are researched and written by subject matter experts and are carefully reviewed.</p>	<ul style="list-style-type: none"> • Scholarly books and articles in scholarly journals • Trade books and magazines geared toward an educated general audience, such as <i>Smithsonian Magazine</i> or <i>Nature</i> • Government documents, such as books, reports, and web pages • Documents posted online by reputable organizations, such as universities and research institutes • Textbooks and reference books, which are usually reliable but may not cover a topic in great depth
Varied-Quality Sources	
<p>These sources are often useful. However, they do not cover subjects in as much depth as high-quality sources, and they are not always rigorously researched and reviewed. Some, such as popular magazine articles or company brochures, may be written to market a product or a cause. Use them with caution.</p>	<ul style="list-style-type: none"> • News stories and feature articles (print or online) from reputable newspapers, magazines, or organizations, such as <i>Newsweek</i> or the Public Broadcasting Service • Popular magazine articles, which may or may not be carefully researched and fact checked

	<ul style="list-style-type: none"> • Documents published by businesses and nonprofit organizations
Questionable Sources	
<p>These sources should be avoided. They are often written primarily to attract a large readership or present the author's opinions and are not subject to careful review.</p>	<ul style="list-style-type: none"> • Loosely regulated or unregulated media content, such as Internet discussion boards, blogs, free online encyclopedias, talk radio shows, television news shows with obvious political biases, personal websites, and chat rooms

Tip

Free online encyclopedias and wikis may seem like a great source of information. They usually appear among the first few results of a web search. They cover thousands of topics, and many articles use an informal, straightforward writing style. Unfortunately, these sites have no control system for researching, writing, and reviewing articles. Instead, they rely on a community of users to police themselves. At best, these sites can be a starting point for finding other, more trustworthy sources. Never use them as final sources.

Evaluating Credibility and Reputability

Even when you are using a type of source that is generally reliable, you will still need to evaluate the author's credibility and the publication itself on an individual basis. To examine the author's credibility—that is, how much you can believe of what the author has to say—examine his or her credentials. What career experience or academic study shows that the author has the expertise to write about this topic? Keep in mind that expertise in one field is no guarantee of expertise in another, unrelated area. For instance, an author may have an advanced degree in physiology, but this credential is not a valid qualification for writing about psychology. Check credentials carefully.

Just as important as the author's credibility is the publication's overall reputability. Reputability refers to a source's standing and reputation as a respectable, reliable source of information. An established and well-known newspaper, such as the *New York Times* or the *Wall Street Journal*, is more reputable than a college newspaper put out by comparatively inexperienced students. A website that is maintained by a



well-known, respected organization and regularly updated is more reputable than one created by an unknown author or group.

If you are using articles from scholarly journals, you can check databases that keep count of how many times each article has been cited in other articles. This can be a rough indication of the article's quality or, at the very least, of its influence and reputation among other scholars.

Checking for Biases and Hidden Agendas

Whenever you consult a source, always think carefully about the author's or authors' purpose in presenting the information. Few sources present facts completely objectively. In some cases, the source's content and tone are significantly influenced by biases or hidden agendas.

Bias refers to favoritism or prejudice toward a particular person or group. For instance, an author may be biased against a certain political party and present information in a way that subtly—or not so subtly—makes that organization look bad. Bias can lead an author to present facts selectively, edit quotations to misrepresent someone's words, and distort information.

Hidden agendas are goals that are not immediately obvious but influence how an author presents the facts. For instance, an article about the role of beef in a healthy diet would be questionable if it were written by a representative of the beef industry—or by the president of an animal-rights organization. In both cases, the author would likely have a hidden agenda.

As Jorge conducted his research, he read several research studies in which scientists found significant benefits to following a low-carbohydrate diet. He also noticed that many studies were sponsored by a foundation associated with the author of a popular series of low-carbohydrate diet books. Jorge read these studies with a critical eye, knowing that a hidden agenda might be shaping the researchers' conclusions.

Using Current Sources

Be sure to seek out sources that are current, or up to date. Depending on the topic, sources may become outdated relatively soon after publication, or they may remain useful for years. For instance, online social networking sites have evolved rapidly over the past few years. An article published in 2002 about this topic will not provide current information. On the other hand, a research paper on elementary education practices might refer to studies published decades ago by influential child psychologists.

When using websites for research, check to see when the site was last updated. Many sites publish this information on the homepage, and some, such as news sites, are updated daily or weekly. Many

nonfunctioning links are a sign that a website is not regularly updated. Do not be afraid to ask your professor for suggestions if you find that many of your most relevant sources are not especially reliable—or that the most reliable sources are not relevant.

Evaluating Overall Quality by Asking Questions

When you evaluate a source, you will consider the criteria previously discussed as well as your overall impressions of its quality. Read carefully, and notice how well the author presents and supports his or her statements. Stay actively engaged—do not simply accept an author’s words as truth. Ask questions to determine each source’s value. Checklist 11.1 lists ten questions to ask yourself as a critical reader.

Checklist 11.1

Source Evaluation

- Is the type of source appropriate for my purpose? Is it a high-quality source or one that needs to be looked at more critically?
- Can I establish that the author is credible and the publication is reputable?
- Does the author support ideas with specific facts and details that are carefully documented? Is the source of the author’s information clear? (When you use secondary sources, look for sources that are not too removed from primary research.)
- Does the source include any factual errors or instances of faulty logic?
- Does the author leave out any information that I would expect to see in a discussion of this topic?
- Do the author’s conclusions logically follow from the evidence that is presented? Can I see how the author got from one point to another?
- Is the writing clear and organized, and is it free from errors, clichés, and empty buzzwords? Is the tone objective, balanced, and reasonable? (Be on the lookout for extreme, emotionally charged language.)
- Are there any obvious biases or agendas? Based on what I know about the author, are there likely to be any hidden agendas?
- Are graphics informative, useful, and easy to understand? Are websites organized, easy to navigate, and free of clutter like flashing ads and unnecessary sound effects?
- Is the source contradicted by information found in other sources? (If so, it is possible that your sources are presenting similar information but taking different perspectives, which requires you to

think carefully about which sources you find more convincing and why. Be suspicious, however, of any source that presents facts that you cannot confirm elsewhere.)

Writing at Work

The critical thinking skills you use to evaluate research sources as a student are equally valuable when you conduct research on the job. If you follow certain periodicals or websites, you have probably identified publications that consistently provide reliable information. Reading blogs and online discussion groups is a great way to identify new trends and hot topics in a particular field, but these sources should not be used for substantial research.

EXERCISE 4

Use a search engine to conduct a web search on your topic. Refer to the tips provided earlier to help you streamline your search. Evaluate your search results critically based on the criteria you have learned.

Identify and bookmark one or more websites that are reliable, reputable, and likely to be useful in your research.

Managing Source Information

As you determine which sources you will rely on most, it is important to establish a system for keeping track of your sources and taking notes. There are several ways to go about it, and no one system is necessarily superior. What matters is that you keep materials in order; record bibliographical information you will need later; and take detailed, organized notes.

Keeping Track of Your Sources

Think ahead to a moment a few weeks from now, when you've written your research paper and are almost ready to submit it for a grade. There is just one task left—writing your list of sources.

As you begin typing your list, you realize you need to include the publication information for a book you cited frequently. Unfortunately, you already returned it to the library several days ago. You do not remember the URLs for some of the websites you used or the dates you accessed them—information that also must be included in your bibliography. With a sinking feeling, you realize that finding this information and preparing your bibliography will require hours of work.

This stressful scenario can be avoided. Taking time to organize source information now will ensure that you are not scrambling to find it at the last minute. Throughout your research, record bibliographical information for each source as soon as you begin using it. You may use pen-and-paper methods, such as a

notebook or note cards, or maintain an electronic list. (If you prefer the latter option, many office software packages include separate programs for recording bibliographic information.)

Table 11.5 "Details for Commonly Used Source Types" shows the specific details you should record for commonly used source types. Use these details to develop a working bibliography—a preliminary list of sources that you will later use to develop the references section of your paper. You may wish to record information using the formatting system of the American Psychological Association (APA) or the Modern Language Association (MLA), which will save a step later on. (For more information on APA and MLA formatting, see Chapter 13 "APA and MLA Documentation and Formatting".)

Table 11.5 Details for Commonly Used Source Types

Source Type	Necessary Information
Book	Author(s), title and subtitle, publisher, city of publication, year of publication
Essay or article published in a book	Include all the information you would for any other book. Additionally, record the essay's or article's title, author(s), the pages on which it appears, and the name of the book's editor(s).
Periodical	Author(s), article title, publication title, date of publication, volume and issue number, and page numbers
Online source	Author(s) (if available), article or document title, organization that sponsors the site, database name (if applicable), date of publication, date you accessed the site, and URL
Interview	Name of person interviewed, method of communication, date of interview

Your research may involve less common types of sources not listed in Table 11.5 "Details for Commonly Used Source Types". For additional information on citing different sources, see Chapter 13 "APA and MLA Documentation and Formatting".

EXERCISE 5

Create a working bibliography using the format that is most convenient for you. List at least five sources you plan to use. Continue to add sources to your working bibliography throughout the research process.

Tip

To make your working bibliography even more complete, you may wish to record additional details, such as a book's call number or contact information for a person you interviewed. That way, if you need to locate a source again, you have all the information you need right at your fingertips. You may also wish to assign each source a code number to use when taking notes (1, 2, 3, or a similar system).

Taking Notes Efficiently

Good researchers stay focused and organized as they gather information from sources. Before you begin taking notes, take a moment to step back and think about your goal as a researcher—to find information that will help you answer your research question. When you write your paper, you will present your conclusions about the topic supported by research. That goal will determine what information you record and how you organize it.

Writers sometimes get caught up in taking extensive notes, so much so that they lose sight of how their notes relate to the questions and ideas they started out with. Remember that you do not need to write down every detail from your reading. Focus on finding and recording details that will help you answer your research questions. The following strategies will help you take notes efficiently.

Use Headings to Organize Ideas

Whether you use old-fashioned index cards or organize your notes using word-processing software, record just one major point from each source at a time, and use a heading to summarize the information covered. Keep all your notes in one file, digital or otherwise. Doing so will help you identify connections among different pieces of information. It will also help you make connections between your notes and the research questions and subtopics you identified earlier.

Know When to Summarize, Paraphrase, or Directly Quote a Source

Your notes will fall under three categories—summary notes, paraphrased information, and direct quotations from your sources. Effective researchers make choices about which type of notes is most appropriate for their purpose.

- Summary notes sum up the main ideas in a source in a few sentences or a short paragraph. A summary is considerably shorter than the original text and captures only the major ideas. Use summary notes when you do not need to record specific details but you intend to refer to broad concepts the author discusses.

- Paraphrased notes restate a fact or idea from a source using your own words and sentence structure.
- Direct quotations use the exact wording used by the original source and enclose the quoted material in quotation marks. It is a good strategy to copy direct quotations when an author expresses an idea in an especially lively or memorable way. However, do not rely exclusively on direct quotations in your note taking.

Most of your notes should be paraphrased from the original source. Paraphrasing as you take notes is usually a better strategy than copying direct quotations, because it forces you to think through the information in your source and understand it well enough to restate it. In short, it helps you stay engaged with the material instead of simply copying and pasting. Synthesizing will help you later when you begin planning and drafting your paper. (For detailed guidelines on summarizing, paraphrasing, and quoting, see [Chapter 11 "Writing from Research: What Will I Learn?"](#), [Section 11.6 "Writing from Research: End-of-Chapter Exercises"](#).)

Maintain Complete, Accurate Notes

Regardless of the format used, any notes you take should include enough information to help you organize ideas and locate them instantly in the original text if you need to review them. Make sure your notes include the following elements:

- Heading summing up the main topic covered
- Author's name, a source code, or an abbreviated source title
- Page number
- Full URL of any pages buried deep in a website

Throughout the process of taking notes, be scrupulous about making sure you have correctly attributed each idea to its source. Always include source information so you know exactly which ideas came from which sources. Use quotation marks to set off any words or phrases taken directly from the original text. If you add your own responses and ideas, make sure they are distinct from ideas you quoted or paraphrased.

Finally, make sure your notes accurately reflect the content of the original text. Make sure quoted material is copied verbatim. If you omit words from a quotation, use ellipses to show the omission and make sure the omission does not change the author's meaning. Paraphrase ideas carefully, and check your

paraphrased notes against the original text to make sure that you have restated the author's ideas accurately in your own words.

Use a System That Works for You

There are several formats you can use to take notes. No technique is necessarily better than the others—it is more important to choose a format you are comfortable using. Choosing the format that works best for you will ensure your notes are organized, complete, and accurate. Consider implementing one of these formats when you begin taking notes:

- **Use index cards.** This traditional format involves writing each note on a separate index card. It takes more time than copying and pasting into an electronic document, which encourages you to be selective in choosing which ideas to record. Recording notes on separate cards makes it easy to later organize your notes according to major topics. Some writers color-code their cards to make them still more organized.
- **Use note-taking software.** Word-processing and office software packages often include different types of note-taking software. Although you may need to set aside some time to learn the software, this method combines the speed of typing with the same degree of organization associated with handwritten note cards.
- **Maintain a research notebook.** Instead of using index cards or electronic note cards, you may wish to keep a notebook or electronic folder, allotting a few pages (or one file) for each of your sources. This method makes it easy to create a separate column or section of the document where you add your responses to the information you encounter in your research.
- **Annotate your sources.** This method involves making handwritten notes in the margins of sources that you have printed or photocopied. If using electronic sources, you can make comments within the source document. For example, you might add comment boxes to a PDF version of an article. This method works best for experienced researchers who have already thought a great deal about the topic because it can be difficult to organize your notes later when starting your draft.

Choose one of the methods from the list to use for taking notes. Continue gathering sources and taking notes. In the next section, you will learn strategies for organizing and synthesizing the information you have found.

KEY TAKEAWAYS

- A writer’s use of primary and secondary sources is determined by the topic and purpose of the research. Sources used may include print sources, such as books and journals; electronic sources, such as websites and articles retrieved from databases; and human sources of information, such as interviews.
- Strategies that help writers locate sources efficiently include conducting effective keyword searches, understanding how to use online catalogs and databases, using strategies to narrow web search results, and consulting reference librarians.
- Writers evaluate sources based on how relevant they are to the research question and how reliable their content is.
- Skimming sources can help writers determine their relevance efficiently.
- Writers evaluate a source’s reliability by asking questions about the type of source (including its audience and purpose); the author’s credibility, the publication’s reputability, the source’s currency, and the overall quality of the writing, research, logic, and design in the source.
- In their notes, effective writers record organized, complete, accurate information. This includes bibliographic information about each source as well as summarized, paraphrased, or quoted information from the source.

11.5 Critical Thinking and Research Applications

LEARNING OBJECTIVES

1. Analyze source materials to determine how they support or refute the working thesis.
2. Identify connections between source materials and eliminate redundant or irrelevant source materials.
3. Identify instances when it is appropriate to use human sources, such as interviews or eyewitness testimony.
4. Select information from sources to begin answering the research questions.
5. Determine an appropriate organizational structure for the research paper that uses critical analysis to connect the writer’s ideas and information taken from sources.

At this point in your project, you are preparing to move from the research phase to the writing phase. You have gathered much of the information you will use, and soon you will be ready to begin writing your draft. This section helps you transition smoothly from one phase to the next.