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## Chapter 11

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### Writing from Research: What Will I Learn?

## 11.1 The Purpose of Research Writing

### LEARNING OBJECTIVES

1. Identify reasons to research writing projects.
2. Outline the steps of the research writing process.

Why was the Great Wall of China built? What have scientists learned about the possibility of life on Mars? What roles did women play in the American Revolution? How does the human brain create, store, and retrieve memories? Who invented the game of football, and how has it changed over the years?

You may know the answers to these questions off the top of your head. If you are like most people, however, you find answers to tough questions like these by searching the Internet, visiting the library, or asking others for information. To put it simply, you perform research.

Whether you are a scientist, an artist, a paralegal, or a parent, you probably perform research in your everyday life. When your boss, your instructor, or a family member asks you a question that you do not know the answer to, you locate relevant information, analyze your findings, and share your results. Locating, analyzing, and sharing information are key steps in the research process, and in this chapter, you will learn more about each step. By developing your research writing skills, you will prepare yourself to answer any question no matter how challenging.

### Reasons for Research

When you perform research, you are essentially trying to solve a mystery—you want to know how something works or why something happened. In other words, you want to answer a question that you (and other people) have about the world. This is one of the most basic reasons for performing research.

But the research process does not end when you have solved your mystery. Imagine what would happen if a detective collected enough evidence to solve a criminal case, but she never shared her solution with the authorities. Presenting what you have learned from research can be just as important as performing the research. Research results can be presented in a variety of ways, but one of the most

popular—and effective—presentation forms is the **research paper**<sup>1</sup>. A research paper presents an original thesis, or purpose statement, about a topic and develops that thesis with information gathered from a variety of sources.

If you are curious about the possibility of life on Mars, for example, you might choose to research the topic. What will you do, though, when your research is complete? You will need a way to put your thoughts together in a logical, coherent manner. You may want to use the facts you have learned to create a narrative or to support an argument. And you may want to show the results of your research to your friends, your teachers, or even the editors of magazines and journals. Writing a research paper is an ideal way to organize thoughts, craft narratives or make arguments based on research, and share your newfound knowledge with the world.

### EXERCISE 1

Write a paragraph about a time when you used research in your everyday life. Did you look for the cheapest way to travel from Houston to Denver? Did you search for a way to remove gum from the bottom of your shoe? In your paragraph, explain what you wanted to research, how you performed the research, and what you learned as a result.

### Research Writing and the Academic Paper

No matter what field of study you are interested in, you will most likely be asked to write a research paper during your academic career. For example, a student in an art history course might write a research paper about an artist's work. Similarly, a student in a psychology course might write a research paper about current findings in childhood development.

Having to write a research paper may feel intimidating at first. After all, researching and writing a long paper requires a lot of time, effort, and organization. However, writing a research paper can also be a great opportunity to explore a topic that is particularly interesting to you. The research process allows you to gain expertise on a topic of your choice, and the writing process helps you remember what you have learned and understand it on a deeper level.

### Research Writing at Work

Knowing how to write a good research paper is a valuable skill that will serve you well throughout your career. Whether you are developing a new product, studying

1. A composition that presents an original thesis about a topic and develops that thesis with information gathered from a variety of sources.

the best way to perform a procedure, or learning about challenges and opportunities in your field of employment, you will use research techniques to guide your exploration. You may even need to create a written report of your findings. And because effective communication is essential to any company, employers seek to hire people who can write clearly and professionally.

### Writing at Work

Take a few minutes to think about each of the following careers. How might each of these professionals use researching and research writing skills on the job?

- Medical laboratory technician
- Small business owner
- Information technology professional
- Freelance magazine writer

A medical laboratory technician or information technology professional might do research to learn about the latest technological developments in either of these fields. A small business owner might conduct research to learn about the latest trends in his or her industry. A freelance magazine writer may need to research a given topic to write an informed, up-to-date article.

### EXERCISE 2

Think about the job of your dreams. How might you use research writing skills to perform that job? Create a list of ways in which strong researching, organizing, writing, and critical thinking skills could help you succeed at your dream job. How might these skills help you obtain that job?

### Steps of the Research Writing Process

How does a research paper grow from a folder of brainstormed notes to a polished final draft? No two projects are identical, but most projects follow a series of six basic steps.

These are the steps in the research writing process:

1. Choose a topic.
2. Plan and schedule time to research and write.
3. Conduct research.
4. Organize research and ideas.
5. Draft your paper.
6. Revise and edit your paper.

Each of these steps will be discussed in more detail later in this chapter. For now, though, we will take a brief look at what each step involves.

### Step 1: Choosing a Topic

As you may recall from [Chapter 8 "The Writing Process: How Do I Begin?"](#), to narrow the focus of your topic, you may try freewriting exercises, such as brainstorming. You may also need to ask a specific **research question**<sup>2</sup>—a broad, open-ended question that will guide your research—as well as propose a possible answer, or a **working thesis**<sup>3</sup>. You may use your research question and your working thesis to create a **research proposal**<sup>4</sup>. In a research proposal, you present your main research question, any related subquestions you plan to explore, and your working thesis.

### Step 2: Planning and Scheduling

Before you start researching your topic, take time to plan your researching and writing schedule. Research projects can take days, weeks, or even months to complete. Creating a schedule is a good way to ensure that you do not end up being overwhelmed by all the work you have to do as the deadline approaches.

During this step of the process, it is also a good idea to plan the resources and organizational tools you will use to keep yourself on track throughout the project. Flowcharts, calendars, and checklists can all help you stick to your schedule. See [Chapter 11 "Writing from Research: What Will I Learn?"](#), [Section 11.2 "Steps in Developing a Research Proposal"](#) for an example of a research schedule.

### Step 3: Conducting Research

When going about your research, you will likely use a variety of sources—anything from books and periodicals to video presentations and in-person interviews.

2. A broad, open-ended question that a writer uses to guide the research process. In the research paper, the writer attempts to answer the question thoughtfully.

3. The first thesis statement a writer uses while outlining an assignment. A working thesis statement may change during the writing process.

4. A brief document that includes a writer's main research question, related subquestions, working thesis, and plan for gathering information.

Your sources will include both **primary sources**<sup>5</sup> and **secondary sources**<sup>6</sup>. Primary sources provide firsthand information or raw data. For example, surveys, in-person interviews, and historical documents are primary sources. Secondary sources, such as biographies, literary reviews, or magazine articles, include some analysis or interpretation of the information presented. As you conduct research, you will take detailed, careful notes about your discoveries. You will also evaluate the reliability of each source you find.

#### Step 4: Organizing Research and the Writer’s Ideas

When your research is complete, you will organize your findings and decide which sources to cite in your paper. You will also have an opportunity to evaluate the evidence you have collected and determine whether it supports your thesis, or the focus of your paper. You may decide to adjust your thesis or conduct additional research to ensure that your thesis is well supported.

#### Tip

Remember, your working thesis is not set in stone. You can and should change your working thesis throughout the research writing process if the evidence you find does not support your original thesis. Never try to force evidence to fit your argument. For example, your working thesis is “Mars cannot support life-forms.” Yet, a week into researching your topic, you find an article in the *New York Times* detailing new findings of bacteria under the Martian surface. Instead of trying to argue that bacteria are not life forms, you might instead alter your thesis to “Mars cannot support complex life-forms.”

5. Research sources that provide raw information or data without commentary or interpretation, such as surveys, interviews, and historical documents.
6. Research sources that provide information and include some analysis or interpretation of the information. Scholarly journals and magazine articles are usually considered secondary sources.
7. The practice of using someone else’s words or ideas without acknowledging the source.

#### Step 5: Drafting Your Paper

Now you are ready to combine your research findings with your critical analysis of the results in a rough draft. You will incorporate source materials into your paper and discuss each source thoughtfully in relation to your thesis or purpose statement.

When you cite your reference sources, it is important to pay close attention to standard conventions for citing sources in order to avoid **plagiarism**<sup>7</sup>, or the practice of using someone else’s words without acknowledging the source. Later in this chapter, you will learn how to incorporate sources in your paper and avoid some of the most common pitfalls of attributing information.

### Step 6: Revising and Editing Your Paper

In the final step of the research writing process, you will revise and polish your paper. You might reorganize your paper's structure or revise for unity and cohesion, ensuring that each element in your paper flows into the next logically and naturally. You will also make sure that your paper uses an appropriate and consistent tone.

Once you feel confident in the strength of your writing, you will edit your paper for proper spelling, grammar, punctuation, mechanics, and formatting. When you complete this final step, you will have transformed a simple idea or question into a thoroughly researched and well-written paper you can be proud of!

#### EXERCISE 3

Review the steps of the research writing process. Then answer the questions on your own sheet of paper.

1. In which steps of the research writing process are you allowed to change your thesis?
2. In step 2, which types of information should you include in your project schedule?
3. What might happen if you eliminated step 4 from the research writing process?

#### KEY TAKEAWAYS

- People undertake research projects throughout their academic and professional careers in order to answer specific questions, share their findings with others, increase their understanding of challenging topics, and strengthen their researching, writing, and analytical skills.
- The research writing process generally comprises six steps: choosing a topic, scheduling and planning time for research and writing, conducting research, organizing research and ideas, drafting a paper, and revising and editing the paper.



## 11.2 Steps in Developing a Research Proposal

### LEARNING OBJECTIVES

1. Identify the steps in developing a research proposal.
2. Choose a topic and formulate a research question and working thesis.
3. Develop a research proposal.

Writing a good research paper takes time, thought, and effort. Although this assignment is challenging, it is manageable. Focusing on one step at a time will help you develop a thoughtful, informative, well-supported research paper.

Your first step is to choose a topic and then to develop research questions, a working thesis, and a written research proposal. Set aside adequate time for this part of the process. Fully exploring ideas will help you build a solid foundation for your paper.

### Choosing a Topic

When you choose a topic for a research paper, you are making a major commitment. Your choice will help determine whether you enjoy the lengthy process of research and writing—and whether your final paper fulfills the assignment requirements. If you choose your topic hastily, you may later find it difficult to work with your topic. By taking your time and choosing carefully, you can ensure that this assignment is not only challenging but also rewarding.

Writers understand the importance of choosing a topic that fulfills the assignment requirements and fits the assignment's purpose and audience. (For more information about purpose and audience, see [Chapter 6 "Writing Paragraphs: Separating Ideas and Shaping Content"](#).) Choosing a topic that interests you is also crucial. Your instructor may provide a list of suggested topics or ask that you develop a topic on your own. In either case, try to identify topics that genuinely interest you.

After identifying potential topic ideas, you will need to evaluate your ideas and choose one topic to pursue. Will you be able to find enough information about the topic? Can you develop a paper about this topic that presents and supports your original ideas? Is the topic too broad or too narrow for the scope of the assignment?

If so, can you modify it so it is more manageable? You will ask these questions during this preliminary phase of the research process.

### **Identifying Potential Topics**

Sometimes, your instructor may provide a list of suggested topics. If so, you may benefit from identifying several possibilities before committing to one idea. It is important to know how to narrow down your ideas into a concise, manageable thesis. You may also use the list as a starting point to help you identify additional, related topics. Discussing your ideas with your instructor will help ensure that you choose a manageable topic that fits the requirements of the assignment.

In this chapter, you will follow a writer named Jorge, who is studying health care administration, as he prepares a research paper. You will also plan, research, and draft your own research paper.

Jorge was assigned to write a research paper on health and the media for an introductory course in health care. Although a general topic was selected for the students, Jorge had to decide which specific issues interested him. He brainstormed a list of possibilities.

#### **Tip**

If you are writing a research paper for a specialized course, look back through your notes and course activities. Identify reading assignments and class discussions that especially engaged you. Doing so can help you identify topics to pursue.

*Possible Topics*

1. Health Maintenance Organizations (HMOs) in the news
2. Sexual education programs
3. Hollywood and eating disorders
4. Americans' access to public health information
5. Media portrayal of the health care reform bill
6. Depictions of drugs on television
7. The effect of the Internet on mental health
8. Popularized diets (such as low-carbohydrate diets)
9. Fear of pandemics (bird flu, H1N1, SARS)
10. Electronic entertainment and obesity
11. Advertisements for prescription drugs
12. Public education and disease prevention

## EXERCISE 1

Set a timer for five minutes. Use brainstorming or idea mapping to create a list of topics you would be interested in researching for a paper about the influence of the Internet on social networking. Do you closely follow the media coverage of a particular website, such as Twitter? Would you like to learn more about a certain industry, such as online dating? Which social networking sites do you and your friends use? List as many ideas related to this topic as you can.

### Narrowing Your Topic

Once you have a list of potential topics, you will need to choose one as the focus of your essay. You will also need to narrow your topic. Most writers find that the topics they listed during brainstorming or idea mapping are broad—too broad for the scope of the assignment. Working with an overly broad topic, such as sexual education programs or popularized diets, can be frustrating and overwhelming. Each topic has so many facets that it would be impossible to cover them all in a college research paper. However, more specific choices, such as the pros and cons of sexual education in kids' television programs or the physical effects of the South Beach diet, are specific enough to write about without being too narrow to sustain an entire research paper.

A good research paper provides focused, in-depth information and analysis. If your topic is too broad, you will find it difficult to do more than skim the surface when you research it and write about it. **Narrowing your focus**<sup>8</sup> is essential to making your topic manageable. To narrow your focus, explore your topic in writing, conduct preliminary research, and discuss both the topic and the research with others.

### Exploring Your Topic in Writing

“How am I supposed to narrow my topic when I haven’t even begun researching yet?” In fact, you may already know more than you realize. Review your list and identify your top two or three topics. Set aside some time to explore each one through freewriting. (For more information about freewriting, see [Chapter 8 "The Writing Process: How Do I Begin?"](#).) Simply taking the time to focus on your topic may yield fresh angles.

Jorge knew that he was especially interested in the topic of diet fads, but he also knew that it was much too broad for his assignment. He used freewriting to explore his thoughts so he could narrow his topic. Read Jorge’s ideas.

*Our instructors are always saying that accurate, up-to-date information is crucial in encouraging people to make better choices about their health. I don't think the media does a very good job of providing that, though. Every time I go on the Internet, I see tons of ads for the latest "miracle food." One week it's acai berries, the next week it's green tea, and then six months later I see a news story saying all the fabulous claims about acai berries and green tea are overblown! Advice about weight loss is even worse. Think about all the diet books that are out there! Some say that a low-fat diet is best; some say you should cut down on carbs; and some make bizarre recommendations like eating half a grapefruit with every meal. I don't know how anyone is supposed to make an informed decision about what to eat when there's so much confusing, contradictory information. I bet even doctors, nurses, and dieticians have trouble figuring out what information is reliable and what is just the latest hype.*

8. The process of identifying a specific angle from which to approach a broad topic in order to limit it and make it more manageable.
9. Research conducted early in the writing process for the purpose of exploring a topic and narrowing the focus.

### Conducting Preliminary Research

Another way writers may focus a topic is to conduct **preliminary research**<sup>9</sup>. Like freewriting, exploratory reading can help you identify interesting angles. Surfing the web and browsing through newspaper and magazine articles are good ways to

start. Find out what people are saying about your topic on blogs and online discussion groups. Discussing your topic with others can also inspire you. Talk about your ideas with your classmates, your friends, or your instructor.

Jorge's freewriting exercise helped him realize that the assigned topic of health and the media intersected with a few of his interests—diet, nutrition, and obesity. Preliminary online research and discussions with his classmates strengthened his impression that many people are confused or misled by media coverage of these subjects.

Jorge decided to focus his paper on a topic that had garnered a great deal of media attention—low-carbohydrate diets. He wanted to find out whether low-carbohydrate diets were as effective as their proponents claimed.

### **Writing at Work**

At work, you may need to research a topic quickly to find general information. This information can be useful in understanding trends in a given industry or generating competition. For example, a company may research a competitor's prices and use the information when pricing their own product. You may find it useful to skim a variety of reliable sources and take notes on your findings.

### **Tip**

The reliability of online sources varies greatly. In this exploratory phase of your research, you do not need to evaluate sources as closely as you will later. However, use common sense as you refine your paper topic. If you read a fascinating blog comment that gives you a new idea for your paper, be sure to check out other, more reliable sources as well to make sure the idea is worth pursuing.

## EXERCISE 2

Review the list of topics you created in [Note 11.18 "Exercise 1"](#) and identify two or three topics you would like to explore further. For each of these topics, spend five to ten minutes writing about the topic without stopping. Then review your writing to identify possible areas of focus.

Set aside time to conduct preliminary research about your potential topics. Then choose a topic to pursue for your research paper.

### Collaboration

Please share your topic list with a classmate. Select one or two topics on his or her list that you would like to learn more about and return it to him or her. Discuss why you found the topics interesting, and learn which of your topics your classmate selected and why.

## A Plan for Research

Your freewriting and preliminary research have helped you choose a focused, manageable topic for your research paper. To work with your topic successfully, you will need to determine what exactly you want to learn about it—and later, what you want to say about it. Before you begin conducting in-depth research, you will further define your focus by developing a **research question**<sup>10</sup>, a working thesis, and a research proposal.

### Formulating a Research Question

In forming a research question, you are setting a goal for your research. Your main research question should be substantial enough to form the guiding principle of your paper—but focused enough to guide your research. A strong research question requires you not only to find information but also to put together different pieces of information, interpret and analyze them, and figure out what you think. As you consider potential research questions, ask yourself whether they would be too hard or too easy to answer.

10. A broad, open-ended question that a writer uses to guide the research process. In the research paper, the writer attempts to answer the question thoughtfully.

To determine your research question, review the freewriting you completed earlier. Skim through books, articles, and websites and list the questions you have. (You may wish to use the 5WH strategy to help you formulate questions. See [Chapter 8 "The Writing Process: How Do I Begin?"](#) for more information about 5WH questions.) Include simple, factual questions and more complex questions that

would require analysis and interpretation. Determine your main question—the primary focus of your paper—and several subquestions that you will need to research to answer your main question.

Here are the research questions Jorge will use to focus his research. Notice that his main research question has no obvious, straightforward answer. Jorge will need to research his subquestions, which address narrower topics, to answer his main question.

**Topic:** *Low-carbohydrate diets*

**Main question:** *Are low-carbohydrate diets as effective as they have been portrayed to be by media sources?*

**Subquestions:**

- Who can benefit from following a low-carbohydrate diet?*
- What are the supposed advantages to following a low-carbohydrate diet?*
- When did low-carb diets become a "hot" topic in the media?*
- Where do average consumers get information about diet and nutrition?*
- Why has the low-carb approach received so much media attention?*
- How do low-carb diets work?*

### EXERCISE 3

Using the topic you selected in [Note 11.24 "Exercise 2"](#), write your main research question and at least four to five subquestions. Check that your main research question is appropriately complex for your assignment.

### Constructing a Working Thesis

A working thesis concisely states a writer's initial answer to the main research question. It does not merely state a fact or present a subjective opinion. Instead, it expresses a debatable idea or claim that you hope to prove through additional research. Your working thesis is called a **working thesis**<sup>11</sup> for a reason—it is subject to change. As you learn more about your topic, you may change your thinking in light of your research findings. Let your working thesis serve as a guide to your research, but do not be afraid to modify it based on what you learn.

11. The first, preliminary thesis statement that a writer uses while outlining an essay. A working thesis statement may change during the writing process.

Jorge began his research with a strong point of view based on his preliminary writing and research. Read his working thesis statement, which presents the point he will argue. Notice how it states Jorge's tentative answer to his research question.

**Main research question:** *Are low-carb diets as effective as they have sometimes been portrayed to be by the mass media?*  
**Working thesis statement:** *Low-carb diets do not live up to the media hype surrounding them.*

## Tip

One way to determine your working thesis is to consider how you would complete sentences such as *I believe* or *My opinion is*. However, keep in mind that academic writing generally does not use first-person pronouns. These statements are useful starting points, but formal research papers use an objective voice.

## EXERCISE 4

Write a working thesis statement that presents your preliminary answer to the research question you wrote in [Note 11.27 "Exercise 3"](#). Check that your working thesis statement presents an idea or claim that could be supported or refuted by evidence from research.

## Creating a Research Proposal

A **research proposal**<sup>12</sup> is a brief document—no more than one typed page—that summarizes the preliminary work you have completed. Your purpose in writing it is to formalize your plan for research and present it to your instructor for feedback. In your research proposal, you will present your main research question, related

12. A brief document that includes a writer's main research question, related subquestions, working thesis, and plan for gathering information.



subquestions, and working thesis. You will also briefly discuss the value of researching this topic and indicate how you plan to gather information.

When Jorge began drafting his research proposal, he realized that he had already created most of the pieces he needed. However, he knew he also had to explain how his research would be relevant to other future health care professionals. In addition, he wanted to form a general plan for doing the research and identifying potentially useful sources. Read Jorge's research proposal.

Jorge Ramirez

March 28, 2011

Health care 101

Professor Habib

Research Proposal

*In recent years, topics related to diet, nutrition, and weight loss have been covered extensively in the popular media. Different experts recommend various, often conflicting strategies for maintaining a healthy weight. One highly recommended approach, which forms the basis of many popular diet plans, is to limit consumption of carbohydrates. Yet experts disagree on the effectiveness and health benefits of this approach. What information should consumers consider when evaluating diet plans?*

*In my research, I will explore the claims made by proponents of the "low-carbohydrate lifestyle." My primary research question is: Are low-carbohydrate diets as effective for maintaining a healthy weight as they are portrayed to be? My secondary research questions are:*

- Who can benefit from following a low-carbohydrate diet?*
- What are the supposed advantages to following a low-carb diet?*
- When did low-carb diets become a "hot" topic in the media?*
- Where do average consumers get information about diet and nutrition?*
- Why has the low-carb approach received so much media attention?*
- How do low-carb diets work?*

*My working thesis is that low-carbohydrate diets do not live up to the media hype surrounding them. For this assignment, I will review general-interest and scholarly articles that discuss the relationship between low-carbohydrate diets, weight loss, and long-term health outcomes.*

## Writing at Work

Before you begin a new project at work, you may have to develop a project summary document that states the purpose of the project, explains why it would be a wise use of company resources, and briefly outlines the steps involved in completing the project. This type of document is similar to a research proposal. Both documents define and limit a project, explain its value, discuss how to proceed, and identify what resources you will use.

## Writing Your Own Research Proposal

Now you may write your own research proposal, if you have not done so already. Follow the guidelines provided in this lesson.

### KEY TAKEAWAYS

- Developing a research proposal involves the following preliminary steps: identifying potential ideas, choosing ideas to explore further, choosing and narrowing a topic, formulating a research question, and developing a working thesis.
- A good topic for a research paper interests the writer and fulfills the requirements of the assignment.
- Defining and narrowing a topic helps writers conduct focused, in-depth research.
- Writers conduct preliminary research to identify possible topics and research questions and to develop a working thesis.
- A good research question interests readers, is neither too broad nor too narrow, and has no obvious answer.
- A good working thesis expresses a debatable idea or claim that can be supported with evidence from research.
- Writers create a research proposal to present their topic, main research question, subquestions, and working thesis to an instructor for approval or feedback.

## 11.3 Managing Your Research Project

### LEARNING OBJECTIVES

1. Identify reasons for outlining the scope and sequence of a research project.
2. Recognize the steps of the research writing process.
3. Develop a plan for managing time and resources to complete the research project on time.
4. Identify organizational tools and strategies to use in managing the project.

The prewriting you have completed so far has helped you begin to plan the content of your research paper—your topic, research questions, and preliminary thesis. It is equally important to plan out the process of researching and writing the paper. Although some types of writing assignments can be completed relatively quickly, developing a good research paper is a complex process that takes time. Breaking it into manageable steps is crucial. Review the steps outlined at the beginning of this chapter.

### Steps to Writing a Research Paper

1. Choose a topic.
2. Schedule and plan time for research and writing.
3. Conduct research.
4. Organize research
5. Draft your paper.
6. Revise and edit your paper.

13. The first phase of a research project in which the writer gathers and organizes information. A good rule of thumb is to allot half the available time for research.

14. The second phase of a research project in which the writer drafts, revises, and edits the paper. Plan to spend half the time available on this phase. (You may spend additional time if your instructor reviews your rough draft and provides feedback.)

You have already completed step 1. In this section, you will complete step 2. The remaining steps fall under two broad categories—the **research phase**<sup>13</sup> of the project (steps 3 and 4) and the **writing phase**<sup>14</sup> (steps 5 and 6). Both phases present challenges. Understanding the tasks involved and allowing enough time to complete each task will help you complete your research paper on time with a minimal amount of stress.

## Planning Your Project

Each step of a research project requires time and attention. Careful planning helps ensure that you will keep your project running smoothly and produce your best work. Set up a **project schedule**<sup>15</sup> that shows when you will complete each step. Think about *how* you will complete each step and what **project resources**<sup>16</sup> you will use. Resources may include anything from library databases and word-processing software to interview subjects and writing tutors.

To develop your schedule, use a calendar and work backward from the date your final draft is due. Generally, it is wise to divide half of the available time on the research phase of the project and half on the writing phase. For example, if you have a month to work, plan for two weeks for each phase. If you have a full semester, plan to begin research early and to start writing by the middle of the term. You might think that no one really works that far ahead, but try it. You will probably be pleased with the quality of your work and with the reduction in your stress level.

As you plan, break down major steps into smaller tasks if necessary. For example, step 3, conducting research, involves locating potential sources, evaluating their usefulness and reliability, reading, and taking notes. Defining these smaller tasks makes the project more manageable by giving you concrete goals to achieve.

Jorge had six weeks to complete his research project. Working backward from a due date of May 2, he mapped out a schedule for completing his research by early April so that he would have ample time to write. Jorge chose to write his schedule in his weekly planner to help keep himself on track.

Review Jorge's schedule. Key target dates are shaded. Note that Jorge planned times to use available resources by visiting the library and writing center and by meeting with his instructor.

15. A document outlining the tasks involved in each step of the research project with a target date for completing each step.

16. The documents, tools, or people that a writer relies on to complete a research project. Examples of project resources include library databases, personal computers, style guides, and tutors.

S	M	T	W	T	F	S
March 20	21	22 Choose Topic	23 Preliminary research	24 Write research questions and working thesis	25 Write research proposal	26
27	28 Research proposal due	29 Look for sources online	30 Library	31 Evaluate sources; make source cards	April 1 Take notes	2
3	4	5 Finish note cards	6 Organize notes	7	8 Write outline	9
10	11 Outline due	12 Write draft	13	14	15 <i>Off - Trip to NYC</i>	16 <i>Off - Trip to NYC</i>
17	18 Conference with Prof. Habib 2:00	19 Finish writing draft	20	21 Revise draft	22	23 Library?
24	25	26 Finish revising draft	27 Edit draft	28 Writing Center 4:30	29 Finish editing draft	30 Create Works Cited page
May 1	2 Final draft due	3	4	5	6	7

### EXERCISE 1

1. Working backward from the date your final draft is due, create a project schedule. You may choose to write a sequential list of tasks or record tasks on a calendar.
2. Check your schedule to be sure that you have broken each step into smaller tasks and assigned a target completion date to each key task.
3. Review your target dates to make sure they are realistic. Always allow a little more time than you think you will actually need.

### Tip

Plan your schedule realistically, and consider other commitments that may sometimes take precedence. A business trip or family visit may mean that you are unable to work on the research project for a few days. Make the most of the time you have available. Plan for unexpected interruptions, but keep in mind that a short time away from the project may help you come back to it with renewed enthusiasm. Another strategy many writers find helpful is to finish each day's work at a point when the next task is an easy one. That makes it easier to start again.

### Writing at Work

When you create a project schedule at work, you set target dates for completing certain tasks and identify the resources you plan to use on the project. It is important to build in some flexibility. Materials may not be received on time because of a shipping delay. An employee on your team may be called away to work on a higher-priority project. Essential equipment may malfunction. You should always plan for the unexpected.

### Staying Organized

Although setting up a schedule is easy, sticking to one is challenging. Even if you are the rare person who never procrastinates, unforeseen events may interfere with your ability to complete tasks on time. A self-imposed deadline may slip your mind despite your best intentions. Organizational tools—calendars, checklists, note cards, software, and so forth—can help you stay on track.

Throughout your project, organize both your time and your resources systematically. Review your schedule frequently and check your progress. It helps to post your schedule in a place where you will see it every day. Both personal and workplace e-mail systems usually include a calendar feature where you can record tasks, arrange to receive daily reminders, and check off completed tasks. Electronic devices such as smartphones have similar features.

Organize project documents in a binder or electronic folder, and label project documents and folders clearly. Use note cards or an electronic document to record bibliographical information for each source you plan to use in your paper. Tracking this information throughout the research process can save you hours of time when you create your references page.

## EXERCISE 2

Revisit the schedule you created in [Note 11.42 "Exercise 1"](#). Transfer it into a format that will help you stay on track from day to day. You may wish to input it into your smartphone, write it in a weekly planner, post it by your desk, or have your e-mail account send you daily reminders. Consider setting up a buddy system with a classmate that will help you both stay on track.

### Tip

Some people enjoy using the most up-to-date technology to help them stay organized. Other people prefer simple methods, such as crossing off items on a checklist. The key to staying organized is finding a system you like enough to use daily. The particulars of the method are not important as long as you are consistent.

### Anticipating Challenges

Do any of these scenarios sound familiar? You have identified a book that would be a great resource for your project, but it is currently checked out of the library. You planned to interview a subject matter expert on your topic, but she calls to reschedule your meeting. You have begun writing your draft, but now you realize that you will need to modify your thesis and conduct additional research. Or you have finally completed your draft when your computer crashes, and days of hard work disappear in an instant.

These troubling situations are all too common. No matter how carefully you plan your schedule, you may encounter a glitch or setback. Managing your project effectively means anticipating potential problems, taking steps to minimize them where possible, and allowing time in your schedule to handle any setbacks.

Many times a situation becomes a problem due only to lack of planning. For example, if a book is checked out of your local library, it might be available through interlibrary loan, which usually takes a few days for the library staff to process. Alternatively, you might locate another, equally useful source. If you have allowed enough time for research, a brief delay will not become a major setback.

You can manage other potential problems by staying organized and maintaining a take-charge attitude. Take a minute each day to save a backup copy of your work on a portable hard drive. Maintain detailed note cards and source cards as you conduct research—doing so will make citing sources in your draft 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 works	<p>Reference works provide a summary of information 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>	<ul style="list-style-type: none"> <li>• <i>The World Almanac and Book of Facts 2010</i></li> <li>• <i>Diagnostic and Statistical Manual</i> published by the American Psychiatric Association</li> </ul>
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"> <li>• <i>The Low-Carb Solution: A Slimmer You in 30 Days</i></li> <li>• <i>Carbohydrates, Fats and</i></li> </ul>

Resource Type	Description	Example(s)
		<p><i>Proteins: Exploring the Relationship Between Macronutrient Ratios and Health Outcomes</i></p>
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"> <li>• <i>New York Times</i></li> <li>• <i>PC Magazine</i></li> <li>• <i>JAMA, The Journal of the American Medical Association</i></li> </ul>
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"> <li>• <i>The Census 2000 Profile</i></li> <li>• <i>The Business Relocation Package</i> published by the Philadelphia Chamber of Commerce</li> </ul>
Business and nonprofit publications	<p>Businesses and nonprofit organizations produce publications designed to market a product, provide background about the organization, provide information on topics connected to the organization, or promote a cause. These publications include reports, newsletters, advertisements, manuals, brochures, and other print documents.</p>	<ul style="list-style-type: none"> <li>• A company's instruction manual explaining how to use a</li> </ul>

Resource Type	Description	Example(s)
		<p>specific software program</p> <ul style="list-style-type: none"> <li>• A news release published by the Sierra Club</li> </ul>

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

17. A regularly updated print publication that indexes the articles published in selected newspapers, magazines, and journals and provides publication information.
18. A regularly updated online database that indexes the articles published in selected newspapers, magazines, and journals and provides publication information. Databases may focus on general news publications or on specific subject areas. Usually databases provide summary information about an article; often they allow users to access the full text of an article.

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**<sup>17</sup> or an online **periodical database**<sup>18</sup>. 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**<sup>19</sup> 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**<sup>20</sup> 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.

19. Magazines that address topics relevant to a particular industry.

20. Periodicals that address topics in a specialized field and are geared toward an audience with prior expertise in the field.

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

### 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

<b>High-Quality Sources</b>	
<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"> <li>• Scholarly books and articles in scholarly journals</li> <li>• Trade books and magazines geared toward an educated general audience, such as <i>Smithsonian Magazine</i> or <i>Nature</i></li> <li>• Government documents, such as books, reports, and web pages</li> <li>• Documents posted online by reputable organizations, such as universities and research institutes</li> </ul>

	<ul style="list-style-type: none"> <li>• Textbooks and reference books, which are usually reliable but may not cover a topic in great depth</li> </ul>
<b>Varied-Quality Sources</b>	
<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"> <li>• News stories and feature articles (print or online) from reputable newspapers, magazines, or organizations, such as <i>Newsweek</i> or the Public Broadcasting Service</li> <li>• Popular magazine articles, which may or may not be carefully researched and fact checked</li> <li>• Documents published by businesses and nonprofit organizations</li> </ul>
<b>Questionable Sources</b>	
<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"> <li>• 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</li> </ul>

## 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**<sup>21</sup>—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**<sup>22</sup> 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.

21. The extent to which an author's writing about a topic is believable or trustworthy. Writers evaluate credibility by considering the author's professional expertise or academic qualifications on the topic.

22. A publication's established reputation as a respectable, reliable source of information.

## 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**<sup>23</sup> 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**<sup>24</sup> 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.

23. Favoritism or prejudice toward a particular person or group. Writers critically examine research sources for biases.

24. Goals that are not immediately obvious but that influence the way an author presents the facts in a piece of writing.

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**<sup>25</sup>—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".

25. A preliminary list of sources that a writer maintains during the research process and later uses to develop the references section in the research paper.



## 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**<sup>26</sup> 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**<sup>27</sup> restate a fact or idea from a source using your own words and sentence structure.
- **Direct quotations**<sup>28</sup> 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

26. Notes that condense the main ideas in a source to a few sentences or a short paragraph. A summary is considerably shorter than the original text.

27. Notes from a source that restate a fact or idea in the writer's own words.

28. In notes, direct quotations use the exact wording found in the original source and enclose the quoted material in quotation marks.

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.

Beginning writers sometimes attempt to transform a pile of note cards into a formal research paper without any intermediary step. This approach presents problems. The writer's original question and thesis may be buried in a flood of disconnected details taken from research sources. The first draft may present redundant or contradictory information. Worst of all, the writer's ideas and voice may be lost.

An effective research paper focuses on the writer's ideas—from the question that sparked the research process to how the writer answers that question based on the research findings. Before beginning a draft, or even an outline, good writers pause and reflect. They ask themselves questions such as the following:

- How has my thinking changed based on my research? What have I learned?
- Was my working thesis on target? Do I need to rework my thesis based on what I have learned?
- How does the information in my sources mesh with my research questions and help me answer those questions? Have any additional

important questions or subtopics come up that I will need to address in my paper?

- How do my sources complement each other? What ideas or facts recur in multiple sources?
- Where do my sources disagree with each other, and why?

In this section, you will reflect on your research and review the information you have gathered. You will determine what you now think about your topic. You will **synthesize**<sup>29</sup>, or put together, different pieces of information that help you answer your research questions. Finally, you will determine the organizational structure that works best for your paper and begin planning your outline.

### EXERCISE 1

Review the research questions and working thesis you developed in [Chapter 11 "Writing from Research: What Will I Learn?"](#), [Section 11.2 "Steps in Developing a Research Proposal"](#). Set a timer for ten minutes and write about your topic, using your questions and thesis to guide your writing. Complete this exercise without looking over your notes or sources. Base your writing on the overall impressions and concepts you have absorbed while conducting research. If additional, related questions come to mind, jot them down.

### Selecting Useful Information

At this point in the research process, you have gathered information from a wide variety of sources. Now it is time to think about how you will use this information as a writer.

When you conduct research, you keep an open mind and seek out many promising sources. You take notes on any information that looks like it might help you answer your research questions. Often, new ideas and terms come up in your reading, and these, too, find their way into your notes. You may record facts or quotations that catch your attention even if they did not seem immediately relevant to your research question. By now, you have probably amassed an impressively detailed collection of notes.

You will not use all of your notes in your paper.

29. To combine different elements in order to create something new. When writing a research paper, writers synthesize information to arrive at new ideas or conclusions.

Good researchers are thorough. They look at multiple perspectives, facts, and ideas related to their topic, and they gather a great deal of information. Effective writers, however, are selective. They determine which information is most relevant and appropriate for their purpose. They include details that develop or explain their ideas—and they leave out details that do not. The writer, not the pile of notes, is the controlling force. The writer shapes the content of the research paper.

While working through [Chapter 11 "Writing from Research: What Will I Learn?"](#), [Section 11.4 "Strategies for Gathering Reliable Information"](#), you used strategies to filter out unreliable or irrelevant sources and details. Now you will apply your critical-thinking skills to the information you recorded—analyzing how it is relevant, determining how it meshes with your ideas, and finding how it forms connections and patterns.

### Writing at Work

When you create workplace documents based on research, selectivity remains important. A project team may spend months conducting market surveys to prepare for rolling out a new product, but few managers have time to read the research in its entirety. Most employees want the research distilled into a few well-supported points. Focused, concise writing is highly valued in the workplace.

### Identify Information That Supports Your Thesis

In [Note 11.81 "Exercise 1"](#), you revisited your research questions and working thesis. The process of writing informally helped you see how you might begin to pull together what you have learned from your research. Do not feel anxious, however, if you still have trouble seeing the big picture. Systematically looking through your notes will help you.

Begin by identifying the notes that clearly support your thesis. Mark or group these, either physically or using the cut-and-paste function in your word-processing program. As you identify the crucial details that support your thesis, make sure you analyze them critically. Ask the following questions to focus your thinking:

- **Is this detail from a reliable, high-quality source? Is it appropriate for me to cite this source in an academic paper?** The bulk of the support for your thesis should come from reliable, reputable sources. If most of the details that support your thesis are from less-reliable sources, you may need to do additional research or modify your thesis.
- **Is the link between this information and my thesis obvious—or will I need to explain it to my readers?** Remember, you have spent more time thinking and reading about this topic than your audience. Some connections might be obvious to both you and your readers. More often, however, you will need to provide the analysis or explanation that shows how the information supports your thesis. As you read through your notes, jot down ideas you have for making those connections clear.
- **What personal biases or experiences might affect the way I interpret this information?** No researcher is 100 percent objective. We all have personal opinions and experiences that influence our reactions to what we read and learn. Good researchers are aware of this human tendency. They keep an open mind when they read opinions or facts that contradict their beliefs.

### Tip

It can be tempting to ignore information that does not support your thesis or that contradicts it outright. However, such information is important. At the very least, it gives you a sense of what has been written about the issue. More importantly, it can help you question and refine your own thinking so that writing your research paper is a true learning process.

### Find Connections between Your Sources

As you find connections between your ideas and information in your sources, also look for information that connects your sources. Do most sources seem to agree on a particular idea? Are some facts mentioned repeatedly in many different sources? What key terms or major concepts come up in most of your sources regardless of whether the sources agree on the finer points? Identifying these connections will help you identify important ideas to discuss in your paper.



Look for subtler ways your sources complement one another, too. Does one author refer to another's book or article? How do sources that are more recent build upon the ideas developed in earlier sources?

Be aware of any redundancies in your sources. If you have amassed solid support from a reputable source, such as a scholarly journal, there is no need to cite the same facts from an online encyclopedia article that is many steps removed from any primary research. If a given source adds nothing new to your discussion and you can cite a stronger source for the same information, use the stronger source.

Determine how you will address any contradictions found among different sources. For instance, if one source cites a startling fact that you cannot confirm anywhere else, it is safe to dismiss the information as unreliable. However, if you find significant disagreements among reliable sources, you will need to review them and evaluate each source. Which source presents a sounder argument or more solid evidence? It is up to you to determine which source is the most credible and why.

Finally, do not ignore any information simply because it does not support your thesis. Carefully consider how that information fits into the big picture of your research. You may decide that the source is unreliable or the information is not relevant, or you may decide that it is an important point you need to bring up. What matters is that you give it careful consideration.

As Jorge reviewed his research, he realized that some of the information was not especially useful for his purpose. His notes included several statements about the relationship between soft drinks that are high in sugar and childhood obesity—a subtopic that was too far outside of the main focus of the paper. Jorge decided to cut this material.

### **Reevaluate Your Working Thesis**

A careful analysis of your notes will help you reevaluate your working thesis and determine whether you need to revise it. Remember that your working thesis was the starting point—not necessarily the end point—of your research. You should revise your working thesis if your ideas changed based on what you read. Even if your sources generally confirmed your preliminary thinking on the topic, it is still a good idea to tweak the wording of your thesis to incorporate the specific details you learned from research.

Jorge realized that his working thesis oversimplified the issues. He still believed that the media was exaggerating the benefits of low-carb diets. However, his

research led him to conclude that these diets did have some advantages. Read Jorge's revised thesis.

*Although following a low-carbohydrate diet can benefit some people, these diets are not necessarily the best option for everyone who wants to lose weight or improve their health.*

## Synthesizing and Organizing Information

By now your thinking on your topic is taking shape. You have a sense of what major ideas to address in your paper, what points you can easily support, and what questions or subtopics might need a little more thought. In short, you have begun the process of synthesizing information—that is, of putting the pieces together into a coherent whole.

It is normal to find this part of the process a little difficult. Some questions or concepts may still be unclear to you. You may not yet know how you will tie all of your research together. Synthesizing information is a complex, demanding mental task, and even experienced researchers struggle with it at times. A little uncertainty is often a good sign! It means you are challenging yourself to work thoughtfully with your topic instead of simply restating the same information.

### Use Your Research Questions to Synthesize Information

You have already considered how your notes fit with your working thesis. Now, take your synthesis a step further. Analyze how your notes relate to your major research question and the subquestions you identified in [Chapter 11 "Writing from Research: What Will I Learn?"](#), [Section 11.2 "Steps in Developing a Research Proposal"](#). Organize your notes with headings that correspond to those questions. As you proceed, you might identify some important subtopics that were not part of your original plan, or you might decide that some questions are not relevant to your paper.

Categorize information carefully and continue to think critically about the material. Ask yourself whether the sources are reliable and whether the connections between ideas are clear.

Remember, your ideas and conclusions will shape the paper. They are the glue that holds the rest of the content together. As you work, begin jotting down the big ideas you will use to connect the dots for your reader. (If you are not sure where to begin, try answering your major research question and subquestions. Add and answer new questions as appropriate.) You might record these big ideas on sticky notes or type and highlight them within an electronic document.

Jorge looked back on the list of research questions that he had written down earlier. He changed a few to match his new thesis, and he began a rough outline for his paper.

**Topic:** *Low-carbohydrate diets*

**Main question:** *Are low-carbohydrate diets as effective as they have been portrayed to be by media sources?*

**Thesis:** *Although following a low-carbohydrate diet can benefit some people, these diets are not necessarily the best option for everyone who wants to lose weight or improve their health.*

**Main points:**

*How do low-carb diets work?*

*Low-carb diets cause weight loss by lowering insulin levels, causing the body to burn stored fat.*

*When did low-carb diets become a "hot" topic in the media?*

*The Atkins diet was created in 1972 by Richard Atkins, but it didn't gain wide-scale attention until 2003. The South Beach diet and other low-carb diets became popular around the same time, and led to a low-carb craze in America from 2003 to 2004.*

*What are the supposed advantages to following a low-carbohydrate diet?*

*They are said to help you lose weight faster than other diets and allow people to continue to eat protein and fats while dieting.*

*What are some of the negative effects of a low-carb diet?*

*Eating foods high in saturated fats can increase your cholesterol levels and lead to heart disease. Incomplete fat breakdown can lead to a condition called ketosis, which puts a strain on the liver and can be fatal.*

## EXERCISE 2

Review your research questions and working thesis again. This time, keep them nearby as you review your research notes.

1. Identify information that supports your working thesis.
2. Identify details that call your thesis into question. Determine whether you need to modify your thesis.
3. Use your research questions to identify key ideas in your paper. Begin categorizing your notes according to which topics are addressed. (You may find yourself adding important topics or deleting unimportant ones as you proceed.)
4. Write out your revised thesis and at least two or three big ideas.

You may be wondering how your ideas are supposed to shape the paper, especially since you are writing a research paper based on your research. Integrating your ideas and your information from research is a complex process, and sometimes it can be difficult to separate the two.

Some paragraphs in your paper will consist mostly of details from your research. That is fine, as long as you explain what those details mean or how they are linked. You should also include sentences and transitions that show the relationship between different facts from your research by grouping related ideas or pointing out connections or contrasts. The result is that you are not simply presenting information; you are synthesizing, analyzing, and interpreting it.

### **Plan How to Organize Your Paper**

The final step to complete before beginning your draft is to choose an organizational structure. For some assignments, this may be determined by the instructor's requirements. For instance, if you are asked to explore the impact of a new communications device, a cause-and-effect structure is obviously appropriate. In other cases, you will need to determine the structure based on what suits your topic and purpose. For more information about the structures used in writing, see [Chapter 10 "Rhetorical Modes"](#).

The purpose of Jorge's paper was primarily to persuade. With that in mind, he planned the following outline.

*I. Introduction*

*A. Background*

*B. Thesis*

*II. Purported Benefits of Low-Carbohydrate Diets*

*A. United States Department of Agriculture (USDA) nutrition guidelines*

*B. Potential flaws in USDA nutrition guidelines*

*1. Effects of carbohydrates on blood sugar, insulin*

*2. Relationship to metabolism and obesity*

*III. Research on Low-Carbohydrate Diets and Weight Loss*

*A. Short-term effectiveness for weight-loss*

*B. Long-term effectiveness not established*

*IV. Other Long-Term Health Outcomes*

*A. Cholesterol and heart disease*

*B. Blood pressure*

*C. Diabetes*

*V. Conclusion*

### EXERCISE 3

Review the organizational structures discussed in this section and [Chapter 10 "Rhetorical Modes"](#). Working with the notes you organized earlier, follow these steps to begin planning how to organize your paper.

1. Create an outline that includes your thesis, major subtopics, and supporting points.
2. The major headings in your outline will become sections or paragraphs in your paper. Remember that your ideas should form the backbone of the paper. For each major section of your outline, write out a topic sentence stating the main point you will make in that section.
3. As you complete step 2, you may find that some points are too complex to explain in a sentence. Consider whether any major sections of your outline need to be broken up and jot down additional topic sentences as needed.
4. Review your notes and determine how the different pieces of information fit into your outline as supporting points.

#### Collaboration

Please share the outline you created with a classmate. Examine your classmate's outline and see if any questions come to mind or if you see any area that would benefit from an additional point or clarification. Return the outlines to each other and compare observations.

#### Writing at Work

The structures described in this section and [Chapter 10 "Rhetorical Modes"](#) can also help you organize information in different types of workplace documents. For instance, medical incident reports and police reports follow a chronological structure. If the company must choose between two vendors to provide a service, you might write an e-mail to your supervisor comparing and contrasting the choices. Understanding when and how to use each organizational structure can help you write workplace documents efficiently and effectively.

### KEY TAKEAWAYS

- An effective research paper focuses on presenting the writer's ideas using information from research as support.
- Effective writers spend time reviewing, synthesizing, and organizing their research notes before they begin drafting a research paper.
- It is important for writers to revisit their research questions and working thesis as they transition from the research phase to the writing phase of a project. Usually, the working thesis will need at least minor adjustments.
- To organize a research paper, writers choose a structure that is appropriate for the topic and purpose. Longer papers may make use of more than one structure.

## **11.6 Writing from Research: End-of-Chapter Exercises**



## EXERCISES

1. In this chapter, you learned strategies for generating and narrowing a topic for a research paper. Review the following list of five general topics. Use freewriting and preliminary research to narrow three of these topics to manageable size for a five- to seven-page research paper. Save your list of topics in a print or electronic file, and add to it periodically as you identify additional areas of interest.
  - Illegal immigration in the United States
  - Bias in the media
  - The role of religion in educational systems
  - The possibility of life in outer space
  - Modern-day slavery around the world
2. Working with one of the topics you have identified, use the research skills you learned in this chapter to locate three to five potentially useful print or electronic sources of information about the topic. Create a list that includes the following:
  - One subject-specific periodicals database likely to include relevant articles on your topic
  - Two articles about your topic written for an educated general audience
  - At least one article about your topic written for an audience with specialized knowledge
3. Organize your list of resources into primary and secondary sources. What makes them such? Pick one primary source and one secondary source and write a sentence or two summarizing the information that they provide. Then answer these questions:
  - What type of primary source did you choose? Who wrote it, and why? Do you think this source provides accurate information, or is it biased in some way?
  - Where did the information in the secondary source come from? Was the author citing an initial study, piece of literature, or work of art? Where could you find the primary source?