BONNIE L. TENSEN

RESEARCH STRATEGIES *for a* Digital Age

Fifth Edition

RESEARCH STRATEGIES

for a

Digital Age

RESEARCH STRATEGIES *for a* Digital Age

Fifth Edition

BONNIE L. TENSEN

Augsburg College

CENGAGE Learning®

Australia • Brazil • Mexico • Singapore • United Kingdom • United States

CENGAGE Learning®

Research Strategies for a Digital Age, Fifth Edition
Bonnie L. Tensen

Product Director: Monica Eckman
Product Manager: Vanessa Coloura
Senior Content Developer: Kathy Sands-Boehmer
Product Assistant: Claire Branman
Marketing Manager: Kina Lara
Senior Content Project Manager: Michael Lepera
Senior Art Director: Marissa Falco
Manufacturing Planner: Betsy Donaghey
IP Analyst: Ann Hoffman
IP Project Manager: Reba Frederics
Production Service/ Compositor: Cenveo® Publisher Services
Text and Cover Designer: Chrissy Kurpeski

Library of Congress Control Number: On file

Student Edition:
ISBN: 978-1-305-96940-7

Loose-leaf Edition:
ISBN: 978-1-337-09434-4

Cengage Learning
20 Channel Center Street
Boston, MA 02210
USA

Cengage Learning is a leading provider of customized learning solutions with employees residing in nearly 40 different countries and sales in more than 125 countries around the world. Find your local representative at **www.cengage.com.**

Cengage Learning products are represented in Canada by Nelson Education, Ltd.

To learn more about Cengage Learning Solutions, visit **www.cengage.com.**

Purchase any of our products at your local college store or at our preferred online store **www.cengagebrain.com.**

Printed in China
Print Number: 01 Print Year: 2016

CONTENTS

PREFACE

"The Internet is revolutionary, but not Utopian."

ANDREW SHAPIRO ET AL., *Principles of Technorealism*

We live in an information-saturated society. We can get answers to most questions in nanoseconds no matter where we are. Given how readily information can be retrieved, it is understandable why many Millennials question the relevance of the research paper. If answers are so effortlessly available, what is the purpose of an assignment that asks you to compile, organize, and assess facts and ideas? Students want a rationale for the assignments we ask them to complete, so this text addresses their questions and reservations in the very first chapter—differentiating between reports (that have them compile information) and research projects (that ask them to compose unique responses to research questions).

The world is rapidly becoming Web proficient—if not Web dependent—and our students are on the leading edge of the digital learning curve. Many, if not most, of our students are masterful "digital researchers" when it comes to locating the latest hit music file, obtaining the lowest airfare for a weekend getaway to New York City, tracking down a job lead on Twitter, or finding out where their favorite local band is playing that weekend. It's not surprising, then, that they approach research with great confidence, sometimes even disdaining the advice of teachers whom they perceive as "techno-challenged."

Yet despite the tremendous quantity of information easily accessible via the World Wide Web and students' proficiency at obtaining answers to their personal questions and needs, most are beginners when it comes to academic research. Web technologies have radically changed the way information is transmitted, and they are transforming the library of the 21st century, making *more* information *more* accessible to *more* students. Although no one can dispute that the Web has greatly increased our access to information, it has also created new challenges for instructors and students. Many students question why they should learn to use library tools when Googling seems effortless and more intuitive. However, they struggle to distinguish credible, relevant sources amidst the morass of unregulated and unreliable information available on the Web. The cut-and-paste/open source culture of the Web creates confusion about how to incorporate sources without plagiarizing. And remaining current with how to document new types of publications (YouTube videos, podcasts, blogs, e-books, etc.) in the ever-changing digital landscape can be mind-boggling. The aim of this fifth edition of *Research Strategies for a Digital Age* is to provide convincing solutions to those challenges and encourage sound research habits.

Part 1 (Chapters 1 to 3) explains a process for beginning and sustaining a research project using basic search strategies for locating credible, relevant sources

in the academic library. The book begins in the library because it remains the best starting point for conducting academic research. Recent years have seen tremendous advances in library search programs. "Discovery tools" have unified library holdings, eliminating the need to conduct multiple searches in separate databases and catalogs and creating a more "Google-like" interface. Despite these improvements, many students overlook the library—because they have become habituated to Googling for answers, remain unmindful of the availability of library resources, and/or lack the skills necessary to use library search tools successfully. For any or all of these reasons, most students prefer to take their chances with locating sources on the Web. These initial chapters anticipate and address that propensity by demonstrating how the skillful use of discovery tools—being selective with search terms and refining results using limiters—can rapidly narrow results to the most relevant and credible in a way that is not possible using Google.

Part 2 (Chapters 4 and 5) demonstrates how investigative and evaluative skills developed using library tools can be applied to identify reliable and academically appropriate information on the Web. A completely reworked Chapter 4 ("How to Surf the Web without Drowning") explains the benefits (and limitations) of Google Scholar, identifies some valuable online subject guides, and explains how to use advanced search features—all with the goal of enabling students to access and assess Web publications that meet the more rigorous demands of scholarly or academic research. This chapter also includes a nuanced discussion of Wikipedia that recognizes its everyday import but cautions against including it as a reference in academic writing. Chapter 5 provides direction on how to conduct personal interviews and compose effective surveys when conducting primary research.

Part 3 (Chapters 6 and 7) focuses on incorporating sources into the research paper with academic integrity and rhetorical skill. Many professors list academic dishonesty in the top five challenges they face in the classroom. The brief one- to two-paragraph-long admonition against plagiarism that appears in most handbooks is not sufficient to educate today's students. Many find it difficult to resist "borrowing" from the vast amount of text available to them on the Web, and they may be genuinely—and understandably—confused about what constitutes plagiarism. Chapter 6 offers a comprehensive and sensitive examination of this issue. It investigates some of the origins of students' confusion and considers the many "faces" of plagiarism, differentiating between deliberate and accidental incidents as well as illustrating the problems of faulty paraphrasing. Chapter 7 provides strategies for locating the information necessary to document sources and integrate direct quotation (using correct documentation methodologies) into research writing.

Students and instructors alike have told me that Part 4 (Chapters 8 to 11—the documentation chapters) is the most useful part of the book. Students struggle with documentation for a number of reasons, but perhaps the most vexing problem has to do with identification: first determining *what* they are looking at (and with digital documents this is becoming even more confusing) and then matching

it to the appropriate format. With the proliferation of new methods of transmitting information, students are finding it increasingly difficult to locate an example that corresponds to their source. As in former editions, the fifth edition responds to these concerns.

Chapter 8 has been totally revamped to reflect recent changes in MLA formatting. The new (eighth) edition of *The MLA Handbook* has made great strides in simplifying the documentation process, for it no longer distinguishes between different types of sources (e.g., journal articles, books, websites, and podcasts). Instead, every works cited entry is composed of nine core elements arranged (and punctuated) in a consistent and logical pattern. Yet despite this uniformity in design, properly identifying the core elements in different types of sources (e.g., database records, Web pages, podcasts, YouTube videos, and graphs) can be challenging. Hence, this chapter provides screenshots of a wide variety of sources with the core elements clearly marked in addition to a properly formatted works cited entry.

In Chapters 9 to 11 (APA, CSE, and CMS documentation formats), the examples are organized according to genre (e.g., periodical articles, books, etc.), with formats for each modality (e.g., print, database, and Web) grouped together:

Journal article (print)
Journal article (database)
Journal article (Web)

In addition, general documentation guidelines and "special case rules" (e.g., more than one author, publication with no author, no page numbers, or more than one publication by the same author) have all been compiled into one bulleted list. These very simple changes enable students who have ascertained the genre of their source to locate the appropriate format quickly and make any necessary adjustments without confusion. This reordering may also improve their understanding of the documentation system, for it illustrates the evolution of a particular format from print to digital forms. In addition, these chapters have been greatly expanded to provide examples of many of the new types of publications (online videos, graphics, podcasts, blogs) that students actually use in their research projects. These chapters include sample research papers that are annotated to illustrate important formatting and documentation rules. The result is a very comprehensive, yet user-friendly guide to documentation in the 21st century.

Research Strategies for a Digital Age, Fifth Edition, is a unique text. There are many good guides to the Web. This is *not* one of them. Rather, I maintain that the ideal starting place for scholarly research still is—as it always has been—the academic library. This text teaches students to use more fully and expertly the new technologies available in our "wired" libraries as well as on the Web. The research paper remains a staple of many college classes, yet most handbooks provide only a cursory explanation of the research process. This text offers a step-by-step progression that enables students to build researching and evaluative skills while introducing them to a variety of research tools. Proper documentation is fundamental to

the research project, yet few handbooks or guides provide sufficient examples of the newer forms by which information is made available. This text provides an abundance of sample entries of the types of documents students are now using in four different styles. Most importantly, *Research Strategies for a Digital Age*, Fifth Edition, is written to appeal to students and actively engage them in the research process.

New to the Fifth Edition

- Greater clarification of the continued relevance of the research project assignment in the information age
- An intensified focus on identifying and refining key word search terms
- Expanded explanations of how library discovery tools differ from Web search tools with an emphasis on using "advanced search" features and "limiters" to effectively refine searches
- A revamped Chapter 4 on Web searching that includes strategies for using Google Scholar, online subject guides, and advanced search features in Google for locating academic sources
- Additional practical guidance on plagiarism—what it is and how to avoid it
- A completely revised chapter on MLA documentation that reflects the extensive changes in the new eighth edition of the *MLA Handbook* that are illustrated with annotated screenshots
- New sample student research papers in both MLA and APA formats that are annotated to highlight important formatting features
- Revised e-TIP boxes that reflect current Web tools
- Expanded examples of documentation, including new methods of publication

If a course includes a research component, *Research Strategies for a Digital Age*, Fifth Edition, is the perfect ancillary text to help students develop research methods and skills that will serve them well (in college and beyond) and that are conducive to the "libraries" of today—whether virtual or brick and mortar.

Online Resources

MindTap® English for Tensen's *Research Strategies in a Digital Age*, Fifth Edition, engages your students to help them become better thinkers, communicators, and writers by blending your course materials with content that supports every aspect of the writing process. Interactive activities on grammar and mechanics promote application in student writing, and an easy-to-use paper management system allows for electronic submission, grading, and peer review while tracking potential plagiarism. A vast database of scholarly sources with video tutorials and examples

supports each step of the research process, and professional tutoring guides students from rough drafts to polished writing. Visual analytics track student progress and engagement with seamless integration into your campus learning management system that keeps all your course materials in one place.

Acknowledgments

I would like to thank the librarians at Augsburg College (especially Stacy Cutinella and Michael Bloomberg) for being available at any moment to answer my questions about library discovery tools. Special thanks to Katie Bishop and also my colleagues at Glendale Community College (Chris, Amanda, Beth, Holly, Mary, and Coop) who have been so supportive and encouraging of my work. Special thanks to my editor Kathy Sands-Boehmer, who very patiently guided me through the revision process. I appreciate all of the people at Cengage Learning who made this edition possible, especially Michael Lepera and Marissa Falco. Thanks also to our reviewers: Sherry Cisler, Arizona State University; Robert Faivre, SUNY Adirondack; Christine Grimes, Jefferson County College; Nancy Lee-Jones Endicott College; Sarah Lock, Weatherfield College; Ilka Luyt, Jefferson County College; Anna Maheshwari, Schoolcraft College; Nick Mauriello, University of North Alabama; Jimdene Murphey, Wharton County Junior College; Eleni Siatra, Indiana University East; and Carl Waluconis, Seattle Central College. Thanks, too, to the "Sunday Supper" gang (Nancy Barber, John Pearson, Andy Dehnart, David Ho, and Nick Gissal) as well as Jane and Gary Bolding for staying close despite the miles and for easing the stresses of life. Finally, I really can't find the words to thank my partner Karen Kaivola for the incredible influence she has had on my life—and writing (but, when I do, I'm sure she'll help me edit them for greater clarity and impact).

1

GET OFF TO A GOOD START

"The beginning is the most important part of the work."

PLATO, *Republic*

CHAPTER OBJECTIVES

Students will be able to

- ☐ differentiate between a report and a research project
- ☐ employ brainstorming strategies to discover a research topic
- ☐ analyze the requirements of the research assignment
- ☐ distinguish focused research topics from broad assertions
- ☐ create a thesis statement that summarizes their research project/argument

MindTap®

Understand the goals of the chapter and complete a warm-up activity.

Read, highlight, and take notes online.

Perhaps no college assignment is more difficult than the research paper. After all, for most course projects, your instructor provides the "raw materials" (class readings, lectures, demonstrations, and instructions) you need to successfully complete the assignment. But the research paper requires you to strike out on your own: you must determine the topic (sometimes with little or no guidance), develop an approach that works for you, and base your claims and analysis on reliable information. Finally, after having expended much effort on these invisible but essential "behind-the-scenes" tasks, you must present your findings—accurately, cleverly, persuasively, and intelligently—in an essay. No wonder so many students find the research project daunting!

Why Write a Research Paper?

The most obvious answer to that question is that you've been assigned to write a research paper. Otherwise, I doubt you'd be planning to write one or reading this book. However, many students don't

understand what a research paper is, what skills it asks them to demonstrate, or why professors seem so intent on making them write one. Today, when technology has made information so readily available, it might seem that the research paper is a curricular dinosaur. If you want to know something, simply Google your question, and in less than a second you'll have your answer. So why would a professor require you to spend hours gathering information and writing it down when answers are so readily available?

The confusion is the result of a faulty understanding of what a research paper actually is. Many students confuse a research paper with a report (perhaps because many of the writing assignments involving research they've been required to do in kindergarten through high school *were* reports). If your experience was at all like mine, in third (and fourth, fifth, sixth, etc.) grade, you were asked to read a novel and then summarize the plot in a book report. In ninth-grade earth science, you had to do a report on the earthworm (or some other creature), so you read and summarized what the encyclopedia and some library books had to say about this organism. Perhaps, unlike me and others of my generation, you did all of your research online. While these early writing projects did involve research, they were not (for the most part) the types of essays your college professors are now expecting you to produce. Reports simply recycle information, but they don't make a claim, assess the quality of the available evidence, or take an informed position on an issue. You are being asked to do all of these things in a research paper.

Perhaps the difference between a report and a research paper can be clarified with an analogy from the music industry. A "mashup" is a recording made by blending two or more songs into one. While there are numerous variations and permutations, in its most basic form, a mashup simply combines multiple preexisting songs into one. It might be argued that the best mashups are inventive (choosing to merge either pleasingly complementary or startlingly different songs) and that some musical skill is required to create smooth transitions. Yet there is little that is original in a mashup. In fact, the success of the recording is fully dependent on the listener clearly identifying the preexisting songs.

Writing a report about a topic is like making a mashup. You compile what other people have written and then "report" it back in an essay. Reports are summaries of the ideas of others. While you compile that information and certainly learn about the topic and about writing as you do so, you are not usually composing an original argument of your own. You're not asked or expected to reach that level of authority or mastery. Reports frequently contain large blocks of direct quotation, and there may be very little of you, the writer, involved. Reports are like mashups: they are your arrangements of what others have said about a topic.

A research paper is—or should be—different than a report. To return to the music industry analogy, writing a research paper is more like a "remix" than a mashup. When recording artists sample songs in a remix, they take a portion (or sometimes all) of a previously recorded song and, using it like a "voice" or an instrument, compose a new song around it. An example of this is the "Amen Break," a frequently sampled 5.2-second drum solo excerpt from a 1969 recording by the Winstons. This four-measure drumbeat has been incorporated into songs from many genres: hip-hop, hard-core techno, ragga jungle, rock and roll, and even corporate commercials. Unlike the mashup, which is simply a merger of preexisting songs, remixing creates an original composition, reinterpreting and recontextualizing the original recordings into something quite different and new. Obviously, incorporating elements of others' songs into a new, imaginative composition requires more advanced skills. Not everyone who can create a mashup is able to remix and produce a new song.

If writing a report is like mashing, then writing a research paper is like remixing to create a song. You need to generate a research question (your own personal perspective on an issue) and then conduct research that will help you answer that question. You "sample" selected information discovered in the course of your research and incorporate it into your own original composition. In the music industry, remixing has generated major legal battles because there is no means of clearly acknowledging or attributing sampled sources. In writing, though, there are established methods of documentation that enable you to clearly distinguish between your work and the work of others and give proper attribution to your sources. (These methods are discussed in Parts 3 and 4 of this book.)

Because the research paper is such an individual project, one of the most important decisions you'll make is choosing and fine-tuning your topic. Selecting a feasible, researchable, interesting topic and locating credible, relevant sources to support your points convincingly are challenging and time-consuming steps in the process, but both are absolutely essential. Because the final written or oral presentation is often the only graded part of the process, some students (foolishly) minimize the amount of effort they expend at the beginning of the process. However, if you have ever tried to write a detailed, informative, and well-supported essay without first focusing and thoroughly researching your topic—without really *knowing* what's important about that topic—you are already well aware of this. You know from your own experience how difficult it is to sustain anything resembling an intelligent discussion beyond the first paragraph or two. Fortunately, there are tried-and-true methods that can help you get started. This chapter offers strategies for developing a topic that is interesting and researchable. Later chapters talk about how to develop an argument or analysis of that topic that is convincing and persuasive.

Step 1: Choose a Topic

Choose a Topic You Care About. I frequently tell my students that the key to good writing is to write about something you care about. However, in a general requirement class—a class that is mandated rather than freely chosen—coming up with a topic that will sustain your interest (let alone your passion) for the duration of the project isn't easy. It requires careful thought.

Some research projects have built-in parameters regarding both topic and method. Projects for a class in a specific discipline (e.g., environmental science, astronomy, sociology, psychology, or humanities) will be about some aspect of the subject of the course itself. Even if the professor doesn't assign a particular topic, the readings and materials of the class will help you determine what you might want to learn more about. The situation in a first-year English composition class is different and often more challenging, at least in terms of developing a good topic. In such courses, often the only requirement for topics is that the subject must be both researchable (you must be able to access sources that address it) and debatable (it must be open to discussion and dispute). The work of figuring out what exactly to write about is frequently left entirely up to you.

A common mistake that many students make when faced with such an open assignment is choosing a topic too quickly without a careful or honest exploration of their real interests. They choose either something currently in the news, something they think a college paper *should* address, or something they know other students are writing about. Such papers rarely demonstrate a writer's best thinking or writing.

In my English I composition class, I purposely make many of the most controversial topics (e.g., abortion, euthanasia, gay marriage, capital punishment, cloning, gun control, and stem cell research) off limits. Whether or not your instructor does the same, I encourage caution when choosing these topics. These are subjects that have been argued intensely in our society, often in polarizing ways, and they are still far from being resolved. Given the restrictions of most undergraduate research assignments (which generally require papers between 8 and 12 pages), a student would be hard pressed to mount a convincing case (and by this I mean an argument capable of persuading a reader to seriously reconsider his or her views on the subject) about such potentially divisive and emotional topics. (You should always assume that your readers are educated people, many of whom will not automatically agree with your views or assumptions and who will therefore need to be persuaded by careful, reasoned argument rather than by emotional appeal or unsupported claims. When you know your readers share the same assumptions, the situation is different. In college, you cannot assume that will be the case.) It is foolish to take on a project that is doomed from the start—and that is exactly what an argument that can never persuade is: doomed. Furthermore, it is all too easy to fall into "groupthink" when dealing with such controversial subjects. Rather than encouraging you to acquire information that will enable you to formulate your own unique perspective on the issue, such research papers on these often-argued

topics tend to rehearse established opinions. Instead of offering a unique perspective, they simply offer the "party line," whether from the conservative or liberal point of view, avoiding the hard work of original analysis.

Finally, most students who quickly choose one of these topics do not really feel a compelling need to learn more about it. They already know what they think—or at least they *think* they do. Thus, in the end, their papers are simply reiterations of what others have written before (or, worse, what they've heard on biased radio or TV talk shows or read on unsanctioned "news" blogs) rather than a sustained interrogation of the issue that leads to fresh insights. Frequently, they don't really *care* about the project (other than completing it for a grade), and their writing suffers as a result.

Discover a Topic You Want to Know More About

Research is all about finding answers to an intriguing question or set of questions. A few years ago, one of my students wrote one of the worst research papers I have ever received. It argued that 18-year-olds should be granted the legal right to drink alcohol. The subject itself is a worthy one (over the years, I have received numerous convincing essays that argued this same point), but this particular essay offered no factual evidence or justification, and it was composed entirely of unsupported and illogical conjecture. As I discussed these problems with the student, it became apparent that he had absolutely no personal investment in the topic (he had chosen it because he thought *I* would find it interesting). But it's virtually impossible to make a reader take an interest in a topic if you don't care about it yourself. Even if readers are intrigued before they start reading your essay, they will soon become indifferent if your writing does not express any personal enthusiasm. I don't usually allow students to abandon their research projects in the middle of the semester, but I made an exception in this case. In the end, the student produced a meticulously researched essay on methods for conserving the lobster population. His family is in the lobstering business, and the diminishing crustacean population is a real threat to their livelihood. Once he discovered a topic he truly cared about, this student's research skills blossomed.

Therefore, your first challenge is to discover a topic that captivates your attention—something that you are curious about—perhaps something that you have some personal connection to (as was the case with my student who wrote about lobsters). Determining what this might be is not always easy, but here is one strategy: start by making a list of things in your own ordinary experience that "tick you off." Frustration is a strong emotion that can be redirected into more productive channels; you can use it to energize your desire to know more about something. Of course, not everything on your list will prove to be an appropriate or effective topic for an academic paper. That's okay. The point of the exercise is to free yourself up to generate ideas. However, with a little more creative/analytical thought, it is surprising how many times at least one of these annoyances can be transformed into an interesting, engaging, and researchable project.

One time, when I used this exercise in a class, a student listed as one of her pet peeves the fact that movie theaters charge $3.50 or more for a 12-ounce bottle of water. In revisiting her list, she initially dismissed movie theater snack prices as an unpromising topic for a research paper. But then she started thinking about the topic from a slightly different angle. *Why* was she willing to pay for something that is free at the theater drinking fountain? The student was a confirmed bottled water drinker, convinced that it was somehow healthier, but suddenly she found herself questioning things that she had never considered before. Where does bottled water come from? What is in bottled water? Is it healthier than tap water? Are there any significant differences between brands of bottled water? In this way, an idea that seemed a dead end at first triggered a project examining the nature of bottled water—a study that shattered many of her initial assumptions.

Because coming up with a good topic is often a real challenge, some students are most comfortable when instructors assign a specific subject to be researched. They are terrified if they must choose their own. Others chafe at any restrictions and want to determine their own direction. Whichever group you fall into—whether you prefer more structure or greater freedom—the success of your project depends on your active involvement and interest. A research project is hard work, and it is even more difficult if you don't care about your topic from the start. Regardless of whether the topic is assigned or you have the freedom to choose your own, make your research project relevant to *you*.

QUICK CHECK

Make Your Project Relevant

Make your project relevant by answering these questions:

- How does this topic relate to past/present concerns in my life?
- How does this subject relate to issues I have recently been studying or thinking about?
- How might this subject be important to me in the future?
- How can I use this subject to explore something that I want to know more about?

Needless to say, if you are not invested in the topic, you will find it difficult to sustain an attitude that will energize and encourage you throughout the process. That lack of passionate involvement also will be obvious to your readers, who will, in turn, feel less interest than they otherwise would. Even if a research assignment seems mind-numbingly boring, you can find a way to transform it into a subject you care about.

Adapt Topics to Your Own Interests

Even assigned subjects often allow flexibility so you can adapt them to reflect your own particular interests. And although you might feel more comfortable when your instructor specifies the topic, you should never forfeit the opportunity to explore an issue that you are genuinely interested in knowing more

about. The trick is to find an angle or perspective that makes the topic come alive for *you*.

If the subject is assigned, try to shape your approach so it reflects something that appeals to you, intrigues you, or even annoys you. You should at least experience a spark of curiosity. You should *want* to know more. Ideally, you'll feel much more than a spark of interest, and you'll discover that the assignment provides an opportunity for you to learn more about the world, yourself, other people, and/or other cultures. Coming up with your own angle on a topic is simply a matter of learning how to ask good questions—and, of course, of knowing yourself.

Turn a "Boring" Topic into an Interesting One

Suppose your instructor assigns a research project on "The Influence of Technology in Society." Your first reaction might be to feel overwhelmed. After all, technology influences almost every aspect of our society, so how could anyone write an essay that would provide a definitive overview of these effects? However, that response reveals a lingering misunderstanding of the difference between a report and a research paper. In assigning this topic, your instructor does not expect that you will write a report on *all* of the ways that our society is influenced by *every type* of technological advance. Instead, your professor has purposely chosen a broad topic so that students will have the freedom to discover a specific research question that relates to their own interests. The instructor's intent (and your goal) is to isolate a specific aspect of technology that interests you, to reflect on the effects it has had on society, and to assess the existing evidence on its influence.

If you are majoring in the biological sciences or pursuing a career in a medical field, for instance, you might investigate the advantages and disadvantages of a specific technology used in the treatment of some disease. Someone interested in film studies might consider how technology has influenced how movies are made. A student training for a career in law enforcement might investigate how technology is being used to protect the public (and any legal ramifications involved). A business major might research the impact e-mail has had on work productivity and weigh the influence this has on the personal lives of employees. It all comes back to knowing yourself and making connections that initially might not seem obvious.

Stumped? Ask Others. Sometimes answers to questions such as the ones listed earlier might come with virtually no conscious effort on your part. When that happens, the experience can seem almost magical. More often, especially for novice writers, your thinking will seem blocked. You might sit at the computer for hours without accomplishing anything that feels like real progress. That is a perfectly normal—if not particularly pleasant—experience. After all, a research project involves multiple tasks, each of which is complex and only some of which are tangible features of the final product. In the inevitable moments of frustration—moments common to experienced writers as well as novices—it helps to remember

that good thinking rarely occurs in a vacuum. If you can't come up with a good topic on your own, seek aid elsewhere.

Help can come in various forms. One option is to discuss the project with others:

- Make an appointment with your instructor. Explore your interests in conversation and ask for suggestions.
- Discuss the project with an instructor who teaches in your major or minor.
- Talk to other students in the class. After all, they are familiar with the assignment and will probably be eager to bounce ideas off you as well.
- Explain the assignment to friends and family members. Perhaps they can suggest a particular angle on the topic that combines your interests with the assignment.

Talking to someone or writing down your thoughts is a great way to move beyond a mental block. Forcing yourself to articulate your thoughts, even if you still feel confused, can lead to unexpected connections and even surprising breakthroughs.

e-TIPS

USING E-MAIL TO GENERATE IDEAS

E-mail is a wonderful way to solicit opinions from others. Some people find it easier to write down their questions than to communicate them face-to-face. Also, you might forget a suggestion you hear, but an e-mail response can be printed out. Many instructors include their e-mail addresses on course syllabi. If so, you should feel free to contact them. Exchange e-mail addresses with other students in your class. E-mail is also an easy way to connect with people (e.g., family members, friends from home, and former teachers) who might be able to offer suggestions as well.

Still Stumped? Browse. If you've tried all the preceding strategies and still haven't settled on a topic that seems interesting enough, try a search on Wikipedia. The information you find probably proves too general to include in your final project, but the entries can help you discover an angle on a topic in order to personalize a research assignment. Like most professors, I do *not* advocate the use of Wikipedia as a resource for a research paper. (In Chapter 3, I discuss why this site doesn't qualify as a credible and relevant source for an academic project.) Nevertheless, like many of you, I use Wikipedia as a quick reference when I need a short, easy-to-read summary of a topic. So at this point in your project, Wikipedia could provide a useful overview of your subject. You will do more extensive research once you determine what your topic will be, but sometimes a Wikipedia article on a general topic can spark an idea or help you make connections that would not have occurred to you otherwise.

e-TIPS

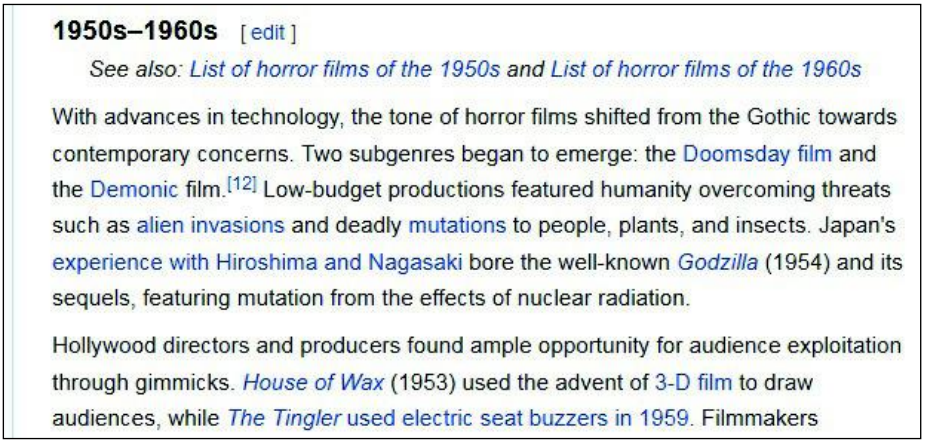
ONLINE ENCYCLOPEDIAS

Feel free to use Wikipedia <http://www .wikipedia.org> to generate ideas; however, because additions and edits can be made by *anyone*, it cannot be considered an authoritative source, and it should *not* be used as a reference in an academic research paper.

For instance, the entry titled "Horror Film" in Wikipedia traces the history of this genre. It mentions how advances in technology during the 1950s and 1960s influenced both subject matter (e.g., atomic doomsday and space alien plots) as well as production values (e.g., 3-D and electric buzzer effects) in horror movies (see Figure 1.1). A film student could select one of these innovations and research its influence more completely.

Using an online encyclopedia enables you to conduct a search that combines the assigned topic with a more personal concern to generate a possible research topic and potential resources for further study. At this stage, you're not really looking for sources, although you might take a few minutes to bookmark or print them out for later use, but most important, you're looking for ideas. Time used to develop your ideas is always time well spent.

Another source for new ideas is a large daily newspaper, such as the *New York Times*, the *Washington Post*, the *Wall Street Journal*, or the *Chicago Tribune*. Newspapers, because they are published daily and reflect issues of contemporary concern, provide an almost endless supply of topics that are currently of interest and/or under debate. Use your library's online databases (these are discussed more fully in Chapter 3) to locate newspaper articles pertinent to your interests.



1950s–1960s [edit]

See also: List of horror films of the 1950s and List of horror films of the 1960s

With advances in technology, the tone of horror films shifted from the Gothic towards contemporary concerns. Two subgenres began to emerge: the Doomsday film and the Demonic film.[12] Low-budget productions featured humanity overcoming threats such as alien invasions and deadly mutations to people, plants, and insects. Japan's experience with Hiroshima and Nagasaki bore the well-known *Godzilla* (1954) and its sequels, featuring mutation from the effects of nuclear radiation.

Hollywood directors and producers found ample opportunity for audience exploitation through gimmicks. *House of Wax* (1953) used the advent of 3-D film to draw audiences, while *The Tingler* used electric seat buzzers in 1959. Filmmakers

FIGURE 1.1 This Wikipedia article makes a connection between advances in technology and the subject matter and production methods of horror films.

Source: https://en.wikipedia.org/wiki/Horror_film.

e-TIPS

ONLINE NEWSPAPERS

You can access daily newspapers online but will need a subscription to search their archives. However, the online databases available through your school library will enable you to search dozens of newspaper archives for free.

A search of current newspaper articles using the terms "technology" and "police" on the Questia database turned up an article from August 2014 about law enforcement employing face recognition software normally used to detect terrorists to apprehend more common criminals like drug dealers and prostitutes (see Figure 1.2). The article raises interesting questions about whether these tactics violate civil rights, a problem that could be interrogated more fully in a research paper.

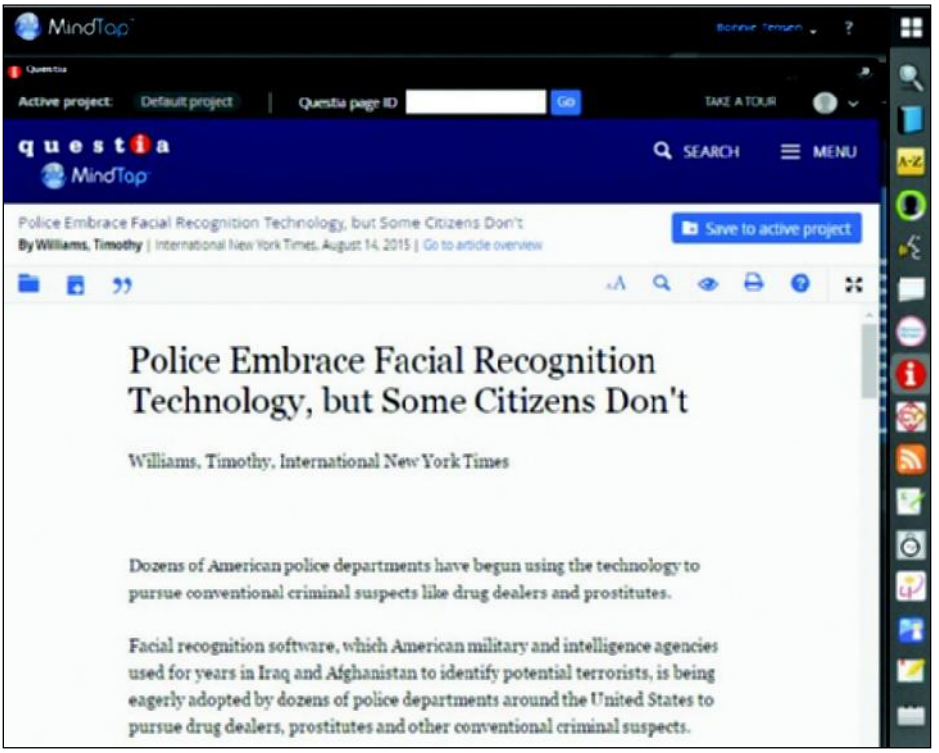


FIGURE 1.2 This article, published in the *International New York Times* (Questia) database questions the legality of using face recognition software to detect and capture criminals.

Source: Questia

Although an article like this might generate an idea for a topic, you should be aware that, like an encyclopedia entry, a newspaper article might not be the best source of information for the final research project. Journalists are not usually experts on a topic, although they rely on experts. You would eventually need to learn what experts (i.e., scholars or scientists) are saying through further research. However, these articles do supply seed ideas for a research project that merges an assigned subject (technology) with an individual interest (police work).

As I maintain throughout this text, the Web may not be the best starting point for an academic research project because of the large volume of search results and how difficult it can be to determine whether information is reliable. But if you are casting about for an idea, the Web (like an encyclopedia or current newspaper article) can help you determine a direction for your project. A simple key word search will sometimes reveal interesting viewpoints and ideas.

For example, a quick search using the key terms "technology" and "cancer research" turned up this informative website on new "nanotechnology" treatments for cancer (see Figure 1.3). The site is maintained by a cancer research center affiliated with the Massachusetts Institute of Technology (MIT), and it describes treatments that are on the cutting edge of medical research.

FIGURE 1.3 This website offers an easily understandable introduction to a cutting-edge form of cancer treatment. It is a good starting point for choosing a topic, although it may not be comprehensive enough to be used in the actual research paper.

Source: David H. Koch Institute for Integrative Cancer Research at MIT.

If you choose to use the Web at this stage, remember you are just *browsing* to find a topic. You will need to focus your topic more fully before you can begin to research in earnest.

QUICK CHECK

Discover a Topic

Discover a topic you want to know more about.

- Discuss the project with your instructor, other students, family, and/or friends.
- Browse encyclopedias, newspapers, or the Web.
- Consider topics or issues you've encountered in other classes.

Choose a Worthwhile Topic

In addition to being relevant to you personally, an academic research project must fulfill the expectations of your instructor and conform to established practices in a particular discipline. The best topics invite discussion or debate and don't just recycle popular opinion (which may or may not be knowledgeable or informed) or regurgitate facts. You should choose a topic that will involve you in an interesting quest for knowledge and understanding rather than a simple fact-finding mission. Your research project should be stimulating for the reader as well as the writer, and the best ones almost always ask questions about the *how* or *why* of something—not just the *what* or *where.*

Too Simple:

- What TV shows contain violence?
- What e-commerce businesses have proven successful?
- Where are the best hospitals located?

Worthwhile:

- Should television networks restrict violent programming in response to objections by religious and parental advocacy groups?
- Why have certain e-commerce businesses been successful?
- How have the best hospitals in the country achieved their superior status?

So think of the research project as an opportunity to find out something new about an issue that intrigues you. Think of it as an opportunity to help you think more complexly about important issues, events, and ideas. It might be tempting to choose a topic quickly so you can get to the "real" work of finding articles and books and writing your report. However, if you rush this initial stage of the project, you might soon become discouraged and bored. Even more important, the resulting project will not reflect your best work.

Step 2: Narrow Your Focus

Even if you choose a topic for your paper that is personally interesting, if you do not adequately narrow the subject of your research in order to make it manageable, you can sabotage the project. Students often make the mistake of keeping their topics very broad and general, reasoning that they will run out of things to say if they choose a more focused or narrow subject. The problem with this strategy is that it leads students to choose topics that would best be subjects of an entire book rather than a short paper. Successful research papers begin with a carefully delineated and focused assertion that is then methodically substantiated by specific examples, evidence, and analysis. If you begin with a broad assertion, you will be hard pressed to provide adequate (or interesting) support for all you claim. When it comes to research papers, it is generally better to say *a lot about a little* rather than *a little about a lot.*

Too Broad:

- Children should have rights in our society.

Focused:

- School locker searches are unconstitutional.
- *or* Drug testing should be banned from high school sports.
- *or* Teen curfews are undemocratic.
- *or* High school newspapers should not be censored by the administration.

Remember three important factors when determining the scope of your project.

1. *The assigned length of the project:* From the beginning, choose a topic that suits the limits of your assignment. If your instructor expects a 10-page essay, then your topic needs to be both focused and sufficiently complex. On the other hand, choose a less involved subject—or just part of one—if the assignment is only three to five pages long; otherwise, you will merely scratch the surface of your topic. Superficial treatments are never effective in academic writing. For example, in 10 to 15 pages you could create a credible argument supporting the need for laws that require children to wear helmets when bicycling. If the assigned length is three pages, you might choose to narrow your subject to a discussion of how helmets have been proven to protect children involved in bicycling accidents.
2. *The time you have to complete the project:* Any research project is time consuming. Certain topics will require even greater amounts of time. If your topic requires interviewing experts or conducting surveys and compiling results, you need to allow time for this. Regardless of the type of research you are doing, make sure you limit your topic so that you will have enough time to gather the necessary information. For instance, you might be interested in investigating the effectiveness of stalking laws. One way to make this subject more manageable would be to limit your discussion to the success rate of such laws in your own state or municipality.

3. *The resources you have at your disposal:* The Web has made it possible to obtain a great deal of information that was formerly inaccessible or available only through interlibrary loan. Nevertheless, if you choose a topic that is so current or unstudied that little information about it exists, you will not be able to find enough information to support a research paper.

QUICK CHECK

Determine Project Scope

The BEST topics are specific and focused.

- Restrict your project to a topic or task you can complete successfully.
- Determine the scope of your topic to meet
  - the assigned length of the project
  - the time you have to complete the project
  - the resources you have at your disposal

About 20 years ago, digital audio recordings (MP3s) were just beginning to surface, and little information (beyond explanations of what they are and how they operate) existed about them. A researcher would have been frustrated by the quantity and quality of the information available. However, because of ensuing ethical concerns and the incredible commercial impact this new method of recording has had on the music industry, a student who chose this topic today would find numerous sources with far-ranging opinions.

To research a topic conscientiously, you must become acquainted with a variety of perspectives on your subject. Therefore, if after extensive investigation you discover there is insufficient discussion of your subject, you must reject the topic or refocus it in a more promising direction. If you discover there is, on the other hand, an overwhelming amount of information, you must also proceed carefully: you must decide what is most important without misrepresenting or oversimplifying the subject.

Once you have chosen a topic and narrowed your focus, you are ready to begin to explore the different types of sources available (e.g., periodicals, books, Web pages, interviews, and surveys). As your familiarity with these various resources develops, you may find that you develop an individualized approach to this process—methods and tactics that work especially well for you. However, certain time-tested strategies will remain constant. These research strategies are discussed in later chapters.

SUMMARY

In this chapter, we have discussed ways to

- discover a topic that will sustain your interest for the duration of the project
- focus your topic into a statement that takes a stand on an issue
- narrow your topic to meet the scope of the assignment

MindTap®

Practice skills that you have learned in this chapter.

EXERCISES

1. People write best when they write about topics *they* consider interesting, but to choose a relevant topic, you must know yourself. To help you understand your interests, complete the following phrases as honestly and completely as you can.
   - The subject I most enjoy reading about is . . .
   - My favorite hobby or pastime is . . .
   - If I won the lottery, I would use the money to . . .
   - The type of volunteer activity I prefer is . . .
   - My favorite school subject has always been . . .
   - If I ran the world, the first thing I would change would be . . .
2. Make a list of four or five things that "tick you off." (Choose significant things that others might experience as well. For instance, your little brother or your mother-in-law might tick you off, but there is little chance that this annoyance will yield a possible paper topic.) Meet in a small group (four or five) of other classmates and share your lists. Brainstorm together about how to transform these frustrations into viable research topics.
3. Take the subjects you discovered in Exercises 1 and 2 and use the strategies discussed in this chapter to restrict your project into a focused and personally relevant research topic. Discuss this topic with your instructor, family, and friends; browse online encyclopedias, newspapers, databases, and the Web; and consider how this topic relates to what you are learning in other courses. Using this input, compose *three* focused claims that you think are potential research topics for your paper and briefly (in two to five sentences) explain why these topics are of interest to you.
4. Your professor has assigned a research paper on chemical warfare. To get an overview of this topic and begin to determine the specific focus for your project, access an online library database and enter the search phrase "chemical warfare." As you browse these resources, keep in mind the interests you identified in Exercise 1 and list two potential topics or research questions that combine your personal interests with the issue of chemical warfare.

2

SEARCHING VERSUS SURFING: LOCATING QUALITY SOURCES

"As a general rule the most successful man in life is the man who has the best information."

BENJAMIN DISRAELI

CHAPTER OBJECTIVES

Students will be able to

- ☐ recognize the merits of initiating research in the academic library
- ☐ differentiate between various types of library holdings
- ☐ formulate effective subject and key word search terms
- ☐ construct effective search statements
- ☐ refine results using faceted library search tools

MindTap®

Understand the goals of the chapter and complete a warm-up activity.

Read, highlight, and take notes online.

Although I am a bit troubled by his gendered language (Disraeli made his statement in an age less concerned with inclusiveness), for the researcher, his core sentiment still holds true. Indeed, this chapter aims to help you become a successful researcher by sharing some tips on how to acquire the best information for your research project. Given that we live in the "information age, this might not seem to be such a difficult task. After all, the Web has made an enormous amount of information available to anyone with an Internet connection. But the operative word here is *best.* Note that Disraeli didn't link success to quantity; he linked it to quality.

If you are like most people, your first instinct is to turn to Google when you want to find something out. However, it can be difficult to evaluate whether a Web page is credible (i.e., trustworthy, reliable, and

relevant). If you're shopping, your browser might alert you to untrustworthy sites, but there's no such similar tool for the novice academic researcher. As a result, the successful researcher must become adept at rejecting unreliable and/or unverifiable information in favor of that which is "best."

Here's a critically important point worth remembering: unlike the Web, your college library holdings will be current, credible, and relevant because they are already determined to be scholarly and/or reputable sources. Enhanced Web search tools, such as Google Scholar and Google Books, do retrieve articles from academic journals and books (and these tools are discussed in Chapter 4); however, a fee is usually required for full-text versions—and you may be surprised to know that most of these resources are available free of charge from your school library once you know how to access them! As you begin your search, keep in mind that *for virtually every research project you will undertake in college, the best place to begin your search is your college or university library.*

The World Wide Web: Great Source or Source of Great Confusion?

In many ways, the Web has made it easier to conduct research. The information superhighway can, with the click of a mouse, help you connect and communicate with countless potential sources. You can access library resources at other colleges and universities (see Figure 2.1); you can e-mail (or conduct an online discussion with) a noted expert on your topic; you can join a listserv comprised of others, including experts, who share an interest in your subject; and you can "surf" approximately 5 billion Web pages. However, while the Web has greatly expanded your choices for conducting research and accessing information, it has also created new problems for the novice researcher.

Three Common Problems with Web Searches

So Many Websites, So Little Time! The most common complaint students have when researching on the Web is the sheer number of "hits" they get. A search for a specific term or phrase can turn up thousands of results, and sifting through all of these options to evaluate their relevance for your particular project is a time-consuming—if not overwhelming—task. Although search engines are great for obtaining certain types of information (e.g., which cell phone plan is best suited to your needs), much of the research you will be required to do during your academic career might be too complex and nuanced for a simple search using Google or any of the other commercial search engines commonly used to surf the Web.

Irrelevant Websites. Another related problem is that your search will probably return many sites that are actually unrelated to your topic. This is because search

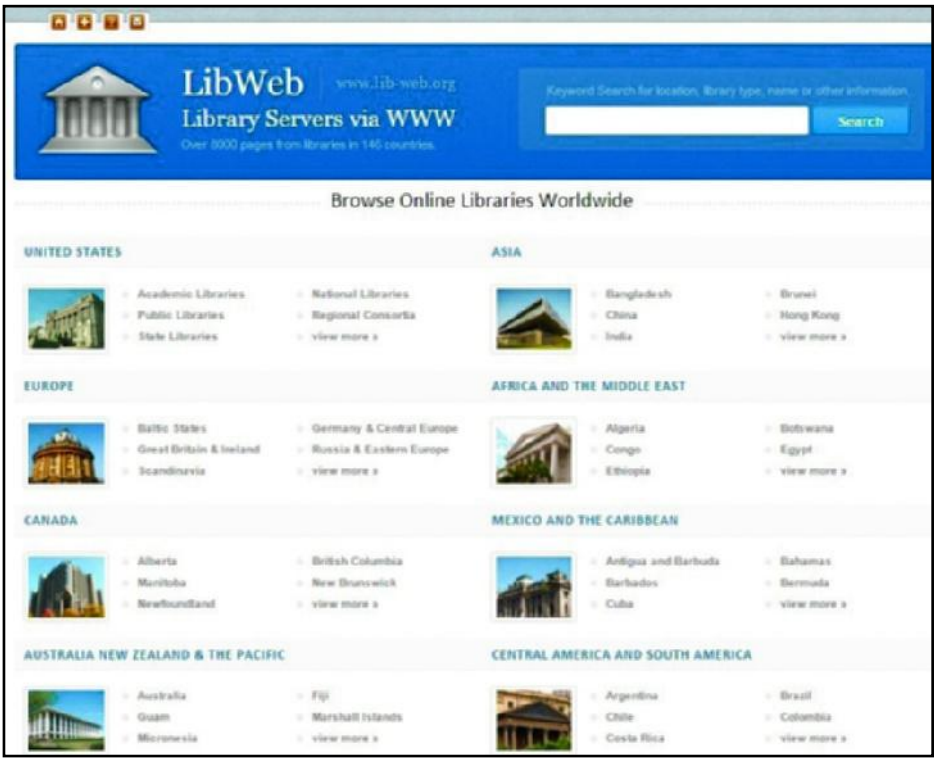


FIGURE 2.1 This website links to thousands of online library systems, including U.S. colleges and universities and public and international libraries.
Source: Lib-web.org.

engines employ "robots" that rely on word choice and frequency of word use to determine what constitutes a match but will not understand the context of your project. And because many Web editors want to increase the number of visitors to their sites for advertising purposes, they often embed invisible word lists to create false matches. As a result, if your primary way of accessing information for your project is a Web search, you will waste a great deal of time looking at irrelevant sites (see Figure 2.2).

Unreliable Websites. While the previous problems may make your Web searches frustrating and time consuming, perhaps nothing undermines the legitimacy of an academic research project more absolutely than unreliable websites. The Internet has made it possible for anyone with rudimentary computer skills and a URL to publish information accessible to a vast audience. Moreover, much of the information on the Web is designed for commercial purposes, so it is naturally biased toward one perspective: that of those who have something to sell. Prior to the growth of the Internet, when the only option was to use resources from school or public libraries, students could be assured their sources were reliable because editors of publishing

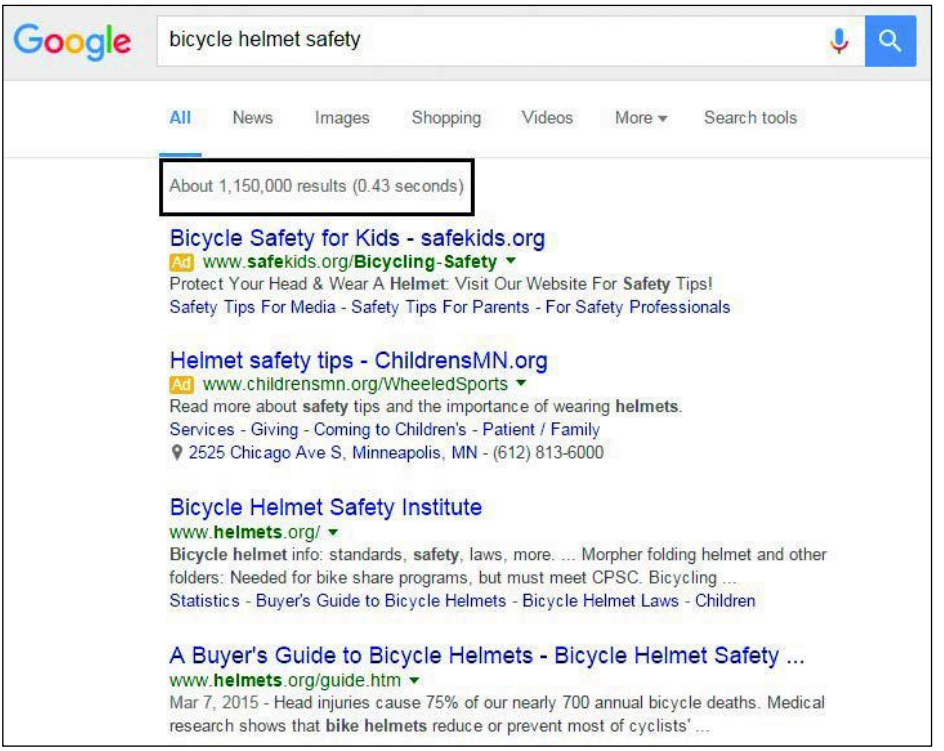


FIGURE 2.2 A simple Web search using the key words "bicycle helmet safety" resulted in over a million matches!

Source: Google

companies, experts in the field, and librarians had evaluated and deemed them legitimate. However, no such methods of control determine what is published on many Web pages. A site might seem on the surface to provide useful information, but given the open-source nature of the Web, it is up to *you* to evaluate whether the information is accurate, reliable, and a credible addition to your academic project. This is not always easy to discern, and it makes any research done on the Web particularly challenging. A strong argument must, after all, be based on trustworthy information. (Note: Strategies for evaluating sources are discussed in Chapter 3.)

The Solution: Begin Your Research in the Library

For the reasons just given—and despite the fact that you may eventually discover helpful resources on the Internet—*the library remains the best starting point* for conducting academic research. I know asking you to ignore Google when seeking answers to your research questions seems counterintuitive. The Web has infiltrated

our lives so completely that it has become a "first stop" whenever we need something (e.g., directions to a store, a phone number, or a recipe for dinner). And what could be easier than Googling a few search terms and hitting "Enter"? However, the impulse to head straight to Google when you begin your research project, although understandable, is a mistake that will keep you from effectively locating the "best" information available. You may be shaking your head in disagreement at this point. Compared to the split-second response of Google, you might think library search tools are technologically challenged and a more tedious way to find what you need. But it's worth repeating: *for virtually every research project you will undertake in college, the best place to begin your search is your school library.*

Library versus Google: Know the Differences. Web technologies have transformed our libraries, making it possible to conduct searches more quickly and access materials more easily. However, I often have students tell me they tried searching the library but gave up because they couldn't find anything useful. This is because although a library's search tool may look very similar to Web search engines (like Google, Yahoo!, or Bing), there are significant differences in how they operate. Conducting academic research in the 21st-century library requires a more sophisticated approach than the search strategies you have devised when using Google. If you are going to be successful, you must understand these distinctions and adjust your approach accordingly.

Perhaps an analogy will help clarify. I imagine almost all readers of this text know how to drive. You've learned the basics of operating a vehicle and the rules of the road. If you've had your license for a while, these skills are so engrained that you no longer consciously concentrate on the act of driving—the moves have become second nature. However, if you suddenly found yourself behind the wheel of a NASCAR stock car racing around a banked track at 180 miles per hour, you'd quickly find that although some aspects are similar (step on the gas or brake and steer), there are numerous additional skills required in order to navigate without ending up crumpled against a wall! In the same way, your library's online search tool bears similarities to Google, but it is a high-powered tool that requires the enhanced knowledge and skills discussed in this and following chapters to locate the *best* information on your topic.

The key difference to remember when using your library's online catalog (also known as a discovery tool) is that it integrates multiple search tools designed to find a range of resources. The library of the 21st century is a fusion of print and digital materials. On the one hand, it still maintains at least some traditional hard-copy holdings—books, reference works (encyclopedias, dictionaries, atlases, etc.), and periodicals (print newspapers, magazines, and journals). On the other hand, your library also subscribes to a variety of digital resources—numerous databases (each dedicated to a specific discipline or purpose) that provide access to articles (in newspapers, magazines, and journals), e-books, streamed videos, audio recordings, and more. Until recently, the typical library online catalog searched only

print materials, so students needed to conduct separate searches in each of the databases they considered pertinent to their topic. However, today's discovery tools streamline the process by integrating results from all of these different library holdings in one search.

Perhaps one way to clarify how your library's discovery tool works is to compare it to the online travel website Kayak.com, which simultaneously searches other travel sites, such as Booking.com, Travelocity.com, Expedia.com, and Priceline.com, as well as individual hotel chains. It is a "metasearch" tool that eliminates the need to conduct separate searches for each of these sites. In the same way, a search using a discovery tool will combine results from your library's print sources as well as subscription databases such as *Academic Search Premier*, *ERIC*, *JSTOR*, and many others. Discovery tools simplify things by unifying your search; however, they also make the process more complex. Because they link search methods designed for different digital tools, a library search puts extra pressure on you to generate precise search terms and be proficient in refining, interpreting, and accessing your search results.

QUICK CHECK

A Brief Comparison of Google and Discovery Tools

	Google	Discovery Tools
Authority/credibility	Unregulated. Difficult to verify. Cannot limit to peer-reviewed sources.	Trustworthiness virtually guaranteed. Easy to determine. Peer-review filters.
Number of results	Thousands, sometimes millions, of hits. Information often duplicated.	Dozens to hundreds of hits—much more manageable and can be filtered.
Relevance	Lack of context means many irrelevant hits. Information can be opinionated/biased.	Cataloged by subject. Information comes from quality-controlled sources.
Search features	No uniform method for refining results.	Advanced search features let you narrow results by peer-review status, date, subtopics, publication type, document format, and more

Formulate Effective Search Terms

Google is a very responsive, intuitive, and forgiving search engine. Enter a sentence-long query such as "How do I change the screensaver on my computer?," and you will be sure to find an answer in one of the top four or five results. Misspell a word or two ("How do I cjange the screesaver on a computer?"), and Google will figure out what you really meant. It might also suggest ways to make your search

more specific ("How do I change the screensaver on a PC?" or "How do I change the screensaver on a Mac?"). Also, Google matches your search term(s) according to frequency of word use and arranges those results by popularity. Sites visited most frequently are listed first since it makes sense that Web pages with more "hits" will provide the best answers. Like vehicles that roll off the auto assembly line, Google has been designed with the needs, wants, and limitations of the average "driver" in mind; it does a lot of the thinking for you.

On the contrary, your library's online catalog is a "turbocharged" search tool that requires some expertise to operate—but has powerful modifications to help you speedily narrow your results to those most beneficial. Discovery tools choose and list sources according to their *relevance* to the search term(s) (instead of popularity). Success or failure depends on your ability to select search terms that match the types of documents you are trying to retrieve. Even simple spelling errors can block your efforts. Therefore, you must be more meticulous than you are accustomed to when choosing your terms. The good news, however, is that, unlike the Web, library resources are classified and cataloged by subject, and there are support systems available to help you select search words and phrases that will lead you to relevant sources.

Learn the Difference between Key Word and Subject Searches. A discovery tool can search according to a key word, an author's name, the title of a work, or a subject category. Some search tools offer other options as well, but these are the main categories for which you will usually search. At the beginning of a research project, you will primarily use the *key word* or *subject* option (see Figure 2.3). Here's a useful tip: *Remember to keep a running list of possible search terms and phrases as you try, by trial and error, to find ones that match your topic.* It takes very little time to jot down a word or phrase, and it could save you much time and effort later.

Often, the term "key word" is used to refer to any search term, but there is a difference between a key word and a subject search. A key word search looks for matches in the *records* (the bibliographic information and description) of the library source. This is different from Google, where key word searches scan the entire text for a match. (Many discovery tools offer the option to search the full text of database articles and e-books for a key word, but this is rarely productive—especially at the beginning of your research. You will likely get countless matches that are irrelevant.) In a discovery tool, a regular key word search retrieves documents that include the specified word(s) in the title, brief description, or designated subject headings (see Figure 2.4). If the key word appears in the library record—the summary of the key elements of the source—chances are it will be related to your topic; therefore, a key word search is the default setting for almost all library search engines.

A subject search, on the other hand, retrieves documents that have been assigned specific subject headings (and subheadings) determined by the Library of Congress. All library print and audiovisual materials as well as many database resources are organized according to these standardized categories. Spending a few minutes at the

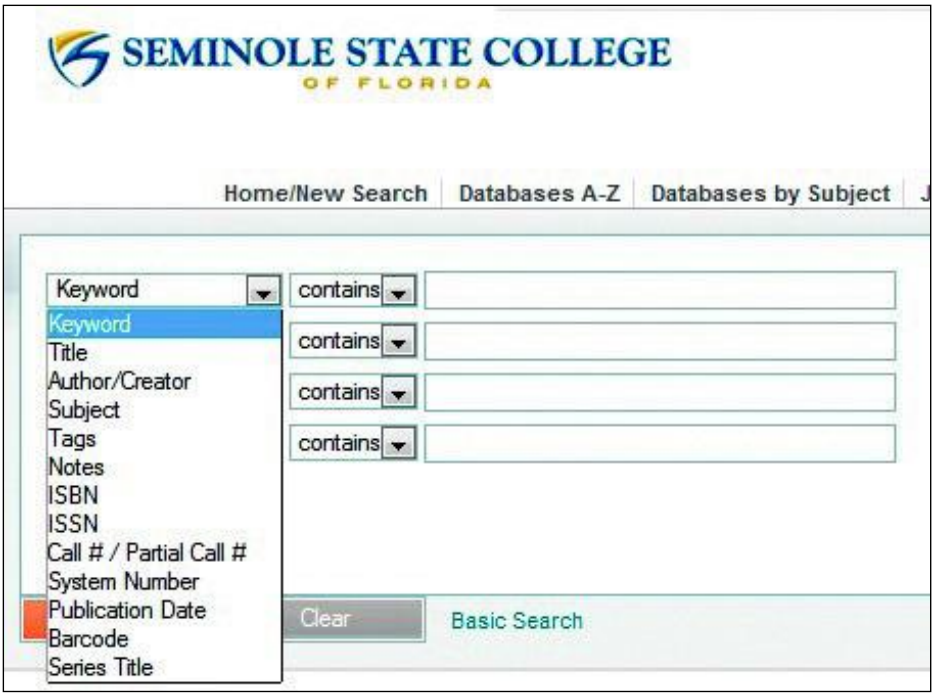


FIGURE 2.3 This discovery tool searches by key word, author, title, or subject (among other choices). The search screen for your library's catalog might appear slightly different from this, but most operate very similarly.

Source: © Copyright 1996–2006. Courtesy College Center for Library Automation (CCLA), Tallahassee, FL.

beginning of your project to review the Library of Congress classification system and locate subject headings/subheadings related to your topic can be a real timesaver.

e-TIPS

LIBRARY OF CONGRESS CLASSIFICATIONS

Your reference librarian can direct you to a list of Library of Congress subject categories, but you can also view these online. See *LC Classification Outline* at <https://www.loc.gov/catdir/cpso/lcco/>.

Determining the key terms and phrases used by academics to describe your research subject will help you identify words that will call up the best information and significantly narrow your search. An outline of Library of Congress subject headings is available online (see Figure 2.5). It can help you determine the best search terms for your topic or terms you might not have thought of on your own. There are a number of ways you can expand your list of key words. *Remember to keep a list of possible search terms and phrases as you try, by trial and error, to find the search terms that best match your topic.*

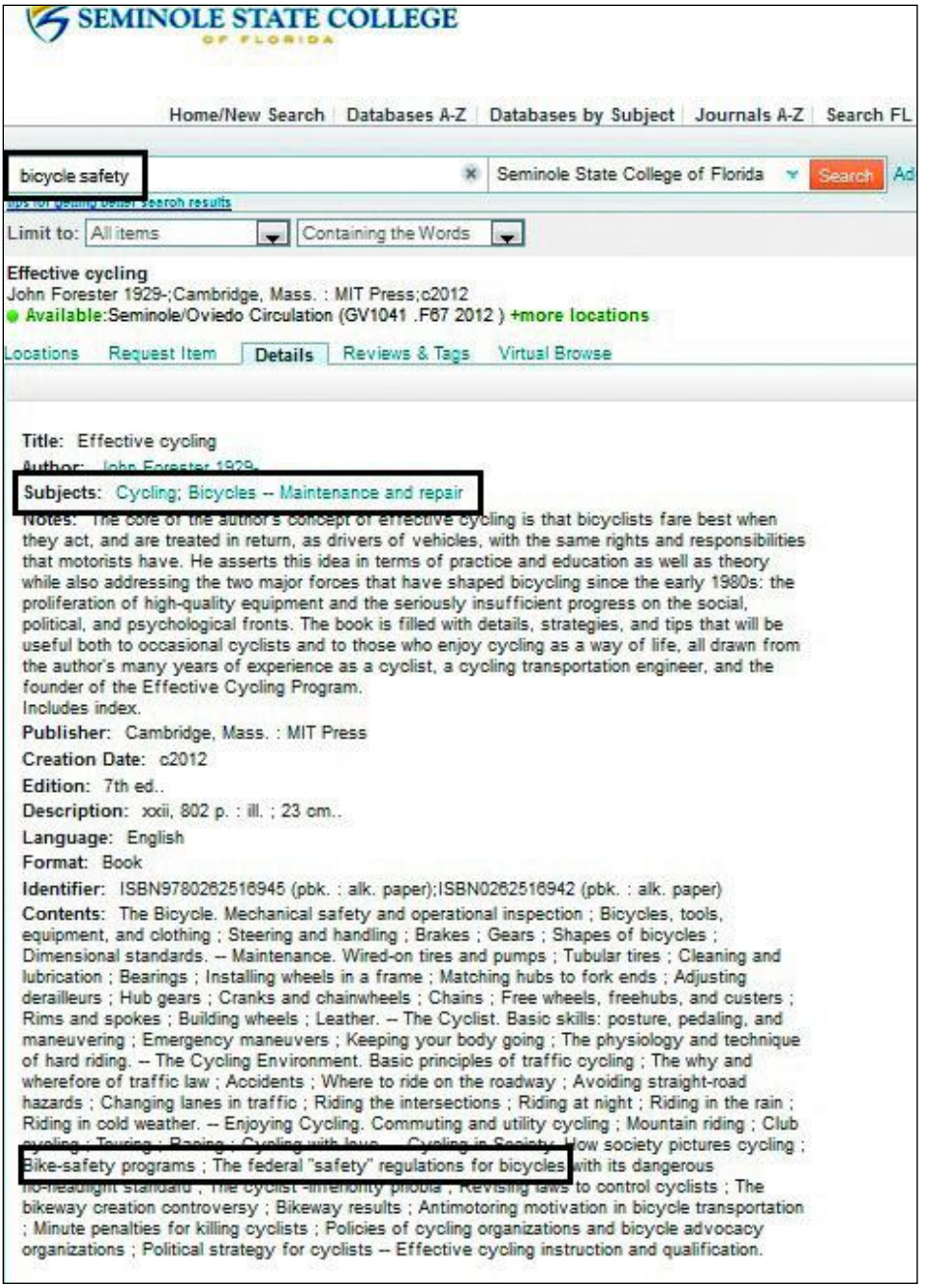


FIGURE 2.4 This book was one of the results of a search using the terms "bicycle safety." Notice these search terms appear in the library record under the subject headings and the description.
Source: © Copyright 1996–2006. Courtesy College Center for Library Automation (CCLA), Tallahassee, FL.

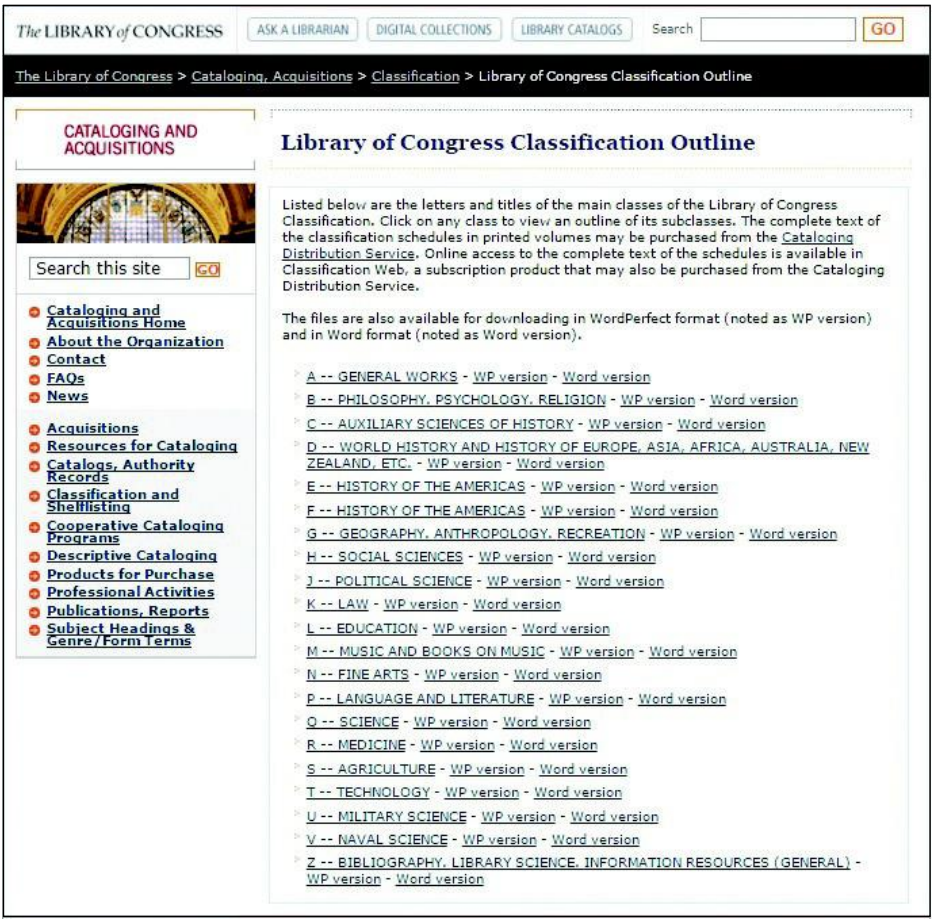


FIGURE 2.5 The very general subject categories listed in the *Library of Congress Classification Outline* hyperlink to more narrowly focused terms.

Source: Library of Congress Prints and Photographs Division.

QUICK CHECK

Key Word and Subject Searches: A Comparison

Key Word Search	*Subject Search*
Any words that *could* be used to describe your topic *can* be used (extremely flexible and broad).	The *exact* terms that describe a topic as determined by the Library of Congress or subject index must be used.
May retrieve many results that aren't relevant to your topic.	Search will fail completely if you don't locate or guess the correct search term(s).
Most useful at the beginning of a project when you don't know the exact language used by experts on your topic.	Definitely the most effective type of search if you know the exact terms because it retrieves only the most relevant documents.

Identify Synonyms, Search Phrases, and Subject Categories. You might have chosen a topic for which you can readily identify a key word. However, not all topics translate so quickly into a search term that will result in finding the information you need—and you may need to combine words into search phrases to be most effective. If, for instance, you chose to investigate how communities regulate dog and cat populations, you might try the phrase "animal control." Combining the two words within quotation marks means the discovery tool will search for those two words appearing together in that order. Although this might, at first thought, seem to be the right search phrase to use for your topic (after all, agencies responsible for catching stray dogs and cats are often called "animal control" by local governments), a search with the discovery tool using this phrase turned up documents that dealt with livestock, laboratory animals, and wild animals but nothing about controlling stray or homeless pets.

You have two choices at this point. On the one hand, you could foolishly decide that your library has no information on your topic. The better solution is to discover alternative words or phrases that relate to your subject. For instance, stray cats and dogs are frequently held in "animal shelters," and in some areas of the country these shelters are run by "humane societies."

Sometimes a dictionary or thesaurus can help you locate a successful key word. One of my students wanted to examine how U.S. colleges and universities are responding to the special problems of foreign students who choose to study here. Searches using the phrase "foreign students" resulted in no matches. After consulting a thesaurus for synonyms, she experienced success with the phrase "international students."

e-TIPS

USE A THESAURUS

Your word-processing program includes a thesaurus (in Word, look for this under the "Review" tab). You can also use an online thesaurus, such as *Thesaurus.com*.

One strategy for identifying Library of Congress subject headings connected to your topic is to conduct a general key word search, select a result that appears most relevant, and note the subject headings listed for that source. Suppose your research focuses on violence against women—more specifically, battered wives. A key word search using the phrase "battered wives" resulted in a number of matches. However, many of the results were very dated (from the 1980s and 1990s)—perhaps indicating that the phrase "battered wives" doesn't reflect the language used in current discussions of the problem. A quick look at the record for one of the results reveals the Library of Congress subject categories it has been listed under—"wife abuse," "marital violence," and "abused wives" (see Figure 2.6).

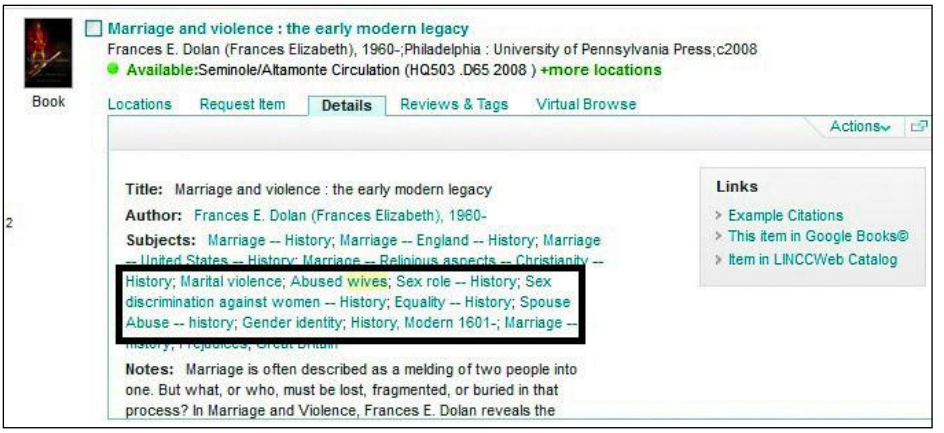


FIGURE 2.6 A search for "battered wives" located this book. Listed in the Library of Congress "Subject" headings are the terms used by librarians and academics for this topic. Clicking on a term will reveal sources that are cataloged under the same subject.

Source: © Copyright 1996–2006. Courtesy College Center for Library Automation (CCLA), Tallahassee, FL.

Clicking on the hyperlinked subject category "wife abuse" revealed a host of pertinent and up-to-date sources. Effective library research requires that you discover the language employed by experts in your topic.

QUICK CHECK

Identifying Key Words

Identify key words that match your topic.

- Locate synonyms and alternative phrases for your topic in a thesaurus.
- Discover the Library of Congress subject headings that address your topic.
- Check the record of a promising library source for additional subject headings and descriptors.

Keep a running list of all search terms and phrases because different key words will be successful in different research tools.

Boolean and Advanced Searching

I still remember the first time I was asked to conduct a *Boolean search*. The name sounds odd (and, perhaps, intimidating), but this is because the process is named for its originator—the mathematician George Boole. A Boolean search is a method of refining your quest by linking search terms with AND, OR, or NOT to better demonstrate the relationships between the words. Most research projects have a narrow focus, and Boolean phrases allow you to pinpoint the types of documents that directly address your topic.

For example, a few years ago, a student who worked in a pet store decided to investigate the federal law that forbids the sale of turtles less than four inches in size.

The law was enacted to protect consumers from the threat of salmonella poisoning. Her argument was that the law, although well meaning, was illogical. Salmonella can be spread by any number of reptiles (not just turtles), and infection is not limited to small turtles. She started her research by compiling a list of potential search terms, and the only words she could think of were "turtles," "reptiles," and "salmonella." During the planning stage of choosing and focusing her topic, the student had discovered that certain types of food poisoning also created salmonella. Therefore, she also wanted to avoid locating articles about food poisoning in her search results. Having thought through these basics, the student was now ready to begin composing a Boolean search.

Boolean searches are simple if you remember four basic rules:

1. Use the Boolean terms AND, OR, or NOT to specify the relationships between key words:
   - Use AND when you want both key words to appear in the document: **turtles AND pets**.
   - Use OR when either key word can appear in the document: **turtles OR reptiles**.
   - Use NOT to exclude unwanted terms: **salmonella NOT "food poisoning."**
2. Always capitalize the Boolean search terms (AND, OR, NOT).
3. Enclose groups of search terms in parentheses to indicate which actions should occur first: **(turtles OR reptiles) AND salmonella**.
4. Enclose multiword search terms in quotation marks: **salmonella NOT "food poisoning."**

Most library home pages feature a single search window, but if you look closely, you will see a link to an "Advanced Search" where you can select Boolean search indicators (see Figure 2.7).

e-TIPS

CONDUCT AN "ADVANCED SEARCH"

Discovery tools offer the option of conducting either a basic or an advanced search. The advanced search mode features alternatives for refining your search and limiting your results. Most advanced search modes permit you to limit your results to full-text documents, narrow your search to certain types of publications (e.g., peer-reviewed journals), and restrict the date of publication to a particular time period.

The student opted to start her search with the more simple Boolean phrase **turtles AND salmonella**. (Note that she did not enclose the search phrase in quotation marks—"turtles and salmonella"—because she wanted documents containing both words in any relation to each other rather than a specific phrase.)

FIGURE 2.7 The "Advanced Search" feature of this library catalog assists in creating a search phrase with Boolean terms in dropdown menus.

Source: © Copyright 1996–2006. Courtesy College Center for Library Automation (CCLA), Tallahassee, FL. (from Seminole State College Library)

The discovery tool search returned 326 matches, too many to look through one by one. The student might be tempted to just choose the first few results in the list and ignore the others, but this would be a mistake because they may not be the *best* (most current, credible, and relevant) information the library has to offer on her topic. Instead, discovery tools have methods for refining the results list to include only those most relevant to the project.

QUICK CHECK

A Brief Guide to Boolean Logic

Boolean AND requires all terms to be in records retrieved.

Example: turtles AND salmonella

The search should return documents that contain BOTH terms.

Boolean OR allows either term.

Example: turtles OR reptiles

The search should return documents that contain EITHER term.

Boolean NOT excludes terms.

Example: salmonella NOT "food poisoning"

The search should return documents that contain the term salmonella, but NOT the phrase "food poisoning."

Combine terms using parentheses (actions in parentheses will be performed first).

Example: (turtle OR reptile) AND (salmonella NOT "food poisoning")

The search should return documents that contain EITHER term as well as the term "salmonella" but should NOT contain the phrase "food poisoning."

Enclose multiword search phrases in quotation marks.

Example: "food poisoning"

The search should return documents that contain the words "food poisoning" (the exact phrase).

Note: Most commercial search engines automatically insert a "fuzzy and" between search terms. This means that if you do not specify using Boolean terms (capitalized) or enclosing phrases in quotation marks, your search results will include documents that include any of the terms (in any order)—thus increasing the number of results *and* the likelihood that many of those results will be insignificant to your research.

Refine Your Results Using "Limiters." Up to this point, library discovery tools may seem more bothersome to use than Google. After all, they require you to be extra thoughtful and precise when composing your search terms. However, once your search returns promising results—even though they might be overwhelming in number—the real benefits of the "turbocharged" discovery tool come into play. "Limiters" (sometimes called "facets") narrow search results by type of source, subtopics, date of publication, and availability. Unfortunately, many students are unaware of or ignore these features. They end up (to return to an earlier analogy) idling along at five miles per hour, complaining about poor performance, when at their fingertips is a powerful instrument designed to "race" through the sorting process and expose the best information.

Depending on your library system's Web page layout, limiters may appear in tabs along the top of the page or in a sidebar. They enable you to filter search results by choosing from a list of possibilities. If you have experience using a discovery tool, you may already have limited a search to full-text sources—articles or e-books that can be retrieved and read online—but there are many other options that can help you efficiently refine your results.

Consider the **turtles AND salmonella** search results (see Figure 2.8).

The very first limiter is "Show only Peer-reviewed Journals." Many instructors direct their students to use peer-reviewed sources because articles in academic and professional journals are written and reviewed by experts in a subject, making them very credible and authoritative sources. (Newspaper and magazine articles, on the other hand, are written by reporters for a nonacademic audience.) Limiting the **turtles AND salmonella** search results to only those in peer-reviewed journals more than halves the total (see Figure 2.9).

Choosing "articles" and "text resources" under the "Format" limiter (thus eliminating newspaper articles, book reviews, conference papers, and audiovisual materials) further reduces the list. Selecting only the most relevant subjects listed in the "Subject/Topic" limiter narrows the focus to results that best match the scope of the project (see Figure 2.10).

To ensure that the information is up to date, the results are limited to those published after 2010. In the end, with just a few clicks, the original list of 326 is refined to just 43 sources (see Figure 2.11). Not only is this a more manageable

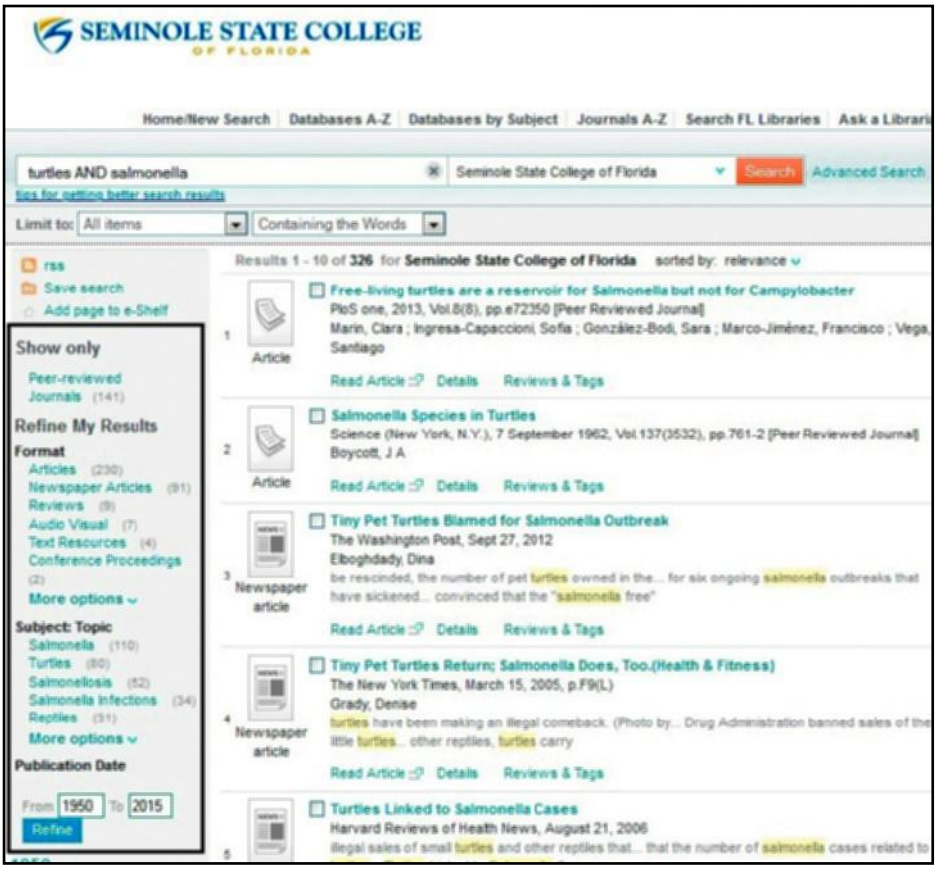


FIGURE 2.8 The "limiters" in this discovery tool are located in a sidebar on the left side of the page. Clicking on a link modifies the search results to include only the elements you have selected.

Source: © Copyright 1996–2006. Courtesy College Center for Library Automation (CCLA), Tallahassee, FL. (from Seminole State College Library)

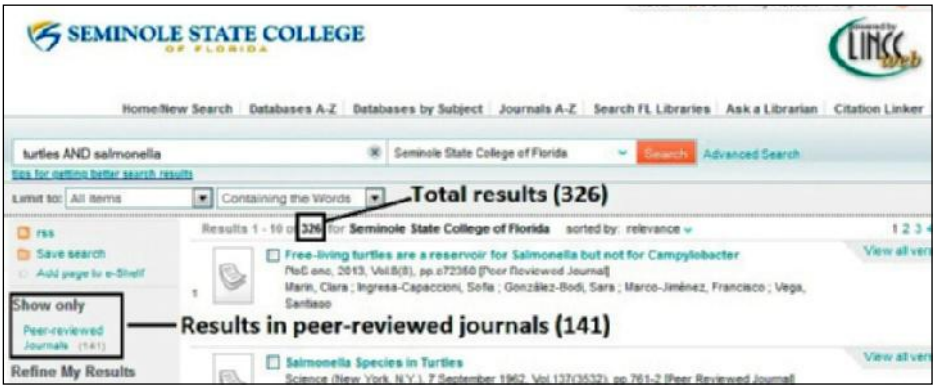


FIGURE 2.9 Limiting search results to only peer-reviewed, scholarly sources reduces the number of results by more than 50 percent.

Source: © Copyright 1996–2006. Courtesy College Center for Library Automation (CCLA), Tallahasse, FL.

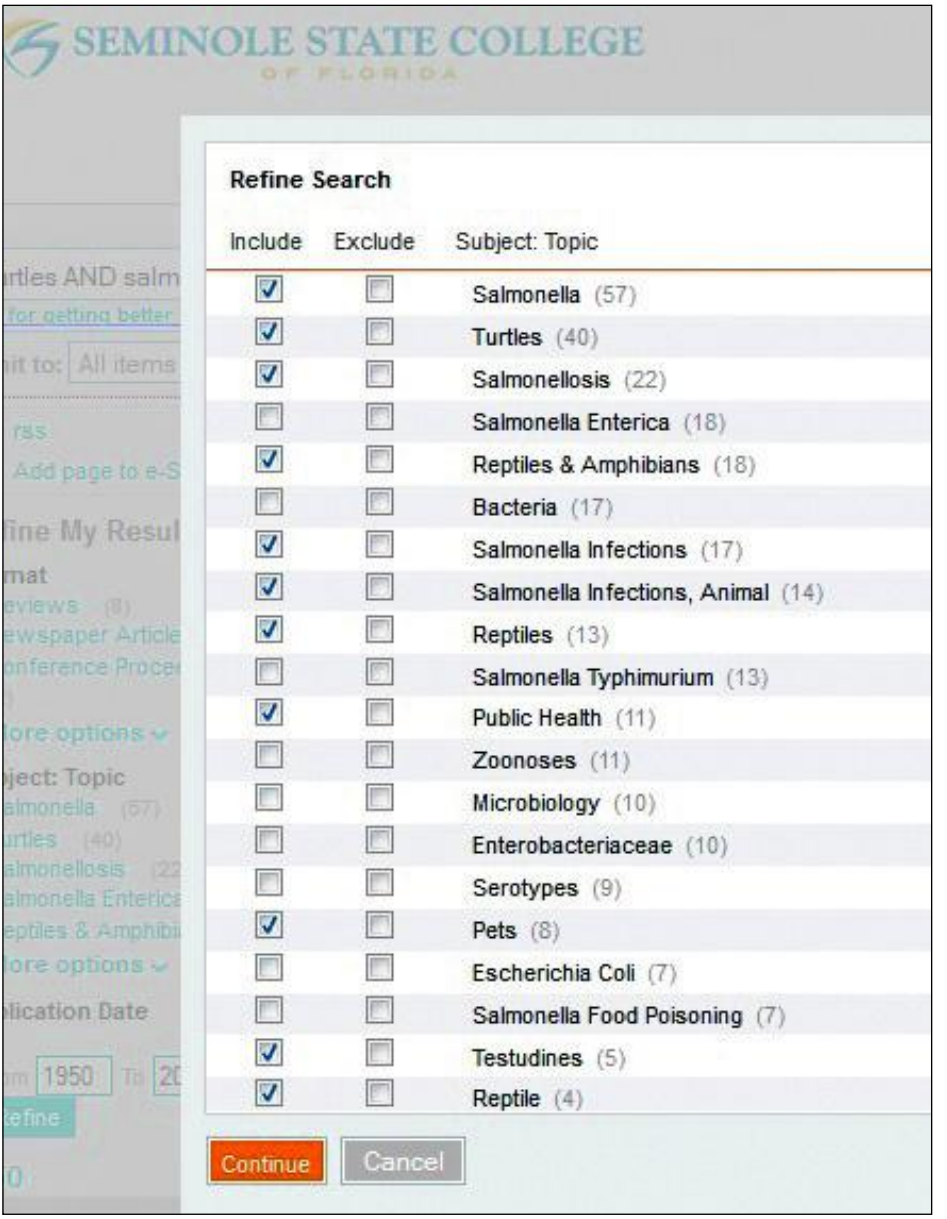


FIGURE 2.10 "Subject/Topic" limiters let you focus your results list and eliminate extraneous sources.
Source: © Copyright 1996–2006. Courtesy College Center for Library Automation (CCLA), Tallahassee, FL.

amount, but using the limiters means you can be confident that these are credible and more likely to be relevant to the project.

An online discovery tool requires more of the user than Google—greater accuracy and added participation in narrowing the focus of the search—but the benefits are worth the extra effort. You will probably feel a certain satisfaction when your

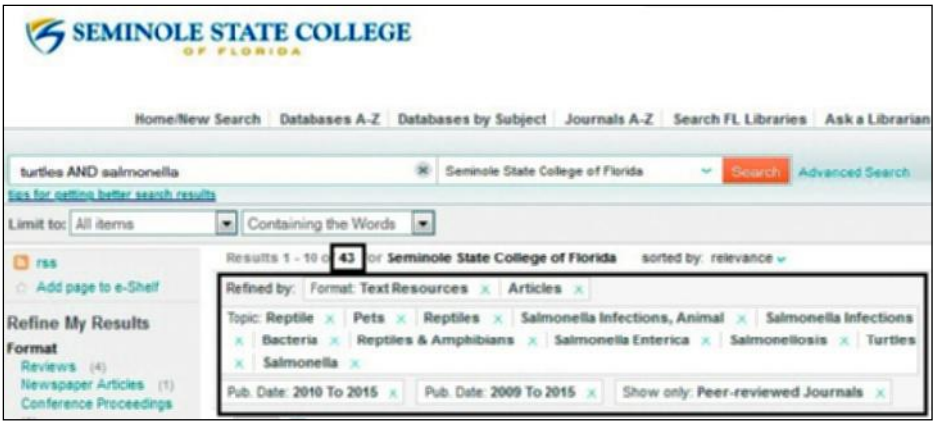


FIGURE 2.11 Limiting the initial 326 results to only peer-reviewed journal articles and books published in the past five years and cataloged according to more specific subject headings and descriptors leaves 43 highly relevant sources to review.

Source: © Copyright 1996–2006. Courtesy College Center for Library Automation (CCLA), Tallahassee, FL.

careful selection of key words and skillful use of limiters results in locating sources with the *best* information to get started on a well-documented research project. As gratifying as this can be, it is only the starting point. The next chapter discusses how to access the sources in your results list and evaluate which are best for your project.

SUMMARY

In this chapter, we have discussed

- the value of beginning your research in the academic library
- the ways discovery tools differ from Web search engines like Google
- strategies for generating effective search terms and phrases
- how limiters help refine search results

MindTap®

Practice skills that you have learned in this chapter.

EXERCISES

1. The following topics frequently are the subjects of student papers. For each of them, write as many synonyms or alternative phrases as you can discover.

   Online social networking

   College tuition/debt

   Profiling

   Antismoking laws and regulations

   Childhood obesity

   Gender discrimination

   Factory farms

   Performance-enhancing drugs in sports

2. Refer to the viable research topics you generated from the list of things that "tick you off" (Exercise 2 in Chapter 1). Work with a partner or a group of students to create a list of synonyms or alternative phrases for these topics.
3. Choose one of the topics you considered in Exercise 2 and access your school library's online catalog. Conduct a key word search using the best search term(s) you created and note the number of results. Then use the limiters (usually found in a sidebar with the heading "refine results" or "narrow results") to refine your results by date, format, subject, and so on to more closely align with your research interests. (Make sure you click on the "show more" link to see all your choices.) Write a paragraph in which you describe your process—how and why you made the choices you did and the effectiveness of your results—and include a brief bibliography of the best two sources you located using this technique.
4. Consider the "Subject" or "Topic" category limiter from the search you conducted in Exercise 3. Which subjects in that list might be potential key words for other searches? Why?

3

BECOME A RESEARCH "SUPERSLEUTH"

"Research is the act of going up alleys to see if they are blind."

PLUTARCH

CHAPTER OBJECTIVES

Students will be able to

- ☐ formulate questions for productive inquiry
- ☐ develop a research strategy that leverages digital search tool features
- ☐ evaluate sources appropriate for academic research projects

MindTap®

Understand the goals of the chapter and complete a warm-up activity.

Read, highlight, and take notes online.

As Plutarch so aptly noted, the search for relevant information requires a willingness to explore paths that may ultimately lead nowhere. This is especially likely when key words result in numerous matches; in such cases, it's very easy to feel overwhelmed by the sheer amount of information that is available on a topic. Even more frustrating are the odds that many of these seemingly promising hits will not, on further exploration, prove so promising after all. No one wants to spend hours reading a book or article only to reach the conclusion that it isn't pertinent to his or her particular project. But how do you decide early on which sources deserve a closer look and which ones can be ignored? How do you minimize the blind alleys?

The previous chapter discussed how your library's search tool can help you narrow your results to locate the best (credible, relevant, and current) information on your topic. This chapter focuses on strategies that can help you obtain and examine those results as well

as leverage them to locate additional pertinent sources. I like to compare what researchers do to how detectives work to solve a crime. When a crime is committed, detectives want to pursue only the most promising suspects. Like you, they want to avoid or at least minimize blind alleys or dead ends. Therefore, the first step in any criminal investigation is to develop the clearest and most accurate ideas about the crime, the suspect, and the motive. Expert detectives tirelessly question witnesses, comb the crime scene for clues, and assess possible motives. Taking the time to gather and evaluate evidence is time well spent; it will save valuable hours later on. Once detectives have the most accurate picture possible of the crime, the suspect, and the motive, they can limit their search to the most productive leads. In the same way, if you take time at the beginning of a project to clarify your ideas about a topic, develop a working thesis, and then transform that thesis into a series of research questions, you will be well on your way to determining the most direct route to the information you need. Even before you actually begin your "investigation," you will be able to identify whether the resources you discover are likely to be "hot tips" or merely "dead ends."

In short, it pays to know what you are looking for. Of course, in researching, as in sleuthing, sometimes the process is relatively simple and straightforward. Other times, it can be more complex, and you will need to eliminate "red herrings," or false leads, before you find information that will provide the best answers to the questions at hand. In certain cases, what initially seemed irrelevant may provide the thread that will unravel the mystery at the heart of the investigation. So you might not want to discard or dismiss anything too soon. At the same time, you'll need to avoid using flimsy or erroneous information—often the result of moving too quickly—to construct a false representation or flawed understanding of the subject. In sleuthing, that kind of error can lead to convicting the wrong person (or no conviction at all); in writing and research, it will result in a project that is fundamentally flawed because it ultimately does not establish what it sets out to prove.

Ask Questions

Most detectives begin their investigations by asking questions that will lead them to the perpetrator of the crime: Was anyone seen at or near the scene of the attack? Who would have benefited from the victim's death? Who knew or had access to where the jewelry was stored? You should do likewise and compose questions that identify what kind of information you need and where you might locate it. What do you need to know before you can make a convincing claim? Which sources are reliable, accurate, and trustworthy? Using these questions to establish an accurate profile early in your investigation will transform your project from a "find a needle in the haystack" experience to a successful "pursuit and capture" of the information you require.

QUICK CHECK

Do *Effective* Research

- Transform your research topic into a series of research questions.
- Use research questions to identify new key words and search phrases.
- Determine what type of information you need to locate.
- Remember that one good source can lead you to another.

What Are You Looking For?

Because all investigations involve locating information that will provide answers to questions, a good way to begin is by transforming your topic or thesis from a statement or assertion into a series of questions. To help you gain this focus, start by asking yourself, "What do I need to know to prove my point?" For example, suppose (like Scott, one of my former students) that you are interested in examining the ways federal financial aid programs favor traditional over nontraditional students. Scott had left a job with a good salary to return to school; however, he was shocked to discover that his previous income made him ineligible for financial aid even though, as a full-time student, he was no longer employed. His experience led him to suspect that the financial aid system gives preference to students who are entering college directly from high school. But how could he be sure? Scott's first search used the key word phrase "student aid" and produced 43,599 hits! The first adjustment Scott made was to enclose his original search terms in quotation marks (to indicate that he was searching for the phrase "student aid" and not just those two words in any order or location). Just doing that lowered the number of results to 2,861 (see Figure 3.1). However, after a quick glance at the first 15 of these results, Scott realized his search was still too broad. None of the sources appeared to address his concerns regarding the disparity in how student aid was issued.

At this point, Scott realized he needed to determine more exactly what information he needed to support his theory. He composed a list of research questions that included the following:

- What are the criteria for financial aid?
- Why do these criteria exist?
- What is a "traditional" student?
- What is a "nontraditional" student?
- In what ways do the financial needs of traditional and nontraditional students differ?
- What assumptions are made by colleges, universities, and financial aid agencies about nontraditional students' needs?

Although he might have been able to give tentative answers to many of these questions before conducting any research, in order to construct a persuasive

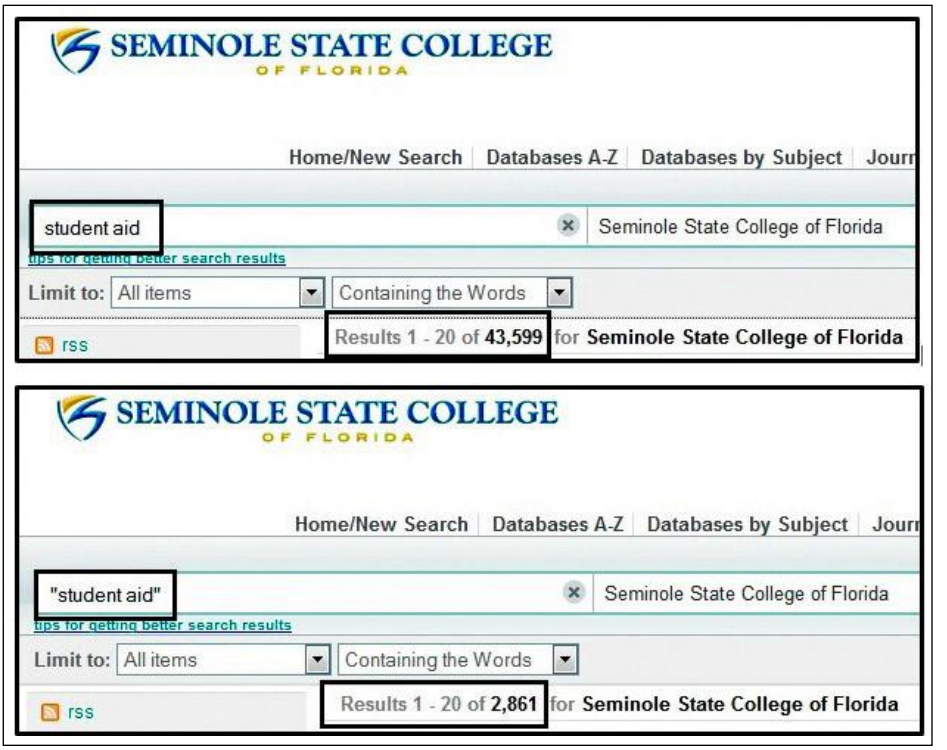


FIGURE 3.1 Enclosing the search phrase in quotation marks reduced the number of hits by over 40,000!
Source: Seminole State College of Florida.

argument, Scott knew he needed to locate sources that would give him up-to-date information generated by people who had facts to back up their claims. By rephrasing his thesis into a series of questions, his research became *effective*. By this, I mean he better understood what he was looking for and, in turn, could now recognize whether information was relevant. As you compose your questions, keep in mind that, like any good detective, the best researchers and writers are willing to change their minds if confronted with new information. Your strategies might shift or change if you discover new questions you need to answer in order to address your subject more fully or successfully. Just as in a criminal investigation, you may even find that the evidence requires modifying your initial thesis.

For example, these research questions helped Scott realize he was most interested in a more specific issue than just "student aid." His project focused on the distribution of financial aid for a particular *kind* of student. The complexity of Scott's search meant that he needed to employ a better strategy to locate information. This is often the case with academic research, and it is another reason why the library is such a good starting place. Library search tools are designed to help you construct multifaceted search phrases (using the "advanced search" feature) and quickly refine results.

FIGURE 3.2 A Boolean search for the phrase **"student aid" AND adult** limited the results to 88 hits, which were then narrowed further using date and format limiters.

Source: Seminole State College of Florida.

Scott next tried a Boolean search with the phrase **"student aid" AND "nontraditional student."** He got very few results, and they seemed off topic. Undaunted, he tried to think of synonyms for the type of student he considered "nontraditional." Scott's subsequent search using the Boolean phrase **"student aid" AND adult** produced 88 results (see Figure 3.2). Using the discovery tool's limiters (see the previous chapter for more on this), Scott refined his list to approximately 20 good "leads."

Launch the Investigation

If you enjoy detective fiction (like I do), you are familiar with the turning point in the story when connections between seemingly unrelated facts and events are made, suspects are identified, and the investigation shifts into high gear as detectives pursue the villain. When Scott realized how quickly he had (with the help of the discovery tool) narrowed his results from an overwhelming 43,599 to just 20, he was energized to begin tracking down, interrogating, and evaluating how these "suspects" might supply answers to the questions he had raised.

Because the library is comprised of both print and digital resources, Scott's results were a mix of print books and digital texts available through databases. Library databases are collections of journal articles (often articles that have appeared in print and are also made available digitally) and e-books. University libraries pay fees to subscribe to databases, so usually a password is required for access. You may have been prompted to log on in order to use the library discovery tool. Other systems require a log-on to access a specific result from your search. If you have any questions about access, contact your librarian for help.

Some databases focus on specific disciplines (e.g., *Health Reference Center*, *Educators Reference*, and *PsycArticles*), while others are more comprehensive (e.g., *Academic*

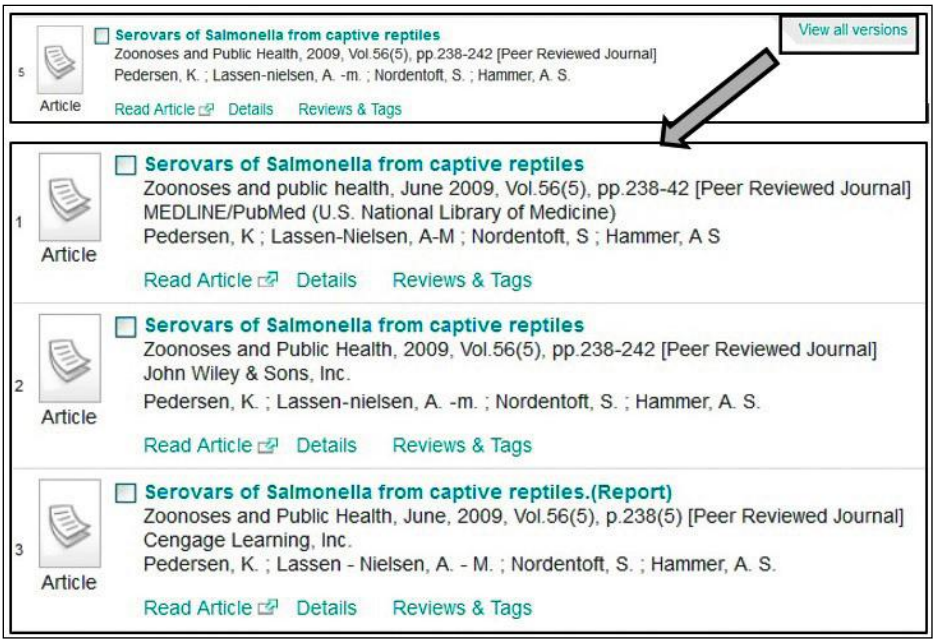


FIGURE 3.3 The link in the initial results list led to a bibliographic entry (no full text) for this article. However, clicking on the "view all versions" link revealed that the article was available in two other databases. A full-text version was available in one of these.

Source: Seminole State College of Florida.

OneFile and *Academic Search Complete*). Most databases are "full text," meaning the article or e-book is available for you to read online and/or download. On the other hand, some results may be "bibliographic"—listing the author, title, publication information, and an abstract (a brief summary)—but without access to the full text. Your library subscribes to numerous databases, often with some overlap in holdings. Even if the link in your results list is only bibliographic, a full-text version of the same article may be available in a different database (see Figure 3.3). Also, if you can't access a full-text version of an article in your own library, you may be able to get it through interlibrary loan. Most school libraries have online order forms, and you could receive the article by e-mail within a day or two. It should be possible to track down almost every source in your results list, but just like in a criminal investigation, it may take extra effort to "always get your man—*uscript.*"

e-TIPS

INTERLIBRARY LOAN

The Web has made interlibrary loans easier and quicker. Most schools have a system for ordering interlibrary loans online. Many colleges have sharing agreements with neighboring universities with larger collections. Interlibrary loans from these schools often take only a day or two to complete.

Be Persistent! The speed with which information is obtained via the Web has made us all impatient "clickers." If it takes more than two or three clicks to get what we want, the tendency is to give up. But accessing library sources often takes multiple clicks. As discussed in Chapter 2, a library discovery tool is a metasearch engine that integrates results from the online catalog and multiple databases—each with its own method for searching and organizing information. Thus, to access a source, you will probably need to click to open the library record, then again to access the database, and another one or two times to download the PDF or read the source online. Also, the location of links for accessing or downloading articles may differ depending on the database interface. It may take extra detection skills to "corner" the source (see Figure 3.4). Don't be afraid to ask for help! If you are having difficulty accessing a source, consult with your school's librarians. They are adept with the library search tool and familiar with the various database interfaces. A librarian can answer your questions and might also direct you to valuable resources you haven't yet discovered.

e-TIPS

Don't overlook or underestimate the help available from your school's library staff. They are experienced researchers and proficient with the discovery tool. Most schools now have a "chat" feature (often staffed 24/7) that allows you to consult a librarian online.

Make Connections

In television shows, detectives often tape photos and maps related to an investigation onto a board and mark them with colored pins or link them with lengths of string or yarn. They do this to reinforce the relationships between victims, suspects, places, and events with the hope that viewing these known connections will spark new insight into who might have committed the crime. In the same way, researchers need to be aware of how one source can connect them to other potentially fruitful avenues of discovery.

Follow the Clues

Experienced detectives know that a successful investigation involves tracking down leads, eliminating red herrings, and following a trail of clues. A dropped matchbook cover leads to a nightclub, which leads to an observant bartender, which leads to a description of a suspect (which, of course, may or may not be accurate). Academic research is similar—one good source will lead to another. A book might contain an excellent bibliography that yields five or six additional good sources. A periodical article might reference another source that proves even more fruitful than the original (see Figure 3.5).

FIGURE 3.4 These three sources are located in different databases. Note the different appearance and location of links to download PDFs and read the articles online.

Source: Seminole State College of Florida.