Getting Started

Writing papers to fulfill course requirements means knowing what the instructor expects and then formulating a plan to accomplish your goal on schedule. This chapter will help you get started. It also includes some simple dos and don’ts to help you avoid pitfalls and to ensure that the assignment will be completed on time and that it will represent your best work.

Where to Begin

There was once an intriguing character named Joe Gould, who, after graduating from Harvard in 1911 and trying his hand at a number of futile endeavors, moved to New York City and began to hang around Greenwich Village coffee shops. He told people that he had mastered the language of seagulls—and, in fact, did an uncanny imitation of one—and was translating literature into “seagull.” He was best known, however, for an ambitious project he claimed to be compiling, called the “Oral History of Our Times.” He boasted of having accumulated a stack of notebooks that stood 7 feet tall, and he carried brown paper bags with him that, he said, contained research notes. Joe Gould died in a psychiatric hospital while doing his seagull imitation. Some years later, in a profile article written by Joseph Mitchell for the New Yorker magazine, it was revealed that Joe Gould never started his “Oral History”; his notebooks were a myth, and his brown bags contained merely other bags and yellowed newspaper clippings.

For students with required writing assignments, Joe Gould is a metaphor for the most challenging aspect of any project: how to get started. First of all, familiarize yourself with what is in this book. Exhibit 1 shows a flowchart referring to specific chapters and selections that you can turn to as needed. The table of contents (at the beginning of this book) shows the specialized sections and their location in each chapter, and immediately following the table of contents is a list of exhibits. The index (at the back of the book) lists specific terms, should you
EXHIBIT 1  Flowchart to walk you through Writing Papers

1. Find out what is expected, and start formulating your ideas and getting organized. (Chapter 1)
2. Find the detailed information you're going to need for your literature review or the key studies you're going to need for your research proposal. (Chapter 2)
3. Write the proposal. (Chapter 3)
4. If you are reporting quantitative information, be prepared to do so clearly, accurately, precisely, and in enough detail so that others are able to reach their own conclusions. (Chapter 6)
5. Begin writing the first draft. (Chapter 7)
6. Revise and polish your writing, and prepare the final manuscript for submission to the instructor. (Chapter 8)
7. If you did empirical research (appendix A) and are ready to put your ideas and results together, familiarize yourself with the traditional structure. (Chapter 4)
8. Be prepared to report statistical information clearly, accurately, precisely, and in enough detail so that others are able to reach their own conclusions. (Chapter 6)
9. Begin writing the first draft. (Chapter 7)
10. Revise and polish your writing, and prepare the final manuscript for submission to the instructor. (Chapter 8)
11. If you are presenting a poster or handing out a brief report, use the sample material as a reference point. (Chapter 9)
need to find a particular topic. There are also sample materials throughout. Chapter 3 contains two sample proposals, one for a literature review (Exhibit 6) and the other for a research project (Exhibit 7). Near the end of the book are two appendixes (tabbed, so that they’re easier to find). Appendix A shows a final research report (Jane Doe’s), and appendix B, a final review paper (John Smith’s). There is a sample poster presentation (Exhibits 16 and 17) and a sample one-page, two-sided handout (Exhibit 18) in chapter 9, both based on Jane Doe’s research project.

Not everything that appears in the sample papers in appendixes A and B will be needed in every student paper, but anything you might need is illustrated there or elsewhere in this book. If your assignment is to write a review of a single empirical study, your paper will not be nearly as long or as detailed as John Smith’s literature review in appendix B. Your final review of a single empirical study might be only three to five pages long. If your assignment is to write a lab report in an experimental psychology class, your report will not be as long or detailed as Jane Doe’s report of original research in appendix A. Even if your required writing assignment is different from John’s or Jane’s, read both papers anyway because we refer to them throughout this book, and you may get some ideas for your own writing assignment. They also show what a student paper written in “APA style” looks like.

Writing in APA Style

The term APA style means that the structure and format of a manuscript are consistent with the guidelines in the fifth edition of the Publication Manual of the American Psychological Association (called the APA Manual in this book). Writing in APA style is what college instructors in psychology typically require of students, although it is not the only writing style that you may encounter in college. In English, language, and literature classes, instructors often require students to write “research papers” in a style recommended by the Modern Language Association (called MLA style). In that context, the term research paper also means something quite different from Jane Doe’s research paper in appendix A. In an English class, you will be “researching the literature” for your paper, whereas in psychology, a research paper means you will be writing up the results of an empirical study. You will also be doing some “researching” of the literature for your proposal, but this process is called “searching and retrieving” in this book. Incidentally, the APA style and the MLA style are not the only two styles for the structure and format of manuscripts; there are also the University of Chicago style, the Turabian style, The New York Times style, The Wall Street Journal style, and so on.1

1To get you used to the idea that there are other writing styles besides the APA style, we use footnotes for reference citations in this book. It is not unusual to see footnotes in technical books that do not use APA style; the author uses them so as not to interrupt the flow of a sentence with multiple parenthetical citations. Of course, the citations and references in the sample papers (appendixes A and B) are all in APA style.
Although we said that both Jane Doe’s and John Smith’s final papers are in APA style, there are actually some departures from the APA Manual. We will have more to say about these departures, but the difference has to do with student papers’ being thought of as final manuscripts rather than copy manuscripts. As described in the APA Manual, copy manuscripts are specifically written for editors, reviewers, and typesetters. Once a copy manuscript has been accepted for publication and has gone through the production process, it is discarded. Papers written by students for class assignments are in a final form for the instructor to read. The same is true of theses and dissertations, which are also considered final manuscripts even when the audience is not only the student’s adviser or mentor. Another important point is that, as the APA Manual cautions, style preferences for some student manuscripts may be diverse and often specific to a particular institution. If you are writing a thesis or a dissertation, check with your department for any special style requirements, and ask your adviser to recommend a couple of examples that will give you a sense of what is considered quality work.

The American Psychological Association sells software called the APA Style Helper, which is designed for Microsoft Word on Windows (see http://apastyle.apa.org). Depending on the textbook you have been assigned in the class in which you are writing a paper, the publisher probably also has a Web site with information and online links. There are reliable free Web sites with information about APA style, such as http://www.docstyles.com/apacrib.htm, where you will find Russ Dewey and Abel Scribe’s APA Research Style Crib Sheet, which is a synopsis of APA style rules. There is also http://www.wisc.edu/writing/Handbook/DocAPAPrinciples.html, which is a site created by the Writing Center at the University of Wisconsin-Madison. Templates that you fill in with reference information to see how a citation or a reference should look in APA style can be found at http://citationmachine.net/index.php?source=58&callstyle=2&call=#here, a very helpful Web site created by David Warlick.

Your Instructor’s Expectations

To plan your project, you need some clear objectives and a precise idea of what your instructor expects of you. For example, what is the purpose of the writing assignment, and how long should the final paper be? Do you choose the theme or topic, or will the instructor assign it? Will interim papers (for example, a proposal and progress reports) be required; how long should they be, and when are they due? When is the final paper due, and how does this date mesh with your other assignments (for example, exams and papers in other courses)? You can speak with other students about their impressions, but the person who knows exactly what is expected of you is the instructor. Before you boot up your computer or sharpen any pencils, meet with the instructor, articulate what you understand the assignment to be, talk about your ideas for a topic, and ask if you are on the right path.
One instructor wrote to us that many of his students were reluctant to take this initial step, even though they hadn’t a clue about a topic for a required research project. But those who did come in, even without an initial idea, benefited from the meeting and, in most cases, went away with at least the beginning of a direction for their work. Meeting with the instructor will also give you an opportunity to avoid the anonymity of being just another face in the classroom. The instructor knows who are, and that you are a motivated student. If you decide to go on to graduate school, you have introduced yourself to someone you may wish to approach later on to ask for a recommendation letter.

**Focusing on Your Objective**

Once you have a topic, think through the assignment to sharpen your intellectual process. Understanding the differences between the research report and the review paper in psychology classes will help you focus on your particular objective. There are, as we said, reports of lab exercises and reviews of single studies, but for this discussion we will concentrate on the general types exemplified by Jane Doe’s research report in appendix A and John Smith’s literature review paper in appendix B. Let’s start with the typical differences between the research report and the review paper (see Exhibit 2), so you can focus your efforts on whichever project you have been assigned.

One obvious distinction highlighted in Exhibit 2 is that a literature search forms the core of the review paper, and empirical data form the core of the research report. Empirical research generally requires a preliminary literature review, but it typically involves retrieving only a few key studies that will serve as theoretical starting points. To give you an idea of how this review might be

<table>
<thead>
<tr>
<th><strong>EXHIBIT 2  Differences between research reports and review papers</strong></th>
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<tr>
<td><strong>Research Report</strong></td>
</tr>
<tr>
<td>1. Is based on data that you have collected; literature search involving only a few key studies.</td>
</tr>
<tr>
<td>2. Is structured to follow the traditional form described in chapter 4.</td>
</tr>
<tr>
<td>3. Reports your own research findings and conclusions to others in enough detail so they can draw their own conclusions.</td>
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done, chapter 2 begins with an example. The point, however, is that you can expect to spend more time retrieving abstracts and articles online, and probably more time reading and taking notes, if you are writing a review paper. On the other hand, if you are writing a review of a single empirical study, you may not need to do much of a literature search for just a 3- to 5-page paper. However, in some upper-level undergraduate seminars that are run like graduate courses, the instructor may expect a 25- to 30-page final paper with a literature review similar in detail and a cohesive argument to those in John Smith’s paper in appendix B.

In some review papers the author reports the results of having counted and quantitatively summarized information. When this counting and quantifying involves a statistical analysis of the results from numerous studies for the purpose of integrating the findings, the review is called a meta-analysis. In psychology and biomedicine, meta-analytic reviews are becoming increasingly popular because they take stock of empirical findings that address essentially the same research question. If you are interested in seeing what a meta-analytic review looks like, you will find examples in the journal Psychological Bulletin. Usually, such a review describes (a) the typical magnitude of observed effects (called the effect sizes); (b) their variability (i.e., how spread out the observed effects are); (c) their $p$ values (their levels of statistical significance); and (d) the variables that can predict the relative magnitude of the observed effects (called moderator variables). For more about meta-analysis and effect sizes, see the recommended readings at the end of chapter 6.

Notice in the opening line of the introduction section of John Smith’s literature review that he cites an encyclopedia article. A lot of material is available online, some in full text (discussed in the next chapter), but some material is available only in the library, such as the encyclopedia that John consulted and took notes from. Perusing the stacks (the shelves throughout the library) might just turn up something interesting and unexpected. You might find a shelf full of psychology encyclopedias or a classic work that you have heard about. If you are writing a senior thesis or a master’s thesis, you will be expected to do more just than a cursory search of the literature; we will show how in the next chapter.

A second distinction in Exhibit 2 is that the structure of the research report is expected to conform to a general tradition that has evolved over many years. As a consequence, instructors expect research reports to typically include (a) an abstract, (b) an introduction, (c) a method section, (d) a results section, (e) a discussion of the results, and (f) a list of the references cited. Jane Doe’s research report in appendix A contains some additional material, but you will be expected to include at least these six parts. If you open an APA research journal, you will see examples of this basic structure. Review papers, on the other hand, are much more flexible, because it is not always immediately evident, even to experienced writers, how the final manuscript will take shape until they have had an opportunity to think about everything in more than just a piecemeal fashion.
To give a sense of the flexibility of review papers, Duke University psychologist Harris M. Cooper described the following objectives and categories:²

- **The focus** of the literature review concerns the material on which the reviewer wants to concentrate his or her attention, although there may be more than one focal point in the review. Literature reviews in psychology tend to focus on research outcomes, research methods, theories, or practices and applications. In John Smith’s proposal (Exhibit 6 in chapter 3), he states that his literature review will focus on “two theoretical orientations regarding the nature of human intelligence.”

- **The goal** is what the reviewer hopes to achieve, which usually is to integrate a body of related work by formulating a general statement, resolving conflicting ideas, or bridging the gap between theories by proposing a common linguistic framework. A second goal is to critically analyze the existing literature, and a third is to identify central issues. John Smith proposes a term—*multiplex*—to conceptually integrate different approaches to the idea of distinct types of intelligence besides the *g*-centered type (in appendix B).

- **The perspective** is the point of view influencing the discussion, which for simplicity is called either a *neutral representation* or the espousal of a position. John’s final paper in appendix B is a distillation of ideas expressed in a relatively detached tone.

- **The coverage** is what primarily distinguishes one literature review from another, because reviewers search the literature and make decisions about the suitability of material based on their own specified criteria. Generally speaking, the coverage might be exhaustive, exhaustive with selective citation, representative, or central and pivotal. John’s review is representative with selective citations that are specifically addressed to the focus of the coverage.

- **The organization** of the literature review is how the material cited is arranged, for example, historically, conceptually, or methodologically. John’s review amalgamates the conceptual and methodological arrangement, and he also gives a flavor of the history of the intelligence-testing movement.

- **The intended audience** is the target group to which the review is addressed. The group might be specialized scholars, general scholars, practitioners and policy makers, or the public at large. For John, the audience is the instructor, assumed to be a scholar with general and specialized knowledge and interests.

The final distinction noted in Exhibit 2 is that the review paper puts issues and ideas into the context of a particular theme or thesis, whereas the main objective of the research report is to describe your empirical investigation to others.

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CHAPTER ONE

The theme in a research report often involves testable hypotheses with explicit predictions, but the report could be an exploratory study or a purely descriptive investigation (there is more on these distinctions later in this book). If there are hypotheses, then what you found in your research should be put in the context of the predictions, as in the results and discussion sections of Jane Doe’s research report in appendix A.

**Scheduling Time**

Once you have a clear sense of your objective, the next step is to set some deadlines so you do not end up like Joe Gould, who was so paralyzed by inertia that he accomplished nothing. You know your own energy level and thought patterns, so play to your strengths. Are you a morning person? If so, block out some time to work on your writing early in the day. Do you function better at night? Then use the late hours of quiet to your advantage. Allow extra time for other pursuits by setting realistic dates by which you can reasonably expect to complete each major part of your assignment. Write the dates on your calendar; some students prefer to post the dates over their desks as daily reminders.

In planning your schedule, give yourself ample time to do a good job. Patience will pay off by making you feel more confident as you complete each task and move on to the next one. How do you know what tasks to schedule? Because writing a literature review requires spending time online (and also probably in the library) finding sources, reading them, and accumulating your notes, you will need to leave ample time for these tasks. Here are some ideas about what to schedule on your calendar if you are writing a review paper and are first required to submit a proposal:

- Completion of preliminary literature search for proposal
- Completion of proposal
- Completion of literature search
- Completion of library work
- Completion of an outline and first draft
- Completion of final draft and proofing

If you are writing a research report based on an empirical investigation, you need to set aside time for the ethics review, the implementation of the research, and the data analysis. Here are some scheduling suggestions for these and other tasks if you will be doing empirical research and are first required to submit a proposal:

- Completion of preliminary literature search for proposal
- Completion of proposal for research
- Completion of ethics review
- Implementation of the study
- Completion of data analysis
- Completion of an outline and first draft
- Completion of final draft and proofing
Both schedules of tasks should allow time between the first and final drafts so that you can distance yourself from your writing. Organizing, writing, and revising will take time. A book or a journal article you need might be unavailable. Data collection and analysis can also run into snags. Other problems might be that the ethics review takes longer than you expected, or you are asked to resubmit your proposal, or your research subjects do not cooperate, or a computer you need is down, or research material you need is hard to find. In your schedule, allow yourself time to cope with unforeseen problems like these and time to return to your writing assignment with a fresh perspective as you polish the first draft and check for errors in logic, flow, spelling, punctuation, and grammar. By scheduling your time in this way, you should not feel pressured by an imaginary deadline—or surprised as the real deadline approaches.

If you get started early, you will also have time to track down hard-to-find material or to locate a test you need. If you want to use a specific test protected by copyright, getting permission to use the test will take time. Although tests that require advanced training to administer or interpret are usually unavailable to undergraduates, many others are available to students. There are general reference books that contain sample measures, and you can ask a reference librarian for suggestions on how to identify and locate these books in the library. For a comprehensive catalog of available tests and measures that you can look up in journal articles and reports, see the Directory of Unpublished Experimental Mental Measures, a series edited by Bert A. Goldman, David F. Mitchell, and others (published by the American Psychological Association); the “unpublished” in the title means that the instrument is generally available without a fee or special credentials. A huge online database (created by Evelyn and Linda Perloff) is Health and Psychosocial Instruments (HaPI), available on the Ovid database; it includes questionnaires, checklists, rating scales, interview schedules, and specialized tests for use in research. Your instructor will also be able to provide you with other good leads.

Should you encounter a problem, discuss it early with the instructor to ensure that you can finish on schedule. Starting early may also give you time to tackle data analysis procedures that are not in the course textbook. You might also want to e-mail a researcher and request any follow-up articles that are still unpublished, if you think you need them, or to request permission to reprint or reproduce something. In John Smith’s paper in appendix B (see John’s Author Note), he acknowledges that he received permission to reproduce a graphic. He also thanks the instructor for directing him to a graduate-level text he consulted about a statistical point she brought up. Jane Doe had to get permission from the restaurant owner and the server to conduct her experiment, and she needed ample time to do the data analyses described in the appendix of her report.

Another word of advice: Instructors have heard all the possible excuses for a late or badly done final term paper, so don’t expect much sympathy if you miss the final deadline. If you expect to ask the instructor for a letter of recommendation for graduate school or a job, you certainly don’t want to create the impression that you are unreliable.
Choosing a Topic

The next step is to come up with a research idea or choose a suitable topic for a literature review. The selection of a research idea or review topic is an integral part of learning, because usually you are free to explore experiences, observations, and ideas for questions or issues that will sustain your curiosity and interest as you work on your project. There are lots of ways of getting ideas. For example, John notes in his proposal for a literature review (Exhibit 6 in chapter 3) that he first became interested in the idea of multiple intelligences when the instructor in his psychological testing course mentioned her own research on a facet of that work. Jane Doe, in her proposal for a research study (Exhibit 7 in chapter 3), describes a similar situation and notes her personal interest in the topic she would like to study.

If you are a psychology major or minor, you probably already have lots of questions and ideas regarding why people behave, perceive, or think as they do. But if you are looking around for an idea, and your psychology department invites guest researchers to present colloquia that are open to undergraduate students (most usually are), take a pencil and paper to jot down any ideas you get. You may also have an opportunity to ask the speaker a question; listen to others’ questions, too, and the speaker’s responses, and if there is an open reception afterward, chat with the speaker. Another way to stimulate your creative mind is to peruse the journals in some specialty area that interests you, and to look again at the texts in the courses that you enjoyed. Approaching this material with an open, inquisitive mind is likely to stimulate creative thinking. However, if you cannot come up with an idea, discuss your dilemma with the instructor and ask for advice.

In considering a suitable topic, beware of a few pitfalls. The following are dos and don’ts that might make your life easier as you start choosing a topic:

- Do choose a topic that piques your curiosity and will sustain your interest over the long haul.
- Do make sure your topic can be covered in the available time and in the assigned number of pages.
- Don’t choose a topic that you know other students have chosen; you will be competing with them for access to the library’s source material.
- If you are not already knowledgeable on a topic, do read about it before you try to narrow your topic.

Narrowing the Topic

Choosing too broad or too narrow a topic for either a literature review or a research project will add difficulties and anxiety and will mean an unsatisfactory result. A proposed review that is too broad—for example, “Sigmund Freud’s Life and Times”—would try to cover too much material within the limited framework of the assignment and the time available to complete it. A specific aspect of Freud’s theoretical work (assuming you are interested in psychoanalytic writings)
will prove a more appropriately narrowed focus for a review paper in a course on personality theories, abnormal behavior, or psychopathology.

In narrowing the literature review topic, do not limit your discussion just to facts that are already well known. Ask yourself what is special about how you plan to approach the assignment. For example, John Smith’s review paper is not just a listing of other people’s conclusions, but an effort to incorporate his own perspective. This approach not only will give the project a specific focus but will also make the paper stand out when the instructor grades it. Here are two further guidelines in narrowing your topic:

- Be sure that your topic is not so narrow that reference materials will be hard to find.
- Be guided by your instructor’s advice because the instructor can help you avoid taking on an unwieldy topic.

If you approach instructors with several concrete ideas, you will usually find them glad to help tailor those ideas so that you, the topic, and the project format are compatible. Here are examples of how a student who is assigned a review paper might sharpen the focus of a paper on Sigmund Freud:

**Unlimited Topic (Much Too Broad)**
“To examine Freud’s theories of personality and abnormal behavior”

**Limited to 20-Page Paper**
“To examine Freud’s theory of Oedipal conflict applied to mental health”

**Limited to 10-Page Paper**
“To examine Freud’s theory of infantile sexuality”

Here is another example of concentrating the student’s focus, in this case for a one- or two-semester research project:

**Unlimited Topic (Too Broad for a Term Project)**
“To investigate how nonverbal stimuli are deciphered”

**Slightly Limited Topic**
“To investigate how certain kinds of nonverbal stimuli are deciphered differently by women and men”

**Adequately Limited Topic**
“To investigate whether female and male volunteer subjects at Podunk U. differ in their ability to identify photographed facial expressions of joy, disappointment, anger, and fear in a sample of female and male actors”

If you are currently enrolled in a research methods course, the assigned text probably discusses criteria for assessing the merits of good scientific
hypotheses. A detailed discussion is beyond the scope of this book, but we can mention three criteria:

1. **Good hypotheses are plausible, or credible.** That is, they are grounded in credible ideas and facts, the assumption being that well-grounded hypotheses will have a high payoff potential when tested. In other words, you must do a preliminary literature search to find out whether your ideas are consistent with accepted findings in the scientific literature. If they are not, then you will need to think about the inconsistencies and decide (with the help of the instructor) whether you really have a fresh insight or will need to develop some other hypothesis.

2. **Good hypotheses are succinct, logically coherent, and consistent with the facts, and technical terms are used correctly and precisely.** To see whether you are using a technical term correctly, consult the APA Dictionary of Psychology or an encyclopedia of psychology (or whatever area you are interested in), but don’t just rely on a lazy online search. To ensure that your hypothesis is succinct and coherent, consult your instructor, who will show you how to cut away unwieldy words. This word-trimming and focusing process is known as using “Occam’s razor”—named after a 14th-century Franciscan philosopher, William of Ockham, who cautioned against wordy explanations that can be stated more succinctly.

3. **Good hypotheses are testable, and they are empirically falsifiable if incorrect.** Since anyone with a fertile imagination can concoct support for even the most preposterous belief, the idea is that hypotheses that cannot be refuted by any means are not within the realm of science. For example, the statement “All behavior is a product of the good and evil lying within us” does not qualify as a valid scientific hypothesis, because it is so vague and amorphous that it cannot be subjected to empirical refutation.

### Knowing Your Audience and Topic

All professional writers know that they are writing for a particular audience. This knowledge helps them determine the tone and style of their work. Think of a journalist’s report of a house fire and contrast it with a short story describing the same event. Knowing one’s audience is no less important when the writer is a college student and the project is a literature review or a research report. The audience is your instructor, who is not just any reader, but someone knowledgeable in the area. Thus, you are writing to demonstrate your own acquired knowledge and also to give evidence of your insights and ability to express your ideas plausibly, coherently, logically, and persuasively to this sophisticated reader.

If you have questions about the instructor’s grading criteria, find out what they are before you start to work. For example, in a course on research methods, one instructor’s syllabus listed the following grading criteria for different parts of the finished report (the numbers in parentheses are percentages):
Abstract
   Informativeness (5)

Introduction
   Clarity of purpose (10)
   Literature review (10)

Method
   Adequacy of design (10)
   Quality and completeness of description (10)

Results
   Appropriateness and correctness of analysis (10)
   Use of tables or figures (5)
   Clarity of presentation (10)

Discussion
   Interpretation of results (10)
   Critique/future directions (10)

Miscellaneous
   Organization, style, references, etc. (5)
   Appendix for raw data and calculations (5)

This information enabled the students to concentrate on different parts of
the assignment just as the instructor would concentrate on them when evalu-
ating the reports. This information can also serve as a checklist for you to
make sure that everything of importance is covered in your finished report.
Not every instructor will provide such detailed information about grading
practices, but this manual can help you develop your own personal checklist
based on other information the instructor has provided.

Cultivating an Understanding

Let us assume that you know what your main audience—your instructor—
expects of you. Now you must try to develop more than a superficial under-
standing of your topic. The more you read about it and discuss your ideas
with friends, the more you will begin to cultivate an intuitive understanding
of the topic. In the next chapter, we describe how to use computerized and
library resources to nurture this understanding. Here are two tips to get you
started:

- Some writers find it helpful to keep several 3 × 5-inch cards handy,
or to use sticky notes, for jotting down relevant ideas that suddenly
occur to them. This is a good way to keep your topic squarely in
your mind.
- You need to understand your source material, so equip yourself with
a good desk dictionary, and turn to it routinely whenever you come
across an unfamiliar word. This habit will serve you well. If you
plan to continue in psychology, having your own copy of the APA
Dictionary of Psychology will be helpful (see www.apa.org/books).
The most comprehensive dictionaries in your college library are labeled *unabridged* (that is, they have not been condensed by the omission of terms or definitions). The most famous (and most comprehensive) of all unabridged dictionaries in the English language is the multivolume *Oxford English Dictionary* (called for short the *OED*). Some libraries provide electronic access to the OED. If you are that rare student who loves obscure origins of words, the OED is the place to look.
Finding and Using Reference Materials

The literature search is an indispensable step in preparing a review paper; it is also an essential aspect of a research proposal as it puts your own ideas in context, building on the existing work of others. Knowing about the many online and print resources available will allow you to gauge the effort it will take to find the information you need. If you know how to retrieve this information electronically, you can save time and effort.

Looking Over Maya’s Shoulder

Let us assume you have an idea for a research project or a review paper, have spoken about it in a preliminary way with your instructor, and know that you must produce a written proposal. In the next chapter, we illustrate the nature of the proposal. Before you begin drafting it, however, you will need to identify and read relevant work on the topic in which you are interested. To help you, we begin by looking over the shoulder of a student, named Maya, who wants to gather a few key studies to help her formulate one or two hypotheses and write a proposal for a research project. First, we describe how Maya goes through the step-by-step process of doing a literature search. Afterward, we will examine in more detail the resources she used and others that may be available in college libraries or electronically through their Web sites. (For a list of definitions of common terms and jargon used on the Web, see Exhibit 3. For a more extensive glossary, go to http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Glossary.html.)

Maya thinks she wants to study a spin-off from the instructor’s lecture on what he called the “Pygmalion experiment,” a classic research study by Robert Rosenthal and Lenore Jacobson. In a book the instructor mentioned, called *Pygmalion in the Classroom*, Rosenthal and Jacobson described how, in the 1960s, they had given a standard nonverbal intelligence test to the
attachment: a digitally coded file that is downloaded when you specifically open an add-on to an e-mail message; the attachment might contain words, images, or, in a worst case scenario, a hidden virus.

browser: a program that is used to display Web pages.

cache: a place on the computer’s hard drive where images and text from visited Web pages are stored to speed up the process of downloading the next time they are visited. Caches can, however, clutter the hard drive, particularly when information on the Web pages is constantly updated, so it is a good idea to clean the cache occasionally.

cookies: bits of personalized information left on the hard drive by some Web sites so they can track visitors online (some Web sites will not admit visitors unless they agree to accept a cookie). There are cookie cleanup programs to send this clutter into oblivion.

database: a collection of data, such as the reference databases shown in Exhibit 5.

firewall: a system that protects online computers from outside hackers who want to steal information or create a launching pad for destructive signals to Web sites.

full-text database: textual material that can be electronically perused in its entirety, such as the complete content of a journal article, a book, a dictionary, or an encyclopedia.

html: the coded language (Hypertext Markup Language) used to create Web pages.

http: acronym for Hypertext Transfer Protocol, the prefix (http://) of many URLs; it signifies how computers communicate with one another on the Internet.

hyperlink: a coded image (an icon or a button) or a coded word or phrase (usually in blue and underlined) that changes to a hand when you move your mouse pointer over it; clicking the hyperlink transports you to another place.

Internet service provider: the company or organization providing access to the Internet.

JPEG: acronym for Joint Photographic Experts Group, which is the most popular format on the Internet for photos because it supports 24-bit color and subtle variations in brightness and hue.

online search: the use of a computer and a search engine to retrieve information.

PDF: acronym for Portable Document Format, PDF retains the look of the original document and is viewed by means of the Acrobat Reader installed on your computer (or available free from http://www.adobe.com).

search engine: a program (such as Google or Yahoo or MSN) that takes key words, queries an internal index, and returns a set of Web documents. Usually, if you click on “Help,” you will find search help instructions, terminology, and advanced search tips.

spam: unsolicited e-mail that is automatically sent to all those on an address list.

URL: acronym for Uniform Resource Locator, which is another name for the Web address. The URL of a helpful Web site that was created at the University of Waterloo and that contains links to national and international psychological societies (including the American Psychological Association and the American Psychological Society, which post information about student funding and career planning), is http://www.lib.uwaterloo.ca/society/psychol_soc.html. If you are interested in the field of social psychology, you might check the Social Psychology Network at http://www.socialpsychology.org, created at Wesleyan University by Dr. Scott Plous.

viruses: damaging codes that invade a computer’s hard drive when an infected attachment or a contaminated file is opened. Some viruses, called worms, copy themselves and spread rapidly in the hard drive; others, called Trojan horses, assume the appearance of normal files but secretly wipe the hard drive clean. As a safeguard against viruses, be cautious about what you download or open, and install (and routinely update, usually weekly) antivirus software to check attachments before you open them and, in a worst case scenario, to find and try to repair damage to your hard drive.
children in a public elementary school in South San Francisco. The teachers were told only that the test was one of intellectual “blooming,” and approximately 20% of the children (whose names the investigators had picked at random) were represented to the teachers as capable of marked intellectual growth based on their performance on this test. In other words, the difference between the supposed potential bloomers and the other students existed solely in the minds of their teachers. The children’s performance on the intelligence test was measured after one semester, again after a full academic year, and again after two academic years. The results revealed that, although the greatest differential gain in total intelligence appeared after one school year, the bloomers held an advantage over the other children even after two years. Maya’s instructor described these results as an example of what are generally referred to in psychology as *expectancy effects*.

Maya mentions her interest in the Pygmalion experiment to the instructor, who suggests she read Rosenthal and Jacobson’s book and look up a journal article by Stephen Raudenbush. The instructor does not recall exactly when or where the Raudenbush article was published but thinks it was in an APA journal in the 1980s. He tells Maya that Raudenbush published a frequently cited meta-analysis of all the Pygmalion experiments up to that time. The instructor advises Maya to use PsycINFO® to do an author search to find this article. He also suggests that she look up the terms *expectancy effect* and *Pygmalion experiment* in recent encyclopedias of psychology that the library has, and that she use PsycINFO again to do a more extensive search and retrieval after she has identified the *limited vocabulary* (also called the *control vocabulary*) that is appropriate to each electronic database. Using the appropriate vocabulary can prevent the frustration of searching with the “wrong” terms, but Maya decides to plunge forward on her own using the terms mentioned by her instructor.

### Using the Online Catalog

Maya begins by finding her college library’s Web page (which typically has a link on the university or college home page) and then finds the online catalog to search for the Rosenthal and Jacobson book. She types “Pygmalion in the Classroom” in the search field, indicates that it is a “Title,” and hits “Go.” This gives her the book’s call number, which tells her where to find this book in the library’s stacks. Whether the book is currently in the library, checked out, or overdue is also indicated. For example, if *Pygmalion in the Classroom* has been checked out by someone a while ago and has still not been returned, Maya can ask the library to “recall” the book by asking the current user to return it.

Fortunately, this book is in the library, and Maya finds it and takes it to the circulation desk to check it out. While there, she asks about the location of encyclopedias of psychology, and the librarian points her to the location of several. She looks up *expectancy effects* in the indexes, reads the material, and finds that expectancy effects are also referred to as *experimenter expectancy effects*, and sometimes as *Rosenthal effects*, because Robert Rosenthal
did landmark research on the topic. Maya takes notes, including jotting down relevant references and recommended readings that are cited in the encyclopedia articles; she may look into these sources later.

Some library Web sites may even have a floor plan that comes up when you click on the “Stacks” link, so you can mentally locate the book before going to the library. If Maya’s library does not carry the Rosenthal and Jacobson book, she can order it through “interlibrary loan,” as most libraries belong to groups of libraries that share materials and services. On the library’s Web site, Maya will find such links as “Services,” “Interlibrary loan,” “Recall items,” and “Request forms.” If the book has been borrowed by someone, recalling it may take two or more weeks. Although it is convenient to use these links to order a book or to recall it, getting started early is clearly very important.

Using PsycINFO

To find the article by Stephen Raudenbush, Maya again uses the computer to access the library’s reference databases. On the main page of the library’s Web site, she finds PsycINFO listed under “Electronic databases” (or, in some libraries, “E-resources”). Many libraries list all the databases they subscribe to alphabetically, so you can scroll down to the one you are looking for. If the databases are organized by academic field (such as anthropology, marketing, psychology, etc.), then PsycINFO usually comes up first under psychology.

Maya clicks on PsycINFO and checks the place that says “Author”; she types in “Raudenbush” and clicks on the “Searches” button. A long list comes up of published works by this author, each item on the list linking to a PsycINFO record that also provides an abstract of the work. Maya scrolls down the list until she recognizes the article that her instructor mentioned and prints out the PsycINFO record (shown in Exhibit 4). Because the article is from an APA journal, there is a link in the online system to the article’s full text in PsycARTICLES®. If the PsycINFO record had not been an APA journal, it is possible that the library would have a link to the full text in another database, especially if the journal is from one of the most well-known publishers. But even if there is no online full-text database, given the information in the PsycINFO record of the article (journal name, year, volume, and page numbers),1 Maya knows how to track it down in the library. Having done all this, Maya has mastered about all the skills she will need to use any other electronic database to do a detailed search.

For now, Maya uses PsycINFO to begin her search of the literature in this database. The PsycINFO screen may vary from library to library, depending on the type of subscription the library has to this service. Maya begins by typing the book title but accidentally misspells it, typing “Pygmalian.” Computers are both fussy and helpful; this search doesn’t return any results, but the results screen does provide an alternate link under “Did you mean

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1Sometimes an article is listed as “p. 6, 5pp,” which means the article starts on page 6 and is 5 pages long, so you need to do the math to come up with the pages for the reference.
‘Pygmalion’?” Maya clicks it, and a dozen titles come up. For hypothesis ideas, she thinks this may be too small a number. But above the search field where she typed the title, she notices a check box to “Suggest subject terms.” She checks it, and the search turns up more items, which she adds to her search string. She checks two of them and presses “Search,” and this time, she gets several thousand results! To pare down, she clicks on “Peer reviewed journals” only, and the results are pared considerably. Now she tries a related subject selection (“Classroom environment”) shown to the left of the results. A manageable number of items comes up.

Just the process of using the search engine has helped focus Maya’s thoughts on the topic. She will try to come up with one or two hypotheses about the nature of the classroom environment and learning achievement. The search engine environment tends to immerse her in the topic and spurs her creativity in thinking about it. In the list, she can “Add” promising titles to an electronic folder. She selects titles regarding controlling classroom behavior,
further narrowing her ideas for a hypothesis. When she opens the folder, she can delete, print, e-mail, save, or export the citations. She can also obtain a copy of most of the articles in the folder by clicking on a PDF link (a PDF file has a “picture” of each page, just as it appears in the original source). When she clicks to “Save” the list, she can even save the citations in APA format for the reference section of her paper. She copies and pastes the citations on the screen into a word-processing document for later retrieval into her paper (assuming she ends up citing them, of course). What a time-saver!

If this list of titles is insufficient for Maya’s purposes, she can use the suggested subjects that PsycINFO provided to do more searches on the topic later. She makes a note of them and others that her instructor has mentioned for additional searches. She also notices that the browser has recorded her searches. She can, if desired, activate any one of them. This may be useful if she wants to try a different variation of an earlier search.

**PsycARTICLES, PsycBOOKS, and PsycEXTRA**

Maya used PsycINFO, the American Psychological Association’s primary abstract database. The advantage of electronic databases like this one, as she discovered, is that you can search to your heart’s content. Even if you do not have your own computer, the library usually has a bank of computers reserved for students. Because you may have to wait your turn to use one, ask whether there are computers in other locations that you can use to communicate with the automated system. If you have your own computer, you need to find out how to access these resources from your room. PsycINFO and other electronic databases each have their own limited vocabulary, which is appropriate to the particular database. For example, the print version of PsycINFO’s limited vocabulary is the *Thesaurus of Psychological Index Terms* (published by the American Psychological Association), which is typically available in libraries that subscribe to PsycINFO.

There are many full-text databases, but few that are free online unless you are a student who can access them through your college library’s Web site. The records in PsycINFO typically have a “journal link” that takes the user to the journal home page on the publisher’s site, where you find out if the full text is free or not. (Some publishers put their journals up for free after an embargo period.) PsycARTICLES is the APA’s full-text database for journals that go back to Volume 1, Issue 1. (The oldest APA journal, *Psychological Review*, goes back to 1894.) The APA also offers colleges and universities the opportunity to subscribe to another database called PsycBOOKSTM, which lists books and a full-text record (PDF) of each chapter in the book for nearly all books published by APA, some historic books in the public domain, and 1,500 entries in the APA’s *Encyclopedia of Psychology*. Another APA database, called PsycEXTRA, provides records and some full-text access to the “gray literature” (i.e., unpublished or hard-to-find work) that is not covered in PsycINFO and is outside the peer-review literature (conference papers, newspapers, technical reports, government reports, etc.).
Another full-text electronic database, InfoTrac College Edition, is packaged with this eighth edition of Writing Papers. To register on the log-in screen (http://www.infotrac-college.com), you enter a user name that you select and the password that came with your book (write down the user name and password for later use). After registering, you will find yourself at the keyboard search screen, where you type in search terms. You also specify the search strategy form you want InfoTrac College Edition to use; for example, indicating “In entire article content” will do a more extensive search for you than just indicating “In title, citation abstract.” The browser also keeps a record of your searches under “History,” so you can highlight one of your previous searches and press “View” to see the results of that particular search, useful if you want to try a different variation of an earlier search. Also an option is to check the box beside “To refereed publications,” which means that only articles that have been reviewed by journal consultants (called referees) will be listed.

Once you have the list of refereed journal articles, you can set aside the titles you want to review by clicking in the box in front of each promising item. Then, using “View mark list” from the menu at the top, you can retrieve this marked subset. The retrieval options are under the marked list, at the bottom of the page. If you click the “Full article (if available)” option and also e-mail the article to yourself, you will receive a plain text version of each article; one e-mail per article. You also have the option to print the marked articles in plain text format, although you may prefer to save paper (and printing costs) by reading them first on screen on your computer. Next to the citations in your marked list, two icons (tiny pictures) may appear. One indicates that a plain text of the article is available (this is usually the case); the other icon looks like a little camera, indicating that graphics are included in the plain text. The graphics are shown in a reduced size in the text, but you can click on them to view them in full size.

As an illustration of the use of InfoTrac College Edition, Maya first tries “expectancy effects” and presses “Search,” leaving all the other search choices unchanged. Fourteen items come up, most of them indirectly related to her interest. She goes back to the search page and tries “Pygmalion in the classroom” with the same settings. One long, full-text article appears, beneath which are links to articles on related topics, including newspaper articles. (It’s always a good idea to scroll to the bottom of any Web page; there may be important stuff there.) On displaying these links, she can check any items and then “View mark list” from the menu at the top. If she chooses to “Print to browser,” not only will she send to the printer, but the screen will show the citations formatted for copying and pasting (requiring just a little revision for proper APA style). She can also e-mail the list to herself in a form for automated importing by a bibliographic program.

Other tools are available on InfoTrac College Edition if you click on a link to an article. At the end of the plain text version that comes up, you can often use the Acrobat Reader (a special computer program) to see a PDF replica of the
original article as it appeared in the journal. Most browsers have the Acrobat Reader already installed, but you can download it free at www.adobe.com. The PDF format is very convenient, but it can be time-consuming to download if you are using a dial-up connection. If you download articles in this format, save them to a disk or flash memory, because they will then be easier to read than the plain text version that is e-mailed or that appears with the link from the marked list. Additionally, at the end of each article is a menu of still more articles that are linked to related topics; this menu varies with each article. You may not need these articles now, but they may be useful when you research and write your paper later. This menu is yet another search feature branching out into the huge network of articles available on the Internet.

**Tips on Using Other Electronic Databases**

Once you are familiar with PsycINFO or InfoTrac College Edition, you should find it relatively easy to use other electronic databases to search for information. Exhibit 5 shows some of the many electronic databases that may be available to students through their library’s Web page. Databases exist for just about every discipline and area of interest. Here are some tips for using these databases:

- Begin by writing down the questions you have, and then make a list of words or phrases you want to try as search terms.
- Scan the list of the databases that are available to you online; print the list if you can, to avoid having to remember them or endlessly going back and forth.
- Put a check mark next to any other databases that look relevant—or that might be of interest later on.
- As you search, keep a record so that you don’t backtrack without realizing it; list the abstract or index, the years you searched, and the search terms that you used.
- If you can, copy what you find on a disk that you can look at again later. Before you open this file (or download it to your own hard drive), use your antivirus program to be sure that the file is not infected.
- Don’t just make a citation list of relevant work; also read what you are going to cite because the instructor will wonder whether you have read it.

Notice at the bottom of Exhibit 5 a database called the Web of Science. If you need to do a more comprehensive search for a meta-analysis or a dissertation, the Web of Science will provide access to relatively recent records in the Social Sciences Citation Index (SSCI), Science Citation Index (SCI), and Arts & Humanities Citation Index (A&HCI). These databases are useful if you want to track down studies that followed up on an older study you’ve read about in your textbook. Once you are into the Web of Science, you can
### EXHIBIT 5  Reference databases available electronically

<table>
<thead>
<tr>
<th>Name</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Search Premier</td>
<td>Full-text data from many scholarly publications in social science, the humanities, education, computer science, engineering, language and linguistics, arts and literature, medical science, and ethnic studies.</td>
</tr>
<tr>
<td>AskERIC</td>
<td>Bibliographic records of research reports, conference papers, teaching guides, books, and journal articles in education from preschool to the doctoral level; ERIC is an acronym for Educational Resources Information Center.</td>
</tr>
<tr>
<td>booksinprint.com</td>
<td>Full-text reviews of books in print, as well as out-of-print listings over the last decade.</td>
</tr>
<tr>
<td>britannica.com</td>
<td>Full-text database for <em>Encyclopedia Britannica</em> and <em>Merriam-Webster’s Collegiate Dictionary</em>.</td>
</tr>
<tr>
<td>Census Lookup</td>
<td>Access to data tables for specific types of geographic areas from the most recent Census of Population and Housing; produced by the U.S. Census Bureau.</td>
</tr>
<tr>
<td>CQ Library</td>
<td>Full-text database for <em>CQ Weekly</em> and <em>CQ Researcher</em>, which provide legislative news about what is happening on Capitol Hill.</td>
</tr>
<tr>
<td>EDGAR</td>
<td>The Securities and Exchange Commission’s database of electronic filings; acronym for the Electronic Data Gathering, Analysis, and Retrieval System.</td>
</tr>
<tr>
<td>Electronic Human Relations Area Files</td>
<td>Database of a nonprofit institution at Yale University, a consortium of educational, research, cultural, and government agencies in over 30 countries that provides ethnographic and related information by culture and subject; acronym is eHRAF.</td>
</tr>
<tr>
<td>Harrison’s Online</td>
<td>Full text of <em>Harrison’s Principles of Internal Medicine</em>, a well-known medical textbook.</td>
</tr>
<tr>
<td>InfoTrac College Edition</td>
<td>Full-text database, packaged with <em>Writing Papers in Psychology</em>; provides access to the <em>Annual Review of Psychology</em> and many journals listed by discipline.</td>
</tr>
<tr>
<td>Internet Grateful Med</td>
<td>Health-related search information, including links to MEDLINE (national and international references to millions of articles in medicine, biomedicine, and related fields), AIDSLINE, HISTLINE (History of Medicine Online), and other Web sites.</td>
</tr>
<tr>
<td>JSTOR</td>
<td>Full text of back issues of periodicals across all disciplines.</td>
</tr>
<tr>
<td>LEXIS-NEXIS</td>
<td>Full text of news reports, including business, medical, political, financial, and legal; a convenient source of news reports by topic areas.</td>
</tr>
<tr>
<td>Academic UNIVerse</td>
<td>Research literature in mathematics, with emphasis on data in <em>Mathematical Reviews</em> and <em>Current Mathematical Publications</em>.</td>
</tr>
</tbody>
</table>
click on the “Tutorial” button to get guidance, or you can click on the “Full search” (a general search) or the “Easy search” button (which allows a more limited search of articles on a specific topic, person, or address). This kind of search is called an ancestry search because you are tracking down “ancestral” citations of an older article or a book. For example, if you look up *Pygmalion in the Classroom*, you will get a long list of citations of this book.

Here are some more tips:

- Don’t start out by using Google or Yahoo or MSN for your search and then rely on any documents that appear. Search engines like these generally seek what are called statistic Web pages, or thin, digitized layers of information that do not have search functions of their own. The electronic databases in Exhibit 5 are part of what is called the deep Web, which means they surface only when you make database queries from within the sites.
However, Google does have a search engine, called Scholar, that might provide some sources you won’t run across elsewhere. To get to Scholar, click on “More” on the Google home page, and select “Scholar.” As is typical of Google searches, you’ll get thousands of returns, but chances are good that the first few dozen will suit your purpose. (Maya typed in “classroom environment” and got over 500,000 hits.) The links may take you to other sites and require “Save/E-mail/Print” procedures that are different from (and usually not as convenient as) the procedures on PsycINFO or InfoTrac College Edition, but they are certainly worth a look. Each Google Scholar entry also includes the number of citations—a measure of how important and useful the work has been to others interested in the topic.

As mentioned before, edifying Web sites are also linked to many textbooks; these Web sites are designed to help you make optimal use of the textbook and other course material. When you are using these Web sites, remember that you have a particular objective, so don’t get distracted by tantalizing games (play with them after the semester is over).

And finally, if you are in a department that has many active researchers on the faculty, one of them may be working on the very problem that interests you. To find out, ask your instructor, and also ask if it will be OK to approach that person. If the answer is yes, set up an appointment to discuss your interests, but be sure to do your homework on the topic (and on the department’s Web page) first. List for yourself the questions you want to ask, and then take notes during the interview.

Print Resources in the Library

A great many potentially relevant print resources are available in libraries, including dictionaries and other reference sources. For example, many libraries contain the print version of SSCI (Social Sciences Citation Index), which uses code letters to indicate the nature of the citation, such as $D$ for “discussion” (conference item), $L$ for letter,” $M$ for “meeting abstract,” $N$ for “technical note,” $RP$ for “reprint,” or $W$ for “computer review”; the absence of a code letter indicates an article, a report, a technical paper, or the like. There are also slang dictionaries that tell you the history of rhyming slang, African American slang, pig Latin, and so forth. If you are interested in the language used by the media, Richard Weiner is the author of Webster’s New World Dictionary of Media and Communications (2nd ed., Macmillan, 1996) and a fascinating paperback book titled The Skinny About Best Boys, Dollies, Green Rooms, Leads, and Other Media Lingo (Random House, 2006). If you are interested in prominent people, you can look in Current Biography or Who’s Who. If you want to know about famous Americans from the past, you can look in the Dictionary of American Biography or Who Was Who in America. The Dictionary of National Biography tells about men and women in British history. Librarians can point you to other works that you may find
useful. Just remember that librarians are highly skilled in helping students find material. No matter how busy the librarian looks, you should not be intimidated. Don’t be afraid to approach a librarian for help in finding resource material; that is the librarian’s main purpose.

Another useful reference source, the *Annual Review of Psychology*, is available in full text on InfoTrac College Edition and is also available in print in many libraries. The *Annual Review of Psychology* is part of the *Annual Review* series, which is a serial publication (that is, one published at regular intervals) that provides reviews on just about every subject in science by leading authorities on specialized topics. Looking in the reference section of the *Annual Review of Psychology* can be a good way to find key studies. Other useful resources in psychology are called *handbooks*; if you search on this term in your library’s online catalog, you are likely to find specialized handbooks. These edited books contain detailed reviews, and although the emphasis of handbook chapters is usually more idiosyncratic than the *Annual Review of Psychology* or the articles in encyclopedias, perusing several of these resources can help you formulate an overall picture of the particular area of research in which you are interested.

Some journals also specialize in integrative reviews. One of these is the highly respected *Psychological Bulletin* (a bimonthly publication of the APA). Another excellent one is *Perspectives on Psychological Science* (published by the Association for Psychological Science, or APS), and still another is the *Review of General Psychology* (a quarterly journal of the APA’s Division of General Psychology). Two other highly respected journals, *Psychological Review* (another APA journal) and *Behavioral and Brain Sciences* (a quarterly published by Cambridge University Press), also publish integrative articles. One special feature of *Behavioral and Brain Sciences* is that, after each article, there is a section (“Open Peer Commentary”) where you will find lively commentary on the article by other authors. The Association for Psychological Science, which has a Web site for students (http://www.psychologicalscience.org/apssc), publishes a supplement to its research journal (*Psychological Science), called *Psychological Science in the Public Interest*; this is a semiannual monograph focusing on a single topic of public interest. Another useful APS journal is called *Current Directions in Psychology*; it publishes summary reviews of research findings. There are specialty journals in virtually any general area you can think of, and you can find out about them from your instructor.

**Taking Notes in the Library**

We have discussed retrieving abstracts and other material online and locating original material in the stacks, but not taking notes in the library. If you have the funds, the best way to make sure that your notes are exact is to photocopy the material you need. But be sure to write down in a conspicuous place on the photocopy the complete citation of all you copied. You will still need to interpret what you copied, and it is often easier to make notes of your interpretation
at the time you first have the material in hand. Having such notes will enable you to write an accurate paper as well as one that is efficiently organized. You can write your interpretations on the back of your photocopies so that your notes are handy when it is time to organize all your work.

Making detailed notes will also help you avoid committing plagiarism accidentally. We will have more to say about this problem later in this book, but you plagiarize intentionally when you knowingly copy or summarize someone’s work without acknowledging the source, or when you put your name on a paper that someone else wrote. You plagiarize accidentally when you copy someone’s work but forget to credit it or to put it in quotation marks. Plagiarism is illegal, and you should guard against it by keeping accurate notes, giving credit to others when it is due, and not claiming someone else’s work as your own.

If you are taking extensive notes on a laptop computer, you need some way to distance yourself from pages and pages of notes in order to bring coherence to them. The same is true if you are taking handwritten notes in the library. Some writers like to use a separate index card for each idea that they find as they uncover relevant material. Some prefer making notes on 5 × 8-inch index cards because they can usually get all the information they want on the front of a large card, so it is easier to find what they want later. If you are using a computer to take notes, you can print them out and cluster them in logical batches (as you would large index cards). For each note, be sure to include the full reference of the material, including all the information you will need for the reference section of your paper, as well as the page numbers of verbatim quotes (to cite in the narrative of your paper).

If you have made an outline for a literature review (as described in chapter 5), you can code each card or printout with the particular outline section where the material will be used (or you can use color coding). An alternative is to use a folder for each section of your literature review, and then to file the relevant batches in the appropriate folder. In this way, you can maintain a general organization of your notes and avoid facing a huge stack of miscellaneous bits and pieces of information that you must sort and integrate into a useful order. If you are using reference numbers to code material, be consistent, because a haphazard arrangement will only slow you down when it is time to write the first draft.

The most fundamental rule of note taking is to be thorough and systematic so that you do not waste time and energy having to return to the same book or article. Because memory is porous, it is better to photocopy or record too much than to rely on recall to fill in the gaps. Be sure your notes will make sense to you when you examine them later.

Source Credibility

Not all information is reliable, and the question is how to separate the credible from the suspect. This question is not easy to answer: A source of information that one person views as credible may not be perceived by another the same way. The way to address this problem is to subject manuscripts submitted to respected
journals to peer review (that is, the editors send them out to experts in the same field for independent evaluations and recommendations). It is certainly not impossible for a poorly done study to slip by occasionally, but as a general rule, researchers give greater weight to peer-reviewed journal articles than to unpublished manuscripts, technical reports, or chapters in edited books (which may be lightly reviewed, if at all). Textbooks are sent out for review, but mostly because the prospective publisher wants to find out whether they will be saleable.

Even within the peer-reviewed literature, there is a pecking order of journals in any field. Manuscripts that are rejected by one journal may be sent to a second or third journal, until they finally find homes. Articles in journals at the top of the pecking order are not automatically more credible than those in other journals, but a social hierarchy of journals does exist in every field, and the toughest journals in which to publish are usually those at the top of the social structure. In some cases, 85% or more of manuscripts submitted to the most prestigious journals are rejected by the editors based on peer reviews, but some manuscripts may be returned without review because, in the editor’s judgment, they seem to be inappropriate for that particular journal. Robert J. Sternberg, a widely published psychologist, wisely cautioned that “the place of publication is not a valid proxy for the quality and impact of the research” (APA Observer, October 2001, p. 40).

Some information is especially suspect, however, such as that in chat rooms on the Web. There is, in fact, a growing literature in psychological science on the nature of these chat rooms and the fertile ground they provide for rumors to take root. Because in a given instance it might be hard to decide whether something you read online is a fact or a rumor (i.e., an unsupported allegation) or maybe even a boldfaced lie, the saying about “buying a pig in a poke” is applicable to much of this information. The best guidance we can give you is this: When in doubt, ask your instructor for guidance.

### Additional Tips When Starting Your Literature Search

As you get started on the literature search, try to be realistic in assessing how much material you will need in your review. Too few journal articles or books may result in a weak foundation for your project, but too much material and intemperate expectations may overwhelm you and your topic. You are writing not a doctoral dissertation or an article for a journal but a required paper that must be completed within a limited amount of time. How can you find out what is a happy medium between too little and too much? Talk with your instructor before you start an intensive literature search. Ask whether your plan seems realistic.

Here are some more tips to get you started on the literature search and retrieval and to do it efficiently:

- Ask the instructor to recommend any key works that you should read or consult. Even if you feel confident about your topic already, asking the instructor for specific leads can prevent your going off on a tangent.
Do not expect to finish your literature search and retrieval in one sitting. Students with unrealistic expectations make themselves overly anxious and rush a task that should be done patiently and methodically to achieve the best result.

Suppose you cannot locate the original work that you are looking for in the stacks. Some students return repeatedly to the library, day after day, seeking a book or journal article before discovering that it has been lost or stolen or is being rebound. Ask a librarian to find the elusive material. If the original work you need is unavailable, the librarian may consult another college library. However, the material could take so long to arrive that you might miss the deadline set by your instructor (this kind of delay is not an acceptable excuse).

If you are looking for a specialized work, you probably will not find it in a small public library, so don’t waste your time. When students spend a lot of time off campus in public libraries and bookstores looking for source material, they usually come back with references from general texts or current mass-market books and periodicals, and these rarely constitute acceptable sources.

Remember to keep a running checklist of the sources you searched and the search terms you used so that you don’t accidentally retrace your steps.

Library and E-mail Etiquette

Before we turn to the basics of developing your proposal for a review paper or a research project, here is some final advice about using the library. The golden rule of library etiquette is to respect your library and remember that others also have to use it:

- Be quiet.
- Never tear pages out of journals or books.
- Never write in library journals or books.
- Do not monopolize material or machines.
- Return books and periodicals as soon as you finish with them.

Many students are surprised to learn that they can communicate with busy researchers. There is no guarantee that you will get a reply, but if you do make a request by e-mail, here are some dos and don’ts of e-mail etiquette:

- Don’t ask for something readily available in most college libraries, because it is going to sound as if you were too lazy to look for it.
- Do indicate in the subject space the nature of your e-mail message (for example, “Reprint request”), or else it may be deleted as spam without ever being opened.
Chapter Two

- Don’t write an overly detailed message; say who you are and what you are “requesting” (the polite way of asking), and thank the person in advance.
- Don’t expect a lengthy response.
- If you are requesting a reprint, it is likely to be transmitted as a PDF or Word file, so do make sure that your computer can open both of these kinds of files.
- If you receive a response, do thank the person.
Once you have chosen your topic, retrieved background information, and crystallized your ideas, the next step is to develop a proposal. Some instructors feel that an oral presentation is sufficient, but most require a written proposal as a way of ensuring that both they and their students have a common understanding of the topic, the importance of originality in each student’s work, and a clear sense of all ethical issues in proposed research studies.

Object of the Proposal

The object of your proposal is to tell the instructor what you would like to study. However, it is not a one-way communication, but an opportunity for the instructor to provide feedback and to raise questions that you need to address before going any further. If your assignment is an empirical research study, the proposal is also an opportunity to anticipate and address ethical concerns that might be raised. You might think of the research proposal as a kind of “letter of agreement” between you and the instructor. Once the research proposal has been approved, it is presumed that you will consult with the instructor before making changes in any aspect of the procedure. A proposal for a literature review usually has more room for flexibility. It gives the instructor an opportunity to see whether you may be embarking on too grand a literature review in the limited time available. It would be unreasonable to expect you to know already what you will conclude, although you probably have preliminary ideas that you can express about the direction of your review.

Instructors may require submissions in addition to a written proposal, and they may ask for details besides those in the sample proposals in this
chapter. In these sample proposals, the students are responding to the instructors’ questions about how the idea for the project originated and why the topic is worth studying. The purpose of such questions is (a) to stimulate you to formulate plans, (b) to encourage you to choose a topic you find intrinsically interesting, and (c) to make sure that these are your ideas. We will have more to say about the third point later in this book, but it is absolutely essential that the work be your own even if it builds on, or is a replication of, previous work by others.

In fact, replication is regarded as an essential criterion of credible scientific knowledge because it continues the discovery process of science as it clarifies and expands the meanings and limits of theories, hypotheses, and observations. Someone once compared the scientist to a person trying to unlock a door using a hitherto untried key. The role of replication, we might say, is to make the “key” available to others so they can see for themselves whether or not it works in a particular situation, and also how many other doors it can open. Replicating a published study does not mean merely reproducing a similar $p$ value, however, because the $p$ value is sensitive to the number of sampling units (for example, the total number of research subjects), the magnitude of the effect, the variability of scores, and so forth. We will have more to say about $p$ values in chapter 6, but replicating a study means observing a similar relationship or phenomenon.

Suppose you are out jogging and spotted two Martians—not two people disguised as Martians for Halloween, but real Martians: you know, green skin, antennas poking out of their scalps, and all the rest. You are not going to boot up your computer or whip out your calculator to run a significance test, but you sure are going to ask the nearest earthling, “Do you see what I see?”

Replications are sometimes the basis of senior theses and course projects. However, the student is expected to add a creative touch to the design, usually in the form of a new hypothesis or some other innovative aspect.

For example, if the study you are replicating used two levels of the independent variable, you might experiment with three or four levels to find out whether there is a linear or a nonlinear relationship between the independent and dependent variables. If you can think of a variable that might alter the relationship between the independent and dependent variables (that is, a moderator variable), then you can design a replication around your hypothesis of a moderator variable. Or you might choose a different measure of the dependent variable to see whether the original results are generalizable to more than one measure. Of course, you will want to design your study so that it is similar to the original study even while you are studying your own innovative idea; otherwise, you will find yourself in a logical bind if you need to explain any discrepancies between your results and the earlier study’s. If you are writing a proposal for a replication study, it is a good idea to tell how you plan to compare the results. Do you propose a quantitative comparison of effect sizes (using a simple meta-analytic procedure)
or a qualitative analysis based on theoretically relevant characteristics, or perhaps a combination of both?

**The Literature Review Proposal**

Exhibit 6 illustrates one form of the kind of information that might be reported in a proposal for a literature review. Although your instructor may ask you for other information or require a different format, this exhibit will at least get you thinking about what typically belongs in a proposal for a review paper. As one instructor wrote to us about what she told students, the proposal should show your understanding that your writing assignment must present a reasoned and organized argument that leads somewhere, not just an unfocused hodgepodge of literature that falls under the same keyword. It is also important to show that the final paper will consist of your ideas, because college instructors are especially attuned to the issue of originality in student writing assignments.

It is clear that John Smith’s ideas did not come out of the blue, and that he met with the instructor even before drafting this proposal in order to get preliminary feedback. He got his initial idea from the instructor’s lecture and soon afterward began to look up relevant references. He has an impressive preliminary list of references, but he states that he plans to use PsycINFO (“and possibly other electronic databases”) to search for relevant articles. He realizes that a lot has been written about the two theoretical orientations he proposes to review, so he wisely cautions that, because of time constraints, he will be able to read only a fraction of the literature on this topic. That John and the instructor have mutual interests in Gardner’s theory of multiple intelligences (because she has done research on it) will be a boon to John as he begins to think about pulling ideas together, and he mentions that he plans to sign up periodically to meet with the instructor.

Regarding the format of the proposal, notice that John’s name is typed above each page beside the page number; typing his name at the top of each page serves as a safety device if any pages get accidentally detached. Some instructors prefer that students insert a page header (a couple of words from the title), like the page headers in the final review paper in appendix B. John gives his e-mail address or other contact information, making it easy for the instructor to communicate with him. John summarizes the focus of his proposed review as he envisions it right now, knowing that it may change a little as he gets deeper into the project. He next describes the background and objective, emphasizing the originality of his idea and his tentative plan for pulling the literature together. John’s description of his literature search strategy is evidence that he is not floundering and, instead, has a clear direction for his search and retrieval. The proposal ends with a preliminary list of references formatted in APA style. John’s proposal is written in a way indicating that he has put a lot of effort and thought into this assignment.
EXHIBIT 6  Sample proposal for a literature review

John Smith 1

Proposal for a Literature Review
John Smith (e-mail address or other contact information)
(Date the proposal is submitted)

Focus of the Review

To examine two theoretical orientations regarding the nature of human intelligence, the traditional g-centered view versus the more recent assumption of multiple intelligences.

Background and Objective

The idea for this project came out of the instructor’s lecture on intelligence testing. She spoke of the work of Howard Gardner and his theory of multiple intelligences. She also described her own research on a facet of Gardner’s work, which he called interpersonal intelligence. I found some of Gardner’s books in the college library (Gardner, 1983, 1991, 1993a, 1993b, 1999) and have been reading them and taking notes. I understand that this work is part of a movement away from the traditional view of IQ that has predominated in psychology and education for many years (cf. Ceci & Liker, 1986; Riggio & Pirozzolo, 2002; Sternberg & Detterman, 1986; Sternberg & Wagner, 1986).

According to the traditional view, there is a general factor (called the g factor) that is common to all standard measures of intelligence and IQ (Spearman, 1927). The more recent approach of Gardner and others (e.g., Ceci, 1990, 1996; Ceci & Liker, 1986; Sternberg, 1985, 1988, 1990) emphasizes the idea of several distinctive types of intelligence, such as (in Gardner’s research) logical-mathematical intelligence, linguistic intelligence, spatial intelligence, and interpersonal and intrapersonal intelligence. The objective of this literature review is to examine the traditional g-centered IQ orientation and the multiple-intelligences approach, including how they originated, how they differ, and what is the rationale for each. Since each has its strong proponents and critics, I am also interested in looking at the areas of controversy and disagreement.
EXHIBIT 6  Continued

John Smith 2

Literature Search Strategy

The textbook in this course has a long discussion of intelligence (Kaplan & Saccuzzo, 2005), and as noted above, I have begun reading and taking notes from the work of Gardner (1983, 1993a, 1993b), Sternberg (1985, 1990), and Ceci (1996). From reading an article by Gilbert (1971) in *The Encyclopedia of Education*, I know that the concept of intelligence has been awash in controversy for years. The instructor suggested that I consult another popular textbook on psychological testing (Anastasi & Urbina, 1997) to get another perspective on this subject. I also plan to use PsycINFO (and possibly other electronic databases) to search for relevant articles.

Because of time constraints, I can expect to read only a fraction of the vast literature on intelligence (there is a journal called *Intelligence* as well as an encyclopedia devoted to this subject, the *Encyclopedia of Human Intelligence*). I plan to sign up periodically to meet with the instructor to discuss the progress of this review and my tentative ideas. I have taken a psychological statistics course, and I think I should be able to make sense of any basic quantitative information in the material I read, but I will certainly ask for help if I run into a problem.

On the following pages are the relevant books and articles that I have found so far. Any suggestions for additional material will be appreciated, though I expect that I will only be able to skim some of these works because of the press of other course requirements.
John Smith 3

References
EXHIBIT 6  Continued

John Smith 4


The Research Proposal

Exhibit 7 illustrates one form of a proposal for a research project. Jane Doe begins by telling how she came up with her idea and also what preliminary work she has done. Particularly impressive is that after getting the instructor’s tentative OK, she contacted a restaurant where she could run the study. She has already informed the restaurant owner and the server about the nature of her proposed research and gotten their written approval to show to the instructor. Once her proposal has been approved, Jane will be able to get started. Her three experimental hypotheses are well reasoned and precisely stated, another indication that she has already done a lot of preliminary work. The more thorough Jane is, the more focused the instructor’s comments can be as he continues to shepherd Jane toward her goal. If you plan to develop a questionnaire or an interview schedule, put a preliminary verbal sketch of it in the proposal so the instructor can give you feedback with specific suggestions.

Jane’s proposed method is also precise. She tells why she has settled on a total N of 80 dining parties. She also describes exactly how the four conditions will be randomly chosen by the waitress and what the particular procedure will be in each condition. In discussing the scoring and analysis of the findings, she begins by telling how the dependent variable will be operationalized. She gives credit to the instructor for suggesting how to deal with nonsignificant results due to underpowered tests. In describing her plan for computing a contrast to test the overall prediction, Jane believes that the data analysis is not beyond her statistical ability. If there is a problem, this student is not someone who will be shy about asking for further guidance, as she is clearly diligent, motivated, energetic, and goal-directed. There is a brief discussion of ethical considerations, although some instructors may require that a standard form be completed, signed by the student, and attached to the proposal. Jane’s proposal concludes with a list of the studies that she has cited. The level of detail in this proposal reflects the considerable amount of time that she has spent arriving at this stage and her consultations with the instructor on more than one occasion.

Ethical Considerations

As noted above, Jane Doe’s discussion of ethics is brief, but other proposals may call for a more detailed discussion or a standard form that needs to be filled out, signed, and submitted. The student may also be asked to provide a stronger rationale or to provide other relevant information. The reason that instructors require a detailed discussion is that ethical accountability is an important consideration in every aspect of research. The absolute requirements of ethical accountability are (a) that you, the researcher, will protect the dignity, privacy, and safety of your subjects; (b) that your study will be technically sound (so as not to waste precious resources, including the subjects’ time and effort); and (c) that the research will not be detrimental to society.
EXHIBIT 7  Sample proposal for a research project

Jane Doe 1

Proposal for a Research Project

Jane Doe (e-mail address or other contact information)

(Date the proposal is submitted)

Focus of the Research

To conduct a randomized, naturalistic experiment in a restaurant, in which I propose to investigate the relative extent to which several simple techniques for offering diners after-meal candies may affect the percentage amounts they tip the server.

Background and Hypotheses

This summer I have a job as a waitress in a restaurant in Ogunquit, Maine. When the instructor told about the naturalistic experiments he had done on tipping behavior (Rind & Bordia, 1995, 1996), he got me thinking that this topic might be suitable for my research project. The instructor directed me to an article by Lynn (1996) and other work on restaurant tipping by Garrity and Degelman (1990), Hornik (1992), Lynn and Mynier (1993), and Tidd and Lockard (1978). In a social psychology course last semester, we learned about reciprocity theory, and that theory also seems relevant to the research that I am proposing. I plan to do a further literature search using PsycINFO, though I believe I now have enough background information to justify three experimental predictions.

Research findings in the articles cited above are consistent with the idea that servers who are seen as friendly are likely to receive larger tips. For example, techniques such as a friendly touch or a smiling face drawn on the check have been found to increase the resulting tip percentage. The proposed research is in this vein, in that another simple technique for fostering an impression of server friendliness may be to have the server personally offer each diner an after-meal treat of a complimentary chocolate candy. There will be a control (no candy) condition and three experimental conditions (as described below) based on the interaction between the server and the diners when the check is presented.
Three experimental hypotheses will be tested. First, the mere offer of a candy (called the 1-piece condition) will have the effect of increasing tips, compared with the no-candy control. Second, assuming this effect is cumulative, offering diners two candies (called the 2-piece condition) will increase tipping still more in comparison with the control. Third, as people often feel obligated to return a favor (Regan, 1971), creating the impression that offering a second piece of candy reflects a generous impulse on the part of the server will elicit even larger tips (called the 1+1 condition). Thus, I predict that tips will increase from the control to the 1-piece to the 2-piece to the 1+1 condition.

Proposed Method

Participants. After discussing the proposed research with the instructor in a preliminary way, and getting his approval to proceed to the next stage, I asked an acquaintance who owns a restaurant whether I could have permission to conduct the study there. Attached to this proposal is the written permission of the restaurant owner and also the permission of a female server who has agreed to participate. They have also agreed to let me randomly assign 80 dining parties to the four conditions. Based on a power analysis using a table in the course text, the statistical power of three tests of simple effects would be approximately .80 (which was the recommended level), assuming an effect size of approximately \( r = .5 \).

Procedure. The conditions (control, 1-piece, 2-piece, 1+1) will be written on 80 index cards, so each card describes one of the four conditions. The cards will be shuffled and given to the server, who will select a card blindly from her apron pocket just before presenting the check. The server will also be given a basket containing an assortment of wrapped miniature chocolates. In the control condition, the server will present the check, thank the dining party, and immediately leave the table in order to avoid any nonessential interaction. In the remaining three conditions, the server will bring along the basket of candy. In the 1-piece condition, the server will offer each person in the dining party one candy of his or her choice, will thank the diners after their selection, and will leave the table. In the 2-piece condition, the server will offer each person two
candies, thank the diners after their selections, and leave. In the \( 1 + 1 \) condition, the server will offer each person a candy and then say, “Oh, have another piece,” in order to create the impression that the treat is a generous afterthought; the server will then thank the diners and leave the table. After the party has left the restaurant, the server will record on the same index card that was used to specify the condition (a) the amount of the tip, (b) the amount of the bill before taxes, and (c) the size of the dining party.

**Scoring and Analysis**

The dependent measure will be the tip percentage, the amount of the tip divided by the amount of the bill before taxes, then multiplied by 100. The basic results will be reported in the form of means, 95% confidence intervals around the means, and standard deviations. Three independent-sample \( t \) tests will be used to compare each of the three treatment conditions (1-piece, 2-piece, and \( 1 + 1 \)) with the control condition, and effect sizes and their 95% confidence intervals will be reported.

When I met with the instructor, he raised the possibility that the observed effects may not be as large as \( r = .5 \), in which case I will not have the benefit of working with power of .8. Although there is not much I can do about increasing the total \( N \) (because of time constraints and the agreement with the owner of the restaurant and the server), the instructor suggested I think of the \( t \) tests as a posteriori tests after an overall ANOVA. This option would justify using the pooled \( S^2 \) and its associated degrees of freedom \( (df = N - k = 80 - 4 = 76) \) for each \( t \) test. For the effect size correlations computed from these \( t \) tests, the \( df \) would still be defined by the groups being compared \( (df = n_1 + n_2 - 2 = 20 + 20 - 2 = 38) \), as described in the course text.

The instructor also recommended that I compute a \( 1 \times 4 \) contrast \( F \) (or \( t \)) to test the prediction that the tip percentage will increase from the control to the 1-piece to the 2-piece to the \( 1 + 1 \) condition (using contrast weights of \(-3, -1, +1, +3\), respectively). I realize that also reporting an overall ANOVA will not address my specific predictions, but the ANOVA summary table would be a way to show how the contrast \( F \) can be carved out of the overall between-groups sum of squares. I can do the overall ANOVA
using the statistics program we have been taught, and it would be a convenient way to obtain the pooled $S^2$ (i.e., the $MS_{within}$).

**Ethical Considerations**

The study involves a mild deception in that the diners will be unaware that they are participating in an experiment. I do not propose to debrief them because no potential risk is involved. I cannot ask people who are dining whether they agree to “participate in an experiment,” because that would destroy the credibility of the manipulation and render the results scientifically meaningless. I have also agreed to give the owner and the server full details of the results, and not to mention their names or the name of the restaurant in any research reports. All tips will be the property of the server.
EXHIBIT 7  Continued

Jane Doe 5

References


Here are some specific questions to get you thinking about the ethics of your proposed study:

- Might there be any psychological or physical risks to the research participants? How do you plan to avoid these risks?
- Will any deception be used, and if so, is it really necessary, or can you think of a way to avoid using deception?
- How do you plan to debrief the subjects? If you really must use a deception, then how will you “dehoax” the deceived subjects? How can you be sure that the dehoaxing procedure has been effective?
- If you are planning to use volunteer subjects, how do you plan to recruit them, and can you be sure that the recruitment procedure is noncoercive?
- How do you plan to use informed consent and to ensure that the participants understand they are free to withdraw at any time without penalty?
- What steps will you take to ensure the confidentiality of the data?

**Tempus Fugit**

Because time flies when you are writing an assigned paper, here are two final tips:

1. **Turn in your proposal on time.** Instructors are also very busy people, and they (like you) schedule their work. Turning in a proposal late is like waving a red flag that signals the wrong message to your instructor. Instead of communicating that you are responsible and reliable and someone who thinks clearly, this red flag signals that you may be none of the above.

2. **Be precise.** In Lewis Carroll’s *Through the Looking Glass*, Alice (of *Alice in Wonderland*) comes upon Humpty Dumpty, who uses a word in a way that Alice says she does not understand. He smiles contemptuously and says, “Of course you don’t—till I tell you. . . . When *I* use a word, it means just what *I* choose it to mean—neither more nor less.” Unlike Humpty Dumpty, you do not have the luxury of telling your instructor to “take it or leave it.” Nor do you have the extra time to keep resubmitting the proposal because you did not make the initial effort to be precise.