Practical Research
PLANNING AND DESIGN

NINTH EDITION

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1 What Is Research?

In virtually every subject area, our knowledge is incomplete and problems are waiting to be solved. We can address the holes in our knowledge and those unresolved problems by asking relevant questions and then seeking answers through systematic research.

The word *research* as it is used in everyday speech has numerous meanings, making it a decidedly confusing term for students, especially graduate students, who must learn to use the word in a narrower, more precise sense. From elementary school to college, students hear the word *research* used in the context of a variety of activities. In some situations, the word connotes finding a piece of information or making notes and then writing a documented paper. In other situations, it refers to the act of informing oneself about what one does not know, perhaps by rummaging through available sources to retrieve a bit of information. Merchandisers sometimes use the word to suggest the discovery of a revolutionary product when, in reality, an existing product has been slightly modified to enhance the product's sales appeal. All of these activities have been called research but are more appropriately called other names: information gathering, library skills, documentation, self-enlightenment, or an attention-getting sales pitch.

The word *research* has a certain mystique about it. To many people, it suggests an activity that is somehow exclusive and removed from everyday life. Researchers are sometimes regarded as aloof individuals who seclude themselves in laboratories, scholarly libraries, or the ivory towers of large universities. The public is often unaware of what researchers do on a day-to-day basis or of how their work contributes to people's overall quality of life and general welfare.

The purpose of this chapter is to dispel such myths and misconceptions about research. In the next few pages, we describe what research *is not* and then what it *is*.

To identify and define important terms included in this chapter, go to the Activities and Applications section in Chapter 1 of MyEducationalResearchLab, located at www.myeducationlab.com. Complete Activity 1: Defining Key Terms.

What Research Is Not

We have suggested that the word *research* has been so widely used in everyday speech that few people have any idea of its true meaning. Following are several statements that describe what research is not. Accompanying each statement is an example that illustrates a common misconception about research.

1. *Research is not mere information gathering.* A sixth grader comes home from school and tells her parents, "The teacher sent us to the library today to do research, and I learned a lot about black holes." For this student, research means going to the library to glean a few facts. This may be *information discovery*; it may be learning *reference skills*; but it certainly is not, as the teacher labeled it, research.

2. *Research is not mere transportation of facts from one location to another.* A college student reads several articles about the mysterious "Dark Lady" in the sonnets of William Shakespeare and then writes a "research paper" describing various scholars' suggestions of who she might have been. Although the student does, indeed, go through certain activities associated with formal

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research—collecting information, organizing it in a certain way for presentation to others, referencing statements properly, and so on—these activities still do not add up to a true research paper. The student has missed the essence of research: the interpretation of data. Nowhere in the paper does the student say, in effect, "These facts that I have gathered seem to indicate *this* about the Dark Lady." Nowhere does the student interpret and draw conclusions from the facts. This student is approaching genuine research; however, the mere compilation of facts, presented with reference citations and arranged in a logical sequence—no matter how polished and appealing the format—misses genuine research by a hair. A little further, and this student would have traveled from one world to another: from the world of mere transportation of facts to the world of interpretation of facts. The difference between the two worlds is the distinction between transference of information and genuine research, a distinction that is critical for novice researchers to understand.

Unfortunately, many students think that looking up a few facts and presenting them in a written paper with benefit of references constitutes research. Such activity might more realistically be called *fact transcription, fact organization,* or *fact summarization*.

3. *Research is not merely rummaging for information.* The house across the street is for sale. You consider buying it, and so you call your realtor to find out for how much your present home would sell. "I'll have to do some research to determine the fair market value of your property," the realtor tells you. What the realtor calls doing "some research" means, of course, reviewing information about recent sales of properties comparable to yours; this information will help the realtor zero in on a reasonable asking price for your current home. Such an activity involves little more than rummaging through files to discover what the realtor previously did not know. Rummaging, whether through one's personal records or at the public or college library, is not research. It is more accurately called an *exercise in self-enlightenment*.

4. *Research is not a catchword used to get attention.* The morning mail arrives. You open an envelope and pull out its contents. A statement in colorful type catches your eye:

Years of Research Have Produced a New Car Wash!
Give Your Car a Miracle Shine with Soapy Suds!

The phrase "years of research" catches your attention. The product must be good, you reason, because years of research have been spent on developing it. You order the product, and what do you get? Dishwashing detergent! No research, merely the clever use of a catchword that, indeed, fulfilled its purpose: to grab your attention. "Years of research"—what an attention-getting phrase, yet how misleading!

As we define the term, research is entirely different from any of the activities listed previously. We describe its essential nature and characteristics in the following section.

What Research Is

Research is a systematic process of collecting, analyzing, and interpreting information (data) in order to increase our understanding of a phenomenon about which we are interested or concerned. People often use a systematic approach when they collect and interpret information to solve the small problems of daily living. Here, however, we focus on *formal research*, research in which we intentionally set out to enhance our understanding of a phenomenon and expect to communicate what we discover to the larger scientific community.

Although research projects vary in complexity and duration, research typically has eight distinct characteristics:

1. Research originates with a question or problem.
2. Research requires clear articulation of a goal.

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3. Research requires a specific plan for proceeding.
4. Research usually divides the principal problem into more manageable subproblems.
5. Research is guided by the specific research problem, question, or hypothesis.
6. Research accepts certain critical assumptions.
7. Research requires the collection and interpretation of data in an attempt to resolve the problem that initiated the research.
8. Research is, by its nature, cyclical or, more exactly, helical.

To enhance your understanding of formal research, go to the Activities and Applications section in Chapter 1 of MyEducationalResearchLab, located at www.myeducationlab.com. Complete Activity 2: Understanding Formal Research.

Each of these characteristics is discussed in turn so that you can appreciate more fully the nature of formal research.

1. *Research originates with a question or problem.* The world is filled with unanswered questions and unresolved problems. Everywhere we look, we see things that cause us to wonder, to speculate, to ask questions. And by asking questions, we strike the first spark igniting a chain reaction that leads to the research process. An inquisitive mind is the beginning of research; as one popular tabloid puts it, "Inquiring minds want to know!"

Look around you. Consider the unresolved situations that evoke these questions: What is such-and-such a situation like? Why does such-and-such a phenomenon occur? What does it all mean? These are everyday questions. With questions like these, research begins.

In Chapter 3, we will discuss the research problem at greater length. The problem and its statement are important because they are the point of origin of formal research.

2. *Research requires clear articulation of a goal.* A clear, unambiguous statement of the problem is critical. This statement is an exercise in intellectual honesty: The ultimate goal of the research must be set forth in a grammatically complete sentence that specifically and precisely answers the question, "What problem do you intend to solve?" When you describe your objective in clear, concrete terms, you have a good idea of what you need to accomplish and can direct your efforts accordingly.

3. *Research requires a specific plan for proceeding.* Research is not a blind excursion into the unknown, with the hope that the data necessary to answer the question at hand will somehow fortuitously turn up. It is, instead, a carefully planned itinerary of the route you intend to take in order to reach your final destination—your research goal. Consider the title of this text: *Practical Research: Planning and Design*. The last three words are the important ones. Researchers plan their overall research design and specific research methods in a purposeful way so that they can acquire data relevant to their research problem. Depending on the research question, different designs and methods will be more or less appropriate.

Therefore, in addition to identifying the specific goal of your research, you must also identify how you propose to reach your goal. You cannot wait until you're chin deep in the project to plan and design your strategy. In the formative stages of a research project, much can be decided: Where are the data? Do any existing data address themselves to the research problem? If the data exist, are you likely to have access to them? And if you have access to the data, what will you do with them after they are in your possession? We might go on and on. Such questions merely hint at the fact that planning and design cannot be postponed. Each of the questions just listed—and many more—must have an answer early in the research process.[1]

4. *Research usually divides the principal problem into more manageable subproblems.* From a design standpoint, it is often helpful to break a main research problem into several subproblems that, when solved, will resolve the main problem.

Breaking down principal problems into small, easily solvable subproblems is a strategy we use in everyday living. For example, suppose you want to get from your hometown to a town 50 miles away. Your principal goal is to get from one location to the other as

[1] It should be apparent from the questions in this paragraph that we are using the word *data* as a plural noun (for instance, we ask "Where *are* the data?" rather than "Where *is* the data?"). Contrary to popular usage of the term as a singular noun, *data*, which was originally a Latin word, refers to more than one piece of information. A single piece of information is known as a *datum*, or sometimes as a *data point*.

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expeditiously as possible. You soon realize, however, that the problem involves several subproblems:

Main problem:	How do I get from Town A to Town B?
Subproblems:	1. What is the most direct route?
	2. How far do I travel on the highway?
	3. Which exit should I take to leave the highway?

What seems like a single question can be divided into at least three smaller questions that must be addressed before the principal question can be resolved.

So it is with most research problems. By closely inspecting the principal problem, the researcher often uncovers important subproblems. By addressing each of the subproblems, the researcher can more easily address the main problem. If researchers don't take the time or trouble to isolate the lesser problems within the major problem, their research projects can become cumbersome and difficult to manage.

5. *Research is guided by the specific research problem, question, or hypothesis.* Having stated the problem and its attendant subproblems, the researcher usually forms one or more hypotheses about what he or she may discover. A **hypothesis** is a logical supposition, a reasonable guess, an educated conjecture. It provides a tentative explanation for a phenomenon under investigation. It may direct your thinking to possible sources of information that will aid in resolving one or more subproblems and, in the process, the principal research problem.

Hypotheses are certainly not unique to research. They are constant, recurring features of everyday life. They represent the natural working of the human mind. Something happens. Immediately you attempt to account for the cause of the event by making a series of reasonable guesses. In so doing, you are hypothesizing. As an example, let's take a commonplace event: You come home after dark, open the front door, and reach inside for the switch that turns on a nearby table lamp. Your fingers find the switch. You flip it. No light. At this point, you begin to construct a series of reasonable guesses—hypotheses—to explain the lamp's failure:

1. The bulb has burned out.
2. The lamp is not plugged into the wall outlet.
3. A late afternoon thunderstorm interrupted the electrical service.
4. The wire from the lamp to the wall outlet is defective.
5. You forgot to pay your electric bill.

Each of these hypotheses hints at a direction you might proceed in order to acquire information that may resolve the problem of the malfunctioning lamp. Now you go in search of information to determine which hypothesis is correct. In other words, you look for data that will support one of your hypotheses and enable you to reject others.

1. You go out to your car, get a flashlight, find a new bulb, and insert the new bulb. The lamp fails to light. (Hypothesis 1 is rejected.)
2. You glance down at the wall outlet and see that the lamp is plugged into it. (Hypothesis 2 is rejected.)
3. You look at your neighbors' homes. Everyone has electrical power. (Hypothesis 3 is rejected.)
4. You go back into your house and lift the cord that connects the lamp to the wall outlet. The lamp lights briefly and then goes out. You lift the cord again. Again, the lamp lights briefly. The connecting cord is defective. (Hypothesis 4 is supported. Furthermore, because you clearly do have an active electric current, you can reject hypothesis 5—you did pay your last electric bill.)
5. Fortunately, hypothesis 4 solved the problem. By repairing or replacing the cord, you can count on adequate light from the lamp in the near future.

Hypotheses in a research project are as tentative as those just formed for the malfunctioning lamp. For example, a biologist might speculate that certain human-made chemical compounds increase the frequency of birth defects in frogs. A psychologist might speculate that certain

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personality traits lead people to show predominantly liberal or conservative voting patterns. A marketing researcher might speculate that humor in a television commercial will capture viewers' attention and thereby increases the odds that viewers will buy the advertised product. Notice the word *speculate* in all of these examples. Good researchers always begin a project with open minds about what they may—or may *not*—discover in their data.

Even with the best of data, however, hypotheses in a research project are rarely proved or disproved beyond the shadow of a doubt. Instead, they are either *supported* or *not supported* by the data. If the data are consistent with a particular hypothesis, the researcher can make a case that the hypothesis probably has some merit and should be taken seriously. In contrast, if the data run contrary to a hypothesis, the researcher *rejects* the hypothesis and turns to others as being more likely explanations of the phenomenon in question.

Over time, as particular hypotheses are supported by a growing body of data, they evolve into theories. A **theory** is an organized body of concepts and principles intended to explain a particular phenomenon. Like hypotheses, theories are tentative explanations that new data either support or do not support. To the extent that new data contradict a particular theory, a researcher will either modify it to better account for the data or reject the theory altogether in favor of an alternative explanation.

Once one or more researchers have developed a theory to explain a phenomenon of interest, the theory is apt to drive further research, in part by posing new questions that require answers and in part by suggesting hypotheses about the likely outcomes of particular investigations. For example, one common way of testing a theory is to make a prediction (hypothesis) about what should occur *if the theory is a viable explanation of the phenomenon under study*. As an example, let's consider Albert Einstein's theory of relativity, first proposed in 1915. Within the context of his theory, Einstein hypothesized that light passes through space as photons—tiny masses of spectral energy. If light has mass, Einstein reasoned, then it should be subject to the pull of a gravitational field. A year later, Karl Schwarzchild predicted that, based on Einstein's reasoning, the gravitational field of the sun should bend light rays considerably more than Isaac Newton had predicted many years earlier. In May 1919, a group of English astronomers traveled to Brazil and North Africa to observe how the sun's gravity distorted the light of a distant star now visible due to an eclipse of the sun. After the data were analyzed and interpreted, the results clearly supported the Einstein–Schwarzchild hypothesis and, thus, Einstein's theory of relativity.

For practice in identifying the hypothesis or research question in a research study, go to the Activities and Applications section in Chapter 1 of MyEducationalResearchLab, located at www.myeducationlab.com. Complete Activity 3: Identifying the Hypothesis or Research Question.

At this point, we should return to a point made earlier, this time emphasizing a particular word: The researcher *usually* forms one or more hypotheses about what he or she may discover. Hypotheses—predictions—are an essential ingredient in certain kinds of research, especially experimental research (see Chapter 10). To a lesser degree, they guide most other forms of research as well, but they are intentionally *not* identified in the early stages of some kinds of qualitative research (e.g., see the discussion of *grounded theory* research in Chapter 7). Yet regardless of whether researchers form specific hypotheses in advance, they must, at a minimum, use their research problem or question to focus their efforts.

6. *Research accepts certain critical assumptions.* In research, assumptions are equivalent to axioms in geometry—self-evident truths, the *sine qua non* of research. The assumptions must be valid or else the research is meaningless. For this reason, careful researchers—certainly those conducting research in an academic environment—set forth a statement of their assumptions as the bedrock upon which their study must rest. In your own research, it is essential that others know what you assume to be true with respect to your project. If one is to judge the quality of your study, then the knowledge of what you assume as basic to the very existence of your study is vitally important.

An example may clarify the point. Imagine that your problem is to investigate whether students learn the unique grammatical structures of a language more quickly by studying only one foreign language at a time or by studying two foreign languages concurrently. What assumptions would underlie such a problem? At a minimum, the researcher must assume that

- The teachers used in the study are competent to teach the language or languages in question and have mastered the grammatical structures of the language(s) they are teaching.
- The students taking part in the research are capable of mastering the unique grammatical structures of any language(s) they are studying.
- The languages selected for the study have sufficiently different grammatical structures that students could learn to distinguish between them.

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Whereas a hypothesis involves a prediction that may or may not be supported by the data, an **assumption** is a condition that is taken for granted, without which the research project would be pointless. In the Einstein example presented earlier, we assume that the astronomers who went to observe the star's light were competent to do so and that their instruments were sensitive enough to measure the slight aberration caused by the sun's gravitational pull.

Assumptions are usually so self-evident that a researcher may consider it unnecessary to mention them. For instance, two assumptions underlie almost all research:

- The phenomenon under investigation is somewhat lawful and predictable; it is *not* comprised of completely random events.
- Certain cause-and-effect relationships can account for the patterns observed in the phenomenon.

Aside from such basic ideas as these, careful researchers state their assumptions so that others inspecting the research project may evaluate it in accordance with their *own* assumptions. For the beginning researcher, it is better to be overly explicit than to take too much for granted.

7. *Research requires the collection and interpretation of data in an attempt to resolve the problem that initiated the research.* After a researcher has isolated the problem, divided it into appropriate subproblems, posited reasonable questions or hypotheses, and identified the assumptions that are basic to the entire effort, the next step is to collect whatever data seem appropriate and to organize them in meaningful ways so that they can be interpreted.

Events, observations, and measurements are, in and of themselves, *only* events, observations, and measurements—nothing more. The significance of the data depends on how the researcher extracts *meaning* from them. In research, data uninterpreted by the human mind are worthless: They can never help us answer the questions we have posed.

Yet researchers must recognize and come to terms with the subjective and dynamic nature of interpretation. Consider the myriad of books written on the assassination of U.S. President John F. Kennedy. Different historians have studied the same events: One may interpret them one way, and another may arrive at an entirely different conclusion. Which one is right? Perhaps they both are; perhaps neither is. Both may have merely posed new problems for other historians to try to resolve. Different minds often find different meanings in the same set of facts.

Once we believed that clocks measured time and that yardsticks measured space. In one sense, they still do. We further assumed that time and space were two different entities. Then came Einstein's theory of relativity, and time and space became locked into one concept: the time–space continuum. What is the difference between the old perspective and the new perspective? The way we think about, or interpret, the same information. The realities of time and space have not changed; the way we interpret them has.

Underlying and unifying any research project is its methodology. The research methodology directs the whole endeavor: It controls the study, dictates how the data are acquired, arranges them in logical relationships, sets up an approach for refining and synthesizing them, suggests a manner in which the meanings that lie below the surface of the data become manifest, and finally yields one or more conclusions that lead to an expansion of knowledge. Thus, research methodology has two primary functions:

1. To dictate and control the acquisition of data
2. To corral the data after their acquisition and extract meaning from them

The second of these functions is what we mean by the phrase *interpretation of the data*.

Data demand interpretation. But no rule, formula, or algorithm can lead the researcher unerringly to a correct interpretation. Interpretation is inevitably subjective: It depends entirely on the researcher's hypotheses, assumptions, and logical reasoning processes. In later chapters, we will present a number of potentially useful methods of organizing and interpreting data.

Now think about how we began this chapter. We suggested that certain activities cannot accurately be called research. At this point, you can understand why. None of those activities demands that the researcher draw any conclusions or make any interpretation of the data.

8. *Research is, by its nature, cyclical or, more exactly, helical.* The research process follows a cycle and begins simply. It follows logical, developmental steps:

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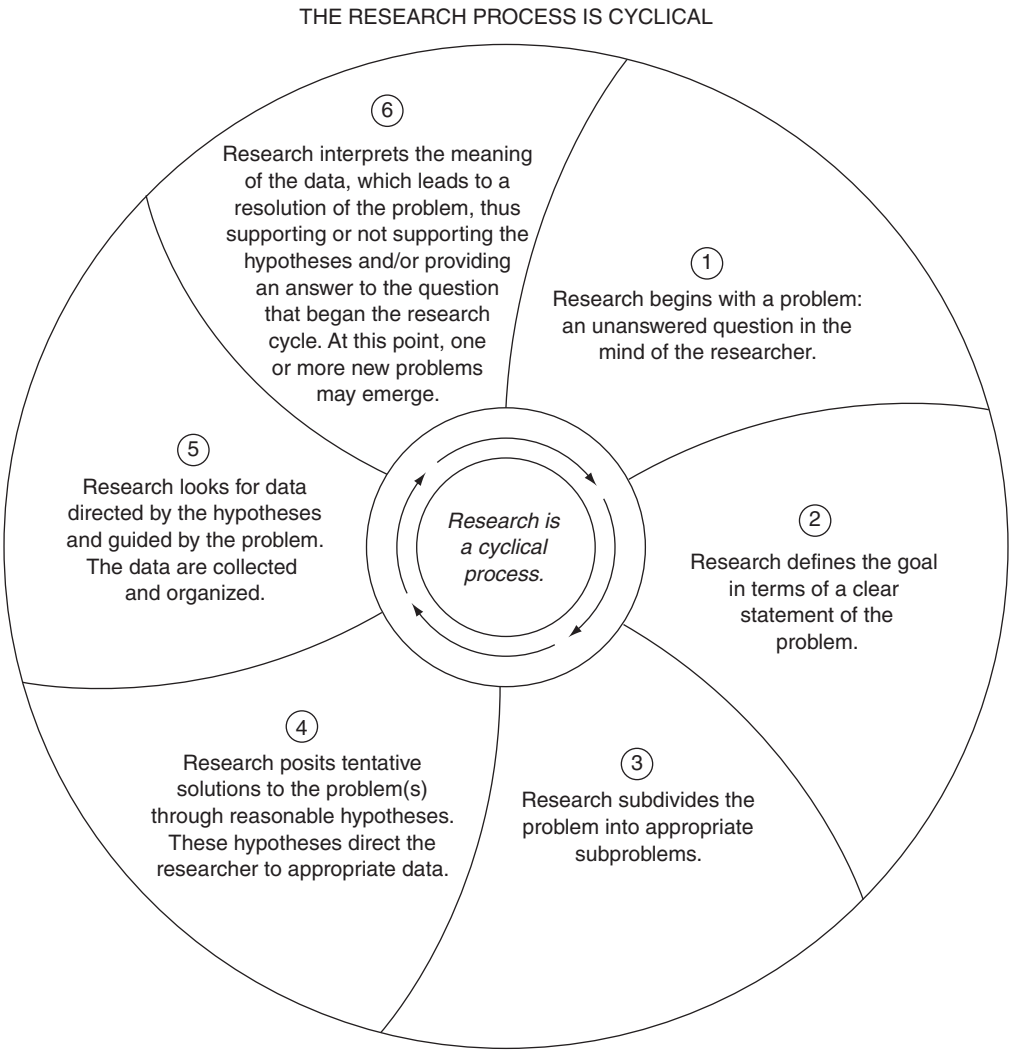
a. A questioning mind observes a particular situation and asks, Why? What caused that? How come? (This is the subjective origin of research.)
b. One question becomes formally stated as a problem. (This is the overt beginning of research.)
c. The problem is divided into several simpler, more specific subproblems.
d. Preliminary data are gathered that appear to bear on the problem.
e. The data seem to point to a tentative solution of the problem. A guess is made; a hypothesis or guiding question is formed.
f. Data are collected more systematically.
g. The body of data is processed and interpreted.
h. A discovery is made; a conclusion is reached.
i. The tentative hypothesis is either supported by the data or is not supported; the question is either answered (partially or completely) or not answered.
j. The cycle is complete.

For practice in identifying steps in the research process, go to the Building Research Skills section in Chapter 1 of MyEducationalResearchLab, located at www.myeducationlab.com.

The resolution of the problem or the tentative answer to the question completes the cycle, as is shown in Figure 1.1. Such is the format of all research. Different academic disciplines merely use different routes to arrive at the same destination.

But the neatly closed circle of Figure 1.1 is deceptive. Research is rarely conclusive. In a truer sense, the research cycle might be more accurately conceived of as a *helix*, or spiral, of research. In exploring an area, one comes across additional problems that need resolving, and so the process must begin anew. Research begets more research.

FIGURE 1.1
The research cycle



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To view research in this way is to invest it with a dynamic quality that is its true nature—a far cry from the conventional view, which sees research as a one-time act that is static, self-contained, an end in itself. Here we see another difference between true research and the nonexamples of research with which this chapter opened. Every researcher soon learns that genuine research yields as many problems as it resolves. Such is the nature of the acquisition of knowledge.

Exploring Research in Your Field

Earlier in the chapter, we mentioned that academic research is popularly seen as an activity far removed from everyday living. Even graduate students working on theses or dissertations may consider their task to be meaningless busywork that has little or no relevance to the world beyond the university campus. This "busywork" conception of an academic program's research requirement is simply not accurate. Conducting the research required to write an acceptable thesis or dissertation is one of the most valuable educational experiences a person can have. Furthermore, a good research project adds to our knowledge about our physical and social environments and so can ultimately promote the welfare and well-being of ourselves and the planet as a whole.

Even if you plan to become a practitioner rather than a researcher—say, a nurse, social worker, or school principal—knowledge of strong research methodologies and appropriate ways to collect and analyze data is essential for keeping up with advances in your field. The alternative—that is, *not* being well versed in sound research practices—can lead you to base important professional decisions on faulty data, inappropriate interpretations and conclusions, or unsubstantiated personal intuitions. Truly competent and effective practitioners base their day-to-day decisions and long-term priorities on solid research findings in their field.

As a way of getting your feet wet in the world of research, take some time to read articles in research journals in your own academic discipline. You can do so by spending an hour or two in your local college or university library; you may also be able to find some relevant journals on the Internet.

Browsing the Periodicals Section of the Library

The library of any college or university houses numerous professional journals that describe a wide range of research studies in virtually any field of study. To find research studies related to a particular topic, you might begin with the paper indexes in the library's reference section or the online databases available through the library's computer system (more about such resources in Chapter 4). The research journals themselves are typically kept in a periodicals section of the library. Following are examples of what you might find there:

American Educational Research Journal
American Historical Review
American Journal of Distance Education
Child Development
Early Childhood Research Quarterly
Environmental Research
Hispanic Journal of Behavioral Sciences
Journal of Anthropological Research
Journal of Black Studies
Journal of Business Research
Journal of Experimental Psychology
Journal of Management
Journal of Physical Education, Recreation, and Dance
Journal of Research in Crime and Delinquency
Journal of Speech, Language and Hearing Research
Organizational Dynamics
Professional Geographer
Research in Consumer Behavior
Research in Nursing and Health
Research in Social Problems and Public Policy
Sex Roles
Sociology and Social Research
Training and Development

Some libraries organize these journals alphabetically by title. Others organize them using the Library of Congress classification system, which allows journals related to the same topic to be placed close together (more about the Library of Congress system in Chapter 2).

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Your professors should have suggestions about journals that are especially relevant to your academic discipline. Reference librarians can be helpful as well. In addition, especially if you are shy about asking other people for advice, you can get insights about important journals by scanning the reference lists in textbooks in your discipline.

Browse the journals related to your field just to get acquainted with them. Go first to those that pique your interest and skim a few studies that relate to particularly intriguing topics. Then, get acquainted with as many of the journals in your discipline as you can. Competent researchers have general knowledge of the resources available in their field.

Finding Journals on the Internet

The **Internet** is a sprawling collection of computer networks linking millions of computers all over the world. With each passing year it becomes an increasingly ubiquitous and essential aspect of daily life. And as most of our readers undoubtedly know, it is a powerful way to access a wide variety of information on an almost limitless number of topics.

If for some reason you have not yet "traveled" on the Internet, this is definitely the time to start! If you do not have a personal computer that allows you Internet access, your college or university should have many computers in its library and elsewhere through which you can quickly get online. Ask a friend to look over your shoulder and guide you as you take your first steps into cyberspace. With practice, using the Internet will soon become second nature, and you'll wonder how you ever got along without it.

As you read later chapters of this book, you will learn about a wide variety of resources that the Internet can offer to both novice and expert researchers. For now, we'll limit our discussion to **online journals**, which are available in electronic form—either, instead of, or in addition to paper form. Many journals are accessible online only for a subscription fee or through the online databases to which many university libraries subscribe (more about such databases in Chapter 2). But some online journals are available free of charge to anyone with Internet access. Here are several examples of easily accessed online journals and their Internet addresses:

Folklore
www.folklore.ee/folklore

Online Journal of Peace and Conflict Resolution
www.trinstitute.org/ojpcr

Sociological Research Online
www.socresonline.org.uk

For practice in using the Internet to locate journal articles, go to the Activities and Applications section in Chapter 1 of MyEducationalResearchLab, located at www.myeducationlab.com. Complete Activity 4: Using the Internet to Locate Journal Articles.

Keep in mind that the quality of research you find in your explorations of the library and the Internet may vary considerably. One rough indicator of the quality of a study is whether it has been juried or nonjuried. A **juried** (or *refereed*) research report has been judged by respected colleagues in one's field and deemed to be of sufficient quality and importance to warrant publication. For instance, the editors of many academic journals send submitted manuscripts to one or more reviewers who pass judgment on the manuscripts, and only manuscripts that meet certain criteria are published in the journal. A **nonjuried** (or *nonrefereed*) report is one that appears in a journal or on the Internet without first being screened by one or more experts. Some nonjuried reports are excellent, but others may not be.

PRACTICAL APPLICATION Evaluating the Research of Others

An important skill for any researcher is the ability to review the work of others and evaluate the quality of their methods, results, and conclusions. In some cases, this is quite easily accomplished; in other cases, it is more difficult. By developing your ability to evaluate other researchers' work, you get a better sense of how to improve your own research efforts. We suggest that you begin to sharpen your evaluation skills by locating several research articles relevant to your interests. As you read and study the articles, consider the questions in the following checklist.

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✔ CHECKLIST

Reflective Questions to Consider When Evaluating Research

_____ 1. In what journal or other source did you find the research article? Was it reviewed by experts in the field before it was published? That is, was the article in a *juried* (refereed) publication?

_____ 2. Does the article have a stated research question or problem? That is, can you determine the focus of the author's work?

_____ 3. Does the article describe the collection of new data, or does it describe and synthesize previous studies in which data were collected?

_____ 4. Is the article logically organized and easy to follow? What could have been done to improve its organization and readability?

_____ 5. Does the article contain a section that describes and integrates previous studies on this topic? In what ways is this previous work relevant to the research problem?

_____ 6. If the author explained procedures that were followed in the study, are these procedures clear enough that you could repeat the work and get similar results? What additional information might be helpful or essential for you to replicate the study?

_____ 7. If data were collected, can you describe how they were collected and how they were analyzed? Do you agree with what was done? If you had been the researcher, what additional things might you have done?

_____ 8. Do you agree with the interpretation of the results? Why or why not?

_____ 9. Finally, reflect over the entire article. What is, for you, most important? What do you find most interesting? What do you think are the strengths and weaknesses of this article? Will you remember this article in the future? Why or why not?

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GUIDELINES Benefiting From Others' Research

As you begin to evaluate selected articles by using the questions in the checklist, it may be wise to keep three guidelines in mind:

1. *Keep a running record of helpful articles in a notebook or computer document.* Include bibliographic information such as

- The author's name
- The title of the article
- The name of the journal and the year, volume and issue numbers, and page numbers
- Keywords and phrases that capture the focus of the article
- If applicable, the Internet address at which you found the article

You may think that you will always be able to recall where you found an article and what you learned from it. However, our own experiences tell us that you probably *will* forget a good deal of what you read unless you keep a written record of it.

2. *Whenever you review someone else's work, take time to consider how you can improve your own work because of it.* Ask yourself, What have I learned that I would (or would not) want to incorporate into my own research? Perhaps it is a certain way of writing, a specific method of data collection, or a particular approach to data analysis. You should constantly question and reflect on what you read.

3. *Finally, don't read only one or two articles and think that you are done.* Get used to reading and evaluating; for a researcher, this is a lifelong endeavor. Always, always look for additional things you can learn.

For Further Reading

Anglin, G. J., Ross, S. M., & Morrison, G. R. (1995). Inquiry in instructional design and technology: Getting started. In G. Anglin (Ed.), *Instructional technology: Past, present, and future* (pp. 340–347). Englewood, CO: Libraries Unlimited.

Bouma, G. D., & Ling, R. (2004). *The research process* (5th ed.). New York: Oxford University Press.

Davitz, J. R., & Davitz, L. L. (1996). *Evaluating research proposals: A guide for the behavioral sciences.* Upper Saddle River, NJ: Prentice Hall.

Goodwin, C. J. (2007). *Research in psychology: Methods and design* (5th ed.). New York: Wiley.

Howe, R., & Lewis, R. (1994). *A student guide to research in social science.* New York: Cambridge University Press.

Leedy, P. (1981). *How to read research and understand it.* New York: Macmillan.

Luczun-Friedman, M. E. (1986). Introduction to research: A basic guide to scientific inquiry. *Journal of Post Anesthetic Nursing*, *1*, 64–75.

McMillan, J. H., & Wergin, J. F. (2006). *Understanding and evaluating educational research* (3rd ed.). Upper Saddle River, NJ: Merrill/Prentice Hall.

Priest, S. H. (1996). *Doing media research: An introduction.* Thousand Oaks, CA: Sage.

Rosnow, R. L., & Rosenthal, R. (2008). *Beginning behavioral research: A conceptual primer* (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Now go to MyEducationalResearchLab at www.myeducationlab.com to take a quiz to evaluate your mastery of chapter concepts. Review, Practice, and Enrichment exercises are also available to help you master the chapter. Feedback for these exercises is provided so that you can see why your answers are correct or incorrect.

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