CHAPTER 1

PSYCHOLOGY, SCIENCE, AND LIFE

CHAPTER OUTLINE

LEARNING OBJECTIVES

- Identify and describe the four basic goals of science.
- Explain why falsifiability is important in scientific research.
- Define the five different ways of knowing.
- Explain the advantages of using the scientific approach to knowing.
- Describe the four characteristics of scientific research.
- Explain how science is driven by government, culture, and society.
- Explain how researchers try to generalize from laboratory research to the natural world.
- Differentiate between science and pseudoscience.
- Identify the general characteristics of pseudoscience.

CHAPTER PREVIEW

You probably know a great deal about people and some interesting and important facts about psychology, but you probably know relatively little about psychological research. This book will show you how research helps you learn more about people from a psychological point of view. You can be certain of one thing: There are no simple explanations.

When you read through this chapter, you will learn that there are different ways of knowing about behavior. As a beginning psychologist, you will get a glimpse about why some types of knowledge are more useful than others. In addition, you will see that people can be resistant to changing what they believe. For instance, a lot of people believe in ESP or other paranormal phenomena, even though the scientific evidence for it just isn't there. One reason for such beliefs is that most people don't approach life the same way that scientists do, so the evidence they accept is sometimes pretty shaky.

Finally, this chapter will introduce you to some of the cautions you should be aware of when you read about psychological research in the popular media. Journalists are not scientists and scientists are not journalists, so there is a lot of potential for miscommunication between the two.

Why Are Research Methods Important Tools for Life?

The great thing about psychology is that people are both interesting and complicated, and we get to learn more about them. As you learn more, you will see that there can be a big difference between what we think we know about behavior and what is actually true. That is why you need this course.

Your course on research begins the process of learning about how psychological knowledge emerges. This knowledge can be useful when applied to people's lives. For instance, even four years after a domestic terrorist destroyed a federal building in Oklahoma City, killing 168 people, about half the survivors were still suffering from some kind of psychiatric illness (North et al., 1999). This pattern mirrors the effects of the terrorist attacks in the United States in 2001, the devastation and hurricane damage in Louisiana in 2005, and the experiences of many soldiers in combat in Iraq and Afghanistan, indicating the critical need to provide effective treatments (Humphreys, 2009).

We don't have to rely on such extreme examples of the use of psychological research. For example, scientists have suggested that some people suffer from addiction to indoor tanning (Zeller et al., 2006), with some people showing withdrawal symptoms when the researchers experimentally blocked the physiological effects of tanning (Kaur et al., 2006).

Another complex question relating to everyday life has involved something as seemingly noncontroversial as the *Baby Einstein* DVDs that purport to enhance language learning. Researchers have found that with increasing exposure to the *Baby Einstein* videos, language development actually slows down (Zimmerman, Christakis, & Meltzoff, 2007). In fact, Christakis (2009) has claimed that there is no experimental evidence indicating any advantages for language development in young infants. The developer of the videos makes the opposite claim. So how should we respond?

The only way to address such issues is to do research, which means that we need to create knowledge where it does not already exist. It might sound strange to think of "creating" knowledge, but that is exactly what happens in research. You end up with information that didn't exist before. This is one of the exciting parts of doing research: When you complete a study, you know something that nobody else in the world knows.

Creating Knowledge

In reading textbooks or journal articles, we might get the impression that we can carry out a research project and an explanation jumps clearly out of the results. In reality, there is always uncertainty in research. When we plan our investigations, we make many decisions about our procedures; when we examine our results, we usually have to puzzle through them before we are confident that we understand what we are looking at. In textbooks and journals, we only see the end product of ideas that have worked out successfully, and we do not see the twists and turns that led to those successes.

In this course, we will see that research requires imagination, creativity, and ingenuity in developing knowledge. If we want to address the question of indoor tanning addiction (or any other behavior), we need to understand how we can create knowledge, which is what a course in research methods is all about.

This course in research methods will also help you prepare for a possible future in psychology. If you attend graduate school, you will see that nearly all programs in psychology require an introductory psychology course, statistics, and research methods or experimental psychology. Most programs do not specify much more than that. Your graduate school professors want you to know how psychologists think; research-based courses provide you with this knowledge. Those professors will provide courses that will help you learn the skills appropriate for your career after you develop the basics. As a psychologist, you also need to understand the research process so you can read scientific journals, make sense of the research reports, and keep abreast of current ideas. Even if you don't choose a career as a researcher, you can still benefit from understanding research. Many jobs require knowledge of statistics and research.

In addition, every day you will be bombarded by claims that scientists have made breakthroughs in understanding various phenomena. It will be useful for you to be able to evaluate whether to believe what you hear. One of the purposes of a course in research is to help you learn how to think critically about the things people tell you. Is their research sound? Is the conclusion they draw the best one? Do they have something to gain from getting certain results? This process of critical thinking is a hallmark of science, but it is also a useful tool in everyday life.

Answering Important Questions

There are many important scientific questions in need of answers. The journal *Science* (2005) listed what some scientists see as the top 25 questions that society needs to address. At least five of these are associated with issues that psychologists can help address:

- What is the biological basis of consciousness?
- How are memories stored and retrieved?
- How did cooperative behavior evolve?
- To what extent are genetic variation and personal health linked?
- Will the world's population outstrip the world's capability to accommodate 10 billion people?

These questions deal with behavior, either directly or indirectly. As such, psychologists will need to be involved in providing portions of the answers to each of these questions.

Of the next 100 important questions, 13 are psychological and behavioral, at least in part. These questions appear in Table 1.1, along with the areas of psychology to which they relate. As you can see, regardless of your specific interest in psychology, you will be able to find important questions to answer.

TABLE 1.1 ***Psychological Questions Listed Among the Top Unanswered Questions in Science (2005) Magazine and the Areas of Psychology Associated with Them***

Area of Psychology	*Question*
Social psychology	What are the roots of human culture?
Cognitive psychology	What are the evolutionary roots of language and music?
Biological bases of behavior/Cognitive psychology	Why do we sleep?
Personality/Learning	Why do we dream?
Biological bases of behavior	What synchronizes an organism's circadian clocks?
Comparative psychology/Learning	How do migrating organisms find their way?
Social psychology/Biological bases of behavior	What is the biological root of sexual orientation?
Abnormal psychology	What causes schizophrenia?
Developmental psychology	Why are there critical periods for language learning?
Personality theory/Biological bases of behavior	How much of personality is genetic?
Biological bases of behavior	Do pheromones influence human behavior?
Developmental psychology/Biological bases of behavior	What causes autism?
Personality theory	Is morality hardwired into the brain?

After you complete this course in research methods, you will be able to apply your new knowledge to areas outside of psychology. The research skills you pick up here will let you complete solid psychological research projects, but will also help you understand life better.

Why We Do Research

People are curious, social beings. As a result, most of us are interested in what others are up to and why. By the time you read this book, you have been observing others since childhood. You have probably become a sophisticated observer of others' behaviors and can predict pretty well how your friends will react if you act a certain way, at least some of the time. How did you gain this knowledge? Throughout your life, you have done things and then you observed the effect you had on others. Although you probably have not gone through life wearing the stereotypical white lab coat worn by some scientists, you have acted like a scientist when you discovered that "When I do this, they do that." One of the differences between scientific and nonscientific observation, though, is that scientists develop systematic plans, and we work to reduce bias in recording observations. In the end, however, curiosity and enjoyment in finding out about behavior underlies the reason why researchers do their work—they think it is fun.

As curious scientists, we generally work toward four increasingly difficult goals based on our observations: **description, explanation, prediction,** and **control of behavior.**

Description

Description—A goal of science in which behaviors are systematically and accurately characterized.

Our tendency to act and then to observe others' reactions fulfills what seems to be a basic need for us: describing the world around us. In fact, when you can *describe* events around you, you have taken the first step in scientific discovery. In research, description involves a systematic approach to observing behavior

In your course on behavioral research, you will learn how, as scientists, we systematically begin to understand why people act as they do. The biggest difference between what you

do in your everyday observations and what scientists do is that scientists pay attention to a lot of details that we normally think of as unimportant. Unlike most of us in everyday, casual observation, researchers develop a systematic plan for making objective observations so we can generate complete and accurate descriptions.

Explanation

This leads to the second goal of science, *explanation***.** When we truly understand the causes of behavior, we can explain them. This is where theory comes in. A theory helps us understand behavior in a general sense. In scientific use, a theory is a general, organizing principle. When we have enough relevant information about behavior, we can develop an explanatory framework that puts all of that information into a nice, neat package—that is, into a theory.

In order to develop a theory, we look at the facts that we believe to be true and try to develop a coherent framework that links the facts to one another. The next step is to test the theory to see if it successfully predicts the results of new research. So we generate hypotheses, which are educated guesses, about behaviors, and we test those hypotheses with research. The research shows us whether our hypotheses are correct; if so, the theory receives further support.

If enough of our hypotheses support a theory, we regard it as more useful in understanding why people act in a certain way; if those hypotheses do not support the theory, we need to revise or abandon the theory. When we conduct research, we should have an open mind about an issue; we might have preconceived ideas of what to expect, but if we are wrong, we should be willing to change our beliefs. Scientists do not revise or abandon theories based on a single research study, but after enough evidence accumulates showing that a theory needs revision, then we work to determine what would constitute a better model of the behavior in question.

When we examine hypotheses, we make them objective and testable. This means that we define our terms clearly so others know how exactly what we mean, and we specify how our research will assess whether a hypothesis is valid. One of the important elements of the scientific method is **falsifiability.** That is, we will test hypotheses to see if we can prove them wrong. Scientists do not believe that you can prove that an idea or theory is absolutely true. There may be a case that you have missed that would disprove the theory. But we can see when the theory breaks down, that is, when it is falsified. The best we can do is to try to falsify the theory through continual testing. Each time we try and fail to falsify the theory, we have greater confidence in it.

For decades, people have used Freudian (psychodynamic) or behavioral theories to try to understand behavior. Both approaches have generated useful ideas about human behavior and have been accepted, at least in part, by the general public. You can see the impact of Freudian theory if you consider some of Freud's terms that have gained currency in everyday language, like repression, penis envy, or Freudian slips.

Explanation—A goal of science in which a researcher achieves awareness of why behaviors occur as they do.

Falsifiability—A characteristic of science such that any principle has to be amenable to testing to see if it is true or, more specifically, if it can be shown to be false.

Some psychologists believe that many of Freud's ideas are not scientifically valid. In fact, when Freudian ideas have been subjected to experimentation, they often have not stood up well. In a perspective as complicated as psychodynamic theory, though, there is still disagreement about the scientific status of ideas such as unconscious processing of information, and some psychologists maintain that Freudian ideas have received support from research (Westen, 1998). Many psychologists today believe that Freud was a good observer of what people do and think but that his explanations of those behaviors were not valid.

Behavioral terms have also made their way into everyday language, as when people talk about positive or negative reinforcement. In the case of behaviorism, most psychologists

affirm that it is a truly scientific approach. The ideas are objective and testable; in a wide variety of research programs, the utility of behavioral ideas has been well established. The principle of falsifiability is relevant here because theories are supposed to generate new ideas. If we can't test those ideas to see if they withstand scrutiny, the theory isn't very useful.

In research, we use hypotheses to make predictions about behavior; theories are useful for helping us explain why our predictions are accurate. As psychologists, we use theory to explain behavior. Our explanations differ from the ones we generate in everyday life in that scientific explanations involve well-specified statements of when behaviors will or will not occur.

Prediction

After you describe what people are likely to do in a certain situation, the next logical step is to expand your knowledge beyond simple description. The third step is to *predict* behavior. Suppose you tell a story. You are likely to make a prediction about how your friends will react to it. In considering whether to tell the story, you are making a prediction about their response. Every time you tell a story, you are engaging in a kind of experiment, making a prediction about the outcome. Naturally, you are sometimes wrong in your prediction because people are not easy to figure out.

Similarly, in any kind of research, scientists sometimes make poor predictions. When that happens, we try to figure out why the predictions were wrong and attempt to make better ones next time. A big difference between casual and scientific predictions is that scientists generally specify in great detail what factors lead to a given outcome. For most of us in everyday life, we have a vague notion of what behaviors to expect from others and, as a result, will accept our predictions as true if somebody behaves in ways that are roughly approximate to what we expected. There is a lot of room for error.

In our relationships with others, we find it helpful to describe and to predict their behaviors because it gives us a sense of control; we know in advance what will happen. At the same time, most of us want to know even more. We want to know *why* people act as they do. This is a difficult process because people's behaviors arise for a lot of reasons.

Control

The final step in the scientific study of behavior is *control***.** Some people may ask whether it is right for us to try to control others' behaviors. Most psychologists would respond that we affect others' behaviors, just as they affect ours. It is not a matter of *should* we control behavior, but rather *how* does it happen. For example, parents try to raise children who show moral behavior. It would be reassuring to parents if they knew how to create such behavior in their children.

Prediction—A goal of science in which a researcher can specify in advance those situations in which a particular behavior will occur.

Control—A goal of science in which a researcher can manipulate variables in order to produce specific behaviors.

In order to exert control of behavior effectively, we need to understand why the behavior occurs as it does. To understand the elements of control, we need to have well formulated theories. At this point, we don't have a single theory of behavior that can capture the variety of human experience.

Psychologists with different theoretical orientations may use similar statements in describing behavior, but they will begin to diverge when making predictions, become even more different regarding explanation, and even more so with respect to control. Table 1.2 summarizes the four different goals of science and how psychologists have used them at various points in their research programs.

TABLE 1.2 ***Example of the Goals of Research and How They Relate to the Development of Knowledge***

Description	One evening in 1964, a woman named Kitty Genovese was attacked and murdered while walking home from work at 3 a.m. in Queens, New York. It was originally—and mistakenly—reported that thirty-eight people saw what was happening from their apartment windows, but nobody helped; nobody even called the police. Two psychologists (e.g., Latané and Darley, 1970) wondered why this might happen. Their first step in understanding this phenomenon was to describe what happened. Based on descriptions of the initial event, Darley and Latané (1968) investigated some of the implications of Genovese's murder as they relate to helping behavior. This event was so striking that it led to an enormous amount of research and analysis (e.g., Cunningham, 1984; Takooshian & O'Connor, 1984) and stands as a prime example of research that results from something that occurs outside the laboratory. (Manning, Levine, and Collins [2007] have identified some important discrepancies between the actual events and what has been reported, but that does not detract from the important research that emerged based on what people thought had happened.) (See Cialdini, 1980, for a discussion of using naturally occurring events as a basis for behavioral research.)
Explanation	Once we can document and predict events, we can try to explain why behaviors occur. Psychologists have identified some of the underlying factors that may help us understand why people do not help others. As Darley and Latané (1968) have noted, when there are more people around, we are less likely to notice that somebody needs help and, even when we notice, we are less likely to offer aid. Part of this failure to act involves what has been called diffusion of responsibility; that is, when others are around, we can pass blame for our inaction to them, assuming less (or none) for ourselves.
Prediction	We can try to determine those conditions where helping behavior is likely to occur. Helping occurs as people try to avoid feeling guilty (Katsev et al., 1978), and helping diminishes if people have been relieved of guilt (Cialdini, Darby, & Vincent, 1973). In addition, if people believe that another individual is similar to them, they will help (Batson et al., 1981). Helping behavior involves complicated dynamics, so it will be difficult to identify precisely those conditions in which helping will occur, but we have identified some variables that allow us to make generally accurate predictions.
Control	Once we are confident of our predictions, we can ultimately control behavior. Behaviors in everyday life are seldom controlled by a single variable, but we can control behavior to a degree by manipulating the relevant variables. Programs to help poverty-stricken people often rely on guilt or empathic pleas. Depending on the particulars of the circumstances, we may help others if our mood is positive because we tend to generalize our good mood to everything around us (Clark & Teasdale, 1985); or we may help if our mood is negative, but we think that helping somebody will improve our mood (Manucia, Baumann, & Cialdini, 1984). Knowledge of these effects can help us control behaviors.

What Constitutes Scientific Knowledge?

Tenacity—The mode of accepting knowledge because one is comfortable with it and simply wants to hold onto it.

Authority—The mode of accepting knowledge because a person in a position of authority claims that something is true or valid.

There are different paths to factual knowledge in our lives. We will see that not all roads to knowledge are equally useful. The nineteenth-century American philosopher Charles Sanders Peirce (1877) identified several ways of knowing, which he called **tenacity, authority,** the **a priori method,** and the **scientific approach.** He concluded that the best approach was the scientific one.

Tenacity involves simply believing something because, based on your view of the world and your assumptions, you don't want to give up your belief. People do this all the time; you have probably discovered that it can be difficult to convince people to change their minds. However, if two people hold mutually contradictory beliefs, both cannot be true. According to Peirce, in a "saner moment," we might recognize that others have valid points, which can shake our own beliefs.

An alternative to an individual's belief in what is true, Peirce thought, could reside in what *authorities* say is true. This approach removes the burden from any single person to make decisions; instead, one would rely on an expert of some kind. Peirce talked about authorities who would force beliefs under threat of some kind of penalty, but we can generalize to any acceptance of knowledge because somebody whom we trust says something is true. As Peirce noted, though, experts with different perspectives will hold different beliefs. How is one to know which expert is actually right?

He then suggested that people might fix their knowledge based on consensus and reasoned argument, the *a priori approach.* The problem here, he wrote, was that reasons for believing something may change over time, so what was seen as true in the past may change. If we want to know universal truths, he reasoned, the most valid approach is through science, which is objective and self-correcting. Gradually, we can accumulate knowledge that is valid and discard ideas that prove to be wrong.

One of the major differences between scientific knowledge and other kinds of knowledge is that scientific work is much more systematic than casual observation. In addition, researchers abide by certain general principles in deciding what to believe. Our scientific knowledge relies on the fact that our observations are objective, data-driven, public, and potentially replicable. We will see shortly what this means, but what it all comes down to is the fact that, as scientists and as good decision makers, we need to evaluate how well research has been done. If we decide that the investigators have done everything correctly, we should be willing to change our minds about what we believe to be true, even if we don't like the truth. As it turns out, people are so complicated that a single research study will never lead to a complete change in beliefs; the process is incremental, with a series of small steps rather than a giant leap. This is why reports of *breakthroughs* are not credible—new knowledge is always the result of an accumulation of earlier research findings, no matter what you hear on the news.

Science Is Objective

What does it mean for our observations to be **objective?** One implication is that we define clearly the concepts we are dealing with. This is often easier said than done. Psychologists deal with complex and abstract concepts that are hard to measure. Nonetheless, we have to develop some way to measure these concepts in clear and systematic ways. For example, suppose we want to find out whether we respond more positively to attractive people than to others.

A priori method—The mode of accepting knowledge based on a premise that people have agreed on, followed by reasoned argument.

Scientific approach—The mode of accepting knowledge based on empirically derived data.

Objective—Measurements that are not affected by personal bias and that are well-defined and specified are considered objective.

To answer our question, we first have to define what we mean by "attractive." The definition must be objective; that is, the definition has to be consistent, clear, and understandable, even though it may not be perfect.

Researchers have taken various routes to creating objective definitions of attractiveness. Wilson (1978) simply mentioned that "a female confederate . . . appearing either attractive or unattractive asked in a neutral manner for directions to a particular building on central campus at a large Midwestern University" (p. 313). This vague statement doesn't really tell us as much as we would like to know. We don't have a clear definition of what the researchers meant by "attractiveness." Juhnke et al. (1987) varied the attire of people who seemed to be in need of help. The researchers defined attractiveness based on clothing. Unattractive people, that is, those wearing less desirable clothing, received help, even though they did not look very attractive.

On the other hand, Bull and Stevens (1980) used helpers with either good or bad teeth. In this case, attractive was defined as having good teeth, whereas unattractive was defined as having bad teeth. In this study, it didn't matter whether a person had good teeth. People were just as likely to help those with bad teeth, although they were willing to do so for a shorter length of time.

If the different research teams did not report how they created an unattractive appearance, we would have a harder time evaluating their research and repeating it exactly as they

did it. It may be very important to know what manipulation the researchers used. Differences in attractiveness due to the kinds of clothes you are wearing may not lead to the same reactions as differences due to unsightly teeth.

Interestingly, Stokes and Bikman (1974) found that people may be less willing to ask help *from* attractive people than from unattractive people. In their study, they defined attractiveness on the basis of physical appearance as rated by other people. This strategy relies on a clear and consistent method of defining attractiveness. Because attractiveness can be defined in many ways, we need to tell others what we mean when we use the term, which is what we mean by objectivity.

Science Is Data Driven

Our conclusions as scientists must also be **data driven.** This simply means that our conclusions must follow logically from our data. There may be several equally good interpretations from a single set of data. Regardless of which interpretation we choose, it has to be based on the data we collect.

To say that science is based on data is to say that it is **empirical.** Empiricism refers to the method of discovery that relies on systematic observation and data for drawing conclusions. Psychology is an empirical discipline in that knowledge is based on the results of research, that is, on data.

The critical point here is that if we are to develop a more complete and accurate understanding of the world around us, scientific knowledge based on data will, in the long run, serve us better than intuition alone. Don't discount intuition entirely; quite a few scientific insights had their beginnings in intuitions that were scientifically studied and found to be true. We just can't rely on it entirely because intuitions differ across people and may change over time.

Data driven—Interpretations of research that are based on objective results of a project are considered data driven.

Empirical approach—The method of discovery that relies on systematic observation and data collection for guidance on drawing conclusions.

Science Is Replicable and Verifiable

Our scientific knowledge has to be potentially **replicable** and **verifiable.** This means that others should have the opportunity to repeat a research project to see if the same results occur each time. Maybe the researchers who are trying to repeat the study will generate the same result; maybe they will not. We do not claim that *results* are scientific; rather, we claim that the *approach* is scientific. Any time somebody makes a claim but will not let others verify it as valid, we should be skeptical.

Why should one scientist repeat somebody else's research? As it turns out, there is a bias among journal editors to publish findings that show differences across groups and to reject studies showing no differences. So a relatively large number of research reports may describe differences that occurred accidentally. That is, groups may differ, but not for any systematic or reproducible reason. If the researcher were to repeat the study, a different result would occur.

Ioannidis (2005), referring to genetic and biomedical research, noted that "there is increasing concern that in modern research, false findings may be the majority or even the vast majority of published research claims" (p. 696). His conclusion comes, in part, from a recognition that journal editors and researchers are more impressed by findings that show that something interesting occurred but not by findings that do not reveal interesting patterns. Ioannidis's speculation may be true for psychological research, just as it is for biologically based studies.

Psychologists have recognized this problem for quite some time (e.g., Rosenthal, 1979). Fortunately, when a research project is repeated and when the same outcome results, our confidence in the results increases markedly (Moonesinghe, Khoury, & Janssens, 2007). The

Replicable—When scientists can recreate a previous research study, that study is replicable.

Verifiable—When scientists can reproduce a previous research study and generate the same results, it is verifiable.

reason that replication of research is such a good idea is that it helps us weed out findings that turn out to be false and strengthen our confidence in findings that are valid.

Sometimes even when researchers follow a completely scientific path, there can be great controversy in the conclusions about what the research is telling us. For instance, in the determination of the causes of rape, there are at least two distinctly different schools of thought. One approach invokes the ideas of evolutionary psychology. The other is more socially oriented. The arguments are heated, and each camp believes that it has useful insights into the problem. Both groups have data and theory to support their ideas, although both are clearly still incomplete.

Science Is Public

When we say that our research is **public,** we mean this literally. Scientists only recognize research as valid or useful when they can scrutinize it. Generally, we accept research as valid if it has undergone **peer review.** For instance, when a psychologist completes research, the next step is often to write the results in a scientific manuscript and submit it for publication in a research journal.

The editor of the journal will send the manuscript to experts in the field for their comments. If the editor and the reviewers agree that major problems have been taken care of, the article will appear in the journal. Otherwise, the article will be rejected. Among major journals in psychology, about a quarter or fewer of all manuscripts that researchers submit are published. The process of peer review is not perfect, but it is the standard means that journal editors use to decide what research to publish in their journals. Unfortunately, there is significant disagreement among reviewers and editors about what manuscripts are published and which are rejected (Kravitz et al, 2010).

Another approach to making our research public involves submitting a proposal to a research conference for a presentation. The process for acceptance to a conference resembles that for acceptance by a journal. In some cases, researchers may initially present their ideas at a conference, then follow up with a published article.

The Interaction of Science and Culture

Public—Scientists make their research public, typically by making presentations at conferences or by publishing their work in journal articles or books.

Peer review—A process in which researchers submit their research for publication in a journal or presentation at a conference to other experts in the field who evaluate the research.

Many people undoubtedly think of science as happening in laboratories remote from the lives of real people. Nothing could be farther from the truth. Scientists live in communities and go to the same movies you do, coach their children's soccer teams, and worry about the same things that you do. Not surprisingly, culture shapes the research conducted by many scientists because our culture shapes the way we think. For example, after the terrorist attacks in the United States, some person or persons sent anthrax spores through the mail, infecting a number of people and killing some of them. This spurred increased scientific attention to anthrax.

In addition, in an energy crisis, researchers in psychology, biology, physics, and chemistry are motivated to study patterns of energy-using behavior, the development of biofuels, creation of efficient technologies, and conservation of energy. When environmental issues loom, such as the release of massive amounts of oil in the Gulf of Mexico in 2010, researchers in the natural sciences may be predisposed to focus on ecological issues, and behavioral researchers will study the impact of the crisis on people's lives and behaviors. Children will receive particular scrutiny because research has revealed their susceptibility to post-traumatic stress disorder in times of catastrophe (La Greca & Silverman, 2009; Osofsky et al., 2009). Psychologists are as much a part of the community as anyone, so it should come as no surprise that our research reflects the needs and concerns of our society.