FIFTEENTH EDITION

The Practice of Social Research

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CENGAGE

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

PART 1 An Introduction to Inquiry

Learning Objectives

After studying this chapter, you will be able to . . .

- Identify the different ways people decide what's real.
- Be able to explain the fundamental nature of social science.
- Understand the basic options for conducting social science research.

Introduction

This book is about knowing things—not so much *what* we know as *how* we know it. Let's start by examining a few things you probably know already.

You know the world is round. You probably also know it's cold on the dark side of the moon (the side facing away from the sun), and you know people speak Japanese in Japan. You know that vitamin C can prevent colds and that unprotected sex can result in AIDS.

How do you know? If you think for a minute, you'll see you know these things because somebody told them to you, and you believed them. You may have read in *National Geographic* that people speak Japanese in Japan, and that made sense to you, so you didn't question it. Perhaps your physics or astronomy instructor told you it was cold on the dark side of the moon, or maybe you heard it on the news.

Some of the things you know seem obvious to you. If I asked you how you know the world is round, you'd probably say, "Everybody knows that." There are a lot of things everybody knows. Of course, at one time, everyone "knew" the world was flat.

Most of what you know is a matter of agreement and belief. Little of it is based on personal experience and discovery. A big part of growing up in any society, in fact, is the process of learning to accept that what everybody around you "knows" is so. If you don't know those same things, you can't really be a part of the group. If you were to question seriously that the world *is* round, you'd quickly find yourself set apart from other people. You might be sent to live in a hospital with others who ask questions like that.

So, most of what you know is a matter of believing what you've been told. Understand that there's nothing wrong with you in that respect. That's simply the way human societies are structured. The basis of knowledge is agreement. Because you can't learn all you need to know through personal experience and discovery alone, things are set up so you can simply believe what others tell you. You know some things through tradition and others from "experts." I'm not saying you shouldn't question this received knowledge; I'm just drawing your attention to the way you and society normally get along regarding what is so.

There are other ways of knowing things, however. In contrast to knowing things through agreement, you can know them through direct experience—through observation. If you dive into a glacial stream flowing through the Canadian Rockies, you don't need anyone to tell you it's cold.

When your experience conflicts with what everyone else knows, though, there's a good chance you'll surrender your experience in favor of agreement. For example, imagine you've come to a party at my house. It's a high-class affair, and the drinks and food are excellent. In particular, you're taken by one of the appetizers I bring around on a tray: a breaded, deep-fried tidbit that's especially zesty. You have a couple—they're so delicious! You have more. Soon you're subtly moving around the room to be wherever I am when I arrive with a tray of these nibblies.

Finally, you can contain yourself no longer. "What are they?" you ask. I let you in on the secret: "You've been eating breaded, deep-fried worms!" Your response is dramatic: Your stomach rebels, and you promptly throw up all over

What do you think?

The decision to have a baby is deeply personal. No one is in charge of who will have babies in the United States in any given year or of how many will be born. Although you must get a license to marry or go fishing, you do not need a license to have a baby. Many couples delay pregnancy, some pregnancies happen by accident, and some pregnancies are planned. Given all these uncertainties and idiosyncrasies, how can baby-food and diaper manufacturers know how much inventory to produce from year to year? By the end of this chapter, you should be able to answer this question.

See the *What do you think? . . . Revisited* box toward the end of the chapter.

Earl Babbie

the living room rug. What a terrible thing to serve guests!

The point of the story is that *both* of your feelings about the appetizer were quite real. Your initial liking for them was certainly real, but so was the feeling you had when you found out what you'd been eating. It should be evident, however, that the disgust you felt was strictly a product of the agreements you have with those around you that worms aren't fit to eat. That's an agreement you began the first time your parents found you sitting in a pile of dirt with half of a wriggling worm dangling from your lips. When they pried your mouth open and reached down your throat for the other half of the worm, you learned that worms are not acceptable food in our society.

Aside from these agreements, what's wrong with worms? They're probably high in protein and low in calories. Bite-sized and easily packaged, they're a distributor's dream. They are also a delicacy for some people who live in societies that lack our agreement that worms are disgusting. Some people might love the worms but be turned off by the deep-fried breading.

Here's a question to consider: "Are worms *really* good or *really* bad to eat?" And here's a more interesting question: "*How could you know* which was really so?" This book is about answering the second question.

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We learn some things by experience, others by agreement. This young man seems to be learning by personal experience.

Looking for Reality

Reality is a tricky business. You've probably long suspected that some of the things you "know" may not be true, but how can you actually know what's real? People have grappled with this question for thousands of years.

Knowledge from Agreement Reality

One answer that has arisen out of that grappling is science, which offers an approach to both agreement reality and experiential reality. Scientists have certain criteria that must be met before they'll accept the reality of something they haven't personally experienced. In general, an assertion must have both *logical* and *empirical* support: It must make sense, and it must not contradict actual observation. Why do earthbound scientists accept the assertion that it's cold on the dark side of the moon (away from the sun)? First, it makes sense, because the surface heat of the moon comes from the sun's rays. Second, the scientific measurements made on

the moon's dark side confirm the expectation. So, scientists accept the reality of things they don't personally experience—they accept an **agreement reality**—but they have special standards for doing so.

More to the point of this book, however, science offers a special approach to the discovery of reality through personal experience—that is, to the business of inquiry. **Epistemology** is the science of knowing; **methodology** (a subfield of epistemology) might be called the science of finding out. This book is an examination and presentation of social science methodology, or how social scientists find out about human social life. You'll see that some of the methods coincide with the traditional image of science but others have been specially geared to sociological concerns.

In the rest of this chapter, we'll look at inquiry as an activity. We'll begin by examining inquiry as a natural human activity, something you and I have engaged in every day of our lives. Next, we'll look at some kinds of errors we make in normal inquiry, and we'll conclude by examining what makes science different. We'll see some of the ways science guards against common human errors in inquiry.

"Issues and Insights: Social Research Making a Difference" gives an example of controlled social research challenging what "everybody knows."

Ordinary Human Inquiry

Practically all people exhibit a desire to predict their future circumstances. We seem quite willing, moreover, to undertake this task using *causal* and *probabilistic* reasoning. First, we generally recognize that future circumstances are somehow caused or conditioned by present ones. We learn that swimming beyond the reef may bring an unhappy encounter with a shark. As students we learn that studying hard will result in better grades. Second, we also learn that such patterns of cause and effect are *probabilistic* in nature: The effects occur more often when the causes occur than when the causes are absent—but not always. Thus, students learn that studying hard produces good grades in most instances, but not every time. We recognize the danger of swimming beyond the reef, without believing that every such swim will be fatal.

As we'll see throughout the book, science makes these concepts of causality and probability more explicit and provides techniques for dealing with them more rigorously than does casual human inquiry. It sharpens the skills we already have by making us more conscious, rigorous, and explicit in our inquiries.

In looking at ordinary human inquiry, we need to distinguish between prediction and understanding. Often, we can make predictions without understanding—perhaps you can predict rain when your trick knee aches. And often, even if we don't understand why, we're willing to act on the basis of a demonstrated predictive ability. The racetrack buff who finds that the third-ranked horse in the third race of the day always wins will probably keep betting without knowing, or caring, why it works out that way.

Whatever primitive drives or instincts motivate human beings, satisfying these urges depends heavily on the ability to predict future circumstances. However, the attempt to predict is often placed in a context of knowledge and understanding. If we can understand *why* things are related to one another, why certain regular patterns occur, we can predict even better than if we simply observe and remember those patterns. Thus, human inquiry aims at answering both "what" and "why" questions, and we pursue these goals by observing and figuring out.

As I suggested earlier, our attempts to learn about the world are only partly linked to direct, personal inquiry or experience. Another, much larger, part comes from the agreed-on knowledge that others give us. This agreement reality both assists and hinders our attempts to find out for ourselves. To see how, consider two important sources of our secondhand knowledge—tradition and authority.

agreement reality Those things we "know" as part and parcel of the culture we share with those around us.

epistemology The science of knowing; systems of knowledge.

methodology The science of finding out; procedures for scientific investigation.

Issues and Insights

Social Research Making a Difference

Medication errors in U.S. hospitals kill or injure about 770,000 patients each year, and the newly developed Computerized Physician Order Entry (CPOE) systems have been widely acclaimed as the solution to this enormous problem, which stems in part from the traditional system of using handwritten prescriptions.

Medical science research has generally supported the new technology, but an article in the *Journal of the American Medical Association* in March 2005 sent a shock wave through the medical community. The sociologist Ross Koppel and his colleagues used several of the research techniques you'll be learning in this book to test the effectiveness of the new technology. Their conclusion: CPOE was not nearly as effective as claimed; it did not prevent errors in medication (Koppel et al., 2005).

As you can imagine, those manufacturing and selling the equipment were not thrilled by the research, and it has generated an ongoing discussion within the health-care community. At last count, the study had been cited over 20,000 times in other articles, and Koppel has become a sought-after expert in this regard.

Source: Kathryn Goldman Schuyler, Medical Errors: Sociological Research Makes News, *Sociological Practice Newsletter* (American Sociological Association, Section on Sociological Practice), Winter 2006, p. 1.

Tradition

Each of us inherits a culture made up, in part, of firmly accepted knowledge about the workings of the world and the values that guide our participation in it. We may learn from others that eating too much candy will decay our teeth, that the circumference of a circle is approximately twenty-two sevenths of its diameter, or that masturbation will make you blind. Ideas about gender, race, religion, and different nations that you learned as you were growing up would fit in this category. We may test a few of these "truths" on our own, but we simply accept the great majority of them, the things that "everybody knows."

Tradition, in this sense of the term, offers some clear advantages to human inquiry. By accepting what everybody knows, we avoid the overwhelming task of starting from scratch in our search for regularities and understanding. Knowledge is cumulative, and an inherited body of knowledge is the jumping-off point for developing more of it. We often speak of "standing on the shoulders of giants"—that is, starting with the knowledge base of previous generations.

At the same time, tradition may be detrimental to human inquiry. If we seek a fresh understanding of something that everybody already understands and has always understood, we may be marked as fools for our efforts. More to the point, however, most of us rarely even think of seeking a different understanding of something we all "know" to be true.

Authority

Despite the power of tradition, new knowledge appears every day. Aside from our personal inquiries, we benefit throughout life from new discoveries and understandings produced by others. Often, acceptance of these new acquisitions depends on the status of the discoverer. You're more likely to believe the epidemiologist who declares that the common cold can be transmitted through kissing, for example, than to believe your Uncle Pete saying the same thing.

Like tradition, authority can both assist and hinder human inquiry. We do well to trust the judgment of the person who has special training, expertise, and credentials in a given matter, especially in the face of controversy. At the same time, inquiry can be greatly hindered by a legitimate authority who errs within his or her own special province. Biologists, after all, do make mistakes in the field of biology.

Inquiry is also hindered when we depend on the authority of experts speaking outside their realm of expertise. For example, consider the political or religious leader with no biochemical expertise who declares that marijuana is a dangerous drug. The advertising industry plays heavily on this misuse of authority by, for example, having popular athletes discuss the nutritional value of breakfast cereals or movie actors evaluate the performance of automobiles.

Both tradition and authority, then, are double-edged swords in the search for knowledge about the world. Simply put, they provide

us with a starting point for our own inquiry, but they can lead us to start at the wrong point and can push us off in the wrong direction.

Errors in Inquiry and Some Solutions

Quite aside from the potential dangers of tradition and authority, we often stumble and fall when we set out to learn for ourselves. Let's look at some of the common errors we make in our casual inquiries and the ways science guards against those errors.

Inaccurate Observations

Quite frequently, we make mistakes in our observations. For example, what was your methodology instructor wearing on the first day of class? If you have to guess, that's because most of our daily observations are casual and semiconscious. That's why we often disagree about "what really happened."

In contrast to casual human inquiry, scientific observation is a conscious activity. Simply making observation more deliberate can reduce error. If you had to guess what your instructor was wearing the first day of class, you'd probably make a mistake. If you had gone to the first class meeting with a conscious plan to observe and record what your instructor was wearing, however, you'd likely be more accurate. (You might also need a hobby.)

In many cases, both simple and complex measurement devices help guard against inaccurate observations. Moreover, they add a degree of precision well beyond the capacity of the unassisted human senses. Suppose, for example, that you had taken color photographs of your instructor that day. (See earlier comment about needing a hobby.)

Overgeneralization

When we look for patterns among the specific things we observe around us, we often assume that a few similar events are evidence of a general pattern. That is, we tend to overgeneralize on the basis of limited observations. This can misdirect or impede inquiry.

Imagine that you're a reporter covering an animal-rights demonstration. You have just two hours to turn in your story. Rushing to the scene, you start interviewing people, asking them why they're demonstrating. If the first two demonstrators you interview give you essentially the same reason, you might simply assume that the other 3,000 would agree. Unfortunately, when your story appears, your editor could get scores of letters from protesters who were there for an entirely different reason.

Realize, of course, that we must generalize to some extent in order to survive. It's probably not a good idea to keep asking whether *this* rattlesnake is poisonous. Assume they all are. At the same time, we have a tendency to overgeneralize.

Scientists guard against overgeneralization by seeking a sufficiently large sample of observations. The **replication** of inquiry provides another safeguard. Basically, this means repeating a study and checking to see if the same results occur each time. Then, as a further test, the study can be repeated under slightly varied conditions.

Selective Observation

One danger of overgeneralization is that it can lead to selective observation. Once you have concluded that a particular pattern exists and have developed a general understanding of why it does, you'll tend to focus on future events and situations that fit the pattern, and you'll ignore those that don't. Racial and ethnic prejudices depend heavily on selective observation for their persistence.

In another example, here's how Lewis Hill recalls growing up in rural Vermont:

> *Haying began right after the Fourth of July. The farmers in our neighborhood believed that anyone who started earlier was sure to suffer all the storms of late June in addition to those following the holiday which the old-timers said were caused by all the noise and smoke of gunpowder burning. My mother told me that my grandfather and other Civil War veterans claimed it always rained hard after a big battle. Things didn't always work out the way the older residents promised, of course, but everyone remembered only the times they did.*
>
> *(Hill, 2000: 35)*

Sometimes a research design will specify in advance the number and kind of observations to be made, as a basis for reaching a conclusion. If you

replication Repeating an experiment to expose or reduce error.

and I wanted to learn whether women were more likely than men to support the legality of abortion, we'd commit ourselves to making a specified number of observations on that question in a research project. We might select a thousand people to be interviewed on the issue. Alternatively, when making direct observations of an event, such as an animal-rights demonstration, social scientists make a special effort to find "deviant cases"—those who do not fit into the general pattern.

Illogical Reasoning

There are other ways in which we often deal with observations that contradict our understanding of the way things are in daily life. Surely one of the most remarkable creations of the human mind is "the exception that proves the rule." That idea doesn't make any sense at all. An exception can draw attention to a rule or to a supposed rule (in its original meaning, "prove" meant "test"), but in no system of logic can it validate the rule it contradicts. Even so, we often use this pithy saying to brush away contradictions with a simple stroke of illogic. This is particularly common in relation to group stereotypes. When a person of color, a woman, or a gay violates the stereotype someone holds for that group, it somehow "proves" that, aside from this one exception, the stereotype remains "valid" for all the rest. For example, a woman business executive who is kind and feminine is taken as "proof" that all other female executives are mean and masculine.

What statisticians have called the *gambler's fallacy* is another illustration of illogic in day-to-day reasoning. A consistent run of either good or bad luck is presumed to foreshadow its opposite. An evening of bad luck at poker may kindle the belief that a winning hand is just around the corner; many a poker player has stayed in a game much too long because of that mistaken belief. (A more reasonable conclusion is that they are not very good at poker.)

Although all of us sometimes fall into embarrassingly illogical reasoning in daily life, scientists avoid this pitfall by using systems of logic consciously and explicitly. Chapter 2 will examine the logic of science in more depth. For now, it's enough to note that logical reasoning is a conscious activity for scientists, who have colleagues around to keep them honest.

Science, then, attempts to protect us from the common pitfalls of ordinary inquiry. Accurately observing and understanding reality is not an obvious or trivial matter, as we'll see throughout this chapter and this book.

Before moving on, I should caution you that scientific understandings of things are also constantly changing. Any review of the history of science will provide numerous examples of old "knowledge" being supplanted by new "knowledge." It's easy to feel superior to the scientists of a hundred or a thousand years ago, but I fear there is a tendency to think those changes are all behind us. Now, we know the way things are.

In *The Half-Life of Facts* (2012), Samuel Arbesman addresses the question of how long today's scientific "facts" survive reconceptualization, retesting, and new discoveries. For example, half of what medical science knew about hepatitis and cirrhosis of the liver was replaced in 45 years.

The fact that scientific knowledge is constantly changing actually points to a strength of scientific scholarship. Whereas cultural beliefs and superstitions may survive unchallenged for centuries, scientists are committed to achieving an ever better understanding of the world. My purpose in this book is to prepare you to join that undertaking.

The Foundations of Social Science

The two pillars of science are logic and observation. A scientific understanding of the world must (1) make sense and (2) correspond with what we observe. Both elements are essential to science and relate to three major aspects of the overall scientific enterprise: theory, data collection, and data analysis.

In the most general terms, scientific theory deals with logic, data collection with observation, and data analysis with patterns in what is observed and, where appropriate, the comparison of what is logically expected with what is actually observed. Though most of this textbook deals with data collection and data analysis—demonstrating how to conduct empirical research—recognize that social *science* involves all three elements. As such, Chapter 2 of this book concerns the theoretical context of research; Parts 2 and 3 focus on data collection; and Part 4 offers an introduction to the analysis of data. Figure 1-1 offers a schematic view of how this book addresses these three aspects of social science.

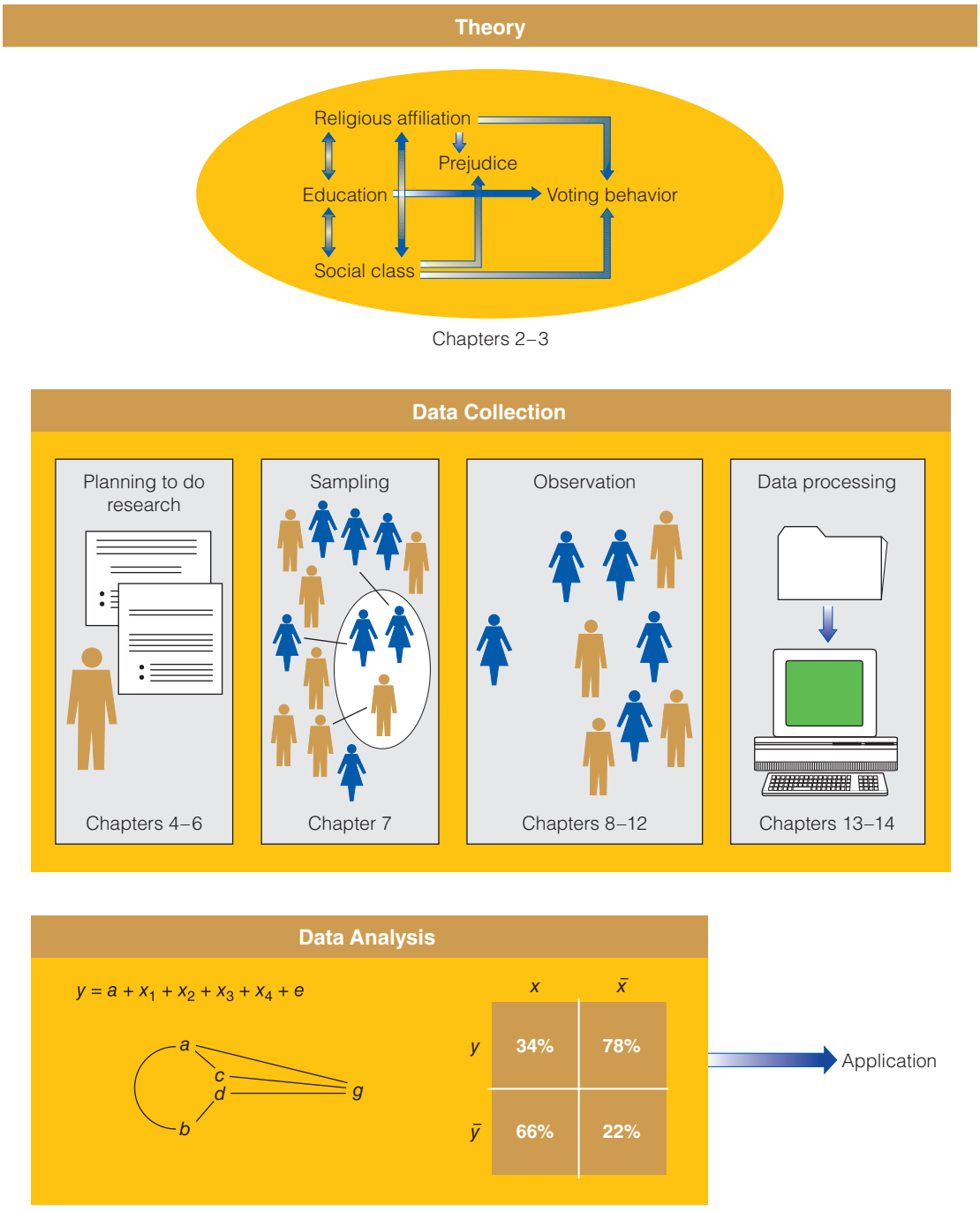


FIGURE 1-1

Social Science = Theory + Data Collection + Data Analysis. This figure offers a schematic overview of the major stages of social research, indicating where each is discussed in this book.

Let's turn now to some of the fundamental issues that distinguish social science from other ways of looking at social phenomena.

Theory, Not Philosophy or Belief

Social science theory has to do with what is, not with what *should* be. For many centuries, however, social theory has combined these two orientations. Social philosophers liberally mixed their observations of what happened around them, their speculations about why, and their *ideas* about how things ought to be. Although modern social scientists may do the same from time to time, realize that social *science* has to do with how things are and why.

This means that scientific **theory**—and science itself—cannot settle debates on value. Science cannot determine whether capitalism is better or worse than socialism except in terms of agreed-on criteria. To determine scientifically whether capitalism or socialism most supports human dignity and freedom, we would first have to agree on some measurable definitions of dignity and freedom. Our conclusions would depend totally on this agreement and would have no general meaning beyond it.

By the same token, if we could agree that suicide rates, say, or giving to charity were good measures of a religion's quality, then we could determine scientifically whether Buddhism or Christianity is the better religion. Again, our conclusion would be inextricably tied to the given criterion. As a practical matter, people seldom agree on criteria for determining issues of value, so science is seldom useful in settling such debates. In fact, questions like these are so much a matter of opinion and belief that scientific inquiry is often viewed as a threat to what is "already known."

We'll consider this issue in more detail in Chapter 12, when we look at evaluation research. As you'll see, social scientists have become increasingly involved in studying programs that reflect ideological points of view, such as affirmative action or welfare reform. One of the biggest problems researchers face is getting people to agree on criteria of success and failure. Yet such criteria are essential if social science research is to tell us anything useful about matters of value. By analogy, a stopwatch can't tell us if one sprinter is better than another unless we first agree that speed is the critical criterion.

Social science, then, can help us know only what is and why. We can use it to determine what ought to be, but only when people agree on the criteria for deciding what's better than something else—an agreement that seldom occurs. With that understood, let's turn now to some of the fundamental bases upon which social science allows us to develop theories about what is and why.

theory A systematic explanation for the observations that relate to a particular aspect of life: juvenile delinquency, for example, or perhaps social stratification or political revolution.

Social Regularities

In large part, social science theory aims to find patterns in social life. That aim, of course, applies to all science, but it sometimes presents a barrier to people when they first approach social science.

Actually, the vast number of formal norms in society create a considerable degree of regularity. For example, only people who have reached a certain age can vote in elections. In the U.S. military, until recently, only men could participate in combat. Such formal prescriptions, then, regulate, or regularize, social behavior.

Aside from formal prescriptions, we can observe other social norms that create more regularities. Republicans are more likely than Democrats to vote for Republican candidates. University professors tend to earn more money than do unskilled laborers. Men earn more than do women. (We'll look at this pattern in more depth later in the book.) The list of regularities could go on and on.

Three objections are sometimes raised in regard to such social regularities. First, some of the regularities may seem trivial. For example, Republicans vote for Republicans; everyone knows that. Second, contradictory cases may be cited, indicating that the "regularity" isn't totally regular. Some laborers make more money than some professors do. Third, it may be argued that the people involved in the regularity could upset the whole thing if they wanted to.

Let's deal with each of these objections in turn.

The Charge of Triviality

During World War II, Samuel Stouffer, one of the greatest social science researchers, organized a research branch in the U.S. Army to conduct studies in support of the war effort (Stouffer et al. 1949–1950). Many of the studies focused on the morale among soldiers. Stouffer and his colleagues found that there was a great deal of "common wisdom" regarding the bases of military morale. Much of the research undertaken by this organization was devoted to testing these "obvious" truths.

For example, people had long recognized that promotions affect morale in the military. When military personnel get promotions and the promotion system seems fair, morale rises. Moreover, it makes sense that people who are getting promoted will tend to think the system is fair, whereas those passed over will likely think the system is unfair. By extension, it seems sensible that soldiers in units with slow promotion rates will tend to think the system is unfair, and those in units with rapid rates will think the system is fair. But was this the way they really felt?

Stouffer and his colleagues focused their studies on two units: the Military Police (MPs), which had the slowest promotion rate in the Army, and the Army Air Corps (forerunner of the U.S. Air Force), which had the fastest promotion rate. It stood to reason that MPs would say the promotion system was unfair and that the air corpsmen would say it was fair. The studies, however, showed just the opposite.

Notice the dilemma faced by a researcher in a situation such as this. On the one hand, the observations don't seem to make sense. On the other hand, an explanation that makes obvious good sense isn't supported by the facts.

A lesser scientist would have set the problem aside "for further study." Stouffer, however, looked for an explanation for his observations, and eventually he found it. Robert Merton, Alice Kitt (1950), and other sociologists at Columbia University had begun thinking and writing about something they called *reference group theory.* This theory says that people judge their lot in life less by objective conditions than by comparing themselves with others around them—their reference group. For example, if you lived among poor people, a salary of $50,000 a year would make you feel like a millionaire. But if you lived among people who earned $500,000 a year, that same $50,000 salary would make you feel impoverished.

Stouffer applied this line of reasoning to the soldiers he had studied. Even if a particular MP had not been promoted for a long time, it was unlikely that he knew some less-deserving person who had gotten promoted more quickly. Nobody got promoted in the MPs. Had he been in the Air Corps—even if he had gotten several promotions in rapid succession—he would probably have been able to point to someone less deserving who had gotten even faster promotions. An MP's reference group, then, was his fellow MPs, and the air corpsman compared himself with fellow corpsmen. Ultimately, then, Stouffer reached an understanding of soldiers' attitudes toward the promotion system that (1) made sense and (2) corresponded to the facts.

This story shows that documenting the obvious is a valuable function of any science, physical or social. Charles Darwin coined the phrase *fool's experiment* to describe much of his own research—research in which he tested things that everyone else "already knew." As Darwin understood, the obvious all too often turns out to be wrong; thus, apparent triviality is not a legitimate objection to any scientific endeavor.

What about Exceptions?

The objection that there are always exceptions to any social regularity does not mean that the regularity itself is unreal or unimportant. A particular woman may well earn more money than most men, but that provides small consolation to the majority of women, who earn less—the pattern still exists. Social regularities, in other words, are probabilistic patterns, and they are no less real simply because some cases don't fit the general pattern.

This point applies in physical science as well as social science. Subatomic physics, for example, is a science of probabilities. In genetics, the mating of a blue-eyed person with a brown-eyed person will probably result in a brown-eyed offspring. The birth of a blue-eyed child does not destroy the observed regularity, because the geneticist states only that a brown-eyed offspring is more likely and, further, that brown-eyed offspring will be born in a certain percentage of the cases. The social scientist makes a similar, probabilistic prediction—that women overall are likely

to earn less than men. Once a pattern like this is observed, the social scientist has grounds for asking why it exists.

People Could Interfere

Finally, the objection that the conscious will of the actors could upset observed social regularities does not pose a serious challenge to social science. This is true even though a parallel situation does not appear to exist in the physical sciences. (Presumably, physical objects cannot violate the laws of physics, although the probabilistic nature of subatomic physics once led some observers to postulate that electrons had free will.) There is no denying that a religious, right-wing bigot could go to the polls and vote for an agnostic, left-wing African American if he wanted to upset political scientists studying the election. All voters in an election could suddenly switch to the underdog just to frustrate the pollsters. Similarly, workers could go to work early or stay home from work and thereby prevent the expected rush-hour traffic. But these things do not happen often enough to seriously threaten the observation of social regularities.

Social regularities, then, do exist, and social scientists can detect them and observe their effects. When these regularities change over time, social scientists can observe and explain those changes.

There is a slightly different form of human interference that makes social research particularly challenging. Social research has a *recursive* quality, in that what we learn about society can end up changing things so that what we learned is no longer true. For example, every now and then you may come across a study reporting "The Ten Best Places to Live," or something like that. The touted communities aren't too crowded, yet they have all the stores you'd ever want; the schools and other public facilities are great, crime is low, the ratio of doctors per capita is high, and the list goes on. What happens when this information is publicized? People move there, the towns become overcrowded, and eventually, they are not such nice places to live. More simply, imagine what results from a study that culminates in a published list of the least-crowded beaches or fishing spots.

In 2001, the Enron Corporation was fast approaching bankruptcy and some of its top executives were quietly selling their shares in the company. During this period, those very executives were reassuring employees of the corporation's financial solvency and recommending that workers keep their own retirement funds invested in the company. As a consequence of this deception, those employees lost most of their retirement funds at the same time that they were becoming unemployed.

The events at Enron led two Stanford business-school faculty, David Larcker and Anastasia Zakolyukina (2010), to see if it would be possible to detect when business executives are lying. Their study analyzed tens of thousands of conference-call transcripts, identified instances of executives fibbing, and looked for speech patterns associated with those departures from the truth. For example, Larcker and Zakolyukina found that when the executives lied, they tended to use exaggerated emotions, for instance, calling business prospects "fantastic" instead of "good." The research found other tip-offs that executives were lying, such as fewer references to shareholders and fewer references to themselves. Given the type of information derived from this study—uncovering identifiable characteristics of lying—who do you suppose will profit most from it? Probably the findings will benefit business executives and those people who coach them on how to communicate. There is every reason to believe that a follow-up study of top executives in, say, ten years will find very different speech patterns from those used today.

Aggregates, Not Individuals

Social regularities do exist, then, and are worthy of theoretical and empirical study. As such, social scientists study primarily social patterns rather than individual ones. These patterns reflect the *aggregate* or collective actions and situations of many individuals. Although social scientists often study motivations and actions that affect individuals, they seldom study the individual per se. That is, they create theories about the nature of group, rather than individual, life. Whereas psychologists focus on what happens *inside* individuals, social scientists study what goes on *between* them: examining everything from couples, to small groups and organizations, on up to whole societies—and even interactions between societies.

Sometimes the collective regularities are amazing. Consider the birth rate, for example. People have babies for an incredibly wide range of personal reasons. Some do it because their parents want them to. Some think of it as a way of completing their womanhood or manhood. Others want to hold their marriages together. Still others have babies by accident.

If you have had a baby, you could probably tell a much more detailed, idiosyncratic story. Why did you have the baby when you did, rather than a year earlier or later? Maybe your house burned down and you had to delay a year before you could afford to have the baby. Maybe you felt that being a family person would demonstrate maturity, which would support a promotion at work.

Everyone who had a baby last year had a different set of reasons for doing so. Yet, despite this vast diversity, despite the idiosyncrasy of each individual's reasons, the General Fertility Rate in a society (the number of live births per 1,000 women 15 to 50 years of age) is remarkably consistent from year to year. See Table 1-1 for some fertility rates in the United States.

If the U.S. fertility rates were 30, 20, 70, 55, and 80 in five successive years, demographers would begin dropping like flies. As you can see, however, social life is far more orderly than that. Moreover, this regularity occurs without society-wide regulation. As mentioned earlier, no one plans how many babies will be born or determines who will have them. (See "Applying Concepts in Everyday Life: Fertility-Rate Implications" for a look at how the analysis of fertility rates can serve many purposes.)

TABLE 1-1

Fertility Rates in the United States: 2006–2013

Year	*Fertility Rate per 1,000 Women Ages 15–50*
2006	54.9
2007	55.0
2008	58.5
2009	57.0
2010	54.6
2011	54.0
2012	54.1
2013	51.6

Source: U.S. Bureau of the Census, Historical Table 3. Births in the past year per 1,000 women, by Age: ACS, 2006–2013 [XLSX], accessed July 15, 2016, at http://www.census.gov/hhes/fertility/data/cps/historical.html.

Social science theories try to explain why aggregated patterns of behavior are so regular, even when the individuals participating in them may change over time. We could say that social scientists don't seek to explain people per se. They try instead to understand the *systems* in which people operate, which in turn explain why people do what they do. The elements in such a system are not people but *variables*.

Concepts and Variables

Our most natural attempts at understanding are usually concrete and idiosyncratic. That's just the way we think.

Imagine that someone says to you, "Women ought to get back into the kitchen where they belong." You're likely to hear that comment in terms of what you know about the speaker. If it's your old Uncle Harry who is also strongly opposed to daylight saving time, ZIP Codes, and personal computers, you're likely to think that his latest pronouncement simply fits into his rather dated point of view about things in general.

If, on the other hand, the statement issues forth from a politician who is trailing a female challenger and who has also begun making statements about women being emotionally unfit for public office and not understanding politics, you may hear his latest comment in the context of this political challenge.

In both examples, you're trying to understand the thoughts of a particular individual. In social science, researchers go beyond that level of understanding to seek insights into classes or types of individuals. Regarding the two examples just described, they might use terms such as *old-fashioned* or *bigot* to describe the kind of person who made the comment. In other words, they try to place the individual in a set of similar individuals, according to a particular, defined concept.

By examining an individual in this way, social scientists can make sense out of more than one person. In understanding what makes the bigoted politician think the way he does, they'll also learn about other people who are "like him." In other words, they have not been studying bigots as much as *bigotry*.

Bigotry here is spoken of as a *variable* because it varies. Some people are more bigoted than others.

Applying Concepts in Everyday Life

Fertility-Rate Implications

Take a minute to reflect on the practical implications of the data you've just seen. The *What Do You Think?* box for this chapter asked how baby-food and diaper manufacturers could plan production from year to year. The consistency of U.S. fertility rates suggests that this is not the problem it might have seemed.

Who else might benefit from this kind of analysis? What about health-care workers and educators? Can you think of anyone else?

What if we analyzed fertility rates by region of the country, by ethnicity, by income level, and so forth? Clearly, these additional analyses could make the data even more useful. As you learn about the options available to social researchers, I think you'll gain an appreciation for the practical value that research can have for the whole society.

Social scientists are interested in understanding the system of variables that causes bigotry to be high in one instance and low in another.

The idea of a system composed of variables may seem rather strange, so let's look at an analogy. The subject of a physician's attention is the patient. If the patient is ill, the physician's purpose is to help that patient get well. By contrast, a medical researcher's subject matter is different: the variables that cause a disease, for example. The medical researcher may study the physician's patient, but only as a carrier of the disease.

Of course, medical researchers care about real people, but in the actual research, patients are directly relevant only for what they reveal about the disease under study. In fact, when researchers can study a disease meaningfully without involving actual patients, they do so.

Social research involves the study of variables and the *attributes* that compose them. Social science theories are written in a language of variables, and people become involved only as "carriers" of those variables. Here's a closer look at what social scientists mean by variables and attributes.

Attributes, or values, are characteristics or qualities that describe an object—in this case, a person. Examples include female, Asian, alienated, conservative, dishonest, intelligent, and farmer. Anything you might say to describe yourself or someone else involves an attribute.

Variables, on the other hand, are logical sets of attributes. The variable *occupation* is composed of attributes such as farmer, professor, and truck driver. *Social class* is a variable composed of a set of attributes such as upper class, middle class, and lower class. Sometimes it helps to think of attributes as the categories that make up a variable. See Figure 1-2 for a schematic review of what social scientists mean by variables and attributes.

Sex and *gender* are examples of variables. These two variables are not synonymous, but distinguishing them can be complicated. I will try to simplify the matter here and abide by that distinction throughout this book.

attribute A characteristic of a person or a thing.

variable A logical set of attributes. The variable *sex* is made up of the attributes *male* and *female*.

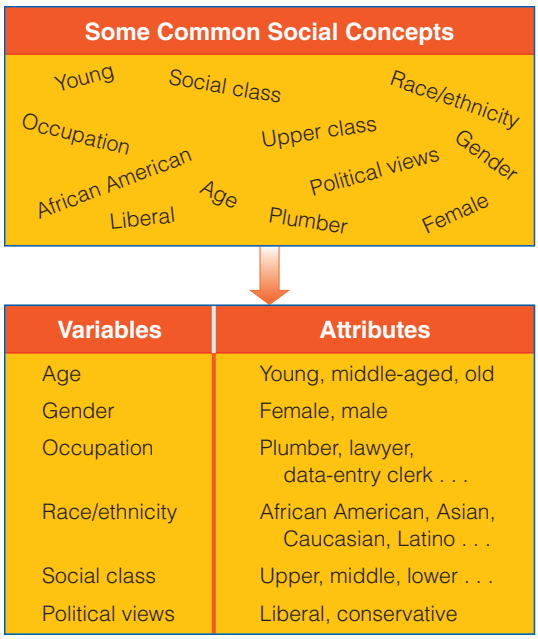


FIGURE 1-2

Variables and Attributes. Variables like *education* and *prejudice* and their attributes (*educated/uneducated, prejudiced/unprejudiced*) provide the foundation for examining causal relationships in social research.

Most simply put, *sex* refers to biological/physiological differences, and the attributes comprising this variable are *male* and *female*, *men* and *women*, or *boys* and *girls*.

Gender, on the other hand, is a social distinction, referring to what is generally expected of men and women. Notice that these "general expectations" can vary from culture to culture and over time. Note also that some men will exhibit feminine behaviors and characteristics, while some women will exhibit masculine behaviors and characteristics. One set of attributes comprising gender is *masculine* and *feminine*.

However, the real complication comes when women as a class are treated differently from men as a class, but not because of their physical differences. A good example is gender discrimination in income. As we'll see later in this book, American women overall earn less than men, even when they do the same job and have the same credentials. It has nothing to do with being feminine or masculine, but it is not logically based on their different plumbing, either. The pattern of differential pay for women and men is based, instead, on established social patterns regarding women and men. Traditionally in America, for example, men have been the main breadwinners for their family, whereas women typically worked outside the home to provide the family with some supplemental income. Even though this work pattern has changed a good deal, and women's earnings are often an essential share of the family income, the pattern of monetary compensation—that of men earning more than women—has been slower to change.

Thus, we shall use the term *sex* whenever the distinction between men and women is relevant to biological differences. For example, there is a correlation between sex and height in that men are, on average, taller than women. This is not a social distinction but a physiological one. Most of the times we distinguish men and women in this book, however, will be in reference to social distinctions, such as the example of women being paid less than men or women being underrepresented in elected political offices. In those cases, we shall use the term *gender*. The attributes *men* and *women* will often be used for both *sex* and *gender*.

The relationship between attributes and variables lies at the heart of both description and explanation in science. For example, we might describe a college class in terms of the variable *sex* by reporting the observed frequencies of the attributes *male* and *female*: "The class is 60 percent men and 40 percent women." An unemployment rate can be thought of as a description of the variable *employment status* of a labor force in terms of the attributes *employed* and *unemployed*. Even the report of annual family income for a city is a summary of attributes composing that variable: *$13,124, $30,980, $55,000*, and so forth. Sometimes the meanings of the concepts that lie behind social science concepts are fairly clear. Other times they aren't.

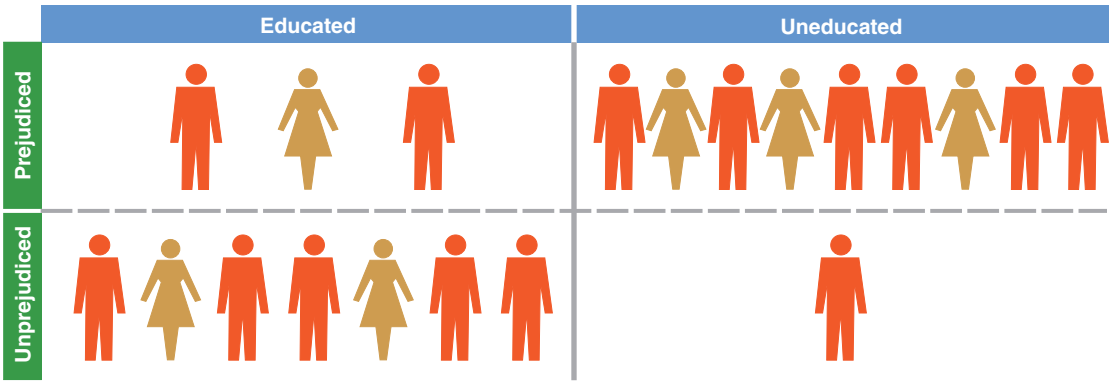
The relationship between attributes and variables is more complicated when we move from description to explanation and it gets to the heart of the variable language of scientific theory. Here's a simple example, involving two variables, *education* and *prejudice*. For the sake of simplicity, let's assume that the variable *education* has only two attributes: *educated* and *uneducated*. (Chapter 5 will address the issue of how such things are defined and measured.) Similarly, let's give the variable *prejudice* two attributes: *prejudiced* and *unprejudiced*.

Now let's suppose that 90 percent of the uneducated are prejudiced, and the other 10 percent are unprejudiced. And let's suppose that 30 percent of the educated people are prejudiced, and the other 70 percent are unprejudiced. This is illustrated graphically in Figure 1-3a.

Figure 1-3a illustrates a relationship or association between the variables *education* and *prejudice*. This relationship can be seen in terms of the pairings of attributes on the two variables. There are two predominant pairings: (1) those who are educated and unprejudiced and (2) those who are uneducated and prejudiced. Here are two other useful ways of viewing that relationship.

First, let's suppose that we play a game in which we bet on your ability to guess whether a person is prejudiced or unprejudiced. I'll pick the people one at a time (not telling you which ones I've picked), and you have to guess whether each person is prejudiced. We'll do it for all 20 people in Figure 1-3a. Your best strategy in this case would be to guess prejudiced each time, because 12 out of the 20 are categorized that way. Thus, you'll get 12 right and 8 wrong, for a net success of 4.

a. There is an apparent relationship between education and prejudice.



b. There is ***no*** apparent relationship between education and prejudice.

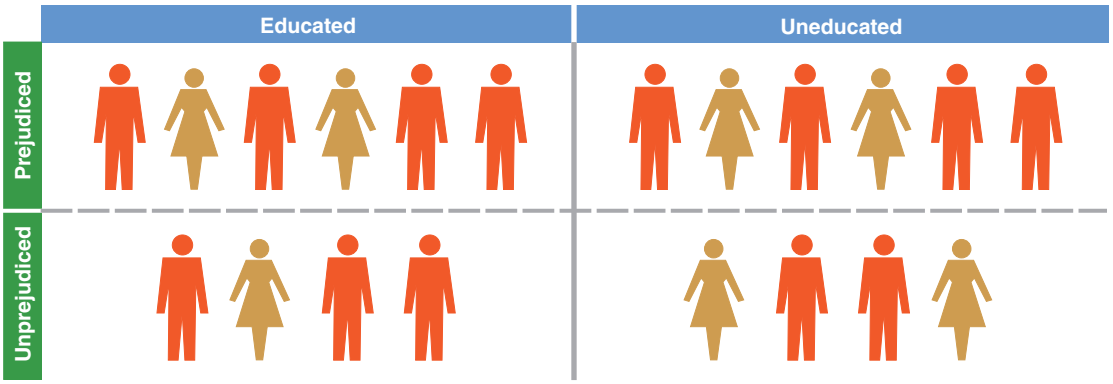


FIGURE 1-3
Illustration of Relationship between Two Variables (Two Possibilities). Variables such as *education* and *prejudice* and their attributes (*educated/uneducated, prejudiced/unprejudiced*) are the foundation for the examination of causal relationships in social research.

Now let's suppose that when I pick a person from the figure, I have to tell you whether the person is educated or uneducated. Your best strategy now would be to guess "prejudiced" for each uneducated person and "unprejudiced" for each educated person. If you follow that strategy, you'll get 16 right and 4 wrong. Your improvement in guessing "prejudiced" by knowing education illustrates what it means to say that variables are related.

Second, by contrast, let's consider how the 20 people would be distributed if education and prejudice were unrelated to each other. This is illustrated in Figure 1-3b. Notice that half the people are educated, and half are uneducated. Also notice that 12 of the 20 (60 percent) are prejudiced. Given that 6 of the 10 people in each group are prejudiced, we conclude that the two variables are unrelated to each other. Knowing a person's education would not be of any value to you in guessing whether that person was prejudiced.

We'll be looking at the nature of relationships among variables in some depth in Part 4 of this book. In particular, we'll see some of the ways relationships can be discovered and interpreted in research analysis. A general understanding of relationships now, however, will help you appreciate the logic of social science theories.

Theories describe the relationships we might logically expect among variables. Often, the expectation involves the idea of *causation*. A person's attributes on one variable are expected to cause, predispose, or encourage a particular attribute on another variable. In Figure 1-3a, something about being educated apparently leads people to be less prejudiced than if they are uneducated.

Applying Concepts in Everyday Life

Independent and Dependent Variables

Let's talk about dating. Some dates are great and some are awful; others are somewhere in between. So the *quality of dates* is a variable and "great," "OK," and "awful" might be the attributes making up that variable. (If dating isn't a relevant activity for you right now, perhaps you can pretend or substitute something similar.)

Now, have you noticed something that seems to affect the quality of different dates? (If you are not dating, perhaps you can recall prior dating or simply imagine it.) Perhaps it will have something to do with the kind of person you dated, your activities on the date, something about your behavior, the amount of money spent, or the like. Can you give it a name that enables you to identify that factor as a variable (e.g., physical attractiveness, punctuality)? Can you identify a set of attributes comprising that variable?

Consider the *quality* or the *characteristics* of the dates: Which is the independent variable and which is the dependent variable? (When we get to Chapter 12, "Evaluation Research," you'll learn ways of determining whether the variable you identified really matters.)

As I'll further discuss later in the book, *education* and *prejudice* in this example would be regarded as **independent** and **dependent variables**, respectively. Because *prejudice* depends on something, we call it the dependent variable, which depends on an independent variable, in this case *education*. Although the educational levels of the people being studied vary, that variation is independent of prejudice.

Notice, at the same time, that educational variations can be found to depend on something else—such as the educational level of our subjects' parents. People whose parents have a lot of education are more likely to get a lot of education than are those whose parents have little education. In this relationship, the subject's education is the dependent variable and the parents' education the independent variable. We can say that the independent variable is the cause and the dependent variable the effect. (See "Applying Concepts in Everyday Life: Independent and Dependent Variables" for more.)

At this point, we can see that our discussion of Figure 1-3 involved the interpretation of data. We looked at the distribution of the 20 people in terms of the two variables. In constructing a social science theory, we would derive an expectation regarding the relationship between the two variables, based on what we know about each. We know, for example, that education exposes people to a wide range of cultural variation and to diverse points of view—in short, it broadens their perspectives. Prejudice, on the other hand, represents a narrower perspective. Logically, then, we might expect education and prejudice to be somewhat incompatible. We might therefore arrive at an expectation that increasing education would reduce the occurrence of prejudice, an expectation that our observations would support.

Because Figure 1-3 has illustrated two possibilities—that education reduces the likelihood of prejudice or that it has no effect—you might be interested in knowing what is actually the case. There are, of course, many types of prejudice. For this illustration, let's consider prejudice against gays and lesbians. Over the years, the General Social Survey (GSS) has asked respondents whether a homosexual relationship between two adults is "always wrong, almost always wrong, sometimes wrong, or not wrong at all." In 2014, 40 percent of those interviewed said that homosexuality was always wrong. However, this response is strongly related to the respondents' education, as Table 1-2 indicates.

Notice that the theory has to do with the two variables *education* and *prejudice*, not with people as

independent variable A variable with values that are not problematical in an analysis but are taken as simply given. An independent variable is presumed to cause or determine a dependent variable. If we discover that religiosity is partly a function of sex—women are more religious than are men—sex is the independent variable and *religiosity* is the dependent variable. Note that any given variable might be treated as independent in one part of an analysis and as dependent in another part of it. *Religiosity* might become an independent variable in an explanation of crime rates.

dependent variable A variable assumed to depend on or be caused by another (independent variable). If you find that *income* is partly a function of *amount of formal education, income* is being treated as a dependent variable.

TABLE 1-2
Education and Antigay Prejudice

Level of Education	*Percent Saying Homosexuality Is Always Wrong*
Less than high school graduate	60
High school graduate	43
Junior college	34
Bachelor's degree	27
Graduate degree	27

such. People are the carriers of those two variables, so we can see the relationship between the variables only when we observe people. Ultimately, however, the theory uses a language of variables. It describes the associations that we might logically expect to exist between particular attributes of different variables. You can do this data analysis for yourself with nothing more than a connection to the Internet. See "How to Do It: Analyzing Data Online with the General Social Survey (GSS)."

The Purposes of Social Research

Chapter 4 will examine the various purposes of social research in some detail, but previewing them here will be useful. To begin, sometimes social research is a vehicle for *exploring* something—that is, mapping out a topic that may warrant further study later. This could involve looking into a new political or religious group, learning something about the use of a new street drug, and so forth. The methods vary greatly and the conclusions are usually suggestive rather than definitive. Still, careful exploratory social research can dispel some misconceptions and help focus future research.

Some social research is done for the purpose of *describing* the state of social affairs: What is the unemployment rate? What is the racial composition of a city? What percentage of the population holds a particular political view or plans to vote for a certain candidate? Careful empirical description takes the place of speculation and impressions.

Often, social research aims at *explaining* something—providing reasons for phenomena, in terms of causal relationships. Why do some cities have higher unemployment rates than others? Why are some people more prejudiced than others? Why are women likely to earn less than men for doing the same job? Ordinary, everyday discourse offers an abundance of answers to such questions, but some of those answers are simply wrong. Explanatory social research provides reasons that are more trustworthy.

While some studies focus on one of these three purposes, a given study often has elements of all three. For example, when Kathleen A. Bogle (2008) undertook in-depth interviews of college students to study the phenomenon of "hooking up," she uncovered some aspects that might not have been expected, fulfilling an exploratory purpose. When two people "hook up," does that mean they have sex? Bogle found substantial ambiguities in that regard; some students felt that sex was part of the definition of that dating form, whereas others did not.

Her study also provides excellent descriptions of the students' various experiences of hooking up. While her in-depth interviews with 76 students at two universities in one region of the country do not allow us to draw quantitative conclusions about all college students in the United States, they provide an excellent qualitative description of the phenomenon—not just norms but wild variations as well. Not everyone will have interviewee Stephen's experience of his partner throwing up on him during sex, or having her call him Anthony instead of Stephen at a critical moment. (You'll learn more about the difference between "qualitative" and "quantitative" research later.)

Bogle's interviews also point to some of the causes, or explanations, of different kinds of hooking up. For example, the students' *beliefs* about their peers' behavior strongly influenced how they hooked up. Thus, it would be difficult to categorize this study as exploratory, descriptive, or explanatory, as it has elements of all three types.

It's worth noting here that the purpose of some research is limited to understanding, whereas other research efforts are deliberately intended to bring about social change, creating a more workable or a more just society.

The Ethics of Human Inquiry

Most of this book is devoted to the logic and techniques of doing social research, but you'll

soon discover an ethical dimension running throughout the discussion. You'll learn that medical, social, and other studies of human beings have often used methods later condemned as unethical. In Chapter 3 and throughout the book, we examine the various concerns that distinguish ethical from unethical research.

The ethical concerns will make more sense to you as you learn more about the actual techniques of doing research. Be sure to consider this important issue as you read each chapter.

Some Dialectics of Social Research

There is no one way to do social research. (If there were, this would be a much shorter book.) In fact, much of the power and potential of social research lies in the many valid approaches it comprises.

Four broad and interrelated distinctions underlie these approaches. Though these distinctions can be seen as competing choices, a good social researcher thoroughly learns each. This is what I mean by the "dialectics" of social research: a fruitful tension between these complementary concepts.

Idiographic and Nomothetic Explanation

All of us go through life explaining things. We do it every day. You explain why you did poorly or well on an exam, why your favorite team is winning or losing, why you may be having trouble getting dates. In our everyday explanations, we engage in two distinct forms of causal reasoning, though we do not ordinarily distinguish them.

Sometimes we attempt to explain a single situation in idiosyncratic detail. Thus, for example, you may have done poorly on an exam because (1) you had forgotten there was an exam that day, (2) it was in your worst subject, (3) a traffic jam made you late for class, (4) your roommate had kept you up the night before the exam with loud music, (5) the police kept you until dawn demanding to know what you had done with your roommate's stereo—and with your roommate, for that matter, and (6) a band of coyotes ate your textbook. Given all these circumstances, it is no wonder that you did poorly.

This type of causal reasoning is called an **idiographic** explanation. *Idio* in this context means unique, separate, peculiar, or distinct, as in the word *idiosyncrasy*. When we have completed an idiographic explanation, we feel that we fully understand the causes of what happened in this particular instance. At the same time, the scope of our explanation is limited to the case at hand. Although parts of the idiographic explanation might apply to other situations, our intention is to explain one case fully.

Now consider a different kind of explanation. Every time you study with a group, you do better on an exam than when you study alone. Your favorite team does better at home than on the road. Athletes get more dates than do members of the biology club. Notice that this type of explanation is more general, covering a wider range of experience or observation. It speaks implicitly of the relationship between variables: for example, (1) whether or not you study in a group and (2) how well you do on the exam. This type of explanation—labeled **nomothetic**—seeks to explain a class of situations or events rather than a single one. Moreover, it seeks to explain "economically," using only one or just a few explanatory factors. Finally, it settles for a partial rather than a full explanation.

In each of these examples, you might qualify your causal statements with *on the whole, usually, all else being equal,* and the like. Thus, you usually do better on exams when you've studied in a group, but not always. Similarly, your team has won some games on the road and lost some at home. And the gorgeous head of the biology club may get lots of dates, while the defensive lineman Pigpen-the-Terminator may spend a lot of Saturday nights alone punching heavy farm equipment. Such exceptions are acceptable within a broader range of overall explanation.

idiographic An approach to explanation in which we seek to exhaust the idiosyncratic causes of a particular condition or event. Imagine trying to list all the reasons why you chose to attend your particular college. Given all those reasons, it's difficult to imagine your making any other choice.

nomothetic An approach to explanation in which we seek to identify a few causal factors that generally impact a class of conditions or events. Imagine the two or three key factors that determine which colleges students choose, such as proximity, reputation, and so forth.

How to Do It

Analyzing Data Online with the General Social Survey (GSS)

You can test the relationship between prejudice and education for yourself if you have a connection to the Internet. We'll come back to this method for analyzing data later, in Chapter 14, but here's a quick peek in case you're interested.

If you go to http://sda.berkeley.edu/sdaweb/analysis/?dataset=gss14, you will find yourself at a web page like the one that follows. As you can see, the page is divided into two sections: a column listing variables on the left, and a form containing a variety of filters, options, and fields on the right. I've indicated how you would work your way into the hierarchical list of variables to locate questionnaire items dealing with attitudes about homosexuality. For this example, I've selected HOMOSEX.

In the form on the right, I've indicated that we want to analyze differences in attitudes for different educational levels, measured in this case by the variable called "DEGREE." By typing YEAR(2014) into the Selection Filter field, I've indicated that we want to do this analysis using the GSS survey conducted in 2014.

If you are interested in trying this yourself, fill out the form as I have done. Then, click the button marked "Run the Table" at the bottom of the form, and you'll get a colorful table with the results. Once you've done that, try substituting other variables you might be interested in. Or see if the relationship between HOMOSEX and DEGREE was pretty much the same in, say, 1996.

The National Opinion Research Center (NORC) at the University of Chicago conducts a periodic national survey of American public opinion for the purpose of making such data available for analysis by the social research community. This comprehensive project is called the General Social Survey (GSS).

Beginning in 1972, large national samples were surveyed annually in face-to-face interviews; that frequency was reduced to every other year starting in 1994. Though conducted less often, the GSS interviews are lengthy and each takes over an hour to complete, making it possible to obtain a wide range of information about the demography and the opinions of the American population. The number of topics covered in a given survey is further increased by presenting different questions to different subsets of the overall sample. In the successive surveys, some questions are always asked while others are repeated only from time to time. Thus, it is possible to track changes in things such as political orientations, attendance at religious services, or attitudes toward abortion.

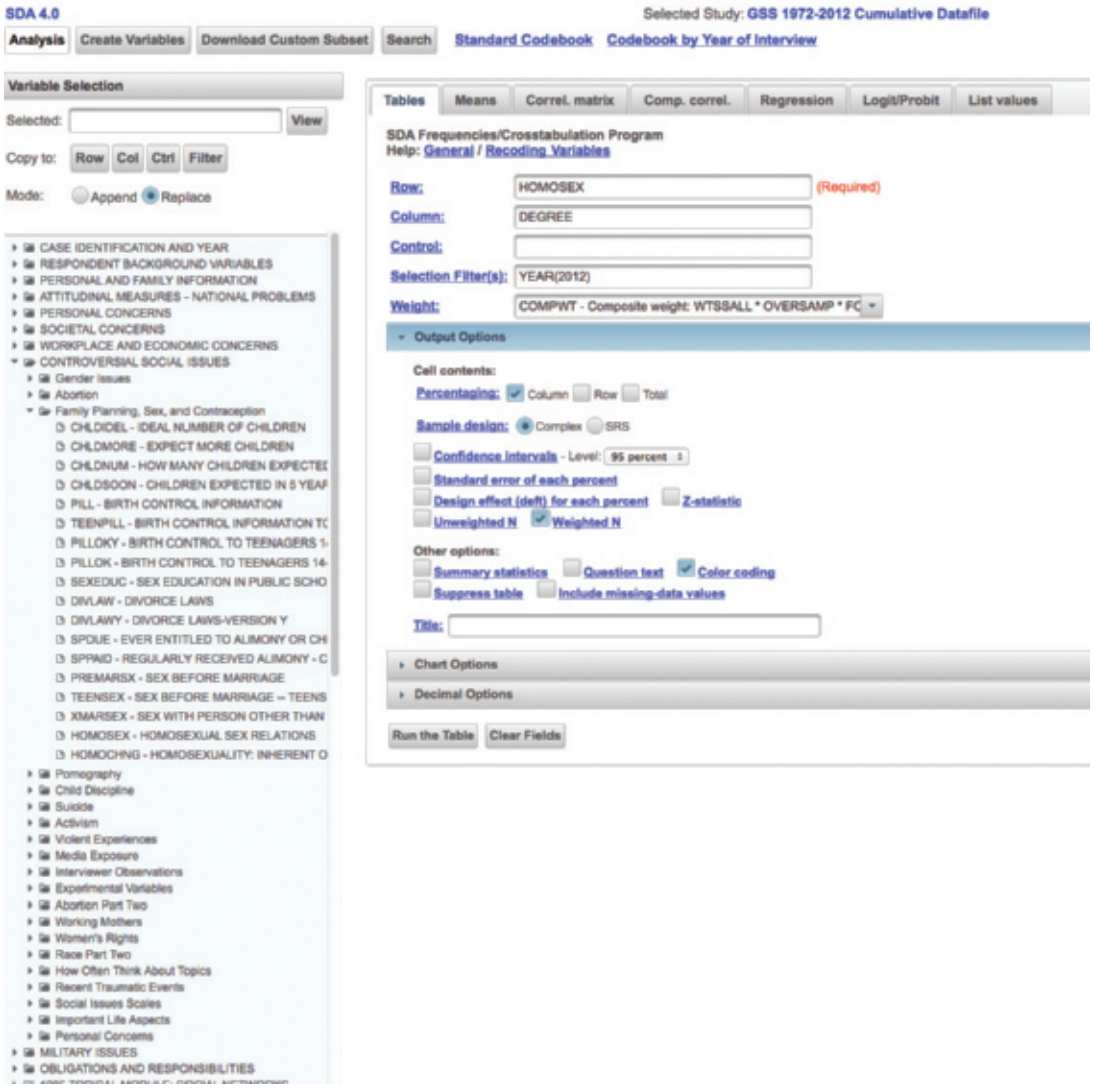
The GSS is a powerful resource for social scientists, since everyone from undergraduates through faculty members has access to a vast data set that would otherwise be available to only a few. In the early years of the GSS, data were made available to the research community by mailing physical data sets (cards or tapes) to researchers. Many data examples in this book come from that source. You can learn more about the GSS at the official website maintained by the University of Michigan.

As we noted earlier, patterns are real and important even when they are not perfect.

Both the idiographic and the nomothetic approaches to understanding can serve you in your daily life. The nomothetic patterns you discover might offer a good guide for planning your study habits, but the idiographic explanation is more convincing to your parole officer.

By the same token, both idiographic and nomothetic reasoning are powerful tools for social research. Researchers who seek an exhaustive understanding of the inner workings of a particular juvenile gang or the corporate leadership of a particular multinational conglomerate engage in idiographic research: They try to understand that particular group as fully as possible.

A. Libin and J. Cohen-Mansfield (2000) have contrasted the way these two approaches are used in studies of the elderly (gerontology). Some studies focus on the experiences of individuals in the totality of their life situations, whereas other studies look for statistical patterns describing the elderly in general. The authors then suggest ways to combine idiographic and nomothetic approaches in gerontology.



Much social research involves the analysis of masses of statistical data. As valuable as the examination of overall patterns can be, it can come at the risk of losing sight of the individual men and women those data represent. Both the "macro" and the "micro" are important to our grasp of social dynamics, and some social research focuses specifically on the detailed particulars of real lives at the ground level of society. Throughout this book, I'll highlight recent studies that reflect this approach to understanding social life.

Statistically, unwed childbirth, especially among the poor in America, is likely to lead to a host of problems in the years that follow. Both the child and the mother are likely to struggle and suffer. The children are less likely to do well in school and later in life, and the mothers are likely to struggle in low-paying jobs or may reconcile themselves to living on welfare. The trend toward unwed births has increased dramatically in recent decades, especially among the poor. As a reaction to these problems, in 2005 the Bush administration launched a "Healthy Marriage Initiative," aimed at encouraging childbearing couples to marry. Voices for and against the program were raised with vigor.

Women in Social Research

At present, women are equal partners with men in social research—with women currently earning substantially more graduate degrees in the social sciences than men—but it has not always been that way. Early on, men clearly predominated, but there were actually women social researchers from the beginning, though their contributions have generally been ignored in recounting the history of social research.

For example, Auguste Comte (1798–1857) is generally regarded as the Father of Sociology, creating the French term, *Sociologie*, for example. His writings on positivism laid the groundwork for the new science. His works so impressed Harriet Martineau (1802–1876) in Britain that she translated them into English. Before long, Comte was advising students to read Martineau's English translations rather than the French originals. In her own right, Martineau pioneered social research into the family, children, religion, and race relations.

Or consider Florence Nightingale (1820–1910), most famous for professionalizing the field of nursing during and following the Crimean War. Less well known today, she was also an active quantitative researcher regarding sanitation, health, gender, and related fields. Moreover, she was a pioneer in the use of infographics, such as pie charts and graphs, to present statistical results in easily graspable forms.

In the United States, Jane Addams (1860–1935) is best known for her social service contributions through Hull House in Chicago, but she was also an active researcher in connection with that work, publishing articles in the *American Journal of Sociology,* for example. Addams was a force for social activism in sociology, an orientation that has risen and fallen repeatedly since. She is the only sociologist to have earned a Nobel Prize (1931).

These are but a few of the women who were active in the creation and evolution of social research. This is not the only field in which women's contributions have been ignored by history, but it's time to set the record straight in social research.

Sources: Mark J. Perry, *Women earned majority of doctoral degrees in 2017 for 9th straight year and outnumber men in grad school 137 to 100*, AEIdeas blog, October 3, 2018, http://www.aei.org/publication/women-earned-majority-of-doctoral-degrees-in-2017-for-9th-straight-year-and-outnumber-men-in-grad-school-137-to-100-2/. Fiona Armstrong, *Celebrating the impact of women in social science,* Economic and Social Research Council blog, August 3, 2018, https://blog.esrc.ac.uk/2018/03/08/celebrating-the-impact-of-women-in-social-science/.

In *Promises I Can Keep: Why Poor Women Put Motherhood before Marriage* (Berkeley: University of California Press, 2005), Kathryn Edin and Maria Kefalas raise a question that, perhaps, should have been asked before a solution to the perceived problem was promoted: Why do poor women bear children outside of wedlock? The two social scientists spent five years speaking one-on-one with many young women who had borne children out of wedlock. Some of the things the researchers learned dramatically contradicted various common assumptions. Whereas many Americans have bemoaned the abandonment of marriage among the poor; for example, the women interviewed tended to speak highly of the institution, indicating that they hoped to be married one day. Many, however, were willing to settle down only with someone trustworthy and stable. Better to remain unmarried than to enter a bad marriage.

At the same time, these young women felt strongly that their ultimate worth as women centered on their bearing children. Most preferred being an unmarried mother to being a childless woman, the real tragedy in their eyes. This was only one finding among many that contradicts common assumptions, perhaps even some of your own.

The box "Women in Social Research" indicates that women are not just the subjects of social research but are also the researchers.

As you can see, social scientists can access two distinct kinds of explanations. Just as physicists treat light as a particle in some experiments and as a wave in others, social scientists can search for relatively superficial universals today and probe the narrowly particular tomorrow. Both are good science, both are rewarding, and both can be fun.

Inductive and Deductive Theory

Like idiographic and nomothetic forms of explanation, inductive and deductive thinking both play a role in our daily lives. They, too, represent an important variation in social research.

There are two routes to the conclusion that you do better on exams if you study with others. On the one hand, you might find yourself puzzling, halfway through your college career, about why you do so well on exams sometimes but

so poorly at other times. You might list all the exams you've taken, noting how well you did on each. Then you might try to recall any circumstances shared by all the good exams and all the poor ones. Did you do better on multiple-choice exams or essay exams? Morning exams or afternoon exams? Exams in the natural sciences, the humanities, or the social sciences? Times when you studied alone or . . . BAM! It occurs to you that you have almost always done best on exams when you studied with others. This mode of inquiry is known as **induction**.

Inductive reasoning moves from the particular to the general, from a set of specific observations to the discovery of a pattern that represents some degree of order among all the given events. Notice, incidentally, that your discovery doesn't necessarily tell you *why* the pattern exists—just that it does.

Here's a very different way you might have arrived at the same conclusion about studying for exams. Imagine approaching your first set of exams in college. You wonder about the best ways to study—how much to review, how much to focus on class notes. You learn that some students prepare by rewriting their notes in an orderly fashion. Then you consider whether to study at a measured pace or pull an all-nighter just before the exam. Among these musings, you might ask whether you should get together with other students in the class or just study on your own. You could evaluate the pros and cons of both options.

Studying with others might not be as efficient, because a lot of time might be spent on things you already understand. On the other hand, you can understand something better when you've explained it to someone else. And other students might understand parts of the course that you haven't grasped yet. Several minds can reveal perspectives that might have escaped you. Also, your commitment to study with others makes it more likely that you'll study rather than watch the special retrospective on TV.

In this fashion, you might add up the pros and cons and conclude, logically, that you'd benefit from studying with others. It seems reasonable to you, the way it seems reasonable that you'll do better if you study rather than not. Sometimes we say things like this are true "in theory." To complete the process, we test whether they're true in practice. For a complete test, you might study alone for half your exams and study with others for the rest. This procedure would test your logical reasoning.

This second mode of inquiry, **deduction**, moves from the general to the specific. It moves from (1) a pattern that might be logically or theoretically expected to (2) observations that test whether the expected pattern actually occurs. Notice that deduction begins with "why" and moves to "whether," whereas induction moves in the opposite direction.

As you'll see later in this book, these two very different approaches present equally valid avenues for science. Each can stimulate the research process, prompting the researcher to take on specific questions and to frame the manner in which they are addressed. Moreover, you'll see how induction and deduction work together to provide ever more powerful and complete understandings.

Notice, by the way, that the distinction between the deductive and inductive is not necessarily linked to the nomothetic and idiographic modes. For example, idiographically and deductively, you might prepare for a particular date by taking into account everything you know about the person you're dating, trying to anticipate logically how you can prepare—what kinds of clothing, behavior, hairstyle, oral hygiene, and so forth will likely produce a successful date. Or, idiographically and inductively, you might try to figure out what it was exactly that caused your last date to call 911. A nomothetic, deductive approach arises when you coach others on your "rules of dating," wisely explaining why their dates will be impressed to hear them expound on the dangers of satanic messages concealed in

induction The logical model in which general principles are developed from specific observations. Having noted that Jews and Catholics are more likely to vote Democratic than are Protestants, you might conclude that religious minorities in the United States are more affiliated with the Democratic party, and then your task is to explain why.

deduction The logical model in which specific expectations of hypotheses are developed on the basis of general principles. Starting from the general principle that all deans are meanies, you might anticipate that this one won't let you change courses. This anticipation would be the result of deduction.

rock-and-roll lyrics. When you later review your life and wonder why you didn't date more musicians, you might engage in nomothetic induction. Thus, there are four possible approaches, which are used as much in life as in research.

We'll return to induction and deduction later in the book. At this point, let's turn to a third broad distinction that generates rich variations in social research.

Determinism versus Agency

The two preceding sections are based implicitly on a more fundamental issue. As you pursue your studies of social research methods, particularly when you examine causation and explanation in data analysis, you will come face to face with one of the most nagging dilemmas in the territory bridging social research and social philosophy: determinism versus agency. As you explore examples of causal social research, this issue comes to a head.

Imagine that you have a research grant to study the causes of racial prejudice. Having created a reasonable measure of prejudice so that you can distinguish those with higher or lower degrees of prejudice, you will be able to explore its causes. You may find, for example, that people living in certain regions of the country are, overall, more prejudiced than those living in other regions. Certain political orientations seem to promote prejudice, as do certain religious orientations. Economic insecurities may increase prejudice and result in the search for scapegoats. Or, if you are able to determine something about your subjects' upbringing—the degree of prejudice expressed by their parents, for example—you may discover more causes of prejudice.

Typically, none of these "causes" will be definitive, but each adds to the likelihood of a subject being prejudiced. Imagine, for example, a woman who was raised in a generally prejudiced region by prejudiced parents. She now holds political and religious views that support such prejudice, and she feels at risk of losing her job. When you put all those causes together, the likelihood of such a person being prejudiced is very high.

Notice the significance of the word *likelihood* in this discussion. As indicated earlier in this chapter, social researchers deal with a probabilistic causation. Thus, the convergence of all the causes of prejudice just mentioned would produce a high probability that the person in question would appear prejudiced in our measurements. Even though the determinism involved in this approach is not perfect, it is deterministic all the same.

Missing in this analysis is what is variously called "choice," "free will," or, as social researchers tend to prefer, "agency." What happened to the individual? How do you feel about the prospect of being a subject in such an analysis? Let's say you consider yourself an unprejudiced person; are you willing to say you were destined to turn out that way because of forces and factors beyond your control? Probably not, and yet that's the implicit logic behind the causal analyses that social researchers so often engage in.

The philosophical question here is whether human behaviors are determined by their particular environment or whether they feel and act out of their personal choice or agency. I cannot pretend to offer an ultimate answer to this question, which has challenged philosophers and others throughout the history of human consciousness. But I can share the working conclusion I have reached as a result of observing and analyzing human behavior over a few decades.

I've tentatively concluded that (1) each of us possesses considerable free choice or agency, but (2) we readily allow ourselves to be controlled by environmental forces and factors, such as those described earlier in the example of prejudice. As you explore the many examples of causal analysis in this book and elsewhere in the social research literature, this giving away of agency will become obvious.

More shocking, if you pay attention to the conversations of daily life—yours as well as those of others—you will find that we constantly deny having choice or agency. Consider these few examples:

> "I couldn't date someone who smokes."
>
> "I couldn't tell my mother that."
>
> "I couldn't work in an industry that manufactures nuclear weapons."

The list could go on for pages, but I hope this makes the point. In terms of human agency, you *could* do any of these things, although you might *choose* not to. However, you rarely explain your behavior or feeling on the basis of choice. If your classmates suggest you join them at a party or the movies and you reply, "I can't. I have an exam tomorrow," in fact, you could blow off

the exam and join them; but you choose not to. (Right?) However, you rarely take responsibility for such a decision. You blame it on external forces: Why did the professor have to give an exam the day after the big party?

This situation is very clear in the case of love. Which of us ever *chooses* to love someone, or to be in love? Instead, we speak of "falling in love," sort of like catching a cold or falling in a ditch. The iconic anthem for this point of view is the set of 1913 lyrics, courtesy of songwriter, Joseph McCarthy:

> You made me love you.
>
> I didn't want to do it.

As I said at the outset of this discussion, the dilemma of determinism versus agency continues to bedevil philosophers, and you will find its head poking up from time to time throughout this book. I can't give you an ultimate answer to it, but I wanted to alert you to its presence.

The question of *responsibility* is an important aspect of this issue. Although it lies outside the realm of this book, I would like to bring it up briefly. Social research occurs in the context of a sociopolitical debate concerning who is responsible for a person's situation and their experiences in life. If you are poor, for example, are you responsible for your low socioeconomic status or does the responsibility lie with other people, organizations, or institutions?

Social research typically looks for ways that social structures (from interaction patterns to whole societies), affect the experiences and situations of individual members of society. Thus, your poverty might be a consequence of being born into a very poor family and having little opportunity for advancement. Or the closing of a business, exporting jobs overseas, or a global recession might lie at the root of your poverty.

Notice that this approach works against the notion of agency that we have discussed. Moreover, while social scientists tend to feel social problems should be solved at the societal level—through legislation, for example—this is a disempowering view for an individual. If you take the point of view that your poverty, bad grade, or rejected job application is the result of forces beyond your control, then you are conceding that you have no power. There is more power in assuming you have it than in assuming you are the helpless victim of circumstances. You can do this without denying the power of social forces around you. In fact, you may exercise your individual responsibility by setting out to change the social forces that have an impact on your life. This complex view calls for a healthy **tolerance for ambiguity**, which is an important ability in the world of social research.

Qualitative and Quantitative Data

The distinction between quantitative and qualitative data in social research is essentially the distinction between numerical and nonnumerical data. When we say someone is intelligent, we've made a qualitative assertion. When psychologists and others measure intelligence by IQ scores, they are attempting to quantify such a qualitative assessment. For example, a psychologist might say that a person has an IQ of 120.

Every observation is qualitative at the outset, whether it be your experience of someone's intelligence, the location of a pointer on a measuring scale, or a check mark entered in a questionnaire. None of these things is inherently numerical or quantitative, but converting them to a numerical form is useful at times. (Chapter 14 deals specifically with the quantification of data.)

Quantification often makes our observations more explicit. It can also make aggregating and summarizing data easier. Further, it opens up the possibility of statistical analyses, ranging from simple averages to complex formulas and mathematical models. Thus, a social researcher might ask whether you tend to date people older or younger than yourself. A quantitative answer to this seems easily attained. The researcher asks how old each of your dates has been and calculates an average. Case closed.

Or is it? Although "age" here represents the number of years people have been alive, sometimes people use the term differently; perhaps for some people "age" really means "maturity." Though your dates may tend to be a little older than you, they may act more immaturely and thus represent the same "age." Or someone might see "age" as how young or old your dates look or

tolerance for ambiguity The ability to hold conflicting ideas in your mind simultaneously, without denying or dismissing any of them.

maybe the degree of variation in their life experiences, their worldliness. These latter meanings would be lost in the quantitative calculation of average age. Qualitative data are richer in meaning and detail than are quantitative data. This is implicit in the cliché, "He is older than his years." The poetic meaning of this expression would be lost in attempts to specify how much older.

This richness of meaning stems in part from ambiguity. If the expression means something to you when you read it, that particular meaning arises from your own experiences, from people you've known who might fit the description of being "older than their years" or perhaps the times you've heard others use that expression. Two things about this phrase are certain: (1) You and I probably don't mean exactly the same thing when we say it, and (2) if I say it, you don't know exactly what I mean, and vice versa.

It might be possible to quantify this concept, however. For example, we might establish a list of life experiences that would contribute to what we mean by *worldliness*:

Getting married
Getting divorced
Having a parent die
Seeing a murder committed
Being arrested
Being exiled
Being fired from a job
Running away with the circus

We might quantify people's worldliness as the number of such experiences they've had: the more they have experienced, the more worldly we'd say they were. If we thought of some experiences as more powerful than others, we could give those experiences more points. Once we had made our list and point system, scoring people and comparing their worldliness would be pretty straightforward. We would have no difficulty agreeing on who had more points than whom.

To quantify a concept like worldliness, we need to be explicit about what we mean. By focusing specifically on what we'll include in our measurement of the concept, however, we also exclude any other meanings. Inevitably, then, we face a trade-off: Any explicated, quantitative measure will be more superficial than the corresponding qualitative description.

What a dilemma! Which approach should we choose? Which is more appropriate to social research?

The good news is that we don't need to choose. In fact, we shouldn't. Both qualitative and quantitative methods are useful and legitimate in social research. Some research situations and topics are amenable mostly to qualitative examination, others mostly to quantification. We need both.

However, because these two approaches call for different skills and procedures, you may feel more comfortable with and become more adept in one mode than the other. You'll be a stronger researcher, however, to the extent that you can learn both approaches. At the very least, you should recognize the legitimacy of both.

Finally, you may have noticed that the qualitative approach seems more aligned with idiographic explanations, whereas nomothetic explanations are more easily achieved through quantification. Though this is true, these relationships are not absolute. Moreover, both approaches present considerable "gray area." Recognizing the distinction between qualitative and quantitative research doesn't mean that you must identify your research activities with one to the exclusion of the other. A complete understanding of a topic often requires both techniques.

The contributions of these two approaches are widely recognized today. For example, when Stuart Biddle and his colleagues (2001) at the University of Wales set out to review the status of research in the field of sport and exercise psychology, they were careful to examine the uses of both quantitative and qualitative techniques, drawing attention to those they felt were underused.

The apparent conflict between these two fundamental approaches has been neatly summarized by Paul Thompson (2004: 238–9):

> *Only a few sociologists would openly deny the logic of combining the strengths of both quantitative and qualitative methods in social research.… In practice, however, despite such wider methodological aspirations in principle, social researchers have regrettably become increasingly divided into two camps, many of whose members know little of each other even if they are not explicitly hostile.*

In reviewing the frequent disputes over the superiority of qualitative or quantitative methods, Anthony Onwuegbuzie and Nancy Leech

What do you think?...Revisited

This chapter opened with a question regarding uncontrolled variations in society—specifically, giving birth. We noted that there is no apparent control over who will or will not have a baby during a given year. Indeed, many babies are unplanned and thus are conceived "by accident." For the most part, the women who have babies differ from one year to the next, and each baby results from idiosyncratic, deeply personal reasons.

As the data introduced in this chapter indicate, however, aggregate social life operates differently from individual experiences of living in society. Although predicting whether a specific person or couple will decide to have a child at a given time is difficult, a greater regularity exists at the level of groups, organizations, and societies. This regularity is produced by social structure, culture, and other forces that individuals may or may not be aware of. Reflect, for example, on the impact of a housing industry that provides too few residences to accommodate large families, in contrast to one in which accommodation is the norm. Whereas that single factor would not absolutely determine the childbearing choices of a particular person or couple, it would have a predictable, overall effect across the whole society. And *social* researchers are chiefly interested in describing and understanding social patterns, not individual behaviors. This book will share with you some of the logic and tools social researchers use in that quest.

(2005) suggest that the two approaches have more similarities than differences. They further argue that using both approaches strengthens social research. My intention in this book is to focus on the complementarity of these two approaches rather than on any apparent competition between them.

Now that you've learned about the foundations of social research, I hope you can see how vibrant and exciting such research is. All we need is an open mind and a sense of adventure—and a good grounding in the basics of social research.

The Research Proposal

I conclude this chapter by introducing a practical learning feature that will run throughout the book: the preparation of a research proposal. Most organized research begins with a description of what is planned in the project: what questions it will raise and how it will answer them. Often such proposals are created for the purpose of getting the resources needed to conduct the research envisioned.

One way to learn the topics of this course is to use them in writing a research proposal. Each chapter ends with an exercise describing a step in this process. Even if you will not actually conduct a major research project, you can lay out a plan for doing so. Your instructor may use this as a course requirement. If not, you can still use the exercises to test your mastery of each chapter.

SAGrader is a computer program designed to assist you with this sort of exercise. It will accept a draft submission and critique it, pointing to elements that are missing, for example.

There are many organizational structures for research proposals. I've created a fairly typical one for you to use with this book. Here is the proposal outline, indicating which chapters in the book most directly deal with each topic:

Introduction (Chapter 1)

Review of the Literature (Chapters 2, 17; Appendix A)

Specifying the Problem/Question/Topic (Chapters 5, 6, 12)

Research Design (Chapter 4)

Data-Collection Method (Chapters 4, 8–11)

Selection of Subjects (Chapter 7)

Ethical Issues (Chapter 3)

Review of Literature (Chapters 2, 17)

Data Analysis (Chapters 13–16)

Bibliography (Chapter 17)

I'll have more to say about each of these topics as we move through the book, beginning with this chapter's exercise, where we'll discuss what might go into the introduction. Chapter 4 will have an extended section on the research proposal, and Chapter 17 will help you pull all the parts of the proposal into a coherent whole.

CHAPTER 4

Research Design

CHAPTER OVERVIEW

Here you'll see the wide variety of research designs available to social researchers as well as how to design a study—that is, specifying exactly who or what is to be studied when, how, and for what purpose.

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PART 2 The Structuring of Inquiry: Quantitative and Qualitative

Learning Objectives

After studying this chapter, you will be able to . . .

- Discuss the role of exploration, description, and explanation in social research.
- Discuss the logic and procedures of idiographic explanation.
- Name and discuss the legitimate and false criteria for nomothetic explanation.
- Distinguish between necessary and sufficient causes, giving examples.
- Identify some of the common units of analysis in social research and explain why that concept is important.
- Identify and describe some common study designs based on the time dimension.
- Explain and illustrate some advantages of mixed-mode designs.
- Identify and discuss the key elements in the design of a research project.
- Describe the elements and structure of a research proposal.
- Give examples of how research design can have ethical implications.

Introduction

Science is dedicated to "finding out." No matter what you want to find out, though, you'll likely discover many ways to go about finding it. That's true in life in general. Suppose, for example, that you want to find out whether a particular automobile—say, the new Burpo-Blasto—would be a good car for you. You could, of course, buy one and find out that way. Or you could talk to a lot of B-B owners or to people who considered buying one and didn't. You might check the classified ads to see if there are a lot of B-Bs being sold cheap. You could read consumer-magazine or online evaluations of Burpo-Blastos. A similar situation occurs in scientific inquiry.

Ultimately, scientific inquiry comes down to making observations and interpreting what you've observed, the subjects of Parts 3 and 4 of this book. Before you can observe and analyze, however, you need a plan. You need to determine what you're going to observe and analyze: why and how. That's what research design is all about.

Although the details vary according to what you wish to study, you face two major tasks in any research design. First, you must specify as clearly as possible what it is you want to find out. Second, you must determine the best way to do it. Interestingly, if you can handle the first consideration fully, you'll probably have addressed the second already. As mathematicians say, a properly framed question contains the answer.

Let's say you're interested in conducting social research on terrorism. When Jeffrey Ross (2004) addressed this issue, he found the existing studies used a variety of qualitative and quantitative approaches. Qualitative researchers, for example, generated original data through

- Autobiographies
- Incident reports and accounts
- Hostages' experiences with terrorists
- Firsthand accounts of implementing policies

Ross goes on to discuss some of the secondary materials used by qualitative researchers: "biographies of terrorists, case studies of terrorist organizations, case studies on types of terrorism, case studies on particular terrorist incidents, and case studies of terrorism in selected regions and countries" (2004: 27). Quantitative researchers, on the other hand, addressed terrorism in a variety of ways, including analyses of media coverage, statistical modeling of terrorist events, and the use of various databases relevant to the topic. As you'll see in this chapter, any research topic can be approached from many different directions. Each of the topics we'll examine is relevant to both qualitative and quantitative studies, though some topics may be more relevant to one than to the other approach.

This chapter provides a general introduction to research design; the other chapters in Part 2 elaborate on specific aspects of it. In practice, all aspects of research design are interrelated. As

What do you think?

In the following letter published in a college newspaper, the Provost objects to data that had been previously reported.

> **Provost says percentage was wrong**
>
> *I am writing to clarify a misstatement in an editorial in the April 19 The Panther. As recently as last fall, the concept behind this statement was presented to your staff.*
>
> *This current use of erroneous numbers demands correction.*
>
> *The figure used in the statement, "With about 52 percent of the faculty being part-time . . ." is absolutely incorrect.*
>
> *Since the thrust of the editorial is Chapman's ability to live up to its desire to "nurture and help develop students," a proper measure of the difference between full-time faculty presence and that of part-time faculty is how many credits or courses are taught.*
>
> *For the past four years, full-time faculty have taught about 70 percent of the credits in which students enroll each semester.*
>
> *Thus, a large majority of our faculty are here full-time: teaching classes, advising students, attending meetings, interacting with students in the hallways and dining rooms.*
>
> *Once again, I welcome the opportunity to present the truth.*
>
> *Might I suggest that a future edition of* The Panther *be devoted to the contributions of part-time faculty.*
>
> Harry L. Hamilton, Provost

Sometimes, data seem as though they dropped out of the sky, making no sense. Which side is correct in this case: the original newspaper report or the Provost's account? Or are both sides correct? If so, why?

See the *What do you think? ... Revisited* box toward the end of the chapter.

Earl Babbie

you read through Part 2, the interrelationships among parts will become clearer.

We'll start by briefly examining the main purposes of social research, learning about both idiographic and nomothetic approaches. Then, we'll consider units of analysis—the "what or whom" you want to study. Next we'll consider alternative ways of handling time in social research, or how to study a moving target that changes over time.

With these ideas in hand, we'll turn to how to design a research project. This overview of the research process serves two purposes: In addition to describing how you might go about designing a study, it provides a map of the remainder of this book.

Next, we'll look at the elements of a research proposal. Often you'll need to detail your intentions before you actually conduct your research in order to obtain funding for a major project or perhaps to get your instructor's approval for a class project. You'll see that the research proposal provides an excellent opportunity for you to consider all aspects of your research in advance. Also, this section should help you with the continuing, end-of-chapter exercise concerning research proposals, in the event that you are doing that.

Finally, we'll consider the ethical implications of this research design. As you read through this chapter, think about how the practice of social research in this regard can raise larger issues.

Three Purposes of Research

Social research can serve many purposes. Three of the most common and useful purposes are exploration, description, and explanation. Although most studies have more than one of these purposes, examining them separately is useful because each has different implications for other aspects of research design.

Exploration

Much of social research is conducted to explore a topic, that is, to start to familiarize a researcher with that topic. This approach typically occurs when a researcher examines a new interest or when the subject of study itself is relatively new.

As an example, let's suppose that widespread taxpayer dissatisfaction with the government erupts into a taxpayers' revolt. People begin refusing to pay their taxes, and they organize themselves around that issue. You might like to learn more about the movement: How widespread is it? What levels and degrees of support exist within the community? How is the movement organized? What kinds of people are active in it? An exploratory study could help you find at least approximate answers to some of these questions. You might check figures with tax-collecting officials, gather and study the literature of the movement, attend meetings, and interview leaders.

Exploratory studies are also appropriate for more-persistent phenomena. Suppose you're unhappy with your college's graduation requirements and want to help change them. You might study the history of such requirements at the college and meet with college officials to learn the reasons for the current standards. You could talk to several students to get a rough idea of their sentiments on the subject. Although this last activity would not necessarily yield an accurate picture of student opinion, it could suggest what the results of a more extensive study might be.

Earl Babbie

Research design involves the creation and integration of many diverse elements.

Sometimes exploratory research is pursued through the use of focus groups, or guided small-group discussions. This technique is frequently used in market research, which we'll examine further in Chapter 10.

Exploratory studies are most typically done for three purposes: (1) to satisfy the researcher's curiosity and desire for better understanding, (2) to test the feasibility of undertaking a more extensive study, and (3) to develop the methods to be employed in any subsequent study.

Exploratory studies are quite valuable in social science research. They're essential whenever a researcher is breaking new ground, and they almost always yield new insights into a topic for research. Exploratory studies are also a source of grounded theory, as discussed in Chapter 10.

The chief shortcoming of exploratory studies is that they seldom provide satisfactory answers to research questions, although they can hint at the answers and can suggest which research methods could provide definitive answers. The reason exploratory studies are seldom definitive in themselves has to do with representativeness; that is, the people you study in your exploratory research may not be typical of the larger population that interests you. Once you understand representativeness, you'll be able to know whether a given exploratory study actually answered its research problem or only pointed the way toward an answer. (Representativeness is discussed at length in Chapter 7.)

Description

Many social science studies aim at describing situations and events. The researcher observes and then describes what was observed. Because scientific observation is careful and deliberate, scientific descriptions are typically more accurate and precise than are casual ones.

For example, the goal of the U.S. Census is to describe accurately and precisely a wide variety of the population characteristics of the United States, as well as areas such as states and counties. Other examples of descriptive studies include the creation of age–gender profiles of populations by demographers, the computation of crime rates for different cities, and a product-marketing survey that describes the people who use, or would use, a particular product.

Many qualitative studies aim primarily at description. An anthropological ethnography, for example, may try to detail the particular culture of some preliterate society. At the same time, such studies are seldom limited to a merely descriptive purpose. Researchers usually go on to examine why the observed patterns exist and what they imply.

Explanation

The third general purpose of social science research is to explain things. Descriptive studies answer questions of what, where, when, and how; explanatory studies address questions of why. So when William Sanders (1994) set about describing the varieties of gang violence, he also wanted to reconstruct the process that brought about violent episodes among the gangs of different ethnic groups.

Reporting the voting intentions of an electorate is descriptive, but reporting why some people plan to vote for Candidate A and others for Candidate B is explanatory. Reporting why some cities have higher crime rates than others involves explanation, as does identifying *variables* that explain why some cities have higher crime rates than others.

Let's look at a specific case. Recent years have seen a radical shift in American attitudes toward marijuana. Support for the use of medical marijuana has increased in many states and, at this writing, recreational use of marijuana is legal in Colorado, Washington, Alaska, Oregon, California, Nevada, Michigan, Massachusetts, Vermont, and Maine. What factors do you suppose might shape people's attitudes toward the legalization of marijuana? To answer this, you might first consider whether men and women differ in their opinions. An explanatory analysis of the 2016 General Social Survey (GSS) data indicates that 65 percent of men and 56 percent of women said that marijuana should be legalized.

What about political orientation? The GSS data show that 74 percent of liberals said marijuana should be legalized, as compared with 54 percent of moderates and 42 percent of conservatives. Further, 62 percent of Democrats, as compared with 57 percent of Independents and 42 percent of Republicans, supported such legalization.

Given these statistics, you might begin to develop an explanation for attitudes toward marijuana legalization. Further study of gender and political orientation might then lead to a deeper explanation of these attitudes.

In Chapter 1, we noted that there were two different approaches to explanation in social research (and in everyday life). Let's return to those now.

In the remainder of this chapter, we'll examine some general approaches to research and the elements of research design from which you can choose. As you do this, keep in mind that the advanced planning for research may not fit perfectly the situations you will confront in the field. The "How to Do It: Putting Social Research to Work" reports on a graduate student's experience in the field.

Idiographic Explanation

As you will recall from Chapter 1, idiographic explanation seeks an exhaustive understanding of the causes producing events and situations in a single or limited number of cases. If you wished to understand why a student protest broke out on a particular college campus, you would seek to root out everything that contributed to that result. You would consider the history of the college, its organizational structure, the nature of the student body, the actions of influential individuals (administrators, faculty, students, others), the context of student activities nationally, triggering events (e.g., shutting down a student organization, arresting a student), and so forth. You'll know your analysis is complete when the explanatory factors you have assembled made the protest inevitable, and when the absence of any of those factors might have kept it from happening.

There is no statistical test that can tell you when you have achieved this analytical success, however. This conclusion rests on the "art" of social research, which is achieved primarily through experience: by reading the analyses of others and by conducting your own. Here are a few techniques to consider.

- *Pay attention to the explanations offered by the people living the social processes you are studying.* It is important that you not believe everything

How to Do It

Putting Social Research to Work

Jacob Perry is a graduate student at the Clinton School of Public Service in Little Rock, Arkansas, and he chose to do his semester of fieldwork abroad in North Africa. He quickly discovered that the research techniques he had mastered in his studies did not necessarily fit into the research situation. Here's how he described it:

> *We Americans have our quite fixed ideas about what research is: intense preparation, thorough literature review, ample discussions to outline details, timeline of events to take place, schedule of responsibilities and activities to perform, etc. These simply must happen in order to perform reputable research. And everything must be agreed upon before the research begins. That is the American way (granted, it is also somewhat of an internationally accepted way as well) and it is in many ways a reflection of our organized, prompt, accountable, obligation and time-oriented culture. However, I am in Morocco performing a research project, and Moroccan culture has quite different views on time, responsibilities, and planning. Time here is neither rigid nor fixed. It is not linear but rather cyclical, meaning time is not lost—it is simply recovered later. Life is now; it is present; it is mostly unplanned.*

Jacob found ways to develop rapport with his fellow researchers in order to put his research training to good use.

> *I spent the first two weeks building trust, familiarity, comfort—relations! This has been vital to the project's progress, as our team is able to discuss openly, honestly, and sometimes aggressively to arrive at an agreement. I also speak the local language, which has allowed my Moroccan partners to remain in their linguistic comfort zone, remain in control of conversations concerning project work, and not feel they are being neo-colonized by a foreigner here to "save" their country.*

Ultimately, Jacob felt the project had been successful, and it is obvious that it was a powerful learning experience for the young social researcher.

> *I am so pleased with this project in Morocco because it is a partnership between myself and Moroccans who have already established the goals, needs, and approach to developing their society. This project depends entirely on local expertise and initiative. I am here because of a mutually expressed interest by myself and locals who want to improve their city. And the project has progressed because of continuous discussions in which all team members offer their perspectives. In short, learning, considering, and respecting local culture is necessary for international development work to be successful, and I am seeing a great example of effective development work on the ground in Morocco.*

Source: Private communication June 24, 2013.

you are told, of course, but don't make the opposite mistake of thinking you understand the situation better than those living there. (Social researchers have sometimes been accused of a certain degree of arrogance in this respect.) If there is wide agreement as to the importance of a certain factor, that should increase your confidence that it was a cause of the event under study. This would be more so if participants with very different points of view agree on that point. In the case of the student protest, administrators and students are likely to have very different opinions about what happened, but if they all agree that the arrest of a student activist was a triggering event, then it probably was an important cause.

- *Comparisons with similar situations, either in different places or at different times in the same place, can be insightful*. Perhaps the campus in question has had previous protests, or perhaps there was a time when a protest almost occurred but didn't. Knowledge of such instances can provide useful comparisons and contrasts to the case under study. Similarly, protests or nonprotests at other campuses can offer useful comparisons.

The Logic of Nomothetic Explanation

The preceding examination of what factors might cause attitudes about legalizing marijuana illustrates nomothetic explanation, as discussed in Chapter 1. Recall that in this model, we try to find a few factors (independent variables) that can account for much of the variation in a given phenomenon. This explanatory model stands in contrast to the idiographic model, in which we seek a complete, in-depth understanding of a single case.

In contrast to the idiographic approach, a nomothetic approach might suggest that overall political orientations account for much of the difference of opinion about legalizing marijuana. Because this model is inherently probabilistic, it is more open than the idiographic model to misunderstanding and misinterpretation. Let's examine what social researchers mean when they say one variable (nomothetically) causes another. Then, we'll look at what they don't mean.

Criteria for Nomothetic Causality

There are three main criteria for nomothetic causal relationships in social research: (1) the variables must be correlated, (2) the cause takes place before the effect, and (3) the variables are nonspurious.

Correlation

Unless some actual relationship—a statistical **correlation**—is found between two variables, we can't say that a causal relationship exists. Our analysis of GSS data suggested that political orientation was a cause of attitudes about legalizing marijuana. Had the same percentage of liberals and conservatives supported legalization, we could hardly say that political orientations caused the attitude. Though this criterion is obvious, it emphasizes the need to base social research assertions on actual observations rather than on assumptions.

Time Order

Next, we can't say a causal relationship exists unless the cause precedes the effect in time. Notice that it makes more sense to say that most children's religious affiliations are caused by those of their parents than to say that parents' affiliations are caused by those of their children—even though it would be possible for you to change your religion and for your parents to follow suit. Remember, nomothetic explanation deals with general patterns but not all cases.

In our marijuana example, it would make sense to say that gender causes, to some extent, attitudes toward legalization, whereas it would make no sense to say that opinions about marijuana determine a person's gender. Notice, however, that the time order connecting political orientations and attitudes about legalization is less clear, although we sometimes reason that general orientations cause specific opinions. And sometimes our analyses involve two or more independent variables that were established at the same time: looking at the effects of gender and race on voting behavior, for example. As we'll see in the next chapter, the issue of time order can be a complex matter.

Nonspuriousness

The third requirement for a causal relationship is that the effect cannot be explained in terms of some third variable. For example, there is a correlation between ice-cream sales and deaths due to drowning: the more ice cream sold, the more drownings, and vice versa. There is, however, no direct link between ice cream and drowning. The third variable at work here is *season* or *temperature*. Most drowning deaths occur during summer—the peak period for ice-cream sales.

Here are two more examples of **spurious relationships**, or ones that aren't genuine. There is a negative relationship between the number of mules and the number of PhD's in towns and cities: the more mules, the fewer PhD's and vice versa. Perhaps you can think of another variable that would explain this apparent relationship. The answer is *rural versus urban settings*. There are more mules (and fewer PhD's) in rural areas, whereas the opposite is true in cities.

Or, consider the positive correlation between shoe size and math ability among schoolchildren. Here, the third variable that explains the puzzling relationship is *age*. Older children have bigger feet and more highly developed math skills, on average, than younger children do.

correlation An empirical relationship between two variables such that (1) changes in one are associated with changes in the other, or (2) particular attributes of one variable are associated with particular attributes of the other. Thus, for example, we say that *education* and *income* are correlated in that higher levels of education are associated with higher levels of income. Correlation in and of itself does not constitute a causal relationship between the two variables, but it is one criterion of causality.

spurious relationship A coincidental statistical correlation between two variables, shown to be caused by some third variable.

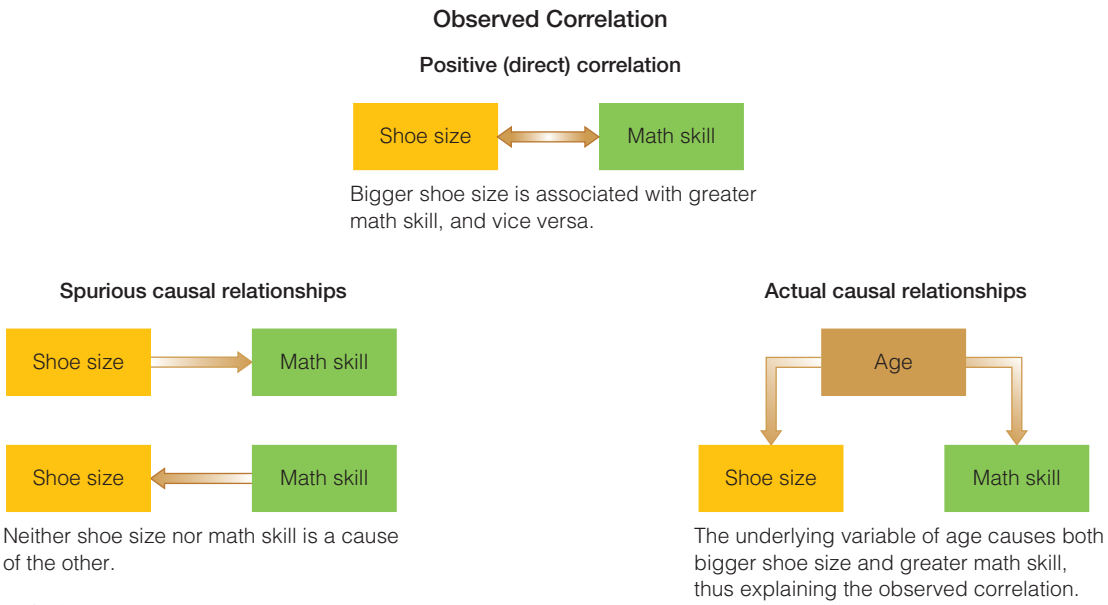

FIGURE 4-1

An Example of a Spurious Causal Relationship. Finding an empirical correlation between two variables does not necessarily establish a causal relationship. Sometimes the observed correlation is the incidental result of other causal relationships, involving other variables.

See Figure 4-1 for an illustration of this spurious relationship. Notice that observed associations go in both directions. That is, as one variable occurs or changes, so does the other.

At the top of the diagram, we see the observed correlation between shoe size and math ability. The double-headed arrow indicates that we don't know which variable might cause the other. To the bottom left of the diagram, we suggest that thinking math ability causes shoe size or that shoe size causes math ability are spurious, not real causal relationships. The bottom right of the diagram indicates what is actually at work. A third variable, *age*, (1) "causes" shoe size, in that older kids have bigger feet and (2) older kids know more math.

The list goes on. Areas with many storks have high birth rates. Those with few storks have low birth rates. Do storks really deliver babies? Birth rates are higher in the country than in the city; more storks live in the country than the city. The third variable here is *urban/rural areas*.

Finally, the more fire trucks that put out a fire, the more damage to the structure. Can you guess what the third variable is? In this case, it is the *size* of the fire.

Thus, when social researchers say there is a causal relationship between, say, education and racial tolerance, they mean (1) there is a statistical correlation between the two variables, (2) a person's educational level occurred before their current level of tolerance or prejudice, and (3) there is no third variable that can explain away the observed correlation as spurious.

Nomothetic Causal Analysis and Hypothesis Testing

The nomothetic model of causal analysis lends itself to hypothesis testing (see Chapter 2). To do this, you would carefully specify the variables you think are causally related, as well as specifying the manner in which you will measure them. (These steps will be discussed in detail in Chapter 5 under the terms *conceptualization* and *operationalization*.)

In addition to hypothesizing that two variables will be correlated, you could specify the level of *statistical significance* you will require in order to conclude that a genuine relationship exists. As you will learn in Chapter 7 (The Logic of Sampling), it is possible for factors such as sampling error to create the illusion of correlations where none exists in the larger population.

Finally, you could specify the tests for spuriousness that any observed relationship must survive. Not only would you hypothesize, for example, that increased education will reduce levels of prejudice, but you would specify further that the hypothesized relationship will not be the product of, say, political orientations.

False Criteria for Nomothetic Causality

Because notions of cause and effect are well entrenched in everyday language and logic, it's important to specify some of the things social researchers do not mean when they speak of causal relationships. When they say that one variable causes another, they do not necessarily mean to suggest complete causation, to account for exceptional cases, or to claim that the causation exists in a majority of cases.

Complete Causation

Whereas an idiographic explanation of causation is relatively complete, a nomothetic explanation is probabilistic and usually incomplete. As we've seen, social researchers may say that political orientations cause attitudes toward legalizing marijuana even though not all liberals approve or all conservatives disapprove. Thus, we say that political orientation is one of the causes of the attitude, but not the only one.

Exceptional Cases

In nomothetic explanations, exceptions do not disprove a causal relationship. For example, it is consistently found that women are more religious than men in the United States. Thus, gender may be a cause of religiosity, even if your uncle is a religious zealot or you know a woman who is an avowed atheist. Those exceptional cases do not disprove the overall, causal pattern.

Majority of Cases

Causal relationships can be true even if they do not apply in a majority of cases. For example, we say that children who are not supervised after school are more likely to become delinquent than are those who are supervised; hence, lack of supervision is a cause of delinquency. This causal relationship holds true even if only a small percentage of those not supervised become delinquent. As long as they are more likely to be delinquent than those who are supervised, we say there is a causal relationship.

The social science view of causation may vary from what you are accustomed to, because people commonly use the term *cause* to mean something that completely causes another thing. The somewhat different standard used by social researchers can be seen more clearly in terms of necessary and sufficient causes.

Necessary and Sufficient Causes

A necessary cause represents a condition that must be present for the effect to follow. For example, it is necessary for you to take college courses in order to get a degree. Take away the courses, and the degree never happens. However, simply taking the courses is not a sufficient cause of getting a degree. You need to take the right ones and pass them. Similarly, being female is a necessary condition of becoming pregnant, but it is not a sufficient cause. Otherwise, all women would get pregnant.

Figure 4-2 illustrates this relationship between the variables of *sex* and *pregnancy* as a matrix showing the possible outcomes of combining these variables.

A sufficient cause, on the other hand, represents a condition that, if it is present, guarantees the effect in question. This is not to say that a sufficient cause is the only possible cause of a particular effect. For example, skipping an exam in this course would be a sufficient cause for failing it, though students could fail it other ways as well. Thus, a cause can be sufficient, but not necessary. Figure 4-3 illustrates the relationship between taking or not taking the exam and either passing or failing it.

The discovery of a cause that is both necessary and sufficient is, of course, the most satisfying outcome in research. If juvenile delinquency were the effect under examination, it would be nice to discover a single condition that (1) must be present for delinquency to

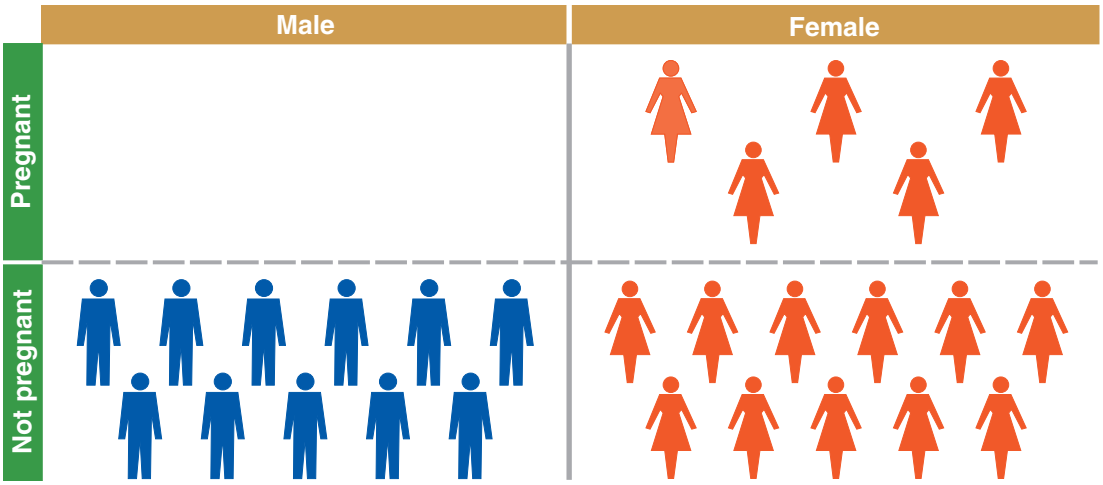

FIGURE 4-2

Necessary Cause. Being female is a necessary cause of pregnancy, that is, you can't get pregnant unless you're female.

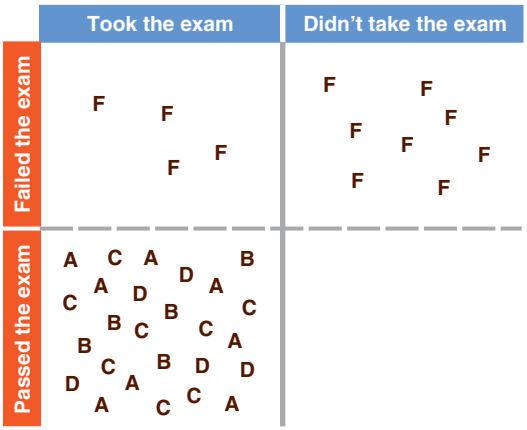

FIGURE 4-3

Sufficient Cause. Not taking the exam is a sufficient cause of failing it, even though there are other ways of failing (such as answering randomly).

develop and (2) always results in delinquency. In such a case, you would surely feel that you knew precisely what caused juvenile delinquency.

Unfortunately, when analyzing the nomothetic relationships among variables, we never discover single causes that are absolutely necessary and absolutely sufficient. It is not uncommon, however, to find causal factors that are either 100 percent necessary (you must be female to become pregnant) or 100 percent sufficient (skipping an exam will cause you to fail it).

In the idiographic analysis of single cases, you may reach a depth of explanation from which it is reasonable to assume that things could not have turned out differently, suggesting that you have determined the sufficient causes for a particular result. (Anyone with all the same details of your genetic inheritance, upbringing, and subsequent experiences would have ended up going to college.) At the same time, there could always be other causal paths to the same result. Thus, the idiographic causes are sufficient but not necessary.

Units of Analysis

In social research, there is virtually no limit to what or whom can be studied, or the **units of analysis**. This topic is relevant to all forms of social research, although its implications are clearest in the case of nomothetic, quantitative studies.

The idea for units of analysis may seem slippery at first, because research—especially nomothetic research—often studies large collections of people or things, or aggregates. It's important to distinguish between the unit of analysis and the aggregates that we generalize about.

units of analysis The what or whom being studied. In social science research the most typical units of analysis are individual people.

For instance, a researcher may study a class of people, such as Democrats, college undergraduates, or African American women under age 30. But if the researcher is interested in exploring, describing, or explaining how different groups of individuals behave as *individuals*, the unit of analysis is the individual, not the group. This is so even though the researcher then proceeds to generalize about aggregates of individuals, as in saying that more Democrats than Republicans favor legalizing marijuana.

Think of it this way: Having an attitude about marijuana is something that can be an attribute only of an individual, not a group; that is, there is no one group "mind" that can have an attitude. So even when we generalize about Democrats, we're generalizing about an attribute they possess as individuals.

In contrast, we may sometimes want to study groups, considered as individual "actors" or entities that have attributes as groups. For instance, we might want to compare the characteristics of different types of street gangs. In that case our unit of analysis would be gangs (not members of gangs), and we might proceed to make generalizations about different types of gangs. For example, we might conclude that male gangs are more violent than female gangs. Each gang (unit of analysis) would be described in terms of two variables: (1) What *gender* are the members? and (2) How *violent* are its activities? So we might study 52 gangs, reporting that 40 were male and 12 were female, and so forth. The "gang" would be the unit of analysis, even though some of the characteristics were drawn from the components (members) of the gangs.

Social researchers perhaps most typically choose individual people as their units of analysis. You might note the characteristics of individual people—gender, age, region of birth, attitudes, and so forth. You could then combine these descriptions to provide a composite picture of the group the individuals represent, whether a street-corner gang or a whole society.

For example, you might note the age and gender of each student enrolled in Political Science 110 and then characterize the group of students as being 53 percent men and 47 percent women and as having a mean age of 18.6 years. Although the final description would be of the class as a whole, the description would be based on characteristics that members of the class have as individuals.

The same distinction between units of analysis and aggregations occurs in explanatory studies. Suppose you wished to discover whether students with good study habits received better grades in Political Science 110 than did students with poor study habits. You would operationalize the variable *study habits* and measure this variable, perhaps in terms of hours of study per week. You might then aggregate students with good study habits and those with poor study habits and see which group received the best grades in the course. The purpose of the study would be to explain why some groups of students do better in the course than do others, but the unit of analysis would still be individual students.

Units of analysis in a study are usually also the units of observation. Thus, to study success in a political science course, we would observe individual students. Sometimes, however, we "observe" our units of analysis indirectly. For example, suppose we want to find out whether disagreements about the death penalty tend to cause divorce. In this case, we might "observe" individual husbands and wives by asking them about their attitudes toward capital punishment, in order to distinguish couples who agree and disagree on this issue. In this case, our units of observation are individual wives and husbands, but our units of analysis (the things we want to study) are couples.

Units of analysis, then, are those things we examine in order to create summary descriptions of all such units and to explain differences among them. In most research projects, the unit of analysis will probably be clear to you. When the unit of analysis is not clear, however, it's essential to determine what it is; otherwise, you cannot determine what observations are to be made about whom or what.

Some studies try to describe or explain more than one unit of analysis. In these cases, the researcher must anticipate what conclusions she or he wishes to draw with regard to which units of analysis. For example, we may want to discover what kinds of college students (individuals) are most successful in their careers after graduation; we may also want to learn what kinds of colleges (organizations) produce the most successful graduates.

Here's an example that illustrates the complexity of units of analysis. Murder is a fairly personal matter: One individual kills another individual. However, when Charis Kubrin and Ronald Weitzer (2003: 157) ask, "Why do these neighborhoods generate high homicide rates?" the unit of analysis in that question is "neighborhood." You can probably imagine some kinds of neighborhood (such as poor, urban) that would have high homicide rates and some (such as wealthy, suburban) that would have low homicide rates. In this particular conversation, the unit of analysis (neighborhood) would be categorized in terms of variables such as *economic level*, *locale*, and *homicide rate*.

In their analysis, however, Kubrin and Weitzer were also interested in different types of homicide: in particular, those that occurred in retaliation for some earlier event, such as an assault or insult. Can you identify the unit of analysis common to all of the following excerpts?

1. The sample of killings…
2. The coding instrument includes over 80 items related to the homicide.
3. Of the 2,161 homicides that occurred from 1985 [to] 1995…
4. Of those with an identified motive, 19.5 percent (n = 337) are retaliatory (Kubrin and Weitzer 2003: 163).

In each of these excerpts, the unit of analysis is *homicide* (also called *killing* or *murder*). Sometimes you can identify the unit of analysis in the description of the sampling methods, as in the first excerpt. A discussion of classification methods might also identify the unit of analysis, as in the second excerpt (80 ways to code the homicides). Often, numerical summaries point the way: 2,161 homicides; 19.5 percent (of the homicides). With a little practice you'll be able to identify the units of analysis in most social research reports, even when more than one is used in a given analysis.

To explore this topic in more depth, let's consider several common units of analysis in social research.

Individuals

As mentioned earlier, individual human beings are perhaps the most typical units of analysis for social research. We tend to describe and explain social groups and interactions by aggregating and manipulating the descriptions of individuals.

Any type of individual can be the unit of analysis for social research. This point is more important than it may seem at first. The norm of generalized understanding in social research should suggest that scientific findings are most valuable when they apply to all kinds of people. In practice, however, social researchers seldom study all kinds of people. At the very least, their studies are typically limited to the people living in a single country, though some comparative studies stretch across national boundaries. Often, however, studies are quite circumscribed.

Examples of classes of individuals that might be chosen for study include students, gays and lesbians, autoworkers, voters, single parents, and faculty members. Note that each of these terms implies some population of individuals.

Groups

Social groups can also be units of analysis in social research. That is, we may be interested in characteristics that belong to one group, considered as a single entity. If you were to study the members of a criminal gang to learn about criminals, the individual (criminal) would be the unit of analysis; but if you studied all the gangs in a city to learn the differences, say, between big gangs and small ones, between "uptown" and "downtown" gangs, and so forth, you would be interested in gangs rather than their individual members. In this case, the unit of analysis would be the gang, a social group.

Here's another example. Suppose you were interested in the question of access to computers in different segments of society. You might describe families in terms of total annual income and according to whether or not they had computers. You could then aggregate families and describe the mean income of families and the percentage with computers. You would then be in a position to determine whether families with higher incomes were more likely to have computers than were those with lower incomes. In this case, the unit of analysis would be families.

As with other units of analysis, we can derive the characteristics of social groups from those of their individual members. Thus, we might describe a family in terms of the age, race, or education of its head. In a descriptive study, we

might find the percentage of all families that have a college-educated head of family. In an explanatory study, we might determine whether such families have, on average, more or fewer children than do families headed by people who have not graduated from college. In each of these examples, the family is the unit of analysis. In contrast, had we asked whether college-educated individuals have more or fewer children than do their less-educated counterparts, then the individual would have been the unit of analysis.

Organizations

Formal social organizations can also be the units of analysis in social research. For example, a researcher might study corporations, by which he or she implies a population of all corporations. Individual corporations might be characterized in terms of their number of employees, net annual profits, gross assets, number of defense contracts, percentage of employees from racial or ethnic minority groups, and so forth. We might determine whether large corporations hire a larger or smaller percentage of minority-group employees than do small corporations. Other examples of formal social organizations suitable as units of analysis include church congregations, colleges, army divisions, academic departments, and supermarkets.

Figure 4-4 provides a graphic illustration of some different units of analysis and the statements that might be made about them.

Social Interactions

Sometimes social interactions are the relevant units of analysis. Instead of studying individual humans, you can study what goes on between them: telephone calls, kisses, dancing, arguments, fistfights, e-mail exchanges, chat-room discussions, and so forth. As you saw in Chapter 2, social interaction is the basis for one of the primary theoretical paradigms in the social sciences, and the number of units of analysis that social interactions provide is nearly infinite.

social artifact Any product of social beings or their behavior. It can be a unit of analysis.

Even though individuals are usually the actors in social interactions, there is a difference between (1) comparing the kinds of people who subscribe to different Internet service providers (individuals being the unit of analysis) and (2) comparing the length of chat-room discussions on those same providers (the discussion being the unit of analysis).

Social Artifacts

Another unit of analysis is the **social artifact**, or any product of social beings or their behavior. One class of artifacts includes concrete objects such as books, poems, paintings, automobiles, buildings, songs, pottery, jokes, student excuses for missing exams, and scientific discoveries.

As these examples suggest, just as people or social groups imply populations, each social object implies a set of all objects of the same class: all books, all novels, all biographies, all introductory sociology textbooks, all cookbooks, all press conferences. In a study using books as the units of analysis, an individual book might be characterized by size, weight, length, price, content, number of pictures, number sold, or description of its author. Then the population of all books or of a particular kind of book could be analyzed for the purpose of description or explanation: what kinds of books sell best and why, for example.

Social interactions form another class of social artifacts suitable for social research. For example, we might characterize weddings as racially or religiously mixed or not, as religious or secular in ceremony, as resulting in divorce or not, or by descriptions of one or both of the marriage partners (such as "previously married," "Oakland Raider fan," "wanted by the FBI"). When a researcher reports that weddings between partners of different religions are more likely to be performed by secular authorities than are those between partners of the same religion, the weddings are the units of analysis, not the individuals involved.

Other social interactions that might be units of analysis include friendship choices, court cases, traffic accidents, divorces, fistfights, ship launchings, airline hijackings, race riots, final exams, student demonstrations, and congressional hearings. Congressional hearings, for instance, could be characterized by whether or not they occurred during an election campaign,

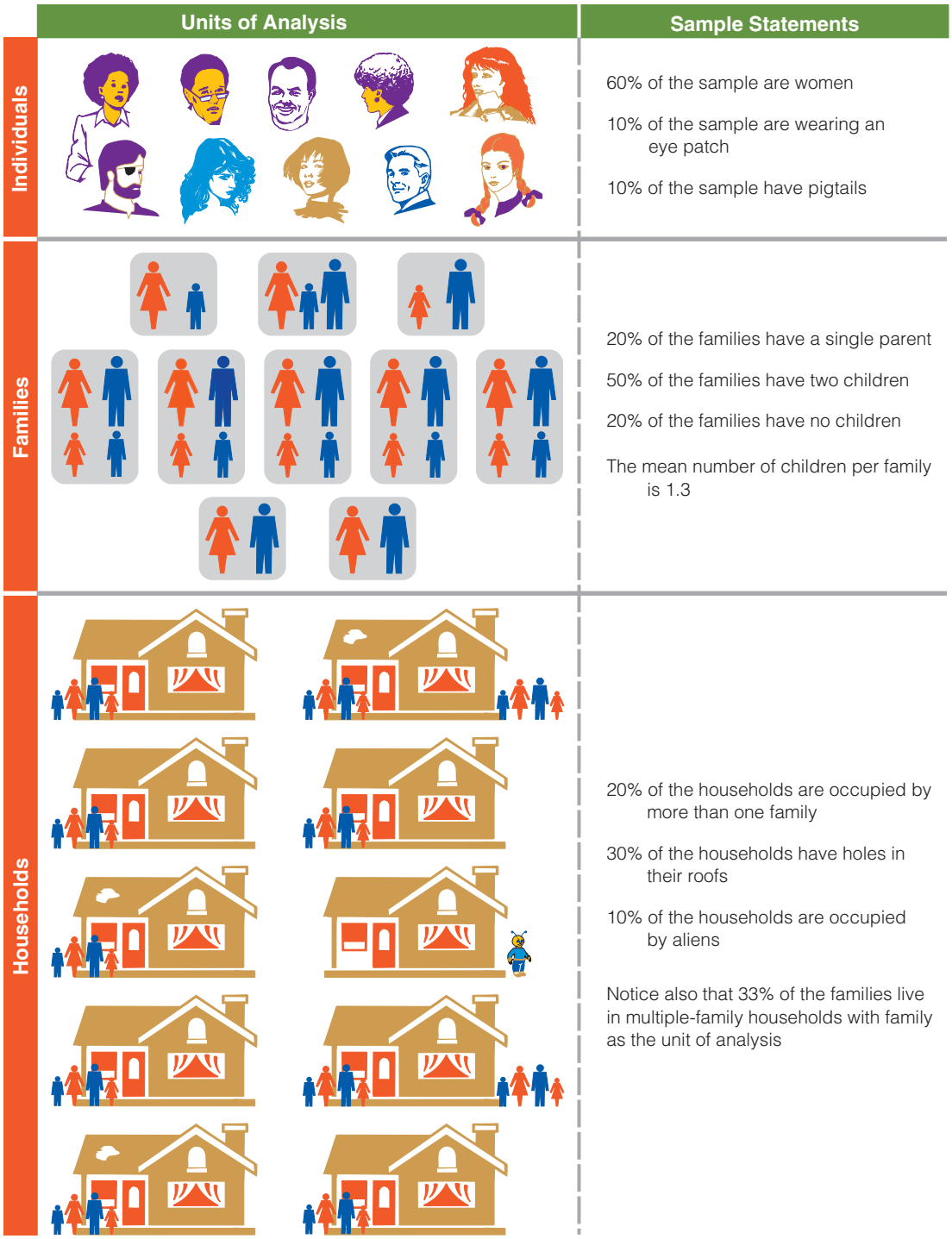

FIGURE 4-4

Illustrations of Units of Analysis. Units of analysis in social research can be individuals, groups, or even nonhuman entities.

How to Do It

Identifying the Unit of Analysis

The unit of analysis is an important element in research design and in data analysis. However, students sometimes find it elusive. The easiest way to identify the unit of analysis is to examine a statement regarding the variables under study.

Consider the following statement: "The average household income was $40,000." *Income* is the variable of interest, but who or what *has* income? Households. We would arrive at the given statement by examining the incomes of several households. To calculate the mean (average) income, we would add up all the household incomes and divide by the number of households. Household is the unit of analysis. It is the unit being analyzed in terms of the variable, *income*.

One way of identifying the unit of analysis is to imagine the process that would result in the conclusion reached. Consider this research conclusion: "Twenty-four percent of the families have more than one adult earning at least $30,000 a year." To be sure, adults are earning the income, but the statement is about whether families have such adults. To make this statement, we would study several families. For each, we would ask whether they had more than two adults earning in excess of $30,000; each family would be scored as "yes" or "no" in that respect. Finally, we would calculate the percentage of families scored as "yes." The family, therefore, is the unit of analysis.

whether the committee chairs were running for a higher office, whether these chairs had received campaign contributions from interested parties, and so on. Notice that even if we characterized and compared the hearings in terms of the committee chairs, the hearings themselves—not the individual chairpersons—would be our units of analysis. See "How to Do It: Identifying the Unit of Analysis" for more.

Units of Analysis in Review

The examples in this section should suggest the nearly infinite variety of possible units of analysis in social research. Although individual human beings are typical objects of study, many research questions can be answered more appropriately through the examination of other units of analysis. Indeed, social researchers can study just about anything that bears on social life.

Moreover, the types of units of analysis named in this section do not begin to exhaust the possibilities. This has been a topic of discussion and elaboration for some time. Morris Rosenberg (1968: 234–48), for example, speaks of individual, group, organizational, institutional, spatial, cultural, and societal units of analysis. John Lofland and colleagues (2006: 122–32) speak of practices, episodes, encounters, roles and social types, social and personal relationships, groups and cliques, organizations, settlements and habitats, subcultures, and lifestyles as suitable units of study. The important thing here is to grasp the logic of units of analysis. Once you do, only your imagination limits the possibilities for fruitful research.

Categorizing possible units of analysis may make the concept seem more complicated than it needs to be. What you call a given unit of analysis—a group, a formal organization, or a social artifact—is irrelevant. The key is to be clear about what your unit of analysis is. When you embark on a research project, you must decide whether you're studying marriages or marriage partners, crimes or criminals, corporations or corporate executives. Otherwise, you run the risk of drawing invalid conclusions because your assertions about one unit of analysis are actually based on the examination of another. We'll see an example of this issue as we look at the ecological fallacy in the next section.

Faulty Reasoning about Units of Analysis: The Ecological Fallacy and Reductionism

At this point, it's appropriate to introduce two types of faulty reasoning: the ecological fallacy and reductionism. Each represents a potential pitfall regarding units of analysis, and either can occur in doing research and drawing conclusions from the results.

The Ecological Fallacy

In this context, *ecological* refers to groups or sets or systems: something larger than individuals.

The **ecological fallacy** is the assumption that something learned about an ecological unit says something about the individuals making up that unit. Let's consider a hypothetical illustration of this fallacy.

Suppose we're interested in learning something about the nature of electoral support received by a female political candidate in a recent citywide election. Let's assume we have the vote tally for each precinct so we can tell which precincts gave her the greatest support and which the least. Assume also that we have census data describing some characteristics of these precincts. Our analysis of such data might show that precincts with relatively young voters gave the female candidate a greater proportion of their votes than did precincts with older voters. We might be tempted to conclude from these findings that young voters are more likely to vote for female candidates than are older voters—in other words, that age affects support for the woman. In reaching such a conclusion, we run the risk of committing the ecological fallacy because it may have been the older voters in those "young" precincts who voted for the woman. Our problem is that we've examined *precincts* as our units of analysis but wish to draw conclusions about *voters*.

The same problem would arise if we discovered that crime rates were higher in cities having large African American populations than in those with few African Americans. We would not know whether the crimes were actually committed by African Americans. Or if we found suicide rates higher in Protestant countries than in Catholic ones, we still could not know for sure that more Protestants than Catholics committed suicide.

In spite of these hazards, social researchers very often have little choice but to address a particular research question through an ecological analysis. Perhaps the most appropriate data are simply not available. For example, the precinct vote tallies and the precinct characteristics mentioned in our initial example might be easy to obtain, but we may not have the resources to conduct a post-election survey of individual voters. In such cases, we may reach a tentative conclusion, recognizing and noting the risk of an ecological fallacy.

Although you should be careful not to commit the ecological fallacy, don't let these warnings lead you into committing what we might call the "individualistic fallacy." Some people who approach social research for the first time have trouble reconciling general patterns of attitudes and actions with individual exceptions. But generalizations and probabilistic statements are not invalidated by such exceptions. Your knowing a rich Democrat, for example, doesn't deny the fact that most rich people vote Republican—as a general pattern. Similarly, if you know someone who has gotten rich without any formal education, that doesn't deny the general pattern of higher education relating to higher income.

The ecological fallacy deals with something else altogether—confusing units of analysis in such a way that we base conclusions about individuals solely on the observation of groups. Although the patterns observed among variables at the level of groups may be genuine, the danger lies in reasoning from the observed attributes of groups to the attributes of the individuals who made up those groups, when we have not actually observed individuals. "Applying Concepts in Everyday Life: Red Families and Blue Families" illustrates some of the complexities presented by different units of analysis.

Reductionism

A second type of potentially faulty reasoning related to units of analysis is reductionism. **Reductionism** involves attempts to explain a particular phenomenon in terms of limited and/or lower-order concepts. The reductionist explanation is not altogether wrong; it is simply too limited. Thus, you might attempt to predict this year's winners and losers in the National Basketball Association by focusing on the abilities of the individual players on each team. This is certainly neither stupid nor irrelevant, but the success or failure of teams involves more than just the individuals on them; it involves coaching, teamwork, strategies, finances, facilities, fan loyalty, and so forth. To understand why some teams do better

ecological fallacy Erroneously basing conclusions about individuals solely on the observation of groups.

reductionism A fault of some researchers: a strict limitation (reduction) of the kinds of concepts to be considered relevant to the phenomenon under study.

Applying Concepts in Everyday Life

Red Families and Blue Families

During recent American political campaigns, concern for "family values" has often been featured as a hot-button issue. Typically, conservatives and Republicans have warned of the decline of such traditional values, citing divorce rates, teen pregnancies, same-sex marriage, and such. This is, however, a more complex matter than would fit on a bumper sticker.

In their analysis of conservative "red families" and liberal "blue families," Naomi Cahn and June Carbone report:

> *Red family champions correctly point out that growing numbers of single-parent families threaten the well-being of the next generation, and they accurately observe that greater male fidelity and female "virtue" strengthen relationships. Yet red regions of the country have higher teen pregnancy rates, more shotgun marriages, and lower average ages at marriage and first birth.*
>
> *(2010: 2)*

Reviewing the Cahn–Carbone study, Jonathan Rauch headlines the question, "Do 'Family Values' Weaken Families?" and summarizes the data thusly:

> *Six of the seven states with the lowest divorce rates in 2007, and all seven with the lowest teen birthrates in 2006, voted blue in both elections. Six of the seven states with the highest divorce rates in 2007, and five of the seven with the highest teen birthrates, voted red. It's as if family strictures undermine family structures.*
>
> *(Rauch 2010)*

Assuming that young people are going to have sex, Cahn and Carbone argue that the "traditional family values" that oppose sex education, contraception, and abortion will result in unplanned births that will typically be dealt with by forcing the young parents to marry. This, in turn, may interrupt their educations, limit their employment opportunities, lead to poverty, and result in unstable marriages that may not survive. This interpretation of the data may be completely valid, but can you recognize a methodological issue that might be raised? Think about the ecological fallacy.

The units of analysis used in these analyses are the 50 states of the union. The variables correlated are (1) overall voting patterns of the states and (2) family-problem rates in the states. States voting Republican overall have more problems than those voting Democratic overall. However, the data do not guarantee that Republican families or teenagers in Republican families have more problems than their Democratic counterparts. The ecological data suggest that that's the case, but it is possible that Democrats in Republican states have the most family problems and Republicans in Democratic states have the least. It is unlikely but it is possible.

To be more confident about the conclusions drawn here, we would need to do a study in which the family or the individual was the unit of analysis.

Sources: Naomi Cahn and June Carbone, *Red Families v. Blue Families: Legal Polarization and the Creation of Culture* (New York: Oxford University Press, 2010); Jonathan Rauch, "Do 'Family Values' Weaken Families?" *Dallas Morning News*, May 2010, http://www.dallasnews.com/opinion/commentary/2010/05/28/Jonathan-Rauch-Do-family-9089.

than others, you would make *team* the unit of analysis, and the *quality of players* would be one variable you would probably want to use in describing and classifying the teams.

Thus, different academic disciplines approach the same phenomenon quite differently. Sociologists tend to consider sociological variables (such as *values, norms,* and *roles*), economists ponder economic variables (such as *supply and demand* and *marginal value*), and psychologists examine psychological variables (such as *personality types* and *traumas*). Explaining all or most human behavior in terms of economic factors is called *economic reductionism;* explaining all or most human behavior in terms of psychological factors is called *psychological reductionism;* and so forth. Notice how this issue relates to the discussion of theoretical paradigms in Chapter 2.

For many social scientists, the field of **sociobiology** is a prime example of reductionism, suggesting that all social phenomena can be explained in terms of biological factors. Thus, for example, Edward O. Wilson, sometimes referred to as the father of sociobiology, sought to explain altruistic behavior in human beings in terms of our genetic makeup (1975). In his neo-Darwinian view, Wilson suggests that humans have evolved in such a way that individuals sometimes need to sacrifice themselves for the benefit of the whole species. Some people might

sociobiology A paradigm based on the view that social behavior can be explained solely in terms of genetic characteristics and behavior.

explain such sacrifice in terms of ideals or warm feelings between humans. However, genes are the essential unit in Wilson's paradigm, producing his famous dictum that human beings are "only DNA's way of making more DNA."

Reductionism of any type tends to suggest that particular units of analysis or variables are more relevant than others. Suppose we ask what caused the American Revolution. Was it a shared commitment to the value of individual liberty? The economic plight of the colonies in relation to Britain? The megalomania of the founders? As soon as we inquire about *the* single cause, we run the risk of reductionism. If we were to regard shared values as the cause of the American Revolution, our unit of analysis would be the individual colonist. An economist, though, might choose the thirteen colonies as units of analysis and examine the economic organizations and conditions of each. A psychologist might choose individual leaders as the units of analysis for purposes of examining their personalities.

Like the ecological fallacy, reductionism can occur when we use inappropriate units of analysis. The appropriate unit of analysis for a given research question, however, is not always clear. Social researchers, especially across disciplinary boundaries, often debate this issue.

The Time Dimension

So far in this chapter, we've regarded research design as a process for deciding what aspects we'll observe, of whom, and for what purpose. Now we must consider a set of time-related options that cuts across each of these earlier considerations. We can choose to make observations more or less at one time or over a long period.

Time plays many roles in the design and execution of research, quite aside from the time it takes to do research. Earlier we noted that the time sequence of events and situations is critical to determining causation (a point we'll return to in Part 4). Time also affects the generalizability of research findings. Do the descriptions and explanations resulting from a particular study accurately represent the situation of ten years ago, ten years from now, or only the present? Researchers have two principal options for dealing with the issue of time in the design of their research: cross-sectional studies and longitudinal studies.

Cross-Sectional Studies

A **cross-sectional study** involves observations of a sample, or cross section, of a population or phenomenon that are made at one point in time. Exploratory and descriptive studies are often cross-sectional. A single U.S. Census, for instance, is a study aimed at describing the U.S. population at a given time.

Many explanatory studies are also cross-sectional. A researcher conducting a large-scale national survey to examine the sources of racial and religious prejudice would, in all likelihood, be dealing with a single time frame—taking a snapshot, so to speak, of the sources of prejudice at a particular point in history.

Explanatory cross-sectional studies have an inherent problem. Although their conclusions are based on observations made at only one time, typically they aim at understanding causal processes that occur over time. This is akin to determining the speed of a moving object from a high-speed, still photograph.

Yanjie Bian, for example, conducted a survey of workers in Tianjin, China, to study stratification in contemporary urban Chinese society. In undertaking the survey in 1988, however, he was conscious of the important changes brought about by a series of national campaigns, such as the Great Proletarian Cultural Revolution, dating from the Chinese Revolution in 1949 (which brought the Chinese Communists into power) and continuing into the present.

> *These campaigns altered political atmospheres and affected people's work and nonwork activities. Because of these campaigns, it is difficult to draw conclusions from a cross-sectional social survey, such as the one presented in this book, about general patterns of Chinese workplaces and their effects on workers. Such conclusions may be limited to one period of time and are subject to further tests based on data collected at other times.*
>
> *(1994: 19)*

cross-sectional study A study based on observations representing a single point in time.

As you'll see, this textbook repeatedly addresses the problem of using a "snapshot" to make generalizations about social life. One solution is suggested by Bian's final comment—about data collected "at other times": Social research often involves revisiting phenomena and building on the results of earlier research.

Longitudinal Studies

In contrast to cross-sectional studies, a **longitudinal study** is designed to permit observations of the same phenomenon over an extended period. For example, a researcher can participate in and observe the activities of a UFO cult from its inception to its demise. Other longitudinal studies use records or artifacts to study changes over time. In analyses of newspaper editorials or Supreme Court decisions over time, for example, the studies are longitudinal whether the researcher's actual observations and analyses were made at one time or over the course of the actual events under study.

Many field research projects, involving direct observation and perhaps in-depth interviews, are naturally longitudinal. Thus, for example, when Ramona Asher and Gary Fine (1991) studied the life experiences of the wives of alcoholic men, these researchers were in a position to examine the evolution of the wives' troubled marital relationships over time, sometimes even including the reactions of the subjects to the research itself.

In the classic study *When Prophecy Fails* (1956), Leon Festinger, Henry Reicker, and Stanley Schachter set out to learn what happened to a flying saucer cult when its predictions of an alien encounter failed to come true. Would the cult members close down the group, or would they become all the more committed to their beliefs? A longitudinal study was required to provide an answer. (The cult redoubled their efforts to get new members.)

Longitudinal studies can be more difficult for quantitative studies such as large-scale surveys. Nonetheless, they are often the best way to study changes over time. There are three special types of longitudinal studies that you should know about: trend studies, cohort studies, and panel studies.

longitudinal study A study design involving data collected at different points in time.

trend study A type of longitudinal study in which a given characteristic of some population is monitored over time.

Trend Studies

A **trend study** is a type of longitudinal study that examines changes within a population over time. A simple example is a comparison of U.S. Censuses over a period of decades, showing shifts in the makeup of the national population. A similar use of archival data was made by Michael Carpini and Scott Keeter (1991), who wanted to know whether contemporary U.S. citizens were better or more poorly informed about politics than were citizens of an earlier generation. To find out, they compared the results of several Gallup polls conducted during the 1940s and 1950s with a 1989 survey that asked several of the same questions tapping political knowledge.

Overall, the analysis suggested that contemporary citizens were slightly better informed than were earlier generations. In 1989, 74 percent of the sample could name the vice president of the United States, compared with 67 percent in 1952. Substantially higher percentages could explain presidential vetoes and congressional overrides of vetoes than could people in 1947. On the other hand, more of the 1947 sample could identify their U.S. representative (38 percent) than could the 1989 sample (29 percent).

An in-depth analysis, however, indicates that the slight increase in political knowledge resulted from the fact that the people in the 1989 sample were more highly educated than were those from earlier samples. When educational levels were taken into account, the researchers concluded that political knowledge has actually declined within specific educational groups.

Every trend study must begin with a first stage, and the 2014 Chapman survey of American Fears is a good example of a trend study in the making. Day, Bader, and Gordon (2014) have set out to trace trends in what Americans are afraid of, timing the annual surveys to coincide with Halloween. In 2014, the top personal fears and concerns were:

- Safety in different spaces
- Anxiety about one's future (illness, job stability, etc.)

- Internet-related fears (identity theft, government surveillance, etc.)
- Criminal victimization (murder, mugging, mass shootings, etc.)
- Phobias (clowns, tight spaces, blood, etc.)

In 2018 (Day, Bader, and Gordon 2018) the leading fears had shifted substantially:

- Corruption of government officials
- Pollution of oceans, rivers, and lakes
- Pollution of drinking water
- Not having enough money for the future
- People I love becoming seriously ill

Cohort Studies

In a **cohort study**, a researcher examines specific subpopulations, or *cohorts*, as they change over time. Typically, a cohort is an age group, such as people born during the 1950s, but it can also be some other time grouping, such as people born during the Vietnam War, people who got married in 2012, and so forth. An example of a cohort study would be a series of national surveys, conducted perhaps every 20 years, to study the attitudes of the cohort born during World War II toward U.S. involvement in global affairs. A sample of people 15 to 20 years of age might be surveyed in 1960, another sample of those 35 to 40 years of age in 1980, and another sample of those 55 to 60 years of age in 2000. Although the specific set of people studied in each survey would differ, each sample would represent the cohort born between 1940 and 1945.

Figure 4-5 offers a graphic illustration of a cohort design. In the example, three studies are being compared: one was conducted in 1990, another in 2000, and the third in 2010. Those who were 20 years old in the 1990 study are compared with those who were 30 in the 2000 study and those who were 40 in the 2010 study. Although the subjects being described in each of the three groups are different, each set of subjects represents the same cohort: those who were born in 1970.

In one study, Eric Plutzer and Michael Berkman (2005) used a cohort design to reverse a prior conclusion regarding aging and support for education. Logically, as people grow well beyond the child-rearing years, we might expect them to reduce their commitment to educational funding. Moreover, cross-sectional data support that expectation. The researchers present several data sets showing those over 65 voicing less support for education funding than did those under 65.

Such simplistic analyses, however, leave out an important variable: increasing support for educational funding in U.S. society over time in general. The researchers add to this the concept

cohort study A study in which some specific subpopulation, or cohort, is studied over time, although data may be collected from different members in each set of observations.

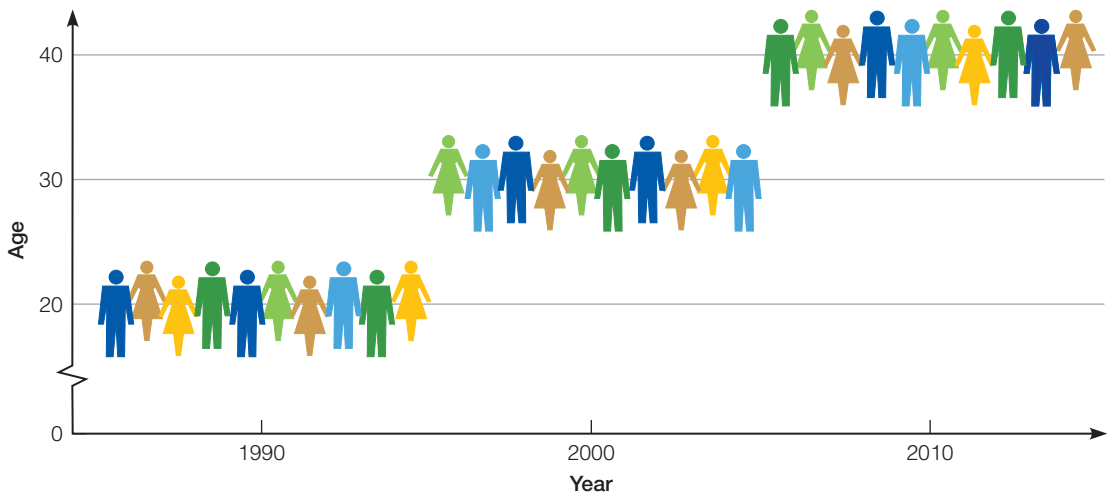

FIGURE 4-5

A Cohort Study Design. Each of the three groups shown here is a sample representing people who were born in 1970.

TABLE 4-1
Age and Political Liberalism

Survey Dates	*1972–1974*	*1977–1980*	*1982–1984*	*1987–1989*
Age of cohort	20–24	25–29	30–34	35–39
Percent who would let the Communist speak	72	68	73	73

of "generational replacement," meaning that the older respondents in a survey grew up during a time when there was less support for education in general, whereas the younger respondents grew up during a time of greater overall support. (See Table 4-1.)

A cohort analysis allowed the researchers to determine what happened to the attitudes of specific cohorts over time. Here, for example, are the percentages of Americans born during the 1940s who felt that educational spending was too low, when members of that cohort were interviewed over time (Plutzer and Berkman 2005: 76):

Year Interviewed	*Percent Who Say Educational Funding Is Too Low*
1970s	58
1980s	66
1990s	74
2000s	79

As these data indicate, those who were born during the 1940s have steadily increased their support for educational funding as they have passed through and beyond the child-rearing years.

Panel Studies

Though similar to trend and cohort studies, a **panel study** examines the same set of people each time. For example, we could interview the same sample of voters every month during an election campaign, asking for whom they intended to vote. Though such a study would allow us to analyze overall trends in voter preferences for different candidates, it would also show the precise patterns of persistence and change in intentions. For example, a trend study that showed that Candidates A and B each had exactly half of the voters on September 1 and on October 1 as well could indicate that none of the electorate had changed voting plans, that all of the voters had changed their intentions, or something in between. A panel study would eliminate this confusion by showing what kinds of voters switched from A to B and what kinds switched from B to A, as well as other facts.

panel study A type of longitudinal study in which data are collected from the same set of people (the sample or panel) at several points in time.

Joseph Veroff, Shirley Hatchett, and Elizabeth Douvan (1992) wanted to learn about marital adjustment among newlyweds and focused on differences between white and African American couples. To get subjects for study, they selected a sample of couples who applied for marriage licenses in Wayne County, Michigan, in April through June 1986.

Concerned about the possible impact their research might have on the couples' marital adjustment, the researchers divided their sample in half at random: an experimental group and a control group (concepts we'll explore further in Chapter 8). Couples in the former group were intensively interviewed over a four-year period, whereas the latter group was contacted only briefly each year.

By studying the same couples over time, the researchers could follow the specific problems that arose and the way the couples dealt with them. As a by-product of their research, they found that those studied the most intensely seemed to achieve a somewhat better marital adjustment. The researchers felt that the interviews may have forced couples to discuss matters they might otherwise have buried.

Panel mortality is a fundamental problem in panel studies: subjects dropping out of the study. Over the years, researchers have developed many techniques for tracking down missing subjects. Bryan Rhodes and Ellen Marks (2011) used Facebook as a vehicle for tracking down members of a longitudinal study who had been unreachable by telephone or mail. They were successful in locating a third of the subjects.

Roger Tourangeau and Cong Ye (2009) were also intent on decreasing panel mortality. Specifically, they considered positive and negative inducements for subjects to continue. To find out, they randomly divided their panel survey sample in half and gave the two groups different pleas to continue. In one subsample, they stressed the benefits to be gained if everyone continued with the study. In the other subsample, they stressed how the study would be hurt by people dropping out. The latter, negative, message increased continued participation by ten percentage points.

As Steven Farrall et al. (2016) point out, panel mortality can be especially problematic for qualitative longitudinal studies, since the relatively small sample sizes rule out the possibility of weighting as a solution. One effective technique was to maintain contact sheets with names, addresses, and phone numbers of family and friends likely to know how to reach a missing study participant. They found family members more reliable than friends in that regard and found sisters were the best bet. Other researchers found it useful to stay in touch with participants with birthday cards, holiday greetings, and the like.

Comparing the Three Types of Longitudinal Studies

To reinforce the distinctions among trend, cohort, and panel studies, let's contrast the three study designs in terms of the same variable: *religious affiliation*. A trend study might look at shifts in U.S. religious affiliations over time, as the Gallup poll does on a regular basis. A cohort study might follow shifts in religious affiliations among "the 9/11 generation," specifically, say, people who were 10 to 20 years of age on September 11, 2001. We could study a sample of people 20 to 30 years old in 2011, a new sample of people who were 30 to 40 in 2021, and so forth throughout their life span. A panel study could start with a sample of the whole population or of some special subset and study those specific individuals over time. Notice that only the panel study would give a full picture of the shifts among the various categories of affiliations, including "none." Cohort and trend studies would uncover only net changes.

Longitudinal studies have an obvious advantage over cross-sectional ones in providing information describing processes over time. But this advantage often comes at a heavy cost in both time and money, especially in a large-scale survey. Observations may have to be made at the time events are occurring, and the method of observation may require many research workers.

Panel studies, which offer the most comprehensive data on changes over time, face a special problem: panel mortality, as discussed above. Some of the respondents studied in the first wave of the survey may not participate in later waves. (This is comparable to the problem of experimental mortality discussed in Chapter 8.) The danger is that those who drop out of the study may not be typical, thereby distorting the results of the study.

Figure 4-6 provides a schematic comparison of the several study types we have been discussing.

Approximating Longitudinal Studies

Longitudinal studies do not always provide a feasible or practical means of studying processes that take place over time. Fortunately, researchers often can draw approximate conclusions about such processes even when only cross-sectional data are available. Here are some ways to do that.

Sometimes cross-sectional data imply processes over time on the basis of simple logic. For example, in the study of student drug use conducted at the University of Hawaii that I mentioned in Chapter 2, students were asked to report whether they had ever tried each of

panel mortality The failure of some panel subjects to continue participating in the study.

	Cross-Sectional	Longitudinal		
		Trend	Cohort	Panel
Snapshot in time	X			
Measurements across time		X	X	X
Follow age group across time			X	
Study same people over time				X

FIGURE 4-6
Comparing Types of Study Design.

several illegal drugs. The study found that some students had tried both marijuana and LSD, some had tried only one, and others had tried neither. Because these data were collected at one time, and because some students presumably would experiment with drugs later on, it would appear that such a study could not tell whether students were more likely to try marijuana or LSD first.

A closer examination of the data showed, however, that although some students reported having tried marijuana but not LSD, there were no students in the study who had tried only LSD. From this finding it was inferred—as common sense suggested—that marijuana use preceded LSD use. If the process of drug experimentation occurred in the opposite time order, then a study at a given time should have found some students who had tried LSD but not marijuana, and it should have found no students who had tried only marijuana.

Researchers can also make logical inferences whenever the time order of variables is clear. If we discovered in a cross-sectional study of college students that those educated in private high schools received better college grades than did those educated in public high schools, we would conclude that the type of high school attended affected college grades, not the other way around. Thus, even though our observations were made at only one time, we would feel justified in drawing conclusions about processes taking place across time.

Very often, age differences discovered in a cross-sectional study form the basis for inferring processes across time. Suppose you're interested in the pattern of worsening health over the course of the typical life cycle. You might study the results of annual checkups in a large hospital. You could group health records according to the ages of those examined and rate each age group in terms of several health conditions—sight, hearing, blood pressure, and so forth. By reading across the age-group ratings for each health condition, you would have something approximating the health history of individuals. Thus, you might conclude that the average person develops vision problems before hearing problems. You would need to be cautious in this assumption, however, because the differences might reflect society-wide trends. For instance, improved hearing examinations instituted in the schools might have affected only the young people in your study.

Asking people to recall their pasts is another common way of approximating observations over time. Researchers use that method when they ask people where they were born or when they graduated from high school or whom they voted for in 1988. Qualitative researchers often conduct in-depth "life history" interviews. For example, C. Lynn Carr (1998) used this technique in a study of "tomboyism." Her respondents, ages 25 to 40, were asked to reconstruct aspects of their lives from childhood on, including experiences of identifying themselves as tomboys.

The danger in this technique is evident. Sometimes people have faulty memories; sometimes they lie. When people are asked in post-election polls whom they voted for, the results inevitably show more people voting for the

winner than actually did so on election day. As part of a series of in-depth interviews, such a report can be validated in the context of other reported details; however, we should regard with caution results based on a single question in a survey.

Cohorts can also be used to infer processes over time from cross-sectional data. For example, when Prem Saxena and colleagues (2004) wanted to examine whether wartime conditions would affect the age at which people married, they used cross-sectional data from a survey of Lebanese women. During the Lebanese Civil War, from 1975 to 1990, many young men migrated to other countries. By noting the year in which the survey respondents first married, they could determine that the average age at first marriage increased with the onset of the war.

For a more in-depth and comprehensive analysis of longitudinal methodologies, you might consider the book edited by Peter Lynn (2009). The several authors cover more aspects of this subject than would be feasible in this introductory textbook.

This discussion of the way time figures into social research suggests several questions you should confront in your own research projects. In designing any study, be sure to look at both the explicit and the implicit assumptions you're making about time. Are you interested in describing some process that occurs over time, or are you simply going to describe what exists now? If you want to describe a process occurring over time, will you be able to make observations at different points in the process, or will you have to approximate such observations by drawing logical inferences from what you can observe now? If you opt for a longitudinal design, which method best serves your research purposes?

Examples of Research Strategies

As the preceding discussions have implied, social research follows many paths. The following short excerpts from a variety of completed studies further illustrate this point. As you read them, note both the content of each study and the method used to study the chosen topic. Does the study seem to be exploring, describing, or explaining (or some combination of these)? What are the sources of data in each study? Can you identify the unit of analysis? Is the dimension of time relevant? If so, how will it be handled?

- This case study of unobtrusive mobilizing by Southern California Rape Crisis Center uses archival, observational, and interview data to explore how a feminist organization worked to change police, schools, prosecutors, and some state and national organizations from 1974 to 1994. (Schmitt and Martin 1999: 364)
- Using life-history narratives, the present study investigates processes of agency and consciousness among 14 women who identified themselves as tomboys. (Carr 1998: 528)
- By drawing on interviews with activists in the former Estonian Soviet Socialist Republic, we specify the conditions by which accommodative and oppositional subcultures exist and are successfully transformed into social movements. (Johnston and Snow 1998: 473)
- This paper presents the results of an ethnographic study of an AIDS service organization located in a small city. It is based on a combination of participant observation, interviews with participants, and review of organizational records. (Kilburn 1998: 89)
- Using interviews obtained during fieldwork in Palestine in 1992, 1993, and 1994, and employing historical and archival records, I argue that Palestinian feminist discourses were shaped and influenced by the sociopolitical context in which Palestinian women acted and with which they interacted. (Abdulhadi 1998: 649)
- This article reports on women's experiences of breastfeeding in public, as revealed through in-depth interviews with 51 women. (Stearns 1999: 308)
- Using interview and observational field data, I demonstrate how a system of temporary employment in a participative workplace both exploited and shaped entry-level workers' aspirations and occupational goals. (V. Smith 1998: 411)
- I collected data [on White Separatist rhetoric] from several media of public discourse, including periodicals, books, pamphlets, transcripts from radio and television talk shows, and newspaper and magazine accounts. (Berbrier 1998: 435)
- In the analysis that follows, racial and gender inequality in employment and retirement will be analyzed, using a national sample of persons who began receiving Social Security Old Age benefits in 1980–81. (Hogan and Perrucci 1998: 528)

- Drawing from interviews with female crack dealers, this paper explores the techniques they use to avoid arrest. (Jacobs and Miller 1998: 550)

Mixed Modes

In this chapter, I have mentioned a number of ways to conduct social research: experiments, survey research (telephone, in person, online), field research, and so forth. In my observation over time, researchers have often spoken of the value of using more than one approach to understanding a social phenomenon. But, as researchers find techniques they are comfortable with and adept at, the support for multiple techniques has been talked about more than practiced. However, this may be changing. Partly in response to the growing problems faced by survey researchers, perhaps, a review of the literature will produce increasing numbers of studies actually using mixed modes.

The U.S. Energy Information Administration's Residential Energy Consumption Survey (RECS), for example, seeks to get detailed information on America's energy use. Household interviews provide much of the needed information, but the researchers discovered that household subjects usually could not provide special details of their energy consumption. So the agency collects billing data from the energy suppliers and matches those data to the households interviewed (Worthy and Mayclin 2013).

On the other side of the globe, Peggy Koopman-Boyden and Margaret Richardson used diaries and focus groups to study the activities of New Zealand seniors in a three-year study that aimed "to analyse the experiences and perceptions of elders and organizational representatives with whom they interact in everyday encounters" (2013: 392). Participating seniors were asked to maintain logs of their interactions, and they were invited to participate in periodic discussions of their experiences. In addition to providing researchers with a greater depth, breadth, and richness of data, they report that the participants often indicated that they had benefited from the combination of methods, as in the focus-group discussions of the experience of keeping a research diary.

Moving north from New Zealand to India, Prem Saxena and Dhirendra Kumar examined the risk of mortality among seniors after retirement, focusing on the importance of work for defining social position. In the context of a number of social psychology studies of problems regarding retirement, the researchers found a data source in the Office of the Accountant General to add to the previous studies, allowing them to examine overall patterns of mortality after retirement. Ultimately, they concluded that "In developing countries few people look forward to retirement, while the majority dread it. However, the way pensioners react depends mainly upon their social liability and their unmet needs at the time of retirement" (1997: 122).

While social researchers have been using mixed modes of inquiry for a long time, this approach has begun attracting more attention and, more important, more actual use in recent years. I think you can expect to see more mixed modes in the future and may utilize this approach yourself.

How to Design a Research Project

You have now seen some of the options available to social researchers in designing projects. I know there are a lot of pieces, and the relationships among them may not be totally clear, so here's a way of pulling the parts together. Let's assume you were to undertake research. Where would you start? Then, where would you go?

Although research design occurs at the beginning of a research project, it involves all the steps of the subsequent project. This discussion, then, provides guidance on how to start a research project and gives an overview of the topics that follow in later chapters of this book.

Figure 4-7 presents a schematic view of the traditional image of research. I present this view reluctantly, because it may suggest more of a step-by-step order to research than actual practice bears out. Nonetheless, this idealized overview of the process provides a context for the specific details of particular components of social research. Essentially, it is another and more-detailed picture of the scientific process presented in Chapter 2.

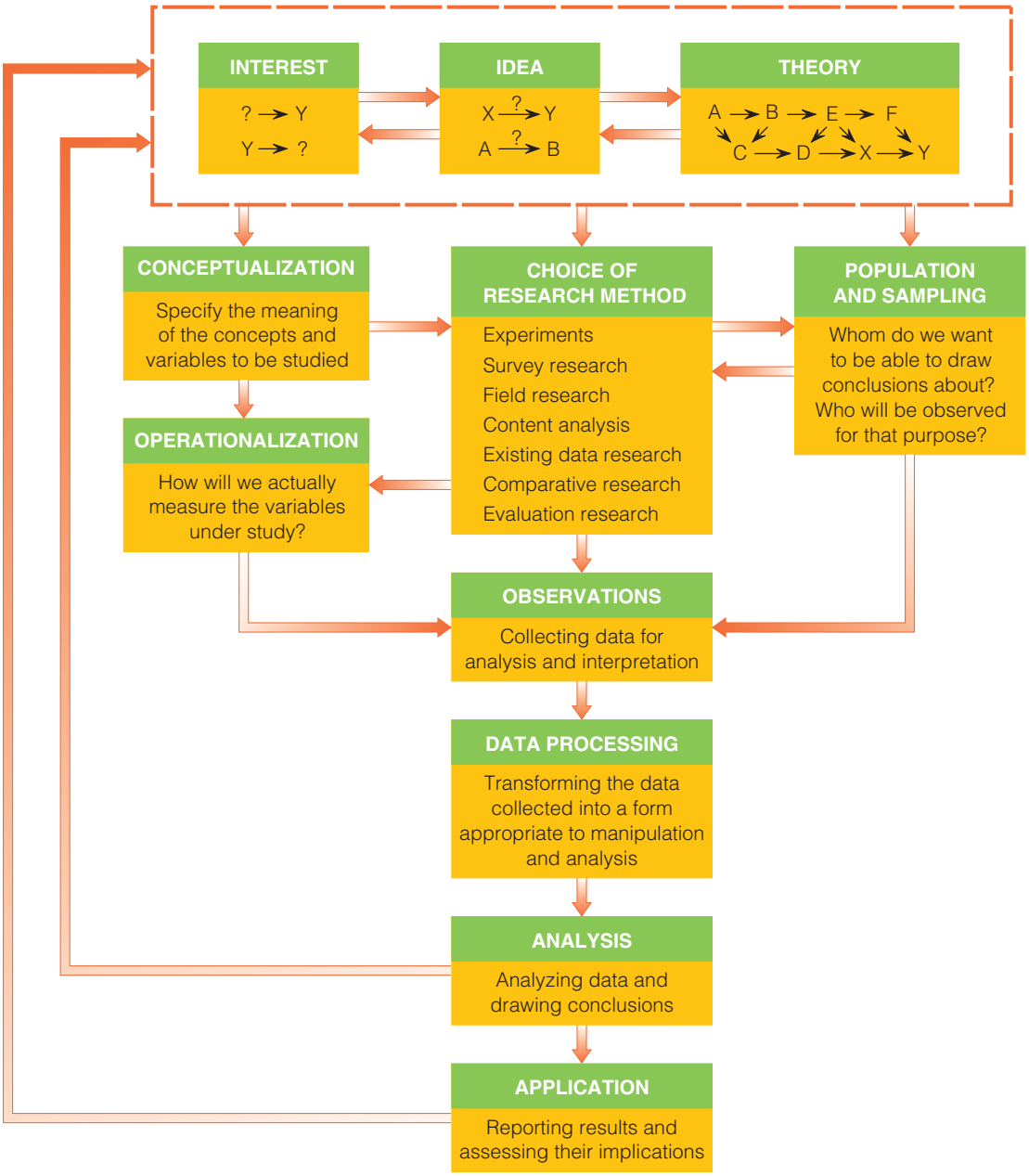

FIGURE 4-7

The Research Process. Here are some of the key elements that we'll be examining throughout this book: the pieces that make up the whole of social research.

At the top of the diagram are interests, ideas, and theories, the possible beginning points for a line of research. The letters (A, B, X, Y, and so forth) represent variables or concepts such as *prejudice* or *alienation*. Thus, you might have a general interest in finding out what causes some people to be more prejudiced than others, or you might want to know some of the consequences of alienation. Alternatively, your inquiry might begin with a specific idea about the way things are. For example, you might have the idea that working on an assembly line causes alienation.

The question marks in the diagram indicate that you aren't sure things are the way you suspect they are—that's why you're doing the research. Notice that a theory is represented as a set of complex relationships among several variables.

Or you might want to consider this question: "How is leadership established in a juvenile gang?" You may wonder the extent to which age, strength, family and friendship ties, intelligence, or other variables figure into the determination of who runs things. We don't always begin with a clear theory about the causal relationships at play.

The double arrows between "interest," "idea," and "theory" suggest that researchers often move back and forth across these several possible beginnings. An initial interest may lead to the formulation of an idea, which may be fit into a larger theory, and the theory may produce new ideas and create new interests.

Any or all of these three may suggest the need for empirical research. The purpose of such research can be to explore an interest, test a specific idea, or validate a complex theory. Whatever the purpose, the researcher needs to make a variety of decisions, as indicated in the remainder of the diagram.

To make this discussion more concrete, let's take a specific research example. Suppose you're concerned with the issue of abortion and want to learn why some college students support abortion rights and others oppose them. Let's say you've gone a step further and formed the impression that students in the humanities and social sciences seem generally more inclined to support the idea of abortion rights than do those in the natural sciences. (That kind of thinking often leads people to design and conduct social research.)

In terms of the options we've discussed in this chapter, you probably have both descriptive and explanatory interests: What percentage of the student body supports a woman's right to an abortion (description), and what causes some to support it and others to oppose it (explanation)? The units of analysis in this case would be individuals: college students. Let's assume you would be satisfied to learn something about the way things are now. You might then decide that a cross-sectional study would suit your purposes. Although this would provide you with no direct evidence of processes over time, you might be able to approximate some longitudinal analyses if you pursued changes in students' attitudes over time.

Getting Started

At the outset of your project, your interests would probably be exploratory. At this point, you might choose among several possible activities in exploring student attitudes about abortion rights. To begin with, you might want to read something about the issue. If you have a hunch that attitudes are somehow related to college major, you might find out what other researchers have written about that. Appendix A of this book will help you make use of your college library. In addition, you would probably talk to some people who support abortion rights and some who do not. You might attend meetings of abortion-related groups. All these activities could help prepare you to handle the various decisions of research design we're about to examine.

Before designing your study, you must define the purpose of your project. What kind of study will you undertake—exploratory, descriptive, explanatory? Do you plan to write a research paper to satisfy a course or thesis requirement? Is your purpose to gain information that will support you in arguing for or against abortion rights? Do you want to write an article for the campus newspaper or an academic journal? In reviewing the previous research literature regarding abortion rights, you should note the design decisions other researchers have made, always asking whether the same decisions would satisfy your purpose.

Usually, your purpose for undertaking research can be expressed as a report. A good first step in designing your project is to outline such a report (see Chapter 15 for more). Although your final report may not look much like your initial image of it, this exercise will help you figure out which research designs are most appropriate. During this step, clearly describe the kinds of statements you want to make when the research is complete. Here are some examples of such statements: "Students frequently mentioned abortion rights in the context of discussing social issues that concerned them personally." "X percent of State U. students favor a woman's right to choose an abortion." "Engineers are (more/less) likely than sociologists to favor abortion rights."

Conceptualization

Once you have a well-defined purpose and a clear description of the kinds of outcomes you want to achieve, you can proceed to the next step in the design of your study—conceptualization. We often talk quite casually about social science concepts such as prejudice, alienation, religiosity, and liberalism, but we need to clarify what we mean by these concepts in order to draw meaningful conclusions about them. Chapter 5 examines this process of conceptualization in depth. For now, let's see what it might involve in the case of our hypothetical example.

If you're going to study how college students feel about abortion and why, the first thing you'll have to specify is what you mean by "the right to an abortion." Because support for abortion probably varies according to the circumstances, you'll want to pay attention to the different conditions under which people might approve or disapprove of abortion: for example, when the woman's life is in danger, in the case of rape or incest, or simply as a matter of personal choice.

Similarly, you'll need to specify exact meanings for all the other concepts you plan to study. If you want to study the relationship of opinion about abortion to college major, you'll have to decide whether you want to consider only officially declared majors or to include students' intentions as well. What will you do with those who have no major?

In surveys and experiments, such concepts must be specified in advance. In less tightly structured research, such as open-ended interviews, an important part of the research may involve the discovery of different dimensions, aspects, or nuances of concepts. In such cases, the research itself may uncover and report aspects of social life that were not evident at the outset of the project.

Choice of Research Method

As we'll discuss in Part 3, each research method has its strengths and weaknesses, and certain concepts are more appropriately studied by some methods than by others. In our study of attitudes toward abortion rights, a survey might be the most appropriate method: either interviewing students or asking them to fill out a questionnaire. Surveys are particularly well suited to the study of public opinion. Of course, you could also make good use of the other methods presented in Part 3. For example, you might use the method of content analysis to examine letters to the editor and analyze the different opinions letter writers have of abortion. Field research would provide an avenue to understanding how people interact with one another regarding the issue of abortion, how they discuss it, and how they change their minds. Usually the best study design uses more than one research method, taking advantage of their different strengths. If you look back at the brief examples of actual studies at the end of the preceding section, you'll see several instances in which the researchers used many methods in a single study.

Operationalization

Once you've specified the concepts to be studied and chosen a research method, the next step is operationalization, or deciding on your measurement techniques (discussed further in Chapters 5 and 6). The meaning of variables in a study is determined in part by how they are measured. Part of the task here is deciding how the desired data will be collected: direct observation, review of official documents, a questionnaire, or some other technique.

If you decide to use a survey to study attitudes toward abortion rights, part of operationalization is determining the wording of questionnaire items. For example, you might operationalize your main variable by asking respondents whether they would approve a woman's right to have an abortion under each of the conditions you've conceptualized: in the case of rape or incest, if her life were threatened by the pregnancy, and so forth. You would have designed the questionnaire so that it asked respondents to express approval or disapproval for each situation. Similarly, you would have specified exactly how respondents would indicate their college major and what choices to provide those who have not declared a major.

Population and Sampling

In addition to refining concepts and measurements, you must decide whom or what to study. The population for a study is that group (usually of people) about whom we want to draw

conclusions. We're almost never able to study all the members of the population that interests us, however, and we can never make every possible observation of them. In every case, then, we select a sample from among the data that might be collected and studied. The sampling of information, of course, occurs in everyday life and often produces biased observations. (Recall the discussion of "selective observation" in Chapter 1.) Social researchers are more deliberate in their sampling of what will be observed.

Chapter 7 describes methods for selecting samples that adequately reflect the whole population that interests us. Notice in Figure 4-7 that decisions about population and sampling are related to decisions about the research method to be used. Whereas probability-sampling techniques would be relevant to a large-scale survey or a content analysis, a field researcher might need to select only those informants who will yield a balanced picture of the situation under study, and an experimenter might assign subjects to experimental and control groups in a manner that creates comparability.

In your hypothetical study of abortion attitudes, the relevant population would be the student population of your college. As you'll discover in Chapter 7, however, selecting a sample will require you to get more specific than that. Will you include part-time as well as full-time students? Only degree candidates or everyone? International students as well as U.S. citizens? Undergraduates, graduate students, or both? There are many such questions—each of which must be answered in terms of your research purpose. If your purpose is to predict how students would vote in a local referendum on abortion, you might want to limit your population to those eligible and likely to vote.

Observations

Having decided what to study among whom by what method, you're now ready to make observations—to collect empirical data. The chapters of Part 3, which describe the various research methods, give the different observation techniques appropriate to each.

To conduct a survey on abortion, you might want to print questionnaires and mail them to a sample selected from the student body. Alternatively, you could arrange to have a team of interviewers conduct the survey over the telephone. The relative advantages and disadvantages of these and other possibilities are discussed in Chapter 9.

Data Processing

Depending on the research method chosen, you'll have amassed a volume of observations in a form that probably isn't immediately interpretable. If you've spent a month observing a street-corner gang firsthand, you'll now have enough field notes to fill a book. In a historical study of ethnic diversity at your school, you may have amassed volumes of official documents, interviews with administrators and others, and so forth. Chapters 13 and 14 describe some of the ways social science data are processed for quantitative or qualitative analysis.

In the case of a survey, the "raw" observations are typically in the form of questionnaires with boxes checked, answers written in spaces, and the like. The data-processing phase for a survey typically involves the classification (coding) of written-in answers and the transfer of all information to a computer.

Analysis

Once the collected data are in a suitable form, you're ready to interpret them for the purpose of drawing conclusions that reflect the interests, ideas, and theories that initiated the inquiry. Chapters 13 and 14 describe a few of the many options available to you in analyzing data. In Figure 4-7, notice that the results of your analyses feed back into your initial interests, ideas, and theories. Often this feedback represents the beginning of another cycle of inquiry.

In the survey of student attitudes about abortion rights, the analysis phase would pursue both descriptive and explanatory aims. You might begin by calculating the percentages of students who favored or opposed each of the several different versions of abortion rights. Taken together, these several percentages would provide a good picture of student opinion on the issue.

Moving beyond simple description, you might describe the opinions of subsets of the student body, such as different college majors. Provided that your design called for tracking

other information about respondents, you could also look at men versus women; freshmen, sophomores, juniors, seniors, and graduate students; or other categories that you've included. The description of subgroups could then lead you into an explanatory analysis.

Application

The final stage of the research process involves the uses made of the research you've conducted and the conclusions you've reached. To start, you'll probably want to communicate your findings so that others will know what you've learned. You may want to prepare—and even publish—a written report. Perhaps you'll make oral presentations, such as papers delivered to professional and scientific meetings. Other students would also be interested in hearing what you've learned about them.

You may want to go beyond simply reporting what you've learned to discussing the implications of your findings. Do your findings say anything about actions that might be taken in support of policy goals? Both the proponents and the opponents of abortion rights would be interested.

Karen Akerlof and Chris Kennedy (2013) have provided an omnibus analysis of ways in which social research can be used to design and evaluate programs to combat environmental degradation. They identify five major areas:

1. Promote favorable attitudes.
2. Increase personal agency.
3. Facilitate emotional motivation.
4. Communicate supportive social norms.
5. Alter the environmental context; design the choice.

Finally, be sure to consider what your work suggests in regard to further research on your subject. What mistakes should be corrected in future studies? What avenues that were opened up only slightly in your study should be pursued further?

Research Design in Review

As this overview shows, research design involves a set of decisions regarding what topic is to be studied, among what population, with what research methods, for what purpose. Although you'll want to consider many ways of studying a subject—and use your imagination as well as your knowledge of a variety of methods—research design is the process of focusing your perspective for the purposes of a particular study.

If you're doing a research project for one of your courses, many aspects of research design may be specified for you in advance, including the method (such as an experiment) or the topic (as in a course on a particular subject). The following summary assumes that you're free to choose both your topic and your research strategy.

In designing a research project, you'll find it useful to begin by assessing three things: your interests, your abilities, and the available resources. Each of these considerations will suggest a large number of possible studies.

Simulate the beginning of a somewhat conventional research project: Ask yourself what you're interested in understanding. Surely you have several questions about social behavior and attitudes. Why are some people politically liberal and others politically conservative? Why are some people more religious than others? Why do people join white supremacist groups? Do colleges and universities still discriminate against minority faculty members? Why would a woman stay in an abusive relationship? Spend some time thinking about the kinds of questions that interest and concern you.

Once you have a few questions you'd be interested in answering for yourself, think about the kind of information needed to answer them. What research units of analysis would provide the most relevant information: college students, corporations, voters, cities, or unions? This question will probably be inseparable from the question of research topics. Then ask which aspects of the units of analysis would provide the information you need in order to answer your research question.

Once you have some ideas about the kind of information relevant to your purpose, ask yourself how you might go about getting that information. Are the relevant data likely to be available somewhere already (say, in a government publication), or would you have to collect them yourself? If you think you would have to collect them, how would you go about doing it?

Would you need to survey a large number of people, or interview a few people in depth? Could you learn what you need to know by attending meetings of certain groups? Could you glean the data you need from books in the library?

As you answer these questions, you'll find yourself well into the process of research design. Keep in mind your own research abilities and the resources available to you. There is little point in designing a perfect study that you can't actually carry out. You may want to try a research method you have not used before so you can learn from it, but be careful not to put yourself at too great a disadvantage.

Once you have a general idea of what you want to study and how, carefully review previous research in journals and books to see how other researchers have addressed the topic and what they have learned about it. Your review of the literature may lead you to revise your research design: Perhaps you'll decide to use a previous researcher's method or even replicate an earlier study. The independent replication of research projects is a standard procedure in the physical sciences, and it is just as important in the social sciences, although social researchers tend to overlook that. Or, you might want to go beyond replication and study some aspect of the topic that you feel previous researchers overlooked.

Here's another approach you might take. Suppose a topic has been studied previously using field research methods. Can you design an experiment that would test the findings those earlier researchers produced? Or can you think of existing statistics that could be used to test their conclusions? Did a mass survey yield results that you would like to explore in greater detail through on-the-spot observations and in-depth interviews? The use of several different research methods to test the same finding is sometimes called *triangulation*, and you should always keep it in mind as a valuable research strategy. Because each research method has particular strengths and weaknesses, there is always a danger that research findings will reflect, at least in part, the method of inquiry. In the best of all worlds, your own research design should bring more than one research method to bear on the topic.

The Research Proposal

Quite often, in the design of a research project, you'll have to lay out the details of your plan for someone else's review or approval. For a course project, for example, your instructor might very well want to see a "proposal" before you set off to work. Later in your career, if you wanted to undertake a major project, you might need to obtain funding from a foundation or government agency, who would definitely want a detailed proposal that describes how you would spend their money. You might respond to a request for proposals (RFP), which both public and private agencies often circulate in search of someone to do research for them.

We now turn to a brief discussion of how you might prepare a research proposal. This will give you one more overview of the whole research process that the rest of this book details.

Elements of a Research Proposal

Although some funding agencies (or your instructor, for that matter) may have specific requirements for the elements or structure of a research proposal, here are some basic components you should include. I've posed some questions that should help you establish some key elements of your proposal.

Problem or Objective

What exactly do you want to study? Why is it worth studying? Does the proposed study have practical significance? Does it contribute to the construction of social theories?

Literature Review

What have others said about this topic? What theories address it, and what do they say? What previous research exists? Are there consistent findings, or do past studies disagree? Does the body of existing research have flaws that you think you can remedy?

You'll find that reading social science research reports requires special skills. If you need to undertake a review of the literature at this point in your course, you may want to skip ahead to Chapter 15. It will familiarize you with the different types of research literature, how to

find what you want, and how to read it. There is a special discussion of how to use electronic resources online and how to avoid being misled by information on the Internet.

In part, the data-collection method(s) you intend to use in your study will shape your review of the literature. Reviewing the designs of previous studies using that same technique can give you a head start in planning your own study. At the same time, you should focus your search on your research topic, regardless of the methods other researchers have used. So, if you're planning field research on, say, interracial marriages, you might gain some useful insights from the findings of surveys on the topic; further, past field research on interracial marriages could be invaluable while you design a survey on the topic.

Because the literature review will appear early in your research proposal, you should write it with an eye toward introducing the reader to the topic you'll address, laying out in a logical manner what has already been learned on the topic by past researchers, then leading up to the holes or loose ends in our knowledge of the topic, which you propose to remedy. Or, a little differently, your review of the literature may point to inconsistencies or disagreements among existing findings. In that case, your proposed research will aim to resolve the ambiguities that plague us. I don't know about you, but I'm already excited about the research you're proposing to undertake.

Subjects for Study

Whom or what will you study in order to collect data? Identify the subjects in general, theoretical terms, and in specific, more concrete terms, identify who is available for study and how you'll reach them. Will it be appropriate to select a sample? If so, how will you do that? If there is any possibility that your research will affect those you study, how will you ensure that the research does not harm them?

Beyond these general questions, the specific research method you'll use will further specify the matter. If you're planning to undertake an experiment, a survey, or field research, for example, the techniques for subject selection will vary quite a bit. Lucky for you, Chapter 7 of this book discusses sampling techniques for both qualitative and quantitative studies.

Measurement

What are the key variables in your study? How will you define and measure them? Do your definitions and measurement methods duplicate or differ from those of previous research on this topic? If you have already developed your measurement device (a questionnaire, for example) or will be using something previously developed by others, it might be appropriate to include a copy of it in an appendix to your proposal.

Data-Collection Methods

How will you actually collect the data for your study? Will you conduct an experiment or a survey? Will you undertake field research or will you focus on the reanalysis of statistics already created by others? Perhaps you'll use more than one method.

Analysis

Indicate the kind of analysis you plan to conduct. Spell out the purpose and logic of your analysis. Are you interested in precise description? Do you intend to explain why things are the way they are? Do you plan to account for variations in some quality, such as why some students are more liberal than others? What possible explanatory variables will your analysis consider, and how will you know if you've explained variations adequately?

Schedule

Providing a schedule for the various stages of research is often appropriate. Even if you don't do this for the proposal, do it for yourself. Without a timeline for accomplishing the several stages of research and keeping track of how you're doing, you may end up in trouble.

Budget

When you ask someone to cover the costs of your research, you need to provide a budget that specifies where the money will go. Large, expensive projects include budgetary categories such as personnel, computers, supplies, telephones, and postage. Even if you'll be paying

What do you think?...Revisited

When the Provost and the student newspaper seemed to disagree over the extent of part-time faculty teaching, they used different units of analysis. The newspaper said 52 percent of the faculty were part-time; the Provost said about 70 percent of the credits were taught by full-time faculty. The table here demonstrates how they could both be right, given that the typical full-time faculty member teaches three courses, or nine credits, whereas the typical part-time faculty member teaches one course, or three credits. For simplicity, I've assumed that there are 100 faculty members.

In this hypothetical illustration, full-time faculty taught 432 of the 588 credits, or 73 percent. As you can see, being clear about what the unit of analysis matters a great deal.

Faculty Status	*Number*	*Credits Taught by Each*	*Total Credits Taught*
Full-time	48	9	432
Part-time	52	3	156
Total			588

for your project yourself, you should spend some time anticipating expenses: office supplies, photocopying, computer software, transportation, and so on.

Institutional Review Board

Depending on the nature of your research design, you may need to submit your proposal to the campus institutional review board for approval to ensure the protection of human subjects. Your instructor can advise you on this.

As you can see, if you're interested in conducting a social research project, it's a good idea to prepare a research proposal for your own purposes, even if you aren't required to do so by your instructor or a funding agency. If you're going to invest your time and energy in such a project, you should do what you can to ensure a return on that investment.

Now that you've had a broad overview of social research, you can move on to the remaining chapters in this book and learn exactly how to design and execute each specific step. If you've found a research topic that really interests you, you'll want to keep it in mind as you see how you might go about studying it.

The Ethics of Research Design

Designing a research project needs to include serious considerations of the ethical dimension. To begin, if your study requires the participation of human subjects, you must determine that the likely benefits of the research will do justice to the time and effort you'll ask them to contribute.

You'll also want to design the study in concurrence with the ethical guidelines discussed in Chapter 3. For example, you should ensure that the subjects' privacy and well-being are protected. As I indicated earlier, having your research design reviewed by an institutional review board may be appropriate.