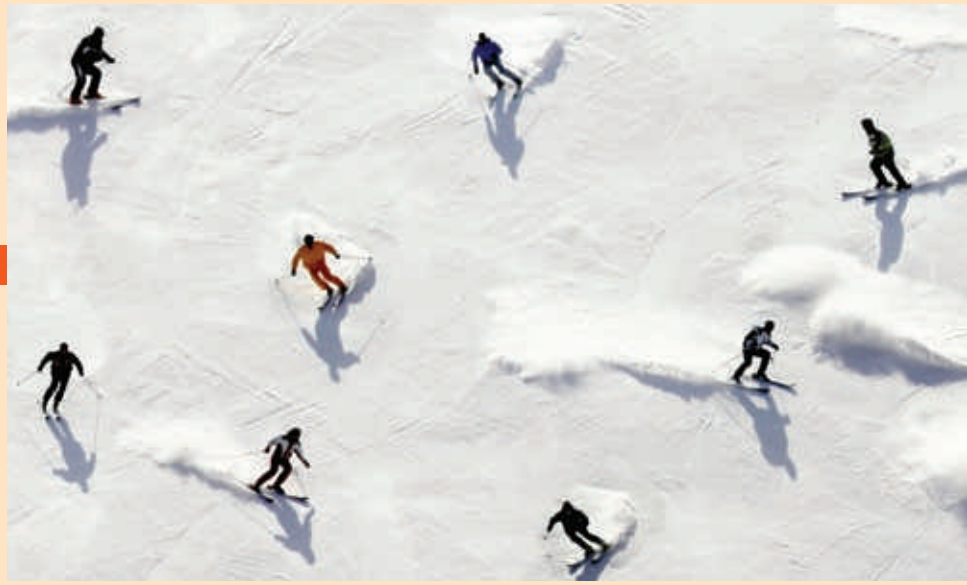
CHAPTER 1

Human Inquiry and Science



CHAPTER OVERVIEW

All of us try to understand and predict the social world. Scientific inquiries—and social research in particular—are designed to avoid the pitfalls of ordinary human inquiry.

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 Chinese in China. You know that vitamin C can prevent colds and that unprotected sex can result in AIDS.

How do you know? Unless you've been to the dark side of the moon lately or done experimental research on the virtues of vitamin C, you know these things because somebody told them to you, and you believed what you were told. You may have read in *National Geographic* that people speak Chinese languages in China, and because that made sense to you, 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 absolutely obvious to you. If someone 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, everyone used to "know" that the world was flat.

Most of what you and I 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 what everybody around us "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 whether the world is really round, you'd quickly find yourself set apart from other people.

Although most of what we know is a matter of believing what we've been told, there's nothing wrong with us in that respect. It's simply the way human societies are structured, and it's a quite useful quality. The basis of knowledge is agreement. Because you can't learn all you need to know by means of 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 some things from "experts." I'm not saying you should never 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, we 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. The first time you stepped on a thorn, you knew it hurt before anyone told you.

When our experience conflicts with what everyone else knows, though, there's a good chance we'll surrender our experience in favor of the agreement.

Let's take an 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 appetizer 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't contain yourself any more. "What are they?" you ask. "How can I get the recipe?" And I let you in on the secret: "You've been eating breaded, deep-fried worms!" Your response is dramatic: Your stomach rebels, and you throw up all over the living-room rug. Argh! 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, based on your own direct experience, was certainly real. But so was your feeling of disgust when you found out that you'd been eating worms. It should be evident, however, that this feeling of disgust 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 entered into 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 in search of 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 are probably high in protein and low in calories. Bite-sized and easily packaged, they are 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 another 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 kind of question.

The rest of this chapter looks at how we know what is real. We'll begin by examining inquiry as a natural human activity, something we all have engaged in every day of our lives. We'll look at the source of everyday knowledge and at some kinds of errors we make in normal inquiry. We'll then examine what makes science—in particular, social science—different. After considering some of the underlying ideas of social research, we'll conclude with an initial consideration of issues in social research.

Looking for Reality

Reality is a tricky business. You probably already suspect that some of the things you "know" may not be true, but how can you really 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 will accept the reality of something they have not personally experienced. In general, a scientific 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 the dark side of the moon is cold? First, it makes sense, because the moon's surface heat comes from the sun's rays, and the dark side of the moon is dark because it's always turned away from the sun. Second, scientific measurements made on the moon's dark side confirm this logical 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. In other words, it offers a special approach 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 presents and examines social science methodology, or how social scientists find out about human social life.

Why do we need social science to discover the reality of social life? To find out, let's start by considering what happens in ordinary, nonscientific inquiry.

epistemology The science of knowing; systems of knowledge.

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

Ordinary Human Inquiry

Practically all people, and many other animals as well, exhibit a desire to predict their future circumstances. Humans seem predisposed to undertake this task by using causal and probabilistic reasoning. First, we generally recognize that future circumstances are somehow caused or conditioned by present ones. We learn that getting an education will affect how much money we earn later in life and that swimming beyond the reef may bring an unhappy encounter with a shark. Sharks, on the other hand—whether or not they reason the matter through—may learn that hanging around the reef often brings a happy encounter with unhappy swimmers.

Second, we also learn that such patterns of cause and effect are probabilistic. That is, 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 casual human inquiry does. 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. A racetrack buff who discovers that the third-ranked horse in the third race of the day always seems to win will probably keep betting without knowing, or caring, why it works out that way. Of course, the drawback in predicting without understanding will become powerfully evident when one of the other horses wins and our buff loses a week's pay.

Whatever the primitive drives or instincts that motivate human beings and other animals, satisfying these drives depends heavily on the ability to predict future circumstances. For people, however, the attempt to predict is often placed in a context of knowledge and understanding. If you can understand why things are related to each other, why certain regular patterns occur, you can predict better than if you 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 in this chapter, 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, those things "everyone knows." 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.

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 planting corn in the spring will garner the greatest assistance from the gods, 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. These are 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 information and understanding is the jumping-off point for the development of more knowledge. We often speak of "standing on the shoulders of giants," that is, on those of previous generations.

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

Authority

Despite the power of tradition, new knowledge appears every day. Quite aside from our own personal inquiries, we benefit throughout our lives 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 that the common cold can be transmitted through kissing, for example, when you hear it from an epidemiologist than when you hear it from your uncle Pete (unless, of course, he's also an epidemiologist).

Like tradition, authority can both assist and hinder human inquiry. We do well to trust the

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

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 the legitimate authorities who err within their own province. Biologists, after all, make their mistakes in the field of biology. Moreover, biological knowledge changes over time.

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 medical or biochemical expertise who declares that marijuana can fry your brain. The advertising industry plays heavily on this misuse of authority by, for example, having popular athletes discuss the nutritional value of breakfast cereals or having movie actors evaluate the performance of automobiles.

Both tradition and authority, then, act as 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 push us off in the wrong direction.

Errors in Inquiry, and Some Solutions

Besides the potential dangers of tradition and authority, other pitfalls often cause us to 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 at 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, it'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. Just making observation more deliberate helps reduce error. If you had to guess what your instructor was wearing on the first day of class, you'd probably make a mistake. If you'd gone to the first class with a conscious plan to observe and record what your instructor was wearing, however, you'd be far more likely to be 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'd 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 provide evidence of a general pattern. That is, we overgeneralize on the basis of limited observations. (Think back to our now-broke racetrack buff.)

Probably the tendency to overgeneralize peaks when the pressure to arrive at a general understanding is high. Yet it also occurs without such pressure. Whenever overgeneralization does occur, it can misdirect or impede inquiry.

Imagine you are a reporter covering an animal-rights demonstration. You have orders to turn in your story in just two hours, and you need to know why people are demonstrating. Rushing to the scene, you start interviewing them, asking for their reasons. The first three demonstrators you interview give you essentially the same reason, so you simply assume that the other 3,000 are also there for that reason. Unfortunately, when your story appears, your editor gets scores of letters from protesters who were there for an entirely different reason.

Realize, of course, that we must generalize to some extent 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 often guard against overgeneralization by committing themselves in advance to a sufficiently large and representative sample of observations. Another safeguard is provided by the replication of inquiry. Basically, **replication**

replication Repeating a research study to test and either confirm or question the findings of an earlier study.

means repeating a study and checking to see whether the same results are produced each time. Then, as a further test, the study may be repeated again under slightly varied conditions.

Selective Observation

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

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 we wanted to learn whether women were more likely than men to support freedom to choose an abortion, we might select a thousand carefully chosen people to be interviewed on the issue. Alternately, when making direct observations of an event, such as attending the animal-rights demonstration, we might make a special effort to find "deviant cases"—precisely 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. Often we assume that a consistent run of either good or bad luck foreshadows 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, scientists try to avoid this pitfall by using systems of logic consciously and explicitly. We'll examine the logic of science more deeply in Chapter 2. For now, simply note that logical reasoning is a conscious activity for scientists and that other scientists are always 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 understood 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

Science is sometimes characterized as *logico-empirical*. This ungainly term carries an important message: As we noted earlier, the two pillars of science are logic and observation. That is, a scientific understanding of the world must both make sense and correspond to what we observe. Both elements are essential to science and relate to the three major aspects of the enterprise of social science: theory, data collection, and data analysis.

To oversimplify just a bit, scientific **theory** deals with the logical aspect of science—providing systematic explanations—whereas data collection deals with the observational aspect. Data analysis looks for patterns in observations and, where appropriate, compares what is logically expected with what is actually observed. Although this book is primarily about data collection and data analysis—that is, how to conduct social research—the remainder of Part 1 is devoted to the theoretical context of research. Parts 2 and 3 then focus on data collection, and Part 4 offers an introduction to the analysis of data.

Underlying the concepts presented in the rest of the book are some fundamental ideas and processes that distinguish social science—theory, data collection, and analysis—from other ways of looking at social phenomena. Let's consider these concepts.

Theory, Not Philosophy or Belief

Today, social theory has to do with what is, not with what should be. For many centuries, however, social theory did not distinguish between 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 researchers may do the same from time to time, as scientists they focus on how things actually are 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.

This means that scientific theory—and, more broadly, science itself—cannot settle debates about values. Science cannot determine whether capitalism is better or worse than socialism. What it can do is determine how these systems perform, but only in terms of some set of agreed-on criteria. For example, we could determine scientifically whether capitalism or socialism most supports human dignity and freedom only if we first agreed on some measurable definitions of dignity and freedom. Our conclusions would then be limited to the meanings specified in our definitions. They would have no general meaning beyond that.

By the same token, if we could agree that suicide rates, say, or giving to charity were good measures of the quality of a religion, then we could determine scientifically whether Buddhism or Christianity is the better religion. Again, our conclusion would be inextricably tied to our chosen criteria. As a practical matter, people seldom agree on precise 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, researchers have become increasingly involved in studying social programs that reflect ideological points of view, such as affirmative action or welfare reform. One of the biggest problems they face is getting people to agree on criteria of success and failure. Yet such criteria are essential if social research is to tell us anything useful about matters of value. By analogy, a stopwatch cannot 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 outcomes are better than others—an agreement that seldom occurs.

As I indicated earlier, even knowing "what is and why" is no simple task. Let's turn now to some of the fundamental ideas that underlie social science's efforts to describe and understand social reality.

Social Regularities

In large part, social research aims to find patterns of regularity in social life. Certainly at first glance the subject matter of the physical sciences seems to be more governed by regularities than does that of the social sciences. A heavy object falls to earth every time we drop it, but a person may vote for a particular candidate in one election and against that same candidate in the next. Similarly, ice always melts when heated enough, but habitually honest people sometimes steal. Despite such examples, however, social affairs do exhibit a high degree of regularity that research can reveal and theory can explain.

To begin with, the tremendous number of formal norms in society create a considerable degree of regularity. For example, traffic laws in the United States induce the vast majority of people to drive on the right side of the street rather than the left. Registration requirements for voters lead to some predictable patterns in which classes of people vote in national elections. Labor laws create a high degree of uniformity in the minimum age of paid workers as well as the minimum amount they are paid. Such formal prescriptions regulate, or regularize, social behavior.

Aside from formal prescriptions, we can observe other social norms that create more regularities. Among registered voters, Republicans are more likely than Democrats to vote for Republican candidates. University professors tend to earn more money than unskilled laborers do. Men tend to earn more than women. (We'll take an in-depth look at this pattern 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 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 obviously affected 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 promotions will think the system is fair. But was this the way these soldiers really felt?

Stouffer and his colleagues focused their studies on two units: the Military Police (MPs), which had the slowest promotions in the Army, and the Army Air Corps (forerunner of the U.S. Air Force), which had the fastest promotions. It stood to reason that MPs would say the promotion system was unfair, and 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, sought 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 the 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, 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 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

The regularities of social life that social scientists study generally reflect the collective behavior of many individuals. Although social scientists often study motivations that affect individuals, the individual as such is seldom the subject of social science. Instead, social scientists create theories about the nature of group, rather than individual, life. The term, *aggregate*, includes groups, organizations, collectives, and so forth. 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, and on up to whole societies and even interactions between societies.

Sometimes the collective regularities are amazing. Consider the birthrate, for example. People have babies for a wide variety of personal reasons. Some do it because their own parents want grandchildren. Some feel it's a way of completing their womanhood or manhood. Others want to hold their marriages together, enjoy the experience of raising children, perpetuate the family name, or achieve a kind of immortality. Still others have babies by accident.

If you have fathered or given birth to 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 you lost your job and had to delay a year before you could afford to have the baby. Maybe you only felt the urge to become a parent after someone close to you had a baby. Everyone who had a baby last year had his or her own reasons for doing so. Yet, despite this vast diversity, and despite the idiosyncrasy of each individual's reasons, the overall birthrate in a society—the number of live births per 1,000 population—is remarkably consistent from year to year. See Table 1-1 for recent birthrates for the United States.

If the U.S. birthrate were 15.9, 35.6, 7.8, 28.9, and 16.2 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. No one plans how many babies will be born or determines who will have

TABLE 1-1

Birthrates, United States: 1980–2008*

1980	15.9	1995	14.6
1981	15.8	1996	14.4
1982	15.9	1997	14.2
1983	15.6	1998	14.3
1984	15.6	1999	14.2
1985	15.8	2000	14.4
1986	15.6	2001	14.1
1987	15.7	2002	13.9
1988	16.0	2003	14.1
1989	16.4	2004	14.0
1990	16.7	2005	14.0
1991	16.2	2006	14.2
1992	15.8	2007	14.3
1993	15.4	2008	14.0
1994	15.0		

*Live births per 1,000 population

Source: U.S. Bureau of the Census. (2012). *Statistical Abstract of the United States* (Washington, DC: U.S. Government Printing Office), Table 78, p. 65.

them. You do not need a permit to have a baby; in fact, many babies are conceived unexpectedly, and some are borne unwillingly.

Social science theories, then, typically deal with aggregated, not individual, behavior. Their purpose is to explain why aggregate patterns of behavior are so regular even when the individuals participating in them may change over time. We could even say that social scientists don't seek to explain people at all. They try to understand the systems in which people operate, the systems that 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 usually take place at the level of the 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 his latest pronouncement simply fits into his rather dated point of view about things in general. If, on the other hand, the statement is muttered by an incumbent politician trailing a female challenger in an electoral race, you'll probably interpret his comment in a completely different way.

In both examples, you're trying to understand the behavior of a particular individual. Social research seeks insights into classes or types of individuals. Social researchers would want to find out about the kind of people who share that view of women's "proper" role. Do those people have other characteristics in common that may help explain their views?

Even when researchers focus their attention on a single case study—such as a community or a juvenile gang—their aim is to gain insights that would help people understand other communities and other juvenile gangs. Similarly, the attempt to fully understand one individual carries the broader purpose of understanding people or types of people in general.

When this venture into understanding and explanation ends, social researchers will be able to make sense out of more than one person. In understanding what makes a group of people hostile to women who are active outside the home, they gain insight into all the individuals who share that hostility. This is possible because, in an important sense, they have not been studying antifeminists as much as they have been studying antifeminism. It might then turn out that Uncle Harry and the politician have more in common than first appeared.

Antifeminism is spoken of as a **variable** because it varies. Some people display the attitude more than others do. Social researchers are interested in understanding the system of variables that causes a particular attitude to be strong in one instance and weak 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 the 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 for the researcher, that patient is relevant only as a carrier of the disease.

That is not to say that medical researchers don't care about real people. They certainly do. Their ultimate purpose in studying diseases is to protect people from them. But in their research, they are less interested in individual patients than they are in the patterns governing the appearance of the disease. In fact, when they can study a disease meaningfully without involving actual patients, they do so.

Social research, then, involves the study of variables and their relationships. Social theories are written in a language of variables, and people get involved only as the "carriers" of those variables.

Variables, in turn, have what social researchers call attributes (or categories or values). **Attributes** 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 Logical sets of attributes. The variable *sex* is made of up of the attributes *male* and *female.*

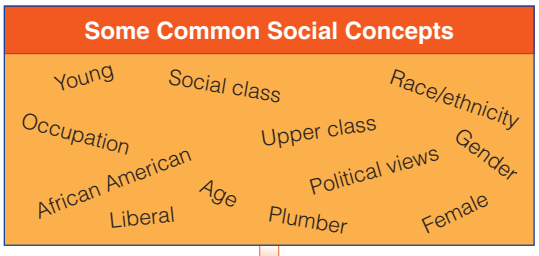
attributes Characteristics of people or things.

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 1-1 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.

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*.



Variable	Attributes
Age	Young, middle-aged, old
Gender	Female, male
Occupation	Plumber, lawyer, data-entry clerk . . .
Race/ethnicity	African American, Asian, Caucasian, Latino . . .
Social class	Upper, middle, lower . . .
Political views	Liberal, conservative

FIGURE 1-1

Variables and Attributes. In social research and theory, both variables and attributes represent social concepts. Variables are sets of related attributes (categories, values).

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 *family income for a city* is a summary of attributes composing that variable: *$3,124; $10,980; $35,000;* and so forth.

Research in Real Life

The Hardest Hit Was . . .

In early 1982, a deadly storm ravaged the San Francisco Bay Area, leaving an aftermath of death, injury, and property damage. As the mass media sought to highlight the most tragic results of the storm, they sometimes focused on several people who were buried alive in a mudslide in Santa Cruz. Other times, they covered the plight of the 2,900 made homeless in Marin County.

Implicitly, everyone wanted to know where the worst damage was done, but the answer was not clear. Here are some data describing the results of the storm in two counties: Marin and Santa Cruz. Look over the comparisons and see if you can determine which county was "hardest hit."

Certainly, in terms of the loss of life, Santa Cruz was the "hardest hit" of the two counties. Yet more than seven times as many people were injured in Marin as in Santa Cruz; certainly, Marin County was "hardest hit" in that regard. Or consider the number of homes destroyed (worse in Santa Cruz) or damaged (worse in Marin): It matters which aspect of the disaster you focus on. The same dilemma holds true for the value of the damage done: Should we pay more attention to private damage or public damage?

So which county was "hardest hit"? Ultimately, the question as posed has no answer. Although you and I both have images in our minds about communities that are "devastated" or communities that are only "lightly touched," these images are not precise enough to permit rigorous measurements.

	Marin	*Santa Cruz*
Business destroyed	$1.5 million	$56.5 million
People killed	5	22
People injured	379	50
People displaced	370	400
Homes destroyed	28	135
Homes damaged	2,900	300
Businesses destroyed	25	10
Businesses damaged	800	35
Private damages	$65.1 million	$50.0 million
Public damages	$15.0 million	$56.5 million

The question can be answered only if we can specify what we mean by "hardest hit." If we measure it by death toll, then Santa Cruz was the hardest hit. If we choose to define the variable in terms of people injured and or displaced, then Marin suffered the bigger disaster. The simple fact is that we cannot answer the question without specifying exactly what we mean by the term *hardest hit*. This is a fundamental requirement that will arise again and again as we attempt to measure social science variables.

Data source: *San Francisco Chronicle,* January 13, 1982, p. 16.

Sometimes the meanings of the concepts that lie behind social science concepts are immediately clear. Other times they aren't. This point is discussed in the Research in Real Life box, "The Hardest Hit Was . . .".

The relationship between attributes and variables is more complicated when we move from description to explanation and 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*. Similarly, let's give the variable *prejudice* two attributes: *prejudiced* and *unprejudiced*.

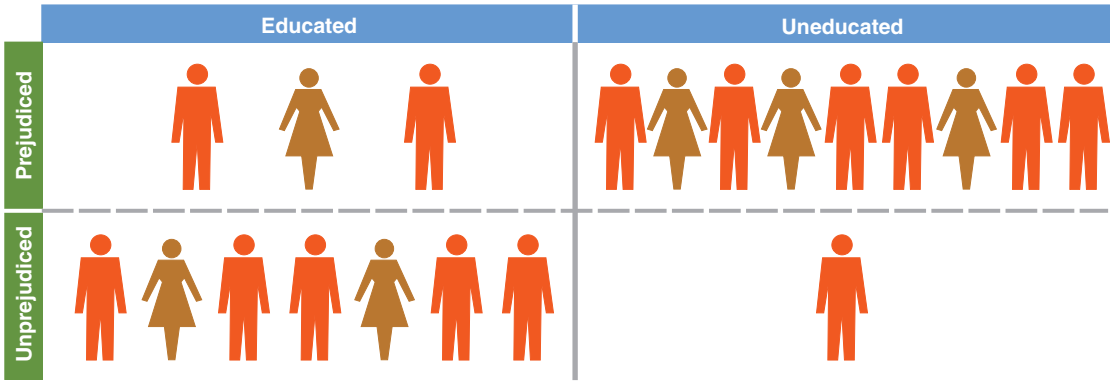
Now let's suppose that 90 percent of the uneducated are prejudiced, and the other 10 percent are unprejudiced. And let's suppose that 30 percent of the educated people are prejudiced, and the other 70 percent are unprejudiced. This is illustrated in Figure 1-2a.

Figure 1-2a 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 1-2a. 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.

Now let's suppose that when I pick a person from the figure, I tell you whether the person is

a. The uneducated are ***more*** prejudiced than the educated.



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

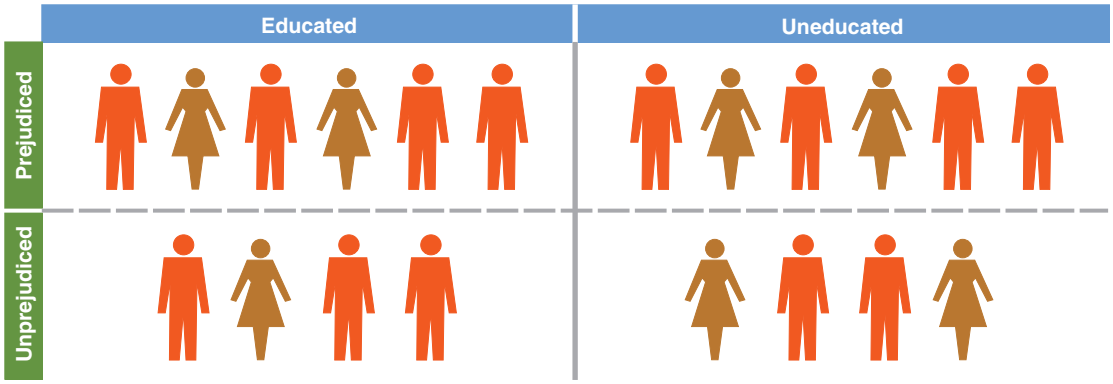


FIGURE 1-2

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.

educated or uneducated. Your best strategy now would be to guess prejudiced for each uneducated person and unprejudiced for each educated person. If you followed that strategy, you'd get 16 right and 4 wrong. Your improvement in guessing prejudice by knowing education is an illustration of what it means to say that the 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 (Figure 1-2b). Notice that half the people are educated, and half are uneducated. Also notice that 12 of the 20 (60 percent) are prejudiced. If 6 of the 10 people in each group were prejudiced, we would conclude that the two variables were 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 between variables in some depth in Part 4. In particular, we'll explore some of the ways relationships can be discovered and interpreted in research analysis. For now, you need a general understanding of relationships in order to appreciate the logic of social science theories.

Theories describe the relationships we might logically expect between variables. Often, the expectation involves the idea of causation. That is, a person's attributes on one variable are expected to cause, predispose, or encourage a particular attribute on another variable. In the example just illustrated, we might theorize that a person's

Research in Real Life

Independent and Dependent Variables and Dating

Let's talk about dating. Some dates are great and some are awful, while others are somewhere in between. So the quality of dates is a *variable* and "great," "okay," and "awful" might be the *attributes* making up that variable.

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.)

being educated or uneducated causes a lesser or greater likelihood of that person seeming prejudiced.

As I'll discuss in more detail later in the book, *education* and *prejudice* in this example would be regarded as an **independent variable** and a **dependent variable**, respectively. These two concepts are implicit in causal, or deterministic, models. In this example, we assume that the likelihood of being prejudiced is determined or caused by something. In other words, *prejudice* depends on something else, and so it is called the "dependent" variable. What the dependent variable depends on is an independent variable, in this case, *education.* For the purposes of this study, *education* is an "independent" variable because it is independent of *prejudice* (that is, people's level of education is not caused by whether or not they are prejudiced).

The Research in Real Life box, "Independent and Dependent Variables and Dating," will illustrate this important distinction.

Of course, variations in levels of education can, in turn, be found to depend on something else. People whose parents have a lot of education, for example, are more likely to get a lot of education than are people whose parents have little education. In this relationship, the subject's education is the dependent variable, and the parents' education is the independent variable. We can say the independent variable is the cause, the dependent variable the effect.

In our discussion of Figure 1-2, 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 1-2 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 purposes of this illustration, let's consider prejudice against gays and lesbians. Over the years, the General Social Survey (GSS) has asked respondents whether homosexual relations between two adults is "always wrong, almost always wrong, sometimes wrong, or not wrong at all." In 2012, 46 percent of those interviewed

independent variable A variable with values that are not problematic in an analysis but are taken as simply given. An independent variable is presumed to cause or determine a dependent variable.

dependent variable A variable assumed to depend on or be caused by another (called the 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 Anti-Gay Prejudice

Level of Education	*Percent Saying Homosexuality Is Always Wrong*
Less than high school graduate	61%
High school graduate	48%
Junior college	46%
Bachelor's degree	37%
Graduate degree	27%

said that homosexuality was always wrong. However, this response is strongly conditioned by respondents' education, as Table 1-2 indicates. (See the Tips and Tools box, "Analyzing Data Online with the General Social Survey," for more about the GSS.)

Notice that the theory has to do with the two variables *education* and *prejudice,* not with people as such. People are the carriers of those two variables, so the relationship between the variables can only be seen 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.

The Purposes of Social Research

Chapter 4 will examine the various purposes of social research in some detail, but a brief preview here will be useful. To begin, sometimes social research is a vehicle for mapping out a topic that may warrant further study later: looking into a new political or religious group, learning something about use of a new street drug, and so forth. The methods vary greatly and the conclusions are usually suggestive rather than definitive. Even so, such *exploratory* social research, if carefully done, 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 particular city? What percentage of the population plans to vote for a particular political candidate? Careful empirical description takes the place of speculation and impressions.

Often, social research has an *explanatory* purpose—providing reasons for phenomena in the form 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? Although answers to such questions abound in ordinary, everyday discourse, some of those answers are simply wrong. Explanatory social research provides more trustworthy explanations.

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

Her study also provided excellent ethnographic descriptions of the students' various experiences of hooking up. While in-depth interviews with 76 students at two universities in one region of the country do not allow for statistical projections to all college students in America, 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 calling him "Anthony" instead of Stephen at a critical moment.

Bogel's interviews also point to some of the causes for different kinds of hooking up. Your peers' behavior—or, more important, your *beliefs* about your peers' behavior—will have a strong influence on how you behave. Thus, it would be difficult to categorize this study as exploratory, descriptive, or explanatory, as it has elements of all three.

It's worth noting here that the purpose of some research is pretty much limited to understanding, whereas other research efforts are deliberately intended to bring about social change, creating a more workable and/or more just society. Any kind of social science study, however, can change our view of society, in some cases they may challenge commonly accepted "truths" about certain groups of people (see the Research in Real Life box, "Poverty, Marriage, and Motherhood").

Tips and Tools

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 later, in Chapter 14, but here's a quick peek in case you are interested.

If you go to http://sda.berkeley.edu/sdaweb/analysis/?dataset=gss12, you will find yourself at a web page like the one shown in the figure. 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(2012)" into the Selection Filter field, I've specified that we want to do this analysis using the GSS survey conducted in 2012.

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.

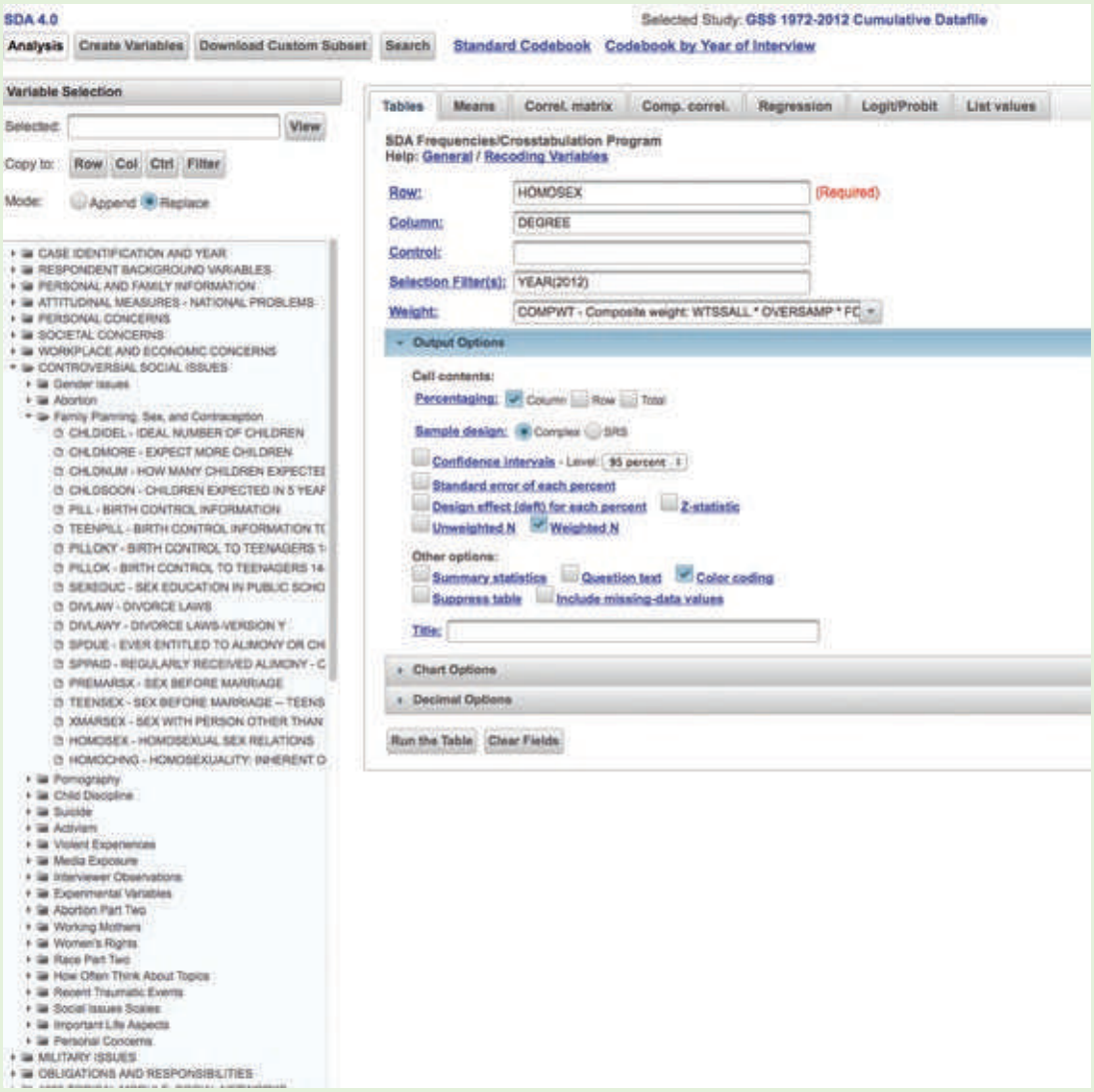
Beginning in 1972, large national samples were surveyed annually in face-to-face interviews; that frequency was reduced to every other year starting in 1994. Though conducted less often, the GSS interviews are lengthy and each takes over an hour to complete, making it possible to obtain a wide range 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 from time to time. Thus, it is possible to track changes in such things as political orientations, attendance at religious services, or attitudes toward abortion.

The General Social Survey 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 limited to only a few. In the early years of the GSS, data were made available to the research community by mailing physical datasets (cards or tapes) to researchers. This comprehensive project is called the General Social Survey. Many data examples in this book come from this source. You can learn more about the GSS at the official website maintained by the University of Michigan.

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, however, underlie the variety of research approaches. Although one can see these distinctions as competing choices, a good social researcher learns each of the orientations they represent. This is what I mean by the "dialectics" of social research: There is a fruitful tension between the complementary concepts I'm about to describe.



Source: http://sda.berkeley.edu/sdaweb/analysis/?dataset=gss12.

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 good dates or a decent job. In our everyday explanations, we engage in two distinct forms of causal reasoning, though we do not ordinarily distinguish them.

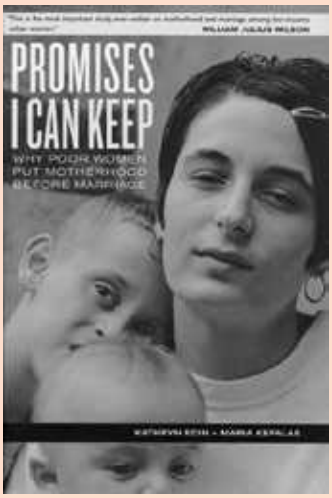
Sometimes we attempt to explain a single situation in idiosyncratic detail. Thus, for example, you may have done poorly on an exam because (1) you forgot there was an exam that day, (2) it was in your worst subject, (3) a traffic jam made you late for class, (4) your roommate kept you up the night before the exam by

Research in Real Life

Poverty, Marriage, and Motherhood

As we have seen, a wide variety of research approaches can enhance our grasp of social dynamics. 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. As such, some social research focuses specifically on the detailed particulars of real lives at the ground level of society. Throughout this book, I'll highlight some recent studies that reflect this latter approach to understanding social life, in an attempt to "keep humanity in focus" during our broader discussion of social science practice.

Statistics suggest that, in the United States, unwed mothers and their children, particularly those who are poor, will face a host of problems in the years to come. Both the child and the mother will likely struggle and suffer. The children are less likely to do well in school and in later life, and the mothers will probably have to struggle in low-paying jobs or live on welfare. The trend toward births out of wedlock has increased dramatically in recent decades, especially among the poor. As a reaction to these problems, the Bush administration launched a Healthy Marriage Initiative in 2005 aimed at encouraging childbearing couples to marry. Voices for and against the program have been raised with vigor.



Kathryn Edin and Maria Kefalas, *Promises I Can Keep: Why Poor Women Put Motherhood before Marriage* (Berkeley: University of California Press, 2005).

In their book *Promises I Can Keep*, Kathryn Edin and Maria Kefalas raise a question that might have been asked prior to the creation of a solution to the perceived problem: "Why do poor women bear children outside of wedlock?" The two social scientists spent five years speaking one-on-one with young women who had had children out of wedlock. Some of the things they learned dramatically contradicted various widespread images of unwed mothers. For instance, whereas many people have bemoaned the abandonment of marriage among the poor, the women interviewed tended to speak highly of the institution, indicating they hoped to be married one day. Further, many were only willing to settle down with someone trustworthy and stable—better to remain unmarried than to enter a marriage that will end in disaster.

At the same time, these young women felt strongly that their ultimate worth as women centered on their bearing children. Most felt it was preferable to be an unmarried mother than to be a childless woman, the real tragedy in their eyes.

This view of marriage may differ greatly from your own. As we have seen, assumptions about "what's real" are often contradicted by actual observations.

playing loud music, (5) the police kept you until dawn demanding to know what you had done with your roommate's stereo—and what you had done with your roommate, for that matter—and (6) a wild band of coyotes ate your textbook. Given all these circumstances, it's no wonder 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 single case at hand. Although parts of the idiographic explanation might apply to other situations, our intention is to explain one case fully.

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.

Now consider a different kind of explanation. (1) Students who study in groups generally seem to do better on exams than those who study alone. (2) Those who start studying early tend to do better on exams than those who only cram the night before. (3) Students who are interested in the subject matter usually do better than those

who hate it. 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 (a) whether or not you study in a group and (b) 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 such words or phrases as *on the whole, usually*, or *all else being equal.* 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 attractive head of the biology club may get lots of good dates, while the homely members of sororities and fraternities spend a lot of Saturday nights alone working crossword puzzles. The existence of such exceptions is the price we pay for a broader range of overall explanation. As I noted earlier, patterns are real and important even when they are not perfect.

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

By the same token, both idiographic and nomothetic reasoning are powerful tools for social research. For example, A. Libin and J. Cohen-Mansfield (2000) contrast the way that the idiographic and nomothetic approaches are used in studying the elderly (gerontology). Some studies focus on the full experiences of individuals as they live their lives, whereas other studies look for statistical patterns describing the elderly in general. The authors then conclude by suggesting ways to combine idiographic and nomothetic approaches in gerontology.

Social scientists, then, can access two distinct kinds of explanation. Just as physicists treat light sometimes as a particle and other times as a wave, so social scientists can search for broad relationships 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 within 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, why you do so well on exams sometimes but 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 by 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 . . . SHAZAM! 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.

Induction, or 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.

There is a second and very different way that you might arrive at the same conclusion about studying for exams. Imagine approaching your first set of exams in college. You wonder about

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—proximity, reputation, and so forth.

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 Protestants are, 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. This would be an example of induction.

the best ways to study—how much you should review the readings, how much you should focus on your class notes. You learn that some students prepare by rewriting their notes in an orderly fashion. Then you consider whether you should study at a measured pace or else pull an all-nighter just before the exam. Among these kinds of 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 gotten 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 *Here Comes Honey Boo Boo* retrospective.

In this fashion, you might add up the pros and the cons and conclude, logically, that you'd benefit from studying with others. It seems reasonable to you, in the same 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 are true in practice. For a complete test, you might study alone for half your exams and study with others for the other exams. This procedure would test your logical reasoning.

This second mode of inquiry, known as **deduction** or deductive reasoning, 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.

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.

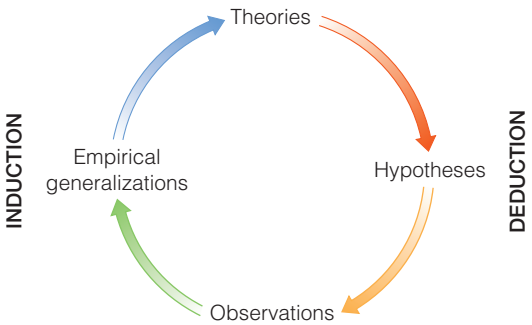


FIGURE 1-3

The Wheel of Science. The theory and research cycle for the social sciences can be compared to a relay race; although all participants do not necessarily start or stop at the same point, they share a common goal—to examine all levels of social life.

Source: Adapted from Walter Wallace, *The Logic of Science in Sociology* (New York: Aldine deGruyter, 1971). Copyright © 1971 by Walter L. Wallace. Used by permission.

As you'll see later in this book, these two very different approaches both serve as valid avenues for science. Each approach can stimulate the research process, prompting the researcher to take on specific questions and framing 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. Figure 1-3 shows how these two approaches interact in the practice of social research.

Notice, by the way, that the distinction between deductive and inductive reasoning is not necessarily linked to the distinction between nomothetic and idiographic modes of explanation. These four characterizations represent four possibilities, in everyday life as much as in social research.

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 type 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 and subsequently seek a restraining order.

A nomothetic, deductive approach arises when you coach others on your "rules of dating," when you wisely explain why their dates will be

impressed to hear them expound on the dangers of satanic messages concealed in 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.

We'll return to induction and deduction in Chapter 2. Let's turn now 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 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 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 mentioned here 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 humans 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.

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

Qualitative and Quantitative Data

The distinction between qualitative and quantitative 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. A corresponding assertion about someone less fortunately endowed would be that he or she is "unintelligent." When psychologists and others measure intelligence by IQ scores, they are attempting to quantify such qualitative assessments. For example, the psychologist might say that a person has an IQ of 120.

Every observation is qualitative at the outset, whether it is our 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 sometimes useful. (Chapter 14 of this book will deal specifically with the quantification of data.)

Quantification often makes our observations more explicit. It also can make it easier to aggregate, compare, and summarize data. Further, it opens up the possibility of statistical analyses, ranging from simple averages to complex formulas and mathematical models.

Quantitative data, then, offer the advantages that numbers have over words as measures of some quality. On the other hand, they also carry the disadvantages that numbers have, including a potential loss in richness of meaning. For example, a social researcher might want to know

whether college students aged 18–22 tend to date people older or younger than themselves. A quantitative answer to this question seems easily attained. The researcher asks a given number of college students how old each of their dates has been, calculates an average, and compares it with the age of the subject. 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 "age" really means "maturity." You may date people who are younger than you but who act more maturely than others of their age and thus represent the same "age" as you. Or someone might see "age" as how young or old your dates look or maybe the degree of variation in their life experiences and worldliness. These latter meanings would be lost in the quantitative calculation of average age. Qualitative data, in short, can be richer in meaning than quantified 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.

On the other hand, qualitative data bring the disadvantages of purely verbal descriptions. For example, the richness of meaning I've mentioned is partly a function of ambiguity. If the expression "older than his years" meant something to you when you read it, that meaning came from your own experiences, from people you have known who might fit the description of being "older than their years," or perhaps from the times you have 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.

I have a friend, Ray Zhang, who was responsible for communications at the 1989 freedom demonstrations in Tiananmen Square, Beijing. Following the army clampdown, Ray fled south, was arrested, and was then released with orders to return to Beijing. Instead, he escaped from China and made his way to Paris. Eventually he came to the United States, where he resumed the graduate studies he had been forced to abandon in fleeing his homeland. I have seen him deal with the difficulties of getting enrolled in school without any transcripts from China, of studying in a foreign language, of meeting his financial needs—all on his own, thousands of miles from his family. Ray still speaks of one day returning to China to build a system of democracy.

When I first met him, Ray struck me as someone "older than his years." The additional detail in my qualitative description, while it fleshes out the meaning of the phrase, still does not equip us to say *how* much older or even to compare two people in these terms without the risk of disagreeing as to which one is more "worldly."

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, for example:

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 such experiences, 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 on a numerical scale would be straightforward. We would have no difficulty agreeing on who had more points than who.

To quantify a nonnumerical concept like worldliness, then, we need to be explicit about what the concept means. 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 less rich in meaning than the corresponding qualitative description.

What a dilemma! Which approach should we choose? Which is better? 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 to qualitative examination, others to quantification.

Although researchers may use both, these two approaches call for different skills and procedures. As a result, you may find that you feel more comfortable with—and become more adept in—one or the other. You will be a stronger researcher, however, to the extent that you can use both approaches effectively. Certainly, all researchers, whatever their personal inclinations, should recognize the legitimacy of both.

You may have noticed that the qualitative approach seems more aligned with idiographic explanations, while nomothetic explanations are more easily achieved through quantification. Although 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 J. H. 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: 238–39):

> 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 (2005) suggest that the two approaches have more similarities than differences, and they urge that social research is strengthened by the use of both. My intention in this book is to focus on the complementarity of these two approaches rather than on any apparent competition between them.

The Research Proposal

I conclude this chapter by introducing a 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, including 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 write a research proposal based on what you have learned. 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, but even if that's not the case, you can use the "Proposing Social Research" exercise at the end of each chapter to test your mastery of the chapter.

There are many organizational structures for research proposals, and I've created a fairly typical one for you to use with this book. I've presented the proposal outline as follows, indicating which chapters in the book deal most directly 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, 9, 10, 11)
  - Selection of Subjects (Chapter 7)
  - Ethical Issues (Chapter 3)
- Data Analysis (Chapters 13, 14, 15, 16)
- Bibliography (Chapter 17; Appendix A)

I'll have more to say about each of these topics as we move through the book, beginning with this chapter's "Proposing Social Research" exercise. Chapter 4 will have an extended section on the research proposal, and Chapter 17 will give you an opportunity to pull together all the parts of the proposal into a coherent whole.

MAIN POINTS

Introduction

- The subject of this book is how we find out about social reality.

Looking for Reality

- Inquiry is a natural human activity. Much of ordinary human inquiry seeks to explain events and predict future events.
- When we understand through direct experience, we make observations and seek patterns of regularities in what we observe.
- Much of what we know, we know by agreement rather than by experience. In particular, two important sources of agreed-on knowledge are tradition and authority. However, these useful sources of knowledge can also lead us astray.
- Science seeks to protect against the mistakes we make in day-to-day inquiry.
- Whereas we often observe inaccurately, researchers seek to avoid such errors by making observation a careful and deliberate activity.
- We sometimes jump to general conclusions on the basis of only a few observations, so scientists seek to avoid overgeneralization. They do this by committing themselves to a sufficient number of observations and by replicating studies.
- In everyday life we sometimes reason illogically. Researchers seek to avoid illogical reasoning by being as careful and deliberate in their reasoning as in their observations. Moreover, the public nature of science means that others are always there to challenge faulty reasoning.

The Foundations of Social Science

- Social theory attempts to discuss and explain what is, not what should be. Theory should not be confused with philosophy or belief.
- Social science looks for regularities in social life.
- Social scientists are interested in explaining human aggregates, not individuals.
- Theories are written in the language of variables.
- A variable is a logical set of attributes. An attribute is a characteristic. *Sex,* for example, is a variable made up of the attributes *male* and *female.* So is *gender* when those attributes refer to social rather than biological distinctions.
- In causal explanation, the presumed cause is the independent variable, and the affected variable is the dependent variable.

The Purposes of Social Research

- Three major purposes of social research are exploration, description, and explanation.
- Studies may aim to serve more than one of these purposes.

Some Dialectics of Social Science

- Whereas idiographic explanations present specific cases fully, nomothetic explanations present a generalized understanding of many cases.
- Inductive theories reason from specific observations to general patterns. Deductive theories start from general statements and predict specific observations.
- The underlying logic of traditional science implicitly suggests a deterministic cause-and-effect model in which individuals have no choice, although researchers do not say, nor necessarily believe, that.
- Some researchers are intent on focusing attention on the "agency" by which the subjects of study are active, choice-making agents.
- The issue of free will versus determinism is an old one in philosophy, and people exhibit conflicting orientations in their daily behavior, sometimes proclaiming their freedom and other times denying it.
- Quantitative data are numerical; qualitative data are not. Both types of data are useful for different research purposes.

The Research Proposal

- Research projects often begin with the preparation of a research proposal, describing the purpose and methods of the proposed study.
- In this book, each chapter will conclude with an exercise through which you can prepare part of a research proposal, thereby testing your mastery of the topics covered.

KEY TERMS

The following terms are defined in context in the chapter and at the bottom of the page where the term is introduced, as well as in the comprehensive glossary at the back of the book.

agreement reality
attributes
deduction
dependent variable
epistemology
idiographic
independent variable
induction
methodology
nomothetic
replication
theory
tolerance for ambiguity
variables

PROPOSING SOCIAL RESEARCH: INTRODUCTION

This first chapter has given you an overview of some of the basic variations in social research, many of which can be useful in writing the introduction of your research proposal. For this assignment, you should first identify a topic or question you might like to explore in a research project. Perhaps you would like to investigate some topic relating to race, gender, or social class. Perhaps there is some aspect of college life that you think needs study.

Once you have a research topic in mind, this chapter will offer some ideas on how the research might be organized. This is only a overview of the project and should take two to four paragraphs. It will work best if you can select a topic that you'll use in each of the chapters of the book, as you address different aspects of the research process.

Here are some examples of research questions to illustrate the kind of focus your project might take.

- Do women earn less money than men and, if so, why?
- What causes support for or opposition to same-sex marriage?
- What distinguishes juvenile gangs of different ethnic groups?
- Which academic departments at your college offer the broadest degree of liberal arts training?
- Is it true, as some suggest, that the United States was established as a "Christian nation"?
- Are American military actions in the Middle East reducing the threat of terrorist attacks in the United States or increasing those threats?
- What are the major functions of the American family and how have those been changing over time?
- Are official attempts to control illegal drug use succeeding or failing?
- Do undocumented immigrants overall represent a net economic cost or benefit to the United States?

Almost certainly, you hear questions like these discussed frequently, both in your own interactions and in the mass media. Probably, most of those discussions are largely based in opinions. Your opportunity in this course is to see how you might pursue such questions as a researcher, dealing with logic and facts in place of opinions.

REVIEW QUESTIONS AND EXERCISES

1. Review the common errors of human inquiry discussed in this chapter. Find a magazine or newspaper article, or perhaps a letter to the editor, that illustrates one of these errors. Discuss how a scientist would avoid it.
2. List five social variables and the attributes they comprise.
3. Go to the website for one of the following organizations and find examples of both qualitative and quantitative data.
   a. UN High Commissioner for Refugees
   b. U.S. Centers for Disease Control and Prevention
   c. National Library of Australia