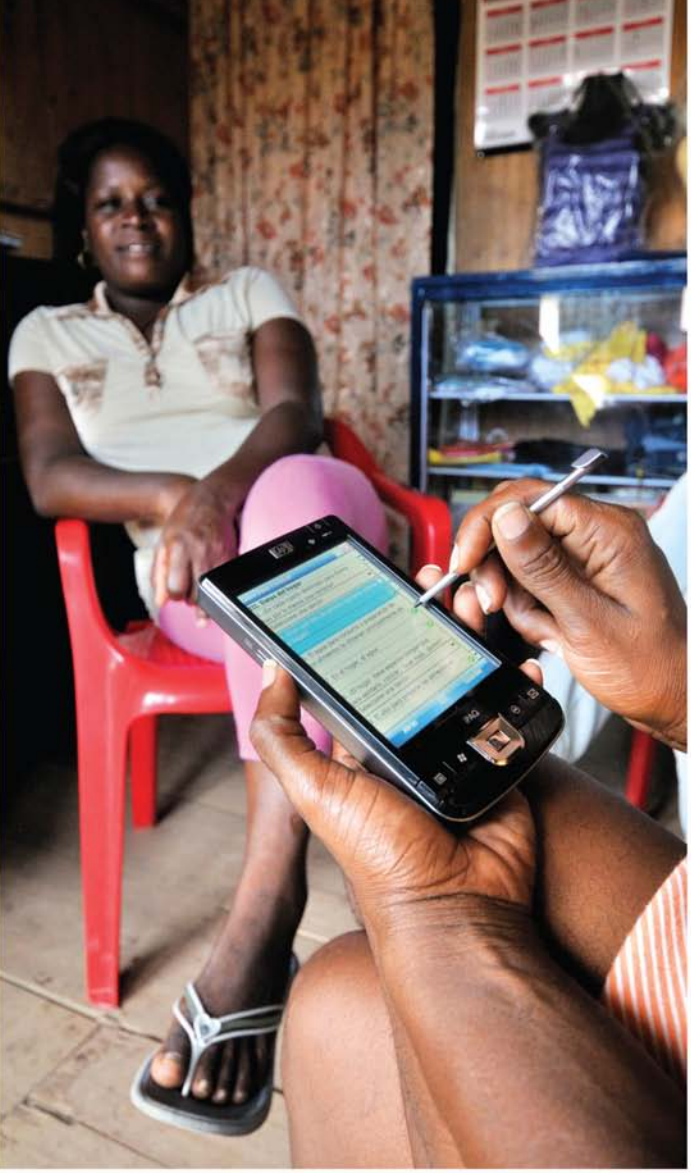
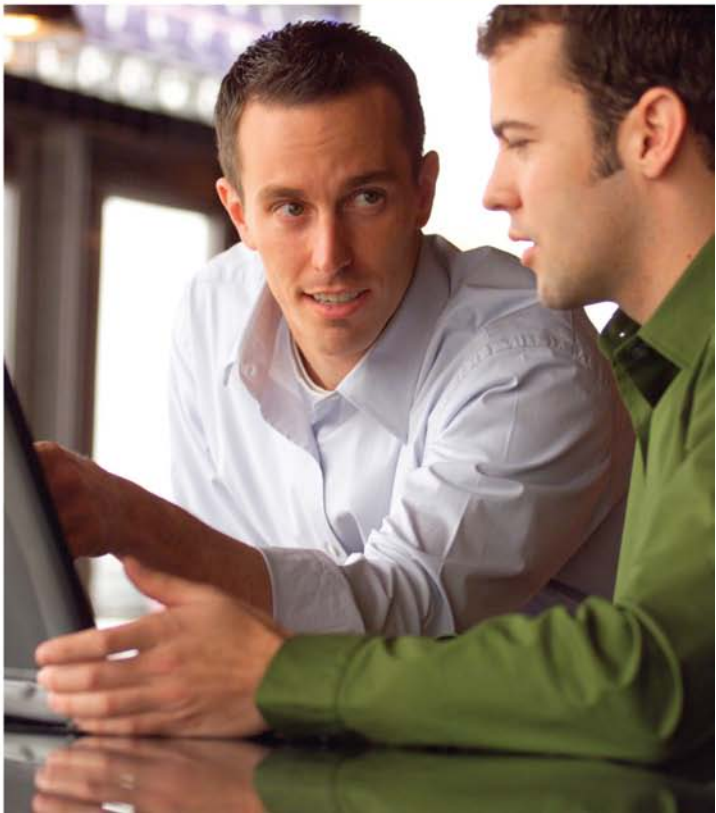


FIFTH EDITION

AN INVITATION TO SOCIAL RESEARCH

How it's done



EMILY STIER ADLER
+
ROGER CLARK

An Invitation to Social Research

How It's Done

FIFTH EDITION

An Invitation to Social Research

How It's Done

Emily Stier Adler
Rhode Island College

Roger Clark
Rhode Island College

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

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We dedicate this book to David, Evan, and Matthew

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PREFACE

We'd like to invite you to participate in one of the most exciting, exhilarating, and sometimes exasperating activities we know: social science research. We extend the invitation not only because we know, from personal experience, how rewarding and useful research can be, but also because we've seen what pleasure it can bring other students of the social world. Our invitation comes with some words of reassurance, especially for those of you who entertain a little self-doubt about your ability to do research. First, we think you'll be glad to discover, as you read *An Invitation to Social Research: How It's Done*, how much you already know about how social research is done. If you're like most people, native curiosity has been pushing you to do social research for much of your life. This book is meant simply to assist you in this natural activity by showing you some tried-and-true ways to enlightening and plausible insights about the social world.

SPECIAL FEATURES

Active Engagement in Research

Our second word of reassurance is that we've done everything we can to minimize your chances for exasperation and maximize your opportunities for excitement and exhilaration. Our philosophy is simple. We believe that honing one's skill in doing social research is analogous to honing one's skills in other enjoyable and rewarding human endeavors, like sport, art, or dance. The best way isn't simply to read about it. It's to do it and to watch experts do it. So, just as you'd hesitate to teach yourself tennis, ballet, or painting only by reading about them, we won't ask you to try learning the fine points of research methodology by reading alone. We'll encourage you to get out and practice the techniques we describe. We've designed exercises at the end of each chapter to help you work on the "ground strokes," "serve," "volleys," and "overheads" of social research. We don't think you'll need to do all the exercises at home. Your instructor might ask you to do some in class and might want you to ignore some altogether. In any case, we think that, by book's end, you should have enough control of the fundamentals to do the kind of on-the-job research that social science majors are increasingly asked to do, whether they find themselves in social service agencies, the justice system, business and industry, government, or graduate school.

The exercises reflect our conviction that we all learn best when we're actively engaged. Other features of the text also encourage such active engagement, including the "Stop & Think" questions that run through each chapter, which encourage you to actively respond to what you're reading.

Engaging Examples of Actual Research

Moreover, just as you might wish to gain inspiration and technical insight for ballet by studying the work of Anna Pavlova or Mikhail Baryshnikov, we'll encourage you to study the work of some accomplished researchers. Thus, we build most of our chapters around a research essay, what we call focal research, that is intended to make the research process transparent, rather than opaque. We have chosen these essays for their appeal and accessibility, and to tap what we hope are some of your varied interests: for instance, crime, gender, election polls, life in prison, attitudes toward environmentalism, immigrants' lives, and others.

Behind-the-Scenes Glimpses of the Research Process

These focal research pieces are themselves a defining feature of our book. In addition to such exemplary "performances," however, we've included many behind-the-scenes glimpses of the research process, often written by researchers whose work we admire. We're able to provide these glimpses because many researchers have given generously of their time to answer our questions about what they've done, the special problems they've encountered, and the ways they've dealt with these problems. The glimpses should give you an idea of the kinds of choices and situations the researchers faced, where often the "real" is far from the "ideal." You'll see how they handled the choices and situations and hear them present their current thinking about the compromises they made. In short, we think you'll discover that good research is an achievable goal, and a very human enterprise.

Clear and Inviting Writing

We've also tried to minimize your chances for exasperation by writing as clearly as we can. A goal of all social science is to interpret social life, something you've all been doing for quite a while. We want to assist you in this endeavor, and we believe that an understanding of social science research methods can help. But unless we're clear in our presentation of those methods, your chances of gaining that understanding are not great. There are, of course, times when we'll introduce you to concepts that are commonly used in social science research that might be new to you. When we do, however, we will try to provide definitions to make the concepts as clear as possible. The definitions are highlighted in the margin of the text and in the glossary at the end of the text.

Focus on Ethics

Given the importance of doing research that is methodologically correct and practical as well as ethical, we've put a focus on ethical principles in each chapter. The "Thinking about Ethics" section of each chapter applies the

ethical principles we cover in depth in Chapter 3 to research projects presented in the subsequent chapters.

Balance between Quantitative and Qualitative Approaches

We think you'll also appreciate the balance between quantitative and qualitative research methods presented here. Quantitative methods focus on things that are measured numerically. ("He glanced at her 42 times during the performance.") Qualitative methods focus on descriptions of the essence of things. ("She appeared annoyed at his constant glances.") We believe both methodological approaches are too useful to ignore. Emblematic of this belief is the inclusion of a chapter (Chapter 15) that devotes about as much space to the discussion of qualitative data analysis as it does to quantitative data analysis. The presence of such a chapter is another defining feature of the book.

Moreover, in addition to more conventional strategies, we will introduce you to some relatively new research strategies, such as using the Internet to refine ideas and collect data and visual methodologies. We cover the link between theory and research, compare research to other ways of knowing, and focus on basic and applied research.

Our aims, then, in writing this book have been (1) to give you firsthand experiences with the research process, (2) to provide you with engaging examples of social science research, (3) to offer behind-the-scenes glimpses of how professional researchers have done their work, (4) to keep our own presentation of the "nuts-and-bolts" of social science research as clear and inviting as possible, (5) to focus on doing research following ethical principles, (6) to give a balanced presentation of qualitative and quantitative research methods, (7) to introduce recent technological innovations, and (8) to present some research done in the "real world" to solve important social problems. Whether we succeed in these goals, and in the more important one of sharing our excitement about social research, remains to be seen. But rest assured, however, of our conviction that there is excitement to be had.

WHAT IS NEW IN THE FIFTH EDITION

The fifth edition represents a substantial revision of the fourth. Once again, we've rewritten major sections of every chapter to clarify the process of social research and to provide up-to-date material from the social research literature. In doing so, we've focused our presentation on the essentials of social research and covered some new material as well as classic sources.

We've added two new features that should underline what's important about each chapter. On the one hand, we provide chapter objectives at the beginning of each chapter, objectives that should help students know, in some detail, what they may expect to take away from the chapter. Second, we've added, in many chapters, a brief overview of social science research that's made the national or international news and thereby shows how critically important the topic of the chapter can be for understanding the real world. For example, in Chapter 14, we focus on evidence-based programs and policies and our "Research in the News" features a legal battle over a

drug education program that more than a decade of research has shown to be ineffective. Our data analysis chapter (Chapter 15) also reflects, as does the rest of the current text, our belief that research, as practiced by social (and all other) scientists, is increasingly computer assisted and Internet based. So, for instance, in the data analysis chapter, we introduce students to data that they can analyze online. In other chapters, we also present ways of finding research reports and data that can be accessed quickly online.

Themes from the first three editions have been retained here. This edition has 13 focal research pieces—four of them new. While incorporating the new pieces, we have maintained the balance between qualitative and quantitative research in the book. In Chapter 6, for instance, we present two new focal research pieces on measurement: one explores ways to measure "happiness" and the other considers reliability and validity issues with current measures of "suicide." In Chapter 11, we present a qualitative, observation-based study of Pittsburgh Steelers fans, a study that argues that being a member of a sports team's fan base can be like belonging to a quasi-religion. In Chapter 13, we present a new piece that examines the relationship between the gender, race, ethnicity, and other identity statuses of authors of children's book, on the one hand, and the visibility of female characters in their works, on the other. In all cases, our new contributors have volunteered important "behind-the-scenes" insights into the research process, insights that we gratefully share here.

ACKNOWLEDGMENTS

We cannot possibly thank all those who have contributed to the completion of this edition, but we can try to thank those whose help has been most indispensable and hope that others will forgive our neglect. We'd first like to thank all the students who have taken research methods courses with us at Rhode Island College for their general good-naturedness and patience as we've worked out ideas that are crystallized here, and then worked them out some more. We'd also like to thank our colleagues in the Sociology Department and the administration of the college, for many acts of encouragement and more tangible assistance, including released time.

We'd like to thank colleagues, near and far, who have permitted us to incorporate their writing as focal research or in text boxes, and, in many cases, have then read how we've incorporated it and told us how we might do better. They are Nichole Banton, Susan Chase, Erica Chito Childs, Leah Christian, Desirée Ciambrone, Allyssa Coon, Marci Cottingham, Michael Dimock, Danielle Dirks, Sandra Enos, Rachel Filinson, John Grady, Jill Harrison, Michele Hoffnung, Scott Keeter, Julie Kessler, Brandon Lang, Matthew T. Lee, Kristy Maher, Ramiro Martinez, Donald C. Naylor, Maureen Norton-Hawk, Chris Podeschi, Matthew M. Reavy, Ian Rockett, Jennifer Silva, and Jessica Holden Sherwood. These researchers include those who've given us the behind-the-scenes glimpses of the research process that we think distinguishes our book.

We're very grateful to our editor at Wadsworth, Carolyn Lewis, for help with the fifth edition. We've benefited greatly from the comments of the social science colleagues who have reviewed our manuscripts at various stages of development: Mary Archibald; Cynthia Beall, Case Western Reserve University; Daniel Berg, Humboldt State University; Susan Brinkley, University of Tampa; Jeffrey A. Burr, State University of New York, Buffalo; Richard Butler, Benedict College; Daniel Cervi, University of New Hampshire; Charles Corley, Michigan State University; Norman Dolch, Louisiana State University, Shreveport; Craig Eckert, Eastern Illinois University; Pamela I. Jackson, Rhode Island College; Alice Kemp, University of New Orleans; Michael Kleinman, University of South Florida; James Marquart, Sam Houston State University; James Mathieu, Loyola Marymount University; Steven Meier, University of Idaho; Deborah Merrill, Clark University; Lawrence Rosen, Temple University; Josephine Ruggiero, Providence College; Kevin Thompson, University of North Dakota; Steven Vassar, Mankato State University; and Gennaro Vito, University of Louisville, offered important assistance for the first edition.

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An Invitation to Social Research

How It's Done

CHAPTER 1

The Uses of Social Research

CHAPTER OBJECTIVES

This chapter is designed to help students

- **Recognize the advantages of knowledge based on research over knowledge from authorities and knowledge from personal inquiry**
- **Appreciate the importance of both care and community in science**
- **Distinguish between basic and applied research**
- **Learn about the four purposes of scientific research: exploration, description, explanation and evaluation**

CHAPTER OUTLINE

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How do you see yourself 10 years from now? Will you be single? Will you be a parent? What about people you know? Does it seem to you that almost everyone with whom you've talked about such things is either planning to marry and have children or is already married with children? Or does it seem to be the other way around? Does everyone seem to be planning to avoid marriage, perhaps to live alone, at least for extended periods of his or her life? What's the reality? Studying something systematically, with method, means not relying on your impressions—or on anyone else's, either. It means checking your impressions against the facts. It also means being sure about what you are looking for. One way researchers achieve this level of definiteness is to begin their research with a **research question**, or a question about one or more topics that can be answered through research. One such focusing question about our initial concern, for instance, might be: Is almost everyone in the country married with children or are they living alone?

research question, a question about one or more topics or concepts that can be answered through research.

The U.S. Census Bureau's *Statistical Abstract* (2012a) provides one apparently relevant set of facts. It shows that in 2010, the number of Americans living alone was about 26.7 percent of all households and was greater than the proportion of American households made up of a married couple with children, about 20.9 percent. Until 2000, the proportion of American households made up of married couples with children had always been greater than the proportion of Americans living alone (Hobbs, 2005). This could be the starting point of your investigation.

STOP & THINK *This would only be a start, however. What element of our initial interest in the future of you and people like you is not addressed by the "facts" of the Census report?*

Although the Census report does tell us something that's relevant to our main research—whether young people today are planning to marry and have children or planning not to marry—it requires a little interpreting, doesn't it? At first glance, Census facts seem almost to address this question. They show that, in 2010, more households in the United States were made up of people living alone than of married couples with children and so seem to imply that more people will end up alone than in families with children. Or do they?

We've made up the pie chart in Figure 1.1 to help us think about the question of whether the Census data really settle the issue addressed in our research question. The chart indicates one thing that we already knew: More American households are made up of people living alone than of married couples with children. But perhaps looking at the chart will remind you that all households made up of married couples with children had at least *twice as many adults in them* as households made up of people living alone. So, in fact, there actually were more adults living as parts of married couples with children in 2010 than there were adults living alone. It also reminds us that we should consider other kinds of households. One such group is married couples without children, a group that is more numerous than households made up of people living alone and, again, would therefore be households that have at least twice as many adults in them as households made up of people living alone. The presence of

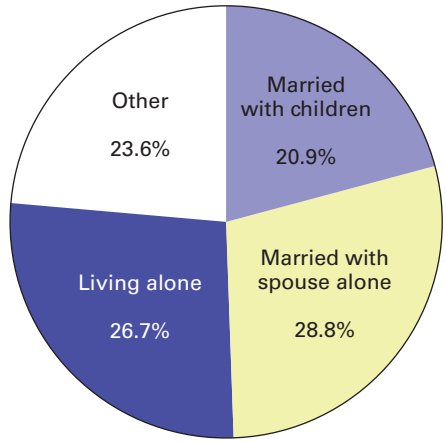

FIGURE **1.1** Total Households in 2010: 117,538,000

Source: Data from U.S. Census (2012).

this large group might make us want to revise our original question to include something about the number of people who plan to live with another adult (or adults) but without children. Moreover, we suspect that more of these people—people in couples without children—"plan" to become couples with children than "plan" to live alone. In effect, then, the chart also leads us to a second research question, a question that, in some ways, might even better embody the concern expressed at the beginning of paragraph one: Are more young people planning to marry and not have children, to marry and have children, or to live alone?

STOP & THINK *Can you think of a better way to find out how young people plan to live in the future than with the Census data of 2010?*

We suspect that you can think of such a way. Maybe you've noticed that Figure 1.1 is misleading in at least two ways. First, it focuses on the way things are, or more precisely, the way things were in 2010. It doesn't help with the question of what people are planning to do in the future. Second, it focuses on households, not people. We've obviously been able to make some inferences about people from the information about households, but the inferences have been somewhat awkward and would be even more so if we focused more attention on the fourth part of Figure 1.1: the part about "other" households. People, not households, are what we're really interested in, so Figure 1.1 ultimately provides information about the wrong kind of thing, the wrong **unit of analysis**, the unit about which information is collected. One of the first decisions you need to make when planning research is, "What should my unit of analysis be?" Moreover, one of the first questions to ask of any research project you read is, "What is this study's unit of analysis?"

unit of analysis, a unit about which information is collected.

STOP & THINK *See if you can identify the units of analysis for each of the following studies: (1) Rosenfeld and Thomas' (2012) finding that people are increasingly likely to find prospective partners, often complete strangers, online; (2) Fallon, Swiss and Viterna's (2012) finding that in developing countries that began democratizing after 1975, early elections brought a drop in women's access to the nation's legislature, but later elections brought increased women's access; and (3) Soule and King's (2008) finding that social movement organizations (like women's rights organizations) that develop specialized goals, rather than more general ones, are less likely to survive than organizations that can maintain generalized goals.*

Returning to our question about how you might find out about young people's future plans, perhaps you've thought of doing some kind of questionnaire survey, the nature of which we talk about more in Chapter 9. Perhaps you've also realized that you'd want to survey some kind of representative sample of young people. We talk about such samples in Chapter 5. Perhaps you've thought a little about the kinds of information you might want. We deal with those issues in Chapter 6. Perhaps you've even thought about examining what others have had to say about the issue. You might, for instance, be interested in Michele Hoffnung's research, the focal piece of Chapter 4. Maybe someone's already collected just the information you need and would be willing to share it with you. We examine this possibility in Chapter 12, on finding and using available data.

Whatever you've thought, you've clearly begun to engage the question, as we (Emily and Roger) have done with questions we've studied, as a mystery to be solved. Learning about social research is a lot like learning to solve mysteries. It's about challenge, frustration, excitement, and exhilaration. We, Emily and Roger, are addicted to social research. We've recently enjoyed working together on a study of how people make the transition to retirement (and will tell you about our findings in Chapter 7). We're passionately interested in this mystery, partly because we're thinking about the process of retirement ourselves.

RESEARCH VERSUS OTHER WAYS OF KNOWING

Knowledge from Authorities

The data about households in America—that slightly more of them are made up of people living alone than of people living with a spouse and children—are fascinating. But perhaps they're not as fascinating as what we, Emily and Roger, learned many years ago, literally at our mothers' knees, that "In fourteen hundred and ninety-two, Columbus sailed the ocean blue," despite nearly everyone's belief that he was sailing in a direction that jeopardized his very existence.

authorities, socially defined sources of knowledge.

Now, why do we think we "know" these things? Basically, it's because some authority told us so. In the first case, we read it in a Census Bureau report. In the second case, we relied on our moms, who were reporting a commonly accepted version of America's "discovery." **Authorities**, such as the

Census Bureau and our moms, are among the most common sources of knowledge for most of us. Authorities are socially defined sources of knowledge.

Many social institutions, such as religion, news media, government agencies, and schools, are authorities, and individuals within them are often seen as having superior access to relevant knowledge. In modern societies like ours, we often attribute authority to what newscasters on television say or what's posted in an online newspaper such as the *Huffington Post*. Sometimes authorities use research as their basis for knowledge, but we usually don't evaluate their sources. For most of us, most of the time, learning from authorities is good enough, and it certainly helps keep life simpler than it would be otherwise. Life would be ridiculously difficult and problematic if, for instance, we who live in the Western world had to reinvent a "proper" way of greeting people each time we met them. At some point, we're told about the customs of shaking hands, bumping fists, or saying "Hi," and we move on from there.

STOP & THINK *What, do you think, are the major disadvantages of receiving our "knowledge" from authorities?*

Although life is made simpler by "knowledge" from authorities, sometimes such knowledge is inappropriate, misleading, or downright incorrect. Very few people today take seriously the "flat Earth" theories that have been attributed to Columbus's social world. More interesting, perhaps, is an increasingly accepted view that, our mothers' teachings notwithstanding, very few people in Columbus's social world took seriously the flat-Earth view either; that, in fact, this view of the world was wrongly attributed to them by late-nineteenth-century historians to demonstrate how misguided people who accepted religious over scientific authority could be (e.g., Gould, 1995: 38–50). In fact, we mean no offense to our moms when we say they represent a whole category of authorities who can mislead: authorities in one area of expertise (in the case of our moms, us) who try to speak authoritatively on subjects in which they are not experts (in the case of our moms, the worldview of people in Columbus's society).

Knowledge from Personal Inquiry

But if we can't always trust authorities, like our moms, or even experts, like those late-nineteenth-century historians (and, by extension, even our teachers or the books they assign) for a completely truthful view of the world, who or what can we trust? For some of us, the answer is that we can trust the evidence of our own senses. **Personal inquiry**, or inquiry that employs the senses' evidence for arriving at knowledge, is another common way of knowing.

personal inquiry, inquiry that employs the senses' evidence.

STOP & THINK *Can you think of any disadvantages in trusting personal inquiry alone as a source of "knowledge"?*

The problem with personal inquiry is that it, like the pronouncements of authorities, can lead to misleading, even false, conclusions. As geometricians like to say, "Seeing is deceiving." This caution is actually as appropriate for

students of the social world as it is for students of regular polygons because the evidence of our senses can be distorted. Most of us, for instance, developed our early ideas of what a "family" was by observing our own families closely. By the time we were six or seven, each of us (Emily and Roger) had observed that our own families consisted of two biological parents and their children. As a result, we concluded that all families were made up of two biological parents and their children.[1]

There's obviously nothing wrong with personal inquiry … except that it frequently leads to "knowledge" that's pretty half-baked. There are many reasons for this problem. One of them is obvious from our example: Humans tend to *overgeneralize* from a limited number of cases. Both of us had experienced one type of family and, in a very human way, assumed that what was true of our families was true of all human families. Another barrier to discovering the truth is the human tendency to *perceive selectively* what we've been conditioned to perceive. Thus, even as 10-year-olds, we might have walked into an intentional community such as a commune, with lots of adults and children, and not entertained the possibility that this group considered itself a family. We just hadn't had the kind of experience that made such an observation possible. A third problem with knowledge from personal inquiry is that it often suffers from *premature closure*—our tendency to stop searching once we think we have an answer. At 10, we (Emily and Roger) thought we knew what a family was, so we simply didn't pursue the issue further.

So, neither relying on authorities nor relying on one's own personal inquiry is a foolproof way to the truth. In fact, there might not be such a way. But authors of research methods books (ourselves included) tend to value a way that's made some pretty astounding contributions to the human condition: the scientific method. In the next two subsections, we'll, first, discuss some relative strengths of the scientific method for knowledge acquisition and, second, give you some idea about what this knowledge is intended to do.

The Scientific Method and Its Strengths

scientific method, a way of conducting empirical research following rules that specify objectivity, logic, and communication among a community of knowledge seekers and the connection between research and theory.

positivist view of science, a view that human knowledge must be based on what can be perceived.

Specifying precise procedures that constitute the **scientific method** is a dicey business at best. Part of what makes it so hard is that there are fundamental philosophical differences in beliefs about what science is. Without getting too bogged down in weighty philosophical matters, we should probably confess that our own philosophical approach to science, and that of most contemporary social scientists, isn't the classical positivist view. A **positivist view of science** suggests we should stick to those things we can observe and measure directly, such as the time it takes a person to solve a Rubik's cube, whether someone lives alone, or how many times a week an individual goes to church. The goals of positivist science are unchallengeable propositions about the world, like, in the physical sciences, "every action has an equal and opposite reaction." Things that can't be directly observed, such as what people think about a

[1]Of course, by the time that Roger, in his early forties, had adopted two children from another country, his ideas of "family" had changed many times.

friend's divorce, how they feel about losing a job, or the economic impact of globalization, are irrelevant. Ours is a **post-positivist view of science**, a view that knowledge is not based on irrefutable observable grounds, that it is always somewhat speculative, but that science can provide relatively solid grounds for that speculation. Moreover, most post-positivists would argue that the pursuit of unchallengeable propositions about the world is unrealistic and, perhaps, unscientific. Most physicists today feel that Newton's laws of motion, of which "every action has an equal and opposite reaction" is but one example, are limited in their scope. Good as they are, they simply don't apply when things get very small (say, subatomic) or very fast (say, close to light speed). They're certainly not unchallengeable.

post-positivist view of science, a view that knowledge is not based on irrefutable observable grounds, that it is always somewhat speculative, but that science can provide relatively solid grounds for that speculation.

Positivists have often claimed that they strive for **objectivity**, or the ability to see the world as clearly as possible, free from personal feelings, opinions, or prejudices about what it is or what it should be. Post-positivists, on the other hand, suggest that the most even scientists can strive for is **intersubjectivity**, or agreements about reality that come from the practice of comparing one's results with those of others and discovering that the results are consistent with one another. Generally, post-positivists, such as Emily and Roger, believe that scientists may be more careful than everyday people, but their work is nonetheless fallible. The "goal of science," according to Trochian (2006), "is to hold steadfastly to the goal of getting it right about reality, even though we can never achieve that goal!"

objectivity, the ability to see the world as it really is.

intersubjectivity, agreements about reality that result from comparing the observations of more than one observer.

But how are we to hold steadfastly to that goal? We'd like to suggest four steps that are often involved in doing science and point to the relative emphasis placed on *care* and *community* that distinguishes science from other modes of knowing, whatever one's philosophical views of science are. An early step is to specify the goals or objectives that distinguish a particular inquiry (here care is paramount). In our first example, we eventually specified the goal of answering the research question, "Are more young people planning to marry and have children or to live alone?" A subsequent step involves reviewing literature or reading what's been published about a topic (here, learning what a relevant community thinks is the goal). We could do worse, in the pursuit of that early research question—about whether young people are planning to marry and have children or to live alone, for instance—than read Michele Hoffnung's work (see Chapter 4) on what an earlier generation of "young people" planned to do. At some point, it becomes important to specify what is actually observed (care again). We'd want to define, for instance, what we mean by "young people" and how we plan to measure what their plans are. A later step is to share one's findings with others in a relevant community so that they can scrutinize what's been done (community again). We might want, for instance, to prepare a paper for a conference of family sociologists. These steps or procedures will come up again throughout this book, but we'd now like to stress some of the strengths that accrue to the scientific method because of their use.

The Promotion of Skepticism and Intersubjectivity

One great strength of the scientific method, over modes that rely on authorities and personal inquiry, is that, ideally, it promotes skepticism about its own knowledge claims. Perhaps you looked at our presentation of the data about today's households (e.g., that fewer are made up of married couples with children than are made up of people living alone) and said, "Hey, those facts alone don't tell us much about people's intentions. And they don't even indicate that more people are living alone than living in couples today." If so, we applaud your skepticism. One way in which healthy skepticism is generated is through the communities of knowledge seekers. Each member of these communities has a legitimate claim to being a knowledge producer, as long as he or she conforms to other standards of the method (mentioned later). When intersubjective agreement eludes a community of scientists because various members get substantially different results, it's an important clue that knowledge remains elusive and that knowledge claims should be viewed with skepticism. Until the 1980s, for instance, the medical community believed that stomach ulcers were caused by stress. Then a couple of Australian scientists, Barry Marshall and Robin Warren, found, through biopsies, that people with ulcerous stomachs often had *Helicobacter pylori* bacteria lurking nearby and theorized that the bacteria had caused the ulcers. Marshall and Warren thus became skeptical of the medical community's consensus about the causes of ulcers. Few members of that community took them seriously, however, until Marshall, experimenting on himself, swallowed *H. pylori* and developed pre-ulcerous symptoms. Subsequently, Marshall and Warren found that most stomach ulcers could be successfully treated with antibiotics. For their work in discovering the bacterium that causes stomach inflammation, ulcers, and cancer, Marshall and Warren won the 2005 Nobel Prize for Physiology or Medicine (Altman, 2005: D3; Marshall, 2002).

The Extensive Use of Communication

Another related ideal of the scientific method is *adequate communication* within the community of knowledge seekers, implicit in the scientific procedures of referring to previous published accounts in an area and of sharing findings with others. Unlike insights that come through personal inquiry, scientific insights are supposed to be subjected to the scrutiny of the larger community and, therefore, need to be as broadly publicized as possible. Communication of scientific findings can be done through oral presentations (as at conferences) or written ones (especially through publication of articles and books). For example, Hoffnung has presented her findings about college students' plans for the future at scientific conferences and in scholarly articles. In Chapter 4, she offers you a glimpse of her findings. Increasingly, new technology (discussed in Chapter 12) allows for increased communication about research and the exchange of data. You, for instance, can use a variety of print and online resources that your college library may make available to you to find references to, and even copies of, research articles about your topic. We did and found research by Barr and Simons (2012) and Johnstone and Lee (2009) that supplement Hoffnung's work and our interests in the kinds of family lives that young people envision

by examining recent survey data on how young men and women are expecting to deal with work–family conflicts in their future. Once findings are communicated, they then become grist for a critical mill. Others are thereby invited to question (or openly admire) the particular approach that's been reported or to try to reproduce (or *replicate*) the findings using other approaches or other circumstances. Adequate communication thus facilitates the ideal of reaching intersubjective "truths."

Testing Ideas Factually

These communal aspects of the scientific method are complemented by at least three other goals, goals that underscore the care admired by scientists: that "knowledge" be *factually testable*, that it be *logical*, and that it be *explicable through theory*. Factual testability means that scientific knowledge, like personal inquiry, must be supported by observation. Unlike positivists, post-positivists don't insist that observations themselves can't be affected by personal biases or theories. For example, people concerned about environmental warming might be most likely to notice that glaciers are melting. All observations are fallible, but most post-positivists would nonetheless accept the notion that if what is being proposed as knowledge doesn't stand up to many people's observation, it's not really knowledge at all. And rather than simply using evidence to support a particular view, as we sometimes do in personal inquiry, scientific observation also includes trying to imagine the kinds of observations that would undermine the view and then pursuing those observations. Confronted with the Census data about, say, the increase in the number of households with people living alone, we questioned whether those data were in fact the best data for answering our question and imagined other possible sources (e.g., a questionnaire survey of our own). Similarly, when confronted with the idea that people of Columbus's day held a "flat-Earth" view of the world, historians consulted the writings of scientists of that day and earlier and found evidence of a pretty widespread belief that the earth was spherical—surprisingly similar to our beliefs today (Gould, 1995: 38–50). The pursuit of counterexamples, and the parallel belief that one can never fully prove that something is true (but that one can cast serious doubt on the truth of something), is a key element of the scientific method.

The Use of Logic

Scientists are often thought of being especially logical. Television characters from *Star Trek*'s Mr. Spock to *The Big Bang Theory*'s Sheldon Cooper and Amy Farrah Fowler are meant to embody the desirability of logical reasoning in science. Spock, Cooper, and Fowler would all recognize the logical fallacy in appealing to authority we've already mentioned. (Just because someone is an authority in field X doesn't necessarily mean that that person's claim, C, in field Y is true.) Spock, Cooper, and Fowler, like most scientists, approve of logical reasoning. You used logical reasoning, too, if, when confronted with the Census data about the compositions of households in America in 2010, you wondered if those data were adequately related to the question about young people's plans.

Like many scientists, Spock, Cooper, and Fowler are quick to point out illogical reasoning. If young Roger or Emily had proposed the notion that all families consisted of two biological parents and their offspring and presented the reasoning "We belong to such families. Therefore everyone must," then Spock, Cooper, or Fowler might have responded, "That's illogical." One tenet of the scientific method is that one must adhere, as closely as possible, to the rigors of logical thinking. Few practicing scientists invoke the scientific standard of logic as frequently as Spock, or even Cooper and Fowler, did, but fewer still would wish to appear as illogical as Roger and Emily were in their reasoning.

STOP & THINK *Sam Roberts (2007) broke the news that in 2005, for the first time, more American women were living without a husband than with one. Does it follow logically from this news that more than 50 percent of American women were unmarried?*

Theoretical Explanation

Logically, the fact that more American women are living without a spouse than with one doesn't mean that more than 50 percent of women are unmarried. In fact, in 2005, almost 54 percent of American women *were* married, but almost 5 percent of them were either legally separated or said their spouses weren't living at home for some reason (Roberts, 2007). Nonetheless, by 2005, 51 percent of American women were living without a spouse. Does this single observation, interesting as it is, constitute "knowledge"? Not according to most scientists or, in fact, most other people. In order for it to rise to the level of knowledge, most people (and scientists) would want some kind of explanation of the fact or some kind of **theory**. Roberts (2007) provides such an explanation in terms of two trends: (1) younger women marrying later and (2) older women not remarrying after being widowed or after divorce. The fact that one might logically deduce from these two trends that fewer women would be living with spouses than before really enhances your sense that you know something. Doesn't it?

theory, an explanation about how and why something is as it is.

The relative strengths of the scientific method, then, derive from several attributes of its practice. Ideally, the method involves communities of relatively equal knowledge seekers (scientists) among whom findings are communicated freely for careful scrutiny. Knowledge claims are ideally subjected to factual tests and to tests of logical reasoning. They're also supposed to be explicable in terms of theory.

STOP & THINK *Suppose I submit a research report to a journal and the journal's editor writes back that the journal won't publish my findings because expert reviewers don't find them persuasive. Which of the strengths of the scientific method is the editor relying on to make his or her judgment?*

THE USES AND PURPOSES OF SOCIAL RESEARCH

By now, you might be saying, "OK, research methods may be useful for finding out about the world, for solving mysteries. But aren't there any more practical reasons for learning them?" We think there are.

We hope, for instance, that quite a few of you will go on and apply your knowledge of research methods as part of your professional lives. We know that many of our students have done so in a variety of ways: as graduate students and professors in the social sciences, as social workers, as police or correctional officers, as analysts in state agencies, as advocates for specific groups or policies, as community organizers, or as family counselors, to name but a few. These students, like us, have tended to direct their research toward two different audiences: toward the scientific community in general, on the one hand, and toward people interested in specific institutions or programs, on the other. When they've engaged the scientific community in general, as Sandra Enos does in the research, reported in Chapter 10, on how women in prison mother their children, they've tended to engage in what is sometimes called **basic research**. Enos reports to other scientists, for instance, that, while incarcerated, white women tend to place their children in the care of their husbands or the state (e.g., foster care), and African American women tend to place their children in the care of their own mothers. Basic research is designed to add to our knowledge and understanding of the social world for the sake of that knowledge and understanding. Much of the focal research in this book, including both Enos's work on women in prison (Chapter 10) and Hoffnung's work on college students' plans about (and achievements in) their futures (Chapter 4), is basic research.

basic research, research designed to add to our fundamental understanding and knowledge of the social world regardless of practical or immediate implications.

When our former students have addressed a clientele with interests in particular institutions or programs, like the students quoted in the left-hand column of Box 1.1, they've tended to engage in what is called **applied research**, which aims to have practical results and produce work that is intended to be useful in the immediate future. Schools, legislatures, government and social service agencies, health care institutions, corporations, and the like all have specific purposes and ways of "doing business." Applied research, including evaluation research and action-oriented research, is designed to provide information that is immediately useful to those participating in institutions or programs. Such research can be done for or with organizations and communities and can include a focus on the action implications of the research. Evaluation research, for example, can be designed to assess the impact of a specific program, policy, or legal change. It often focuses on whether a program or policy has succeeded in effecting intentional or planned changes. Participatory action research, which we'll discuss in Chapter 14, is done jointly by researchers and community members. It often has an emancipatory purpose. Participatory action research focuses on the differentiated consequences of social oppression and "lifts the multiple stories and counter stories dwelling within any complex institution or social arrangement" (Fine and Torre, 2006: 255). You'll find an example of applied research in Chapter 14, where Harrison and Norton-Hawk assess the needs of incarcerated women in Ecuador.

applied research, research intended to be useful in the immediate future and to suggest action or increase effectiveness in some area.

Even if you don't enter a profession in which you'll do research of the sort we discuss in this book, we still think learning something about research methods can be one of the most useful things you do in college. Why? Oddly, perhaps, our answer implicates another apparently esoteric subject: theory.

When we speak of theory, we're referring not only to the kinds of things you study in specialized social theory courses, although we do include those things. We view theories as explanations about how and why things are as they are. In the case of social theories, the explanations are about why people "behave, interact, and organize themselves in certain ways" (Turner, 1991: 1). Such explanations are useful, we feel, not only because they affect how we act as citizens—as when, for instance, we inform, or fail to inform, elected representatives of our feelings about matters such as welfare, joblessness, crime, and domestic violence—but also because we believe that Charles

BOX 1.1 Two Kinds of Research

Examples of Applied Research

Here are just a few examples of applied research some of our graduates have done or are planning to do:

"When I worked for the Department of Children, Youth, and Their Families, we conducted a survey of foster parents to see what they thought of foster care and the agency's services. The parents' responses provided us with very useful information about the needs of foster families, their intentions for the future, and the kinds of agency support that they felt would be appropriate." – *Graduate employed by a state Department of Children, Youth, and Their Families*

"As the Department of Corrections was under a court order because of crowding and prison conditions, it was important that we plan for the future. We needed to project inmate populations and did so using a variety of data sources and existing statistics. In fact, we were accurate in our projections." – *Graduate employed by a state Department of Corrections*

"I'm working at a literacy program designed to help children in poverty by providing books for the preschoolers and information and support for their parents. I've realized that while the staff all think this is a great program, we've never really determined how effective it is. It would be wonderful if we could see how well the program is working and what we could do to make it even better. I plan on talking to the director about the possibility of doing evaluation research." – *Graduate employed by a private pediatric early literacy program*

Examples of Basic Research

Here are three more examples of basic research that former students and current colleagues have done:

Paul Khalil Saucier (2008) conducted fieldwork in Greater Boston from 2007 to 2008 to explore ways in which second-generation Cape Verdean youth negotiate their identity as Cape Verdean and as black. He paid particular attention to hip-hop culture to see how it was used as a site where new identities were fashioned and reworked.

Desiree Ciambrone (2001) interviewed women with human immunodeficiency virus (HIV) infection and found that many did not consider HIV to be the most devastating event in their lives. She found, rather, that violence, mother–child separation, and drug use were seen to be more disruptive than HIV infection. You may read more about ethical considerations involved in Ciambrone's work in Chapter 3.

Mikaila Arthur (2007) examined the rise of women's studies, Asian-American studies, and queer studies programs in colleges and universities in the United States. She found, among other things, that while external market forces were weak predictors of curricular change, pressure by students and faculty for such change was the necessary condition for the rise of such programs.

Lemert (1993: 1) is right when he argues that "social theory is a basic survival skill." Individuals survive in society to the extent that they can say plausible and coherent things about that society.

Useful social theory, in our view, concerns itself with those things in our everyday lives that can and do affect us profoundly, even if we are not aware of them. We believe that once we can name and create explanations (or create theories) about these things, we have that much more control over them. At the very least, the inability to name and create such explanations leaves us powerless to do anything. These explanations can be about why some people live alone and some don't, why some are homeless and some aren't, why some commit crimes and some don't, why some do housework and some don't, and why some people live to be adults and some don't. These explanations can come from people who are paid to produce them, like social scientists, or from people who are simply trying to make sense of their lives. Lemert (1993) reminds us that the title for Alex Kotlowitz's (1991) *There Are No Children Here* was first uttered by the mother of a 10-year-old boy, Lafeyette, who lived in one of Chicago's most dangerous public housing projects. This mother observed, "But you know, there are no children here. They've seen too much to be children" (Kotlowitz, 1991: 10). Hers is eloquent social theory, with serious survival implications for those living in a social world where nighttime gunfire is commonplace.

We'll have more to say about theory and its connection to research methods in the next chapter. But, for now, we'll simply say that we believe the most significant value of knowledge of research methods is that it permits a critical evaluation of what others tell us when we and others develop social theory. This critical capacity should, among other things, enable us to interpret and use the research findings produced by others. Our simple answer, then, to the question about the value of a research methods course is not that it adds to your stock of knowledge about the world, but that it adds to your knowledge of *how* you know the things you know, *how* others know what they know, and ultimately, *how* this knowledge can be used to construct and evaluate the theories by which we live our lives.

The major purposes of scientific research, in many ways overlapping with the "uses" (of, say, supplying other scientists with basic information, supplying interested persons with information about programs, or developing theories) we've mentioned, include *exploration*, *description*, *explanation*, and *evaluation*. Although any research project can have more than one purpose, let's look at the purposes individually.

Exploratory Research

exploratory research, groundbreaking research on a relatively unstudied topic or in a new area.

In **exploratory research**, the investigator works on a relatively unstudied topic or in a new area, to become familiar with this area, to develop some general ideas about it, and perhaps even to generate some theoretical perspectives on it. Exploratory research is almost always inductive in nature, as the researcher starts with observations about the subject and tries to develop tentative generalizations about it (see Chapter 2).

An example of exploratory research is Enos's study of how women inmates manage to mother their children when they're in prison, presented in Chapter 10. Enos began by observing not only how much the U.S. prison population has grown in recent decades, but also how much the population of women prisoners had grown—between just 1985 and 2000, it had increased by more than 300 percent. Moreover, she noted that the imprisonment of women created a special problem for their children: where and with whom to live. Enos wondered how these women were dealing with an increasingly urgent issue: the "managing of motherhood from prison." Enos wondered whether she'd be able to spot patterns if, first, she observed the interactions of incarcerated women and their children in a prison's weekend "parenting" program and, then, if she interviewed 25 women inmates intensively. What she noticed was that white and African American women had quite distinctive approaches to placing their children while incarcerated (e.g., African American women were much more likely to place their children with their own mothers or other relatives than white women) and that these patterns had a lot to do with the distinctive ways they'd experienced childhood themselves (e.g., African American women were less likely than white women to blame the people in their childhood families for the behavior that led them to prison). Similarly, Silva (2012) interviewed young working-class men and women to find out how they marked the transition to adulthood, now that access to steady, well-paying jobs has become difficult and an unreliable external marker. She found that both men and women now tend to look inward for feelings that signal that they have overcome the pain of early family trauma. But she finds that they almost always need a witness to this transformation, be it a therapist, a support group, or a family member, to fully believe that it has occurred. Both Enos and Silva, then, did exploratory research—research into a relatively new subject (mothers in prison and working-class men and women in a post-industrial economy that makes well-paying jobs almost unattainable), collected data through observations or in-depth interviews of a relatively few cases, and tried to spot themes that emerged from their data. Although exploratory analyses, with their focus on relatively unexplored areas of research, do not always employ this kind of thematic analysis of data on relatively few cases, when they do they undertake what is called **qualitative data analysis**, or analysis that tends to involve the interpretation of actions or the representations of meanings in words (see Chapter 15).

qualitative data analysis, analysis that results in the interpretation of action or representation of meanings in the researcher's own words.

Descriptive Research

descriptive research, designed to describe groups, activities, situations, or events.

In a **descriptive research**, a researcher describes groups, activities, situations, or events, with a focus on structure, attitudes, or behavior. Researchers who do descriptive studies typically know something about the topic under study before they collect their data, so the intended outcome is a relatively accurate and precise picture. Examples of descriptive studies include the kinds of polls done during political election campaigns, which are intended to describe how voters intend to vote, and the U.S. Census, which is designed to describe the U.S. population on a variety of characteristics. The Census Bureau description of the makeup of households in the United States (2010) is just that a description, in this case of the whole U.S. population. As the pie chart in Figure 1.1 indicates,

about 26.7 percent of American households in 2010 were made up of people living alone. Unlike exploratory studies, which might help readers become familiar with a new topic, descriptive studies can provide a very detailed and precise idea of the way things are. They can also provide a sense of how things have changed over time. Thus, a study by Clark and Nunes (2008) of the pictures in introductory sociology textbooks found that, while in textbooks of the 1980s only 34 percent of identifiable individuals shown in pictures were women, in textbooks of the 2000s almost 50 percent of those images were of women. And Armstrong, England and Fogarty's (2012) investigation of a large sample of heterosexual, undergraduate women showed that sex was better in the context of a relationship than in hookups. Descriptive research, in its search for a picture of how the land lies, can be based upon data from surveys (as the Census and the Armstrong, England, and Fogarty reports are) or on content analyses (as the Clark and Nunes study is). Often, as in the case of the Census Bureau's study of American households, descriptive research generates data about a large number of cases: there were actually 117,538,000 households enumerated by the census of 2010. To analyze these data meaningfully, descriptive researchers frequently use **quantitative data analysis**, or analysis that is based on the statistical summary of data (see Chapter 15).

quantitative data analysis, analysis based on the statistical summary of data.

Explanatory Research

Unlike descriptive research, which tends to focus on *how* things are, the goal of **explanatory research** is to explain *why* things are the way they are. Explanatory research looks for causes and reasons. Unlike exploratory research, which tends to be inductive, building theoretical perspectives from data, explanatory research tends to be deductive, moving from more general to less general statements. Thus, for instance, explanatory research often uses preexisting theories to decide what kinds of data should be collected (see Chapter 2). In a study present in Chapter 7, we, Emily and Roger, asked ourselves the explanatory question, "Why are some people more likely than others to do work for pay after they retire from their regular lifetime work?" We knew that some people were likely to do it because they genuinely needed to augment their post-retirement incomes. But we believed that financial hardship couldn't possibly explain all the variation in retired people's actual participation in post-retirement work. Even some professional workers, people with decent savings and good pensions, returned to work after their official retirements. And so we did a study, primarily of professional people, to see if we could figure out why some of them were more likely than others to do post-retirement work.

explanatory research, research designed to explain why subjects vary in one way or another.

We did what many scientists do: We consulted theory. In fact, we consulted a couple of theories about retirement, one of which is "continuity theory," a theory that suggests that some people are more invested in roles, like work roles, than others.

In Chapter 2, you'll read more about continuity theory, but for now we'll just mention a key element of the theory. It expects retired people, when deciding whether to work for pay or not, to make decisions based upon how much of their self-worth was dependent on work during their working lives. From continuity theory, we derived an expectation about the length of a person's pre-retirement career and his or her likelihood of continuing to work after

retirement. After surveying people twice, once before they retired and once afterward, we found, in fact, that people who had had longer careers were considerably more likely to work after retirement than people who had had shorter careers. In our work, we describe something (the length of a professional's career) that "goes with" something else (the likelihood of working after formal retirement). In doing so, we explain this connection with a theory (continuity theory), one of the goals of the scientific method.

Explanatory analyses, with their focus on areas upon which a researcher might be able to shed theoretical light in advance of collecting data, may, like descriptive analyses, generate data about relatively large numbers of cases and employ statistical analyses to make sense of these cases. When they do, they, like many descriptive analyses, involve quantitative data analysis (see Chapter 15).

Evaluation Research

evaluation research, research designed to assess the impacts of programs, policies, or legal changes.

Although **evaluation research** can be seen as a special kind of explanatory research, it is distinctive enough that we feel it is worth its own place. Evaluation research is research designed to assess the impacts of programs, policies, or legal changes. It often focuses on whether a program or policy has succeeded in effecting intended or planned change, and when such successes are found, the program or policy explains the change. Thus, when Schenk et al. (2010) found that working directly with women and actively addressing stigma were characteristic of the most successful interventions supporting HIV-infected children in sub-Saharan Africa, they were providing an explanation of those successes. But this is a different kind of explanation than the theoretical explanation that Roger and Emily used in explaining why some people work after retirement and others do not. We will be discussing evaluation and other applied research at much greater length in Chapter 14.

STOP & THINK *Suppose you've been asked to learn something about the new kinds of communities that have arisen out of people's use of tweets on Twitter. Of the four kinds of research outlined earlier (exploratory, descriptive, explanatory, and evaluation), what kind of study have you been asked to do?*

SUMMARY

We've argued here that, at its best, research is like trying to solve a mystery, using the scientific method as your guide. We've distinguished the scientific approach of social research methods from two other approaches to knowledge about the social world: a reliance on the word of "authorities" and an exclusive dependence on "personal inquiry." We've suggested that the scientific method compensates for the shortcomings of these two other approaches in several ways. First, science emphasizes the value of communities of relatively equal knowledge seekers who are expected to be critical of one another's work. Next, science stresses the simultaneous importance of empirical testing, logical reasoning, and the development or testing of theories that make sense of the social world. Two communities that researchers report to are the

community of other scientists (basic research) and communities of people interested in particular institutions or programs (applied research). We've argued that knowing research methods may have both professional and other practical benefits, not the least of which is the creation of usable theories about our social world. We suggest that social research methods can help us explore, describe, and explain aspects of the social world, as well as evaluate whether particular programs or policies actually work.

EXERCISE 1.1

Ways of Knowing about Social Behavior

This exercise compares our recollections of our everyday world with what we find out when we start with a research question and collect data.

Part 1: Our Everyday Ways of Knowing

Pick any *two* of the following questions and answer them based on your recollections of past behavior.

1. What does the "typical" student wear as footwear to class? (Will the majority wear shoes, boots, athletic shoes, sandals, and so on?)
2. While eating in a school cafeteria, do most people sit alone or in groups?
3. Of those sitting in groups in a cafeteria, are most of the groups composed of people of the same gender or are most mixed-gender groups?
4. Of your professors this semester who have regularly scheduled office hours, how many of them will be in their offices and available to meet with you during their next scheduled office hour?

Based on your recollection of prior personal inquiry, describe your expectations of social behavior.

Part 2: Collecting Data Based on a Research Question

Use the two questions you picked for Part 1 as "research questions." With these questions in mind, collect data by carefully making observations that you think are appropriate. Then answer the same two questions, but this time base your answers on the observations you made.

Part 3: Comparing the Ways of Knowing

Write a paragraph comparing the two ways of knowing you used. (For example, was there any difference in accuracy? Was there any difference in ease of collecting data? Which method do you have more confidence in?)

EXERCISE 1.2

Social Science as a Community Endeavor

This exercise is meant to reinforce your appreciation of how important the notion of a community of relatively equal knowledge seekers is to social research. We'd like you to read any one of the "focal research" articles in subsequent chapters and simply analyze that article as a "conversation" between the author and one or two authors who have gone before. In particular, summarize the major point of the article, as you see it, and see how the author uses that point to criticize, support, or amend a point made by some other author in the past.

1. What is the name of the focal research article you chose to read?
2. Who is (are) the author(s) of this article?

3. What is the main point of this article?
4. Does the author seem to be criticizing, supporting, or amending the ideas of any previous authors to whom she or he refers?
5. If so, which author or authors is/are being criticized, supported, or amended in the focal research?
6. Write the title of one of the articles or books with which the author of the focal research seems to be engaged.
7. Describe how you figured out your answer to the previous question.
8. What, according to the author of the focal research, is the central idea of the book or article being discussed?
9. Does the author of the focal research finally take a critical or supportive position in relation to this idea?
10. Explain your previous answer.

EXERCISE 1.3

Ways of Knowing about the Weather

This exercise is designed to compare three ways of knowing about the weather.

Part 1:

Knowledge from Authorities. The night before, see what the experts have to say about the weather for tomorrow by watching a television report, listening to a radio newscast, or checking online. Write what the experts said about tomorrow's weather (including the temperature, the chances of precipitation, and the amount of wind).

Knowledge from Casual Personal Inquiry. That day, before you go outside, look through only one window for a few seconds but don't look at a thermometer. After taking a quick glance, turn away, and then write down your perceptions of the weather outside (including the temperature, the amount and kind of precipitation, and the amount of wind).

Knowledge from Research. Although we're not asking you to approximate the entire scientific method (such as reviewing the literature and sharing your findings with others in a research community), you can use some aspects of the method: specifying the goals of your inquiry and making and recording careful observations.

Your research question is, "What is the weather like outside?" To answer the question, use a method of collecting data (detailed observation of the outside environment) and any tools at your disposal (thermometer, barometer, and so on). Go outside for at least five minutes and make observations. Then come inside and write down your observations of the weather outside (including the temperature, the amount and kind of precipitation, and the amount of wind).

Part 2: Comparing the Methods

Write a paragraph comparing the information you obtained using each of the ways of knowing. (For example, was there any difference in accuracy? Was there any difference in ease of collecting data? Which method do you have the most confidence in?)

CHAPTER 2

Theory and Research

CHAPTER OBJECTIVES

This chapter is designed to help students

- **Know what concepts, variables and hypotheses are**
- **Distinguish between independent and dependent variables**
- **Learn the criteria for demonstrating a causal relationship**
- **Identify antecedent, intervening and extraneous variables**
- **Understand the ways in which research informs theory, particularly:**
  1. **To test theory, through a process of deduction and observation**
  2. **To build theory, through a process of induction from observation**

CHAPTER OUTLINE

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CONCEPTS, VARIABLES, AND HYPOTHESES

We imagine that you've given some thought as to whether abortion is moral or not and therefore whether it should be legal or not. But have you ever considered the ways in which legalized abortion might be associated with legal (or illegal) behaviors of other kinds? In this chapter, on the relationship between theory and research, we will begin with an example that forces us to think about such an association. Let's examine Box 2.1, a summary of a theory by John Donohue and Steven Levitt that connects the legalization of abortion in the early 1970s and a decrease in crime rates in the United States in the early 1990s. You'll recall from Chapter 1 that a theory is an explanation of the hows and whys of something.

concepts, words or signs that refer to phenomena that share common characteristics.

Donohue and Levitt's theory about the connection between abortion legalization and crime rates, like all theories, is formulated in terms of **concepts**, which are words or signs that refer to phenomena that share common characteristics. Some, but not all, of these concepts refer to phenomena that are, at least for the purposes of the theory, relatively fixed or invariable in nature. Donohue and Levitt, for example, refer to the "high-crime late adolescent years" and "birth cohort." These concepts require clarification for the purposes of research, or what researchers call **conceptualization**, but once defined, they do not vary. For Donohue and Levitt, the high-crime late adolescent years begin at about 17 years of age, and a birth cohort is those born in a calendar year. The first birth cohort in the United States that could have been affected by the 1973 *Roe v. Wade* decision would have been born in 1974; therefore Donohue and Levitt expect that there should have been a diminution in this cohort's crime rate in comparison with previous cohorts 17 years later, or about 1991.

conceptualization, the process of clarifying what we mean by a concept.

STOP & THINK *Do you see how the concept of a "high-crime late adolescent years" is relatively fixed? How its definition does not admit much variation? (It begins at about 17 and ends, one guesses, at about 19 years of age.) Can you identify concepts used by Donohue and Levitt that could vary from one person or birth cohort to another?*

BOX 2.1 A Theoretical Statement: Why the Legalization of Abortion Contributed to the Decline of Crime Rates

In 2001, John Donohue and Steven Levitt published a highly controversial research report, "The Impact of Legalized Abortion on Crime," in which they claimed that the introduction of legalized abortion in the United States in the early 1970s led to a drop in crime in the early 1990s. The key theoretical argument in Donohue and Levitt's paper was that abortion "is more frequent among parents who are least willing or able to provide a nurturing home environment" (2001: 386). Moreover, children from less nurturing home environments are more likely than others to engage in criminal activity, once they reach the "high-crime late adolescent years" (386). Therefore, to the extent that the legalization of abortion in the early 1970s enabled parents who would provide the least nurturing home environments to avoid having children, it also led to a lower crime rate when the affected birth cohort reached its late adolescent years.

In addition to using concepts that identify phenomena that are relatively fixed in nature, which don't vary for the purposes of the research, like "high-crime late adolescent years," Donohue and Levitt use concepts such as "nurturing home environment" and "criminal activity" that might vary from one person to another or from one birth cohort to another. A person might experience a nurturing home or not and might engage in criminal activity later in life or not. A higher percentage of the children in one birth cohort, for instance, might experience a nurturing home environment than those in another birth cohort. A higher percentage of the people in one birth cohort might engage in criminal activity when they are 17 years of age than those in another birth cohort. Whether one focuses on individuals or birth cohorts would, of course, make a big difference for a particular research project. Individuals and birth cohorts are different units of analysis, which are, as you may recall, units about which one collects information. But what do we call the information that is gathered about these units? In the sciences, this information is in the form of categories or values of variables—or categories of characteristics that can vary from one unit of analysis to another or for one unit of analysis over time. One can also think of a **variable** as a concept that varies.

variable, a characteristic that can vary from one unit of analysis to another or for one unit of analysis over time.

STOP & THINK

The lowest possible value for the percentage of a birth cohort that has experienced a nurturing home environment is zero percent. What's the highest possible value? What are the lowest and highest possible values for the percentage of a birth cohort that engages in criminal activity when it is 17 years old?

STOP & THINK AGAIN

Suppose, in testing Donohue and Levitt's theory, you wanted to make the individual, not the birth cohort, your unit of analysis. What categories could you use to determine whether someone engaged in criminal activity after he or she reached his or her seventeenth birthday?

To be a variable, a concept must have at least two categories. For the variable "gender," for instance, we can use the categories "female" and "male." Gender is most frequently used to describe individual people. As we've indicated, the variable "criminal activity" used by Donohue and Levitt, however, can be meant, in the theoretical formulation explained earlier, to describe a birth cohort. However, getting information about a birth cohort is very difficult, so Donohue and Levitt use substitutes for birth cohort, focusing instead on the crime rates for the whole U.S. population in different years. They end up measuring the concept of "criminal activity" in a variety of ways. One of these ways is as a characteristic of the whole nation and in terms of the number of crimes committed in a year per 100,000 people (see Table 2.1). This variable could have many more than two categories, and perhaps even an infinite number.

STOP & THINK *Notice that the crime rate is a variable characteristic of the United States because it can vary over time. Notice also that this variable could take on many, rather than just two, values. What pattern in Table 2.1 do you spot in the U.S. crime rate between 1985 and 2009? In what year did a reversal of the previous pattern of increases begin? When was the first cohort affected by the 1973* Roe v. Wade *decision born? How many years was this before the downturn in the national crime rate? How might this be significant for the thesis advanced by Donohue and Levitt?*

TABLE **2.1**
What Happened to the Crime Rate in the United States between 1985 and 2006?

Year	Total Crime Rate (number of crimes per 100,000 people)
1985	5,207.1
1986	5,480.4
1987	5,550.0
1988	5,664.2
1989	5,741.0
1990	5,820.3
1991	5,897.8
1992	5,660.2
1993	5,484.4
1994	5,373.9
1995	5,275.9
1996	5,086.6
1997	4,930.0
1998	4,615.5
1999	4,266.5
2000	4,124.8
2001	4,162.6
2002	4,118.8
2003	4067.0
2004	3977.3
2005	3900.5
2006	3808.1
2007	3739.0
2008	3669.0
2009	3466.0

Source: The Disaster Center (2008) and US Census Bureau, 2012a.

When we think of "crime activity" as the crime rate of the country, then, we see that it does decline at about the time that Donohue and Levitt's theory predicts: about 17 years (in 1991) after *Roe v. Wade* would have had its initial effects (in 1974). This illustrates a frequent use of theory for research: to point to variable characteristics of subjects that can be expected to be associated with each other. Thus, Donohue and Levitt are claiming that, among other things, they expect that a downturn in the crime rate should occur in jurisdictions where abortion became legal sometime earlier. Similarly, a research project that we (Emily and Roger) completed—mentioned in Chapter 1—found that people who do volunteer work before they retire are much more likely to do volunteer work after they retire than those who did not do volunteer work before retirement. Using the categories of two variables, "whether one did volunteer work before retirement" and "whether one does volunteer work after retirement," we found that "those who did volunteer work before retirement" were more likely "to do volunteer work after retirement" and "those who did not do volunteer work before retirement" were more likely "to not do volunteer work after retirement."

hypothesis, a testable statement about how two or more variables are expected to relate to one another.

The finding supported an expectation that we had derived from role theory about the way the two variables would be associated. We stated this expectation in the form of a **hypothesis**, which is a statement about how two or more variables are expected to relate to one another. We developed this hypothesis:

> People who have performed volunteer roles before retirement will be much more likely to perform such roles after retirement than people who have not performed such roles. (Chapter 7)

Note that this hypothesis links two variable characteristics of individuals: their participation in volunteer work before retirement and their participation in such work after retirement. You might also note that, like many other social science hypotheses, this one doesn't refer to absolute certainties (such as, "If one does volunteer work before retirement, one will always engage in volunteer work after retirement, and if one does not do volunteer work before retirement, one will never engage in volunteer work after retirement"). Rather, this hypothesis speaks of tendencies.

The business of research, you've probably surmised, can be complex and can involve some fairly sophisticated ideas (theory, hypotheses, concepts, and variables, to name but a few), all of which we'll discuss again later. Meanwhile, we'd like to introduce you to one more fairly sophisticated idea before moving on to a more general consideration of the relationship between research and theory. This is the idea that explanations involve, at minimum, the notion that change in one variable can affect or influence change in another. Not surprisingly, scientists have special names for the "affecting" and "affected" variables. Variables that are affected by change in other variables are called **dependent variables**—dependent because they depend on change in the first variable. **Independent variables**, on the other hand, are variables that affect change in dependent variables.

dependent variable, a variable that a researcher sees as being affected or influenced by another variable (contrast with independent variable).

independent variable, a variable that a researcher sees as affecting or influencing another variable (contrast with dependent variable).

Thus, when Donohue and Levitt hypothesize that making abortion legal leads to declines in the crime rate, they are implying that a change in the

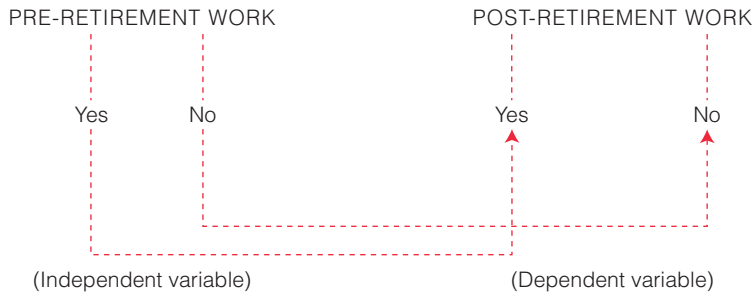

FIGURE **2.1** A Diagram of the Hypothesized Relationship Between Pre-Retirement Volunteer Work and Post-Retirement Volunteer Work

independent variable (whether abortions are legal) will cause change in the dependent variable (the crime rate). And, when we hypothesize that people who do volunteer work before retirement are more likely to do volunteer work after retirement than those who do not do volunteer work before retirement, we are suggesting that a change in the independent variable (doing or not doing volunteer work before retirement) will cause change in the dependent variable (doing or not doing volunteer work after retirement). Having an arrow stand for something like "is associated with," hypotheses can be depicted using diagrams like the one in Figure 2.1. The arrows in this diagram suggest that having done volunteer work before retirement "is associated with" doing volunteer work after retirement, while not having done volunteer work before retirement "is associated with" not doing volunteer work after retirement. And, in general, when one or more categories of one variable are expected to be associated with one or more categories of another variable, the two variables are expected to be associated with each other.

STOP & THINK *Can you draw a diagram of Donohue and Levitt's hypothesis linking the legalization of abortion to declines in criminal activity? (Hint: It might be easiest to think in terms of individuals, not cohorts or countries. What kind of person, according to Donohue and Levitt's thesis, is more likely to engage in criminal activity: someone born when abortion is legal or someone born when abortion is not legal?)*

STOP & THINK AGAIN *See if you can identify the independent and dependent variable of hypotheses that guided Burgard and Ailshire's (2013) reexamination of the hypothesis that women sleep more than men.*

We'd like to give you one more example of how to take apart a hypothesis. Let's look at the hypothesis mentioned in the previous "Stop & Think," that women sleep longer than men. Here the units of analysis are people, the independent variable is gender (which can vary from men to women), and the dependent variable is time of sleep (which can also vary from long to short). We would draw a diagram of this hypothesis as shown in Figure 2.2.

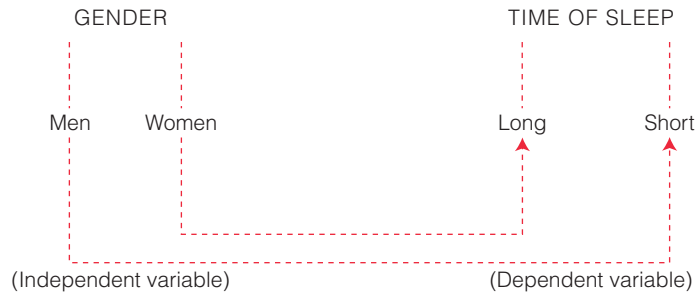

FIGURE **2.2** A Diagram of the Hypothesized Relationship Between Gender and Time of Sleep

We want to assure you that at this point we don't necessarily expect you to feel altogether comfortable with all the ideas we've introduced so far. We'll discuss them all again, so you'll gain more familiarity with them. For now, we want to emphasize a major function of theory for research: to help lead us to hypotheses about the relationship between or among variables. We'd like to turn to a more general consideration of the relationship between research and theory. But first let us say a little more, by way of a word of caution, about the difficulty of establishing causality in social science.

SOCIAL SCIENCE AND CAUSALITY: A WORD OF CAUTION

The fact that two variables are associated with each other doesn't necessarily mean that change in one variable causes change in another variable. Table 2.1 shows, generally, what Donohue and Levitt (2001), in their much more sophisticated analysis, contend: When abortion rates (the independent variable) go up, societies are likely to experience a decline in crime rates (the dependent variable) later, when the more "wanted" generation grows up. But does this mean that making abortion legal causes lower crime rates? Donohue and Levitt suggest that it does. Others argue that it doesn't.

In the social sciences, we have difficulty establishing causality for several reasons. One reason is that to show that change in one variable causes change in another, we want to be sure that the "cause" comes before, or at least not after, the "effect." But many of our most cherished methods of collecting information in the social sciences just don't permit us to be sure which variable comes first. Kornrich, Brines, and Leupp (2013), for instance, found that married couples who reported more traditional housework patterns (i.e., women doing more housework than men) also said, in a questionnaire survey, that they had higher sexual frequency than couples who shared housework more. The association of these two variables, however, doesn't prove that the division of household labor causes the higher frequency of sex because those answering the survey reported their behavior about both variables at the same time. The researchers can't tell whether sexual frequency came before the division of household labor or the division of household labor came before sexual

frequency. It would seem that Donohue and Levitt's research at least passes the time-order test: that the "cause" (abortions, subsequent to *Roe v. Wade*) comes before the "effect" (a decline in crime rates in the 1990s). In this case, however, there can remain doubt about whether the "right" time "before" has been specified. Donohue and Levitt, in their sophisticated statistical analysis, make very plausible guesses about appropriate time "lags," or periods over which abortion will have its greatest effects on crime, but even they can't be sure that their "lags" are exactly right.

STOP & THINK *Donohue and Levitt (2001: 382) think there was something pretty significant about the 17 years between when* Roe v. Wade *would have affected its first birth cohort (1974) and the downturn, beginning in 1991, in the overall crime rate in the United States. Can you see any reasons why 17 years might be a significant length of time? Can you imagine, assuming that abortion has any effect on crime, why one might expect a shorter or longer period of time between the legalization of abortion and the onset of significant declines?*

Another technical problem with establishing causality is that even if we can hypothesize the correct causes of something, we usually can't demonstrate that another factor isn't the reason why the "cause" and "effect" are associated. We might be able to show, for instance, that members of street gangs are more likely to come from single-parent households than nonmembers. However, because we're not likely to want or be able to create street gangs in a laboratory, we can't test whether other things (like family poverty) might create the association between "family structure" (an independent variable) and "street gang membership" (a dependent variable). Similarly, it's possible that some "other thing" (like swings in the economic cycle) might create conditions that make "abortion rates" (people may be more likely to have more abortions during economic downturns) and "subsequent crime rates" (people may be less likely to commit crimes during economic upturns) go together. Doing experiments (discussed in Chapter 8) is most useful in demonstrating causality, but this strategy frequently doesn't lend itself well to ethical and practical reasons to social science investigations.

antecedent variable, a variable that comes before both an independent variable and a dependent variable.

The idea of a third variable, sometimes called an **antecedent variable**, which comes before, and is actually responsible for, the association between an independent variable and a dependent variable, is so important that we'd like to give you another example to help you remember it. Firefighters will tell you of the association between the number of firefighters at a fire (an independent variable) and the damage done at the fire (a dependent variable): that the more firefighters at a fire, the more damage occurs.

STOP & THINK *Can you think of an antecedent variable that explains why fires that draw more firefighters are more likely to do more damage than fires that draw fewer firefighters?*

Perhaps it occurred to you that a characteristic of fires that would account for both the number of firefighters drawn to them and the amount of damage done is the size of the fire. Smaller fires tend to draw fewer firefighters and do less damage than larger fires. In this case, the antecedent variable, the size of the fire, explains why the independent variable and the dependent variable are associated. When this happens, when an antecedent variable provides such an explanation, the original association between the independent variable and the dependent variable is said to be **spurious**, or non-causal. Neither one causes the other; their association is due to the presence of an antecedent variable that creates the association. It is only when the association between an independent variable and a dependent variable is non-spurious (not generated by some third variable acting on the two) that we can conclude that it is causal. But this is hard to demonstrate, because it means taking into account *all possible* antecedent variables, of which there are an infinite number.

spurious, non-causal.

The three conditions that must exist before we can say an independent variable "causes" a dependent variable are, then:

1. the two variables are associated in fact. In the case of the fires, this would mean showing that fires that drew many firefighters actually had more damage than other fires. This is the condition of *empirical association*.
2. the independent variable, in fact, precedes, or at least doesn't come after, the dependent variable. In the case of the fires, this would mean showing that fire damage never came before the arrival of the firefighters. This is the condition of *temporal precedence* or *time order*.
3. there is no third variable, antecedent to the independent variable and the dependent variable, that is responsible for their association. In the case of the fires, this would mean showing that there is no variable, like the size of the fire, that led to the association between the number of firefighters at the fire and the damage done at the fire. This is the condition of *elimination of alternative explanations* (or *demonstrating non-spuriousness*).

Most social science research designs make it difficult to establish the condition of temporal precedence and make it impossible to establish the condition of non-spuriousness, so we can rarely say we're sure that one thing causes another. In fact, only the experimental design is meant to establish causality. We often settle for establishing the first condition, the condition of empirical association, knowing that it is a necessary condition for, but not a completely satisfactory demonstration of, causality.

STOP & THINK *Philip Maymin (reported by Pothier [2009]) reports, after studying the last fifty years of popular music and over 5,000 hit songs, that when the stock market is jumpy, we prefer music with a steady beat (like Kanye West's "Heartless"), but when the stock market is calm, we prefer music with more unpredictable beats (like Sean Paul's "Like Glue"). Assuming Maymin is right, which of the conditions that must exist to show that market behavior affects our musical tastes seems to hold? Which one or ones has not yet been demonstrated?*

Proving causality is, as we've suggested, pretty tough to do, partly because one has to show that no third variable, antecedent to the independent variable and the dependent variable, is responsible for their association. Because there are, in principle, an infinite number of antecedent variables for all combinations of independent and dependent variables, eliminating all of them as possible instigators of the relationship is impossible. While we're thinking about causation, though, we'd like to mention two other kinds of variables—intervening and extraneous variables—whose presence would not challenge the possibility that an independent variable causes variation in a dependent variable. An **intervening variable** is a variable that comes between an independent and a dependent variable. Here, the researcher conceives of the independent variable affecting the intervening variable, which in turn is conceived to affect the dependent variable. Donohue and Levitt, for instance, believe legalizing abortion means that more children experience nurturing homes and that this experience reduces their likelihood of crime. Here, as in the case of all intervening variables, the experience of a nurturing home is posited to be the reason why legalizing abortion reduces the likelihood of crime. An **extraneous variable** is a variable that the researcher sees as having an effect on the dependent variable in addition to the effect of the independent variable. Unlike antecedent variables, whose presence may demonstrate that the relationship between the independent and the dependent variable is non-causal, and intervening variables, whose presence may account for how an independent variable affects a dependent variable, an extraneous variable simply provides a complementary reason for variation in the dependent variable. Social scientists rarely seek a single cause for given effects. They tend, instead, to look for multiple reasons for variation in a dependent variable. Thus, for instance, while Donohue and Levitt were initially interested in the effects of legalizing abortion on rates of crime, Levitt (2004) eventually explained the 1990s downturn in the crime rate in terms of four factors, each extraneous to the others: the legalization of abortion, an increase in the number of police, a rising prison population, and a waning crack epidemic.

intervening variable, a variable that comes between an independent and a dependent variable.

extraneous variable, a variable that has an effect on the dependent variable in addition to the effect of the independent variable.

THE RELATIONSHIP BETWEEN THEORY AND RESEARCH

If theories are explanations of the hows and whys of things, then good *social* theories might be considered to be theories that enable people to articulate and understand something about everyday features of social life that had previously been hidden from their notice. We begin this section with two examples of social theories used by the social-scientist authors of focal research pieces that we use later in this text. Although the complete articles are included in later chapters, here we will excerpt the authors' descriptions of a theory they've employed or developed through their research. The first excerpt is from our research on retirement that we include in Chapter 7.

STOP & THINK *As you read each excerpt, see if you can guess whether it appears before or after the authors' presentation of their own research.*

FOCAL RESEARCH

Excerpt from "Moving On? Continuity and Change after Retirement": Role Theory

By Emily Stier Adler and Roger Clark

Role theory (e.g., Ashforth, 2001; Wang, 2007) suggests that to the extent people are highly invested in a particular role, their feelings of self-worth are related to the ability to carry out that role. Role theorists also argue that the loss of roles can lead to depression or anxiety. We posit, then, that after retirement, to the extent possible, people will retain previous roles because doing so enables them to maintain feelings of self-worth and avoid feelings of anxiety and depression. Moreover, we posit that pre-retirement expressed desires to perform new roles (like new volunteer roles) after retirement are less likely to be based upon the same emotional calculus of self-worth, depression, and anxiety that informs the desire to continue performing a pre-retirement role. In fact, we expect that all workers have at least some cognitive access to the emotional and psychological needs that work roles have satisfied for them and that their plans to do some kind of work after retirement will therefore be related to whether they actually work for pay after retirement.

References

Ashforth, B. 2001. *Role transitions in organizational life*. Mahwah, NJ: Erlbaum.

Wang, M. 2007. Profiling retirees in the retirement transition and adjustment process: Examining the longitudinal change patterns of retirees' psychological well-being. *Journal of Applied Psychology* 92(2): 455–474.

Our second excerpt is from Marci Cottingham's research on football fans that is included in Chapter 11.

FOCAL RESEARCH

Excerpt from "The Terrible Towel and Fair-Weather Fans: Steelers Nation as a Quasi-Religion"

By Marci D. Cottingham

Furthermore the study reveals an important feature of this quasi-religion [that of Pittsburgh Steelers football fans]: its emphasis on experience and emotion over cognition and formalized beliefs. Fans do not adhere to an official set of beliefs about the team or the game, but rather hold an informal set of tacit beliefs about appropriate behavior and the knowledge base that signal a truly devoted fan. Their emotional response to profane treatment of the Terrible Towel and Ben Roethlisberger suggests a moral order among fans that is neither codified nor explicitly stated. Lacking a set of formal beliefs, however, should not disqualify the group from consideration as a quasi-religion. To do so would be to ignore the profound meaning that fandom affords members and the important role of sport in contemporary American culture.