



EARL BABBIE

**THE
BASICS OF**

SOCIAL RESEARCH

**SEVENTH
EDITION**

THE BASICS OF
SOCIAL
RESEARCH

A Note from the Author

Writing is my joy, sociology my passion. I delight in putting words together in a way that makes people learn or laugh or both. Sociology shows up as a set of words, also. It represents our last, best hope for planet-training our race and finding ways for us to live together. I feel a special excitement at being present when sociology, at last, comes into focus as an idea whose time has come.



Earl Babbie

I grew up in small-town Vermont and New Hampshire. When I announced I wanted to be an auto-body mechanic, my teacher, like my dad, told me I should go to college instead. When young Malcolm Little announced he wanted to be a lawyer, his teacher told him a “colored boy” should be something more like a carpenter. The difference in our experiences says something powerful about the idea of a level playing field. The inequalities among ethnic groups run deep, as Malcolm X would go on to point out.

I ventured into the outer world by way of Harvard, the U.S. Marine Corps, UC Berkeley, and 12 years teaching at the University of Hawaii. I resigned from teaching in 1980 and wrote full time for seven years, until the call of the classroom became too loud to ignore. For me, teaching is like playing jazz. Even if you perform the same number over and over, it never comes out the same way twice and you don’t know exactly what it’ll sound like until you hear it. Teaching is like writing with your voice.

After some 20 years of teaching at Chapman University in southern California, I have now shifted my venue by moving to Arkansas and getting a direct experience of southern/midwestern life. When that’s balanced by periodic returns to my roots in Vermont, I feel well-rounded in my sociological experiences.

SEVENTH EDITION

THE BASICS OF
SOCIAL
RESEARCH

EARL BABBIE

Chapman University



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To Evelyn Fay Babbie and Henry Robert Babbie

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Preface

The book in your hands has been about four decades in the making. It began in the classroom, when I was asked to teach a seminar in survey research. Frustrated with the lack of good textbooks on the subject, I began to dream up something I called “A Survey Research Cookbook and Other Fables,” which was published in 1973 with a more sober title: *Survey Research Methods*.

The book was an immediate success. However, there were few courses limited to survey research. Several instructors around the country asked if “the same guy” could write a more general methods book, and *The Practice of Social Research* appeared two years later. The latter book has become a fixture in social research instruction, with the Fourteenth Edition published in 2015. The official two-volume Chinese edition was published in Beijing in 2000.

Over the life of this first book, successive revisions have been based in large part on suggestions, comments, requests, and corrections from my colleagues around the country and, increasingly, around the world. Many also requested a shorter book with a more applied orientation.

Whereas the third quarter of the twentieth century saw a greater emphasis on quantitative, pure research, the century ended with a renaissance of concern for applied sociological research (sometimes called *sociological practice*) and also a renewed interest in qualitative research. *The Basics of Social Research* was first published in 1999 in support of these trends. This Seventh Edition aims at increasing and improving that support.

The book can also be seen as a response to changes in teaching methods and in student demographics. In addition to the emphasis on applied research, some alternative teaching formats have called for a shorter book, and student economics have argued for a paperback. While standard methods courses have continued using

The Practice of Social Research, I’ve been delighted to see that the first six editions of *Basics* seem to have satisfied a substantial group of instructors as well. The fine-tuning in this Seventh Edition is intended to help *Basics* serve this group even better than before.

■ CHANGES IN THE SEVENTH EDITION

A revision like this depends heavily on the input from students and faculty, who have been using earlier editions. Some of those suggestions resulted in two new features that have been added to every chapter:

General Changes

- Each chapter begins with a list of numbered learning objectives that are keyed to the relevant discussion in that chapter.
- As with each edition, I have included illustrative data (from the U.S. Census, opinion polls, observational studies) wherever possible. This doesn’t change the methodological purposes for using the data but it keeps the reader in closer touch with the real world.

Chapter Changes

In addition to those book-wide changes, here are some of the additional updates you’ll find in specific chapters of the book. Many of these changes were made in response to comments and requests from students and faculty.

Part One: An Introduction to Inquiry

1 Human Inquiry and Science

- Added a discussion of Arbesman’s “half-life of facts”
- Updated census data on birthrates
- Expanded discussion of probabilistic causation

2 Paradigms, Theory, and Research

- Clarified the meaning of disconfirmability in connection with hypotheses
- Tightened the use of paradigm and theory
- Added some bibliographic citations for classic references
- Introductory discussion of logic and rationality

3 The Ethics and Politics of Social Research

- Pointed students to the National Institutes of Health course on the ethics of human-subjects research
- Added example of Facebook 2012 study violating informed consent

Part Two: The Structuring of Inquiry

4 Research Design

- Added a box reporting a graduate student's experience in the field
- Expanded the discussion of Figure 4-1
- Expanded the box discussion of determining units of analysis
- Added new figure comparing time variable and different designs
- Cited Peter Lynn book on longitudinal surveys
- Added new section on mixed modes
- Cited Akerlof and Kennedy on the evaluation of environmental degradation studies
- Introduced new trend study of American fears

5 Conceptualization, Operationalization, and Measurement

- Discussion of measuring ethnicity in Cornwall County, Britain
- New Applying Concepts in Everyday Life box, "Validity and Social Desirability"
- Added discussion of cognitive interviewing
- Added an example of bullying in the workplace
- Added a test of whether the terms *baby* or *fetus* affected abortion attitudes
- Added discussion of definition of rape and other variables

6 Indexes, Scales, and Typologies

- Updated the abortion example of a Guttman scale to 2012 GSS
- Cited Vision of Humanity's global peace index
- Cited the World Economic Forum's "Global Competitiveness Index" for rating 142 economies

7 The Logic of Sampling

- Updated presidential election polling
- Introduced term *chain referral*
- Added Michael Brick's prediction of a rebirth of quota sampling
- Discussed FCC rules on calling cell phones
- Expanded discussion of sampling for online surveys
- Revised box on selecting random numbers due to new table in Appendix
- Related box on sampling in Iran to sampling in the USA (or anywhere)
- Cited Nate Silver's FiveThirtyEight.com rating of pollsters

Part Three: Modes of Observation

8 Experiments

- Experiment on impact of race, sex, and parenthood on hiring decisions
- Cited use of chimpanzees or humans in studies of the common cold
- Substituted Muslims for African Americans in running example of reducing prejudice

9 Survey Research

- Updated and simplified online analysis of GSS data
- Added example of survey type and sensitive information
- Added discussion of use of ABS (address-based sampling) in conjunction with RDD (random digit dialing) sampling for surveys
- Updated section on web surveys, including the advantages they hold
- Added a comment on "mixed-mode" surveys
- Noted the value of online surveys for targeting groups defined by web participation, like eBay buyers
- Deleted the box on Voice Capture
- Quoted from AAPOR report on mobile devices
- Cited an article on tablet-based surveys

10 Qualitative Field Research

- Added discussion of Milner's Freaks, Geeks, and Cool Kids
- Added discussion of the impact of gender in in-depth interviews
- Expanded the discussion of ethics in field research
- Added discussion of voice-centered relational method

- Added study asking subjects to do sketches regarding their vaginal disorders
- Moved box on Pencils and Photos to Chapter 13
- Added example of participatory research in South Africa
- Added citation on uses of video for data collection

11 Unobtrusive Research

- Added data on sex discrimination in income
- Added comparative/historical study of fair trade coffee
- Deleted box “Is America Number 1?”
- Deleted box “Suffering around the World”
- Introduced Population Action International mapping website
- Introduced Google Public Data
- Introduced Topsy Social Analytics
- Introduced the Association of Religious Data Archives and their Measurement Wizard
- Discussed Tyler Vigen’s work on spurious correlations among big data

12 Evaluation Research

- Updated data on death penalty and murder rates
- Added the example of a qualitative evaluation of a Jamaican radio drama for youth

Part Four: Analysis of Data

13 Qualitative Data Analysis

- Moved box on Pencils and Photos here from Chapter 10
- Added an example of using picture-drawing to study vaginal infections in Australia

14 Quantitative Data Analysis

- Illustrated use of bar graphs and pie charts

15 Reading and Writing Social Research

- Added citation to my e-book, *Avoiding Plagiarism*

■ PEDAGOGICAL FEATURES

Although students and instructors alike have told me that the past editions of this book were effective tools for learning research methods, I see this edition as an opportunity to review the book from a pedagogical standpoint—fine-tuning some elements, adding others. Here’s the resulting package for the Seventh Edition.

- **Learning Objectives:** Each chapter includes learning objectives to guide the student’s understanding and comprehension of the chapter materials.
- **Chapter Introduction:** Each chapter opens with an introduction that lays out the main ideas in that chapter and, importantly, relates them to the content of other chapters in the book.
- **Clear and Provocative Examples:** Students often tell me that the examples—real and hypothetical—have helped them grasp difficult and/or abstract ideas, and this edition has many new examples as well as some that have proved particularly valuable in earlier editions.
- **Full-Color Graphics:** From the first time I took a course in research methods, most of the key concepts have made sense to me in graphical form. Whereas my task here has been to translate those mental pictures into words, I’ve also included some illustrations. Advances in computer graphics have helped me communicate to the Cengage Learning artists what I see in my head and would like to share with students. I’m delighted with the new graphics in this edition.
- **Boxed Examples and Discussions:** Students tell me they like the boxed materials that highlight particular ideas and studies as well as vary the format of the book. In this edition, I’ve updated *Issues and Insights* boxed features to elaborate on the logic of research elements, *How to Do It* boxes to provide practical guidance, and *Applying Concepts in Everyday Life* features to help students see how the ideas they’re reading about apply to real research projects, as well as to their lives.
- **Running Glossary:** There is a running glossary throughout the text. Key terms are highlighted in the text, and the definition for each term is listed at the bottom of the page where it first appears. This makes it easier for students learn the definitions of these terms and to locate them in each chapter so they can review them in context.
- **Main Points:** At the end of each chapter, a concise list of main points provides both a brief chapter summary and a useful review. The main points let students know exactly what ideas they should focus on in each chapter.
- **Key Terms:** A list of key terms follows the main points. These lists reinforce the students’ acquisition of necessary vocabulary. The new vocabulary in these lists is defined in context within the chapters. The terms are boldfaced in the text, are defined in

the running glossary that appears at the bottom of the page throughout the text, and are included in the glossary at the back of the book.

- **Proposing Social Research:** This series of linked exercises invites students to apply what they've learned in each chapter to the development of their own research proposal.
- **Review Questions:** This review aid allows students to test their understanding of the chapter concepts and apply what they've learned.
- **Appendixes:** As in previous editions, a set of appendixes provides students with some research tools, such as a guide to the library, a table of random numbers, and more.
- **Clear and Accessible Writing:** This is perhaps the most important “pedagogical aid” of all. I know that all authors strive to write texts that are clear and accessible, and I take some pride in the fact that this “feature” of the book has been one of its most highly praised attributes through six previous editions. It's the one thing most often mentioned by the students who write to me. For the Seventh Edition, the editors and I have taken special care to reexamine literally every line in the book—pruning, polishing, embellishing, and occasionally restructuring for a maximally “reader-friendly” text. Whether you're new to this book or intimately familiar with previous editions, I invite you to open to any chapter and evaluate the writing for yourself.

■ SUPPLEMENTS

The Basics of Social Research, Seventh Edition, is accompanied by a wide array of supplements prepared for both the instructor and student to create the best learning environment inside as well as outside the classroom. All the continuing supplements have been thoroughly revised and updated, and several are new to this edition. I invite you to examine and take full advantage of the teaching and learning tools available to you.

MindTap™: The Personal Learning Experience MindTap Sociology for Babbie's *The Basics of Social Research* from Cengage Learning represents a new approach to a highly personalized, online learning platform. MindTap combines all of a student's learning tools—the chapter reading, review questions, and Research Tutor modules—into a Learning Path that guides the

student through the research methods course. Instructors personalize the experience by customizing the presentation of these learning tools for their students, even seamlessly introducing their own content into the Learning Path. Learn more at www.cengage.com/mindtap.

MindTap Sociology for Babbie's *The Basics of Social Research* is easy to use and saves instructors time by allowing them to:

- Customize the course—from tools to text—and make adjustments “on the fly,” making it possible to intertwine breaking news into their lessons and incorporate today's teachable moments;
- Promote personalization by segmenting course content into movable objects, encourage interactivity, and ensure student engagement;
- Integrate multimedia assets, in-context exercises, and supplements; student engagement will increase, leading to better student outcomes;
- Track students' use, activities, and comprehension in real time, providing opportunities for early intervention to influence progress and outcomes;
- Assess knowledge throughout each section: after readings, in activities, homework, and quizzes; and
- Automatically grade homework and quizzes.

Online 2014 GSS Data Sets to accompany *The Basics of Social Research* Over the years, the publisher and I have sought to provide up-to-date computer support for students and instructors. Because there are now many excellent programs for analyzing data, we've provided data to be used with them. With this edition, the data sets will be updated to include the 2014 GSS data. Instructors can access this resource at login.cengage.com to distribute to their students

Readings in Social Research Methods, Third Edition The concepts and methodologies of social research come to life in this interesting collection of articles specifically designed to accompany *The Basics of Social Research*. Diane Kholos Wysocki includes an interdisciplinary range of readings from the fields of psychology, sociology, social work, criminal justice, and political science. The articles focus on the important methods and concepts typically covered in the social research course and provide an illustrative advantage. Organized by key concepts, each of the reader's 11 chapters begins with an

introduction highlighting and explaining the research concept that each chapter's readings elucidate.

Instructor's Manual with Test Bank This supplement offers the instructor chapter outlines, lecture outlines, behavioral objectives, teaching suggestions and resources, video suggestions, Internet exercises, and questions/activities to guide a research project. In addition, for each chapter of the text, the bank has at least 40 multiple-choice questions, 20–25 true–false questions, and 5 short-answer/essay questions, with answers and page references. All questions are labeled as new, modified, or pickup so instructors know if the question is new to this edition of the test bank, modified but picked up from the previous edition of the test bank, or picked up straight from the previous edition of the test bank.

Cengage Learning Testing powered by Cognero® Cengage Learning Testing powered by Cognero is a flexible online system that allows instructors to author, edit, and manage test bank content and quickly create multiple test versions. You can deliver tests from your LMS, your classroom—or wherever you want.

PowerPoint® Lecture Slides Helping make your lectures more engaging, these handy Microsoft® PowerPoint slides outline the chapters of the main text in a classroom-ready presentation, making it easy for instructors to assemble, edit, publish, and present custom lectures.

■ ACKNOWLEDGMENTS

It would be impossible to acknowledge adequately all the people who have influenced this book. My earlier methods text, *Survey Research Methods*, was dedicated to Samuel Stouffer, Paul Lazarsfeld, and Charles Glock. I again acknowledge my debt to them.

Many colleagues helped me through the several editions of *The Practice of Social Research* and *The Basics of Social Research*. Their contributions are still present in this edition of *Basics*, as are the end results from unsolicited comments and

suggestions from students and faculty around the world.

Over the years, I have become more and more impressed by the important role played by editors in books like this. Since 1973, I've worked with varied sociology editors at Wadsworth, which has involved the kinds of adjustments you might need to make in as many successive marriages. Happily, this edition of the book has greatly profited from my partnership with Jennifer Harrison and Marta Lee-Perriard at Cengage Learning. Perhaps you have to be a textbook author to appreciate how much of a difference editors make in the writing and publishing experience, but I want to report that I have been blessed with great partners.

This is the first book I've revised with John Chell, content developer at Cengage. His expert devotion to the book was only so slightly interrupted by the arrival of daughter, Cassidy.

I have worked with many editors over the years, but my association with Greg Hubit at Bookworks is longer than any other. Greg's job is to put together a team of professionals capable of turning an imperfect manuscript into the kind of book you have in your hands. I wouldn't want to make a textbook without Greg.

In my experience, copy editors are the invisible heroes of publishing, and it has been my good fortune and pleasure to have worked with one of the very best, Marne Evans, for several years and several editions. Among her many gifts, Marne has the uncanny ability to hear what I am trying to say and to find ways to help others hear it.

In recent editions, I have developed a close working relationship with Deb Nichols, who shepherds the edited manuscript into page proofs. Hers are the final critical set of eyes before the book is printed.

I have dedicated this book to my granddaughter, Evelyn Fay Babbie, born during the revision of the Second Edition of the book, and my grandson, Henry Robert Babbie, born during the revision of the Third Edition. They continued to add joy to my life during the revision of the Seventh Edition, and I am committed to their growing up in a more humane and just world than the one they were born into.

A Letter to Students *from* This Book

I've asked my author and your instructor to chat among themselves so you and I can have a private conversation. Before you start reading this book, I want to let you in on something: I know you may not want me. You may not have chosen to take this course. My guess is that you're reading me because I've been assigned in a required research methods class. In that case, it's a bit like an arranged marriage.

I also know that you likely have some concerns about this course, especially its potential difficulty. If you do, you're not alone. I certainly don't want to *create* such concerns. However, I know from years of personal experience that many students feel anxious at the beginning of a social research course. In this short chat, I want to reassure you that it will not be as bad as you think. You may even enjoy this course. You see, a great many students from all over the world have written to my author to say just that: They were worried about the course at the beginning, but they ended up truly enjoying it.

So, to be clear, I'm not Freddy Krueger or Chucky—some monster plotting to make your college years miserable. I'm not even a dean. It's a little early in our relationship to call myself your *friend*, of course, but I do get called that a lot. I'm confident we can work together.

Benjamin Spock, the renowned author and pediatrician, began his books on child care by assuring new parents that they already knew more about caring for children than they thought they did. I want to begin on a similar note. Before you've read very far, you'll see that you already know a great deal about the practice of social research. In fact, you've been conducting social research all your life. From that perspective, this book aims at helping you sharpen skills you already have and perhaps show you some tricks that may not have occurred to you.

If you're worried about *statistics* in a course like this, I must tell you something. There *are* some statistics. But it's not what you think. It's not just an evil swarm of numbers. Statistics has a logic that allows us to do amazing things. Did you know that questioning around 2,000 people, properly selected, can let us forecast the results of an election in which over 100 million people vote? I think you might find it's worth learning a little statistics in order to understand how that sort of thing works. (In all my years as a textbook, I've never gotten tired of that example.)

Chapter 14 contains quite a bit of statistics, because it deals with quantitative (numerical) data analysis. Frankly, my author has never found a way of teaching students how to do statistical analyses without using some statistics. However, you'll find more emphasis on the *logic* of statistics than on mathematical calculations.

Maybe I should let you in on a little secret: My author never took a basic statistics course!

In his undergraduate major, statistics wasn't required. When he arrived at graduate school, a simple misunderstanding (really, you can't blame him for this) led him to indicate he had already taken introductory statistics when that wasn't, well, *technically* true. He only got an A in the advanced graduate statistics course because it focused on the logic of statistics more than on calculations. Statistics made *sense* to him, even without memorizing the calculations.

Here's a more embarrassing secret that he probably wouldn't want you to know. When he published his first research methods textbook 35 years ago, his chapter on statistics had only three calculations—and *he got two of them wrong*. (He's gotten much better, by the way. However, if you find any mistakes, please write him. I'm much happier when everything between the covers is in good order.)

The purpose of these confessions is not to downplay the importance of statistical analysis: I shall present them to you with the highest respect. My purpose is to let you know that statistics is not a mystical world that only math wizards enter. Statistics is a powerful tool that will help you understand the world around you. My author and I merely want help you learn enough of it to wield that tool to your advantage.

What can you do if you come across something in this book or in class that you simply don't understand? You have several options:

1. Assume that it will never matter that much, and go on with your life.
2. Decide that you are too stupid to understand such sophisticated ideas.
3. Ask someone else in the course if they understand it.
4. Ask your instructor to clarify it.
5. In case of emergency: e-mail my author at ebabbie@mac.com.

Options (1) and (2) are *not* good choices. Try (3), (4), and (5)—in that order.

As regards (5), by the way, please realize that tens of thousands of students around the world are using this book, in many languages, every semester, so it may take my author a little while to get back to you. He doesn't have a workshop of methodology elves helping him. Here's a hint: Do not frame your question in the form of a take-home exam, as in "What are three advantages of qualitative research over quantitative research?" My author doesn't answer those sorts of questions. *You* are the one taking the exam. He's taken enough exams already. Besides, he would give answers that leave out all the great material your instructor brings to the course.

Speaking of your instructor, by the way, please know that this is not the easiest course to teach. Even if the statistics are not as heavy as you thought, you'll be asked to open yourself up to new ways of seeing and understanding. That's not necessarily comfortable, and your instructor has taken on the task of guiding you through whatever confusion and/or discomfort you may experience. So, give 'em a break.

Instructors know that this course typically produces lower-than-average teacher evaluations. Personally, I think it's because of the subject matter as well as the fears students bring to the

course. So when it's time for evaluations, please separate your instructor's performance from any concerns you may have had about the material. Of course, you might find yourself thoroughly enjoying the subject of social science research. My author and I do, and so does your instructor. We plan to do everything possible to share that enjoyment with you.

If you're at all concerned about the state of the world (and I think you should be), it's worth knowing that social research is a key to solving most major problems. No joke. Consider the problem of overpopulation, for example. My author is fond of calling it the "mother of all social problems." (You'll get used to his sense of humor as you make your way through my pages. Be sure to check the glossary, by the way.)

Anyway, back to overpopulation. Most simply put, there are more people on the planet than it can sustain, even at the impoverished standard of living many of those people suffer. And if everyone were living like those in the most developed countries, our resources would last about a week and a half and our carbon footprint would crush us like bugs. And the world's population is growing by about 80 million people a year. That's another United States every four years.

Where would you go for an answer to a problem like that? My author is fond of saying that at first people asked, "What causes all the babies?" and they turned to the biologists for help. But when they learned what was causing the babies, that didn't solve the problem. Frankly, they weren't willing to give up sex. So they turned to the rubber industry for help. That made some difference, but the population continued to grow. Finally, people turned to the chemical industry: "Can't we just take a pill and be able to have sex without producing babies?" Soon the pills were developed and they made some difference, but the population still continued to grow.

As I've learned from my author, the key to population growth lies in the social structures that lead people to have more babies than is needed to perpetuate the human species (roughly two babies per couple). Consider, for example, the social belief that a woman is not "really a woman" until she has given birth, or the complementary belief that a man is not "really a man" until he has sired young. Some people feel they should produce children to take care of

them when they are old, or to perpetuate their name (the father's name in most cases). Many other social perspectives promote the production of more than enough babies.

The biologists, chemists, and rubber manufacturers can't address those causes of overpopulation. That is precisely where social researchers come in. Social researchers can discover the most powerful causes of social problems like overpopulation, prejudice, war, and climate change (yes, even climate change) and explore ways of combating them.

The pressing need for well-trained social researchers is what motivates my author and your instructor to do what they do. It also explains why you may be required to take this course—even against your will. We're arming you to make a powerful difference in the world around you. What you do with that new ability is up to you, but we hope you will use it only for the good.

I'll turn you over to my author now. I'll do everything I can to make this a fun and useful course for you.



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1

Human Inquiry and Science

Learning Objectives *After studying this chapter, you will be able to...*

- L01** Identify the different ways people decide what's real.
- L02** Be able to explain the fundamental nature of social science.
- L03** Understand the basic options for conducting social science research.

In this chapter...

Introduction

Looking for Reality

- Knowledge from Agreement Reality
- Ordinary Human Inquiry
- Tradition
- Authority
- Errors in Inquiry and Some Solutions

The Foundations of Social Science

- Theory, Not Philosophy or Belief
- Social Regularities
- Aggregates, Not Individuals
- Concepts and Variables
- The Purposes of Social Research
- The Ethics of Human Inquiry

Some Dialectics of Social Research

- Idiographic and Nomothetic Explanation
- Inductive and Deductive Theory
- Determinism versus Agency
- Qualitative and Quantitative Data
- The Research Proposal

■ INTRODUCTION

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

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

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

Some of the things you know seem obvious to you. If I asked you how you know the world is round, you'd probably say, "Everybody knows that." There are a lot of things everybody knows.

What do you think?



The decision to have a baby is deeply personal. No one is in charge of who will have babies in the United States in any given year,

or of how many will be born. Although you must get a license to marry or go fishing, you do not need a license to have a baby. Many couples delay pregnancy, some pregnancies happen by accident, and some pregnancies are planned. Given all these uncertainties and idiosyncrasies, how can baby-food and diaper manufacturers know how much inventory to produce from year to year? By the end of this chapter, you should be able to answer this question.

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

Of course, at one time, everyone “knew” the world was flat.

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

So, most of what you know is a matter of believing what you've been told. Understand that there's nothing wrong with you in that respect. That's simply the way human societies are structured. The basis of knowledge is agreement. Because you can't learn all you need to know through personal experience and discovery

alone, things are set up so you can simply believe what others tell you. You know some things through tradition, others from “experts.” I’m not saying you shouldn’t question this received knowledge; I’m just drawing your attention to the way you and society normally get along regarding what is so.

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

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

Finally, you can contain yourself no longer. “What are they?” you ask. I let you in on the secret: “You’ve been eating breaded, deep-fried worms!” Your response is dramatic: Your stomach rebels, and you promptly throw up all over the living room rug. What a terrible thing to serve guests!

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



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

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

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

LOOKING FOR REALITY

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

L01

Knowledge from Agreement Reality

One answer that has arisen out of that grappling is science, which offers an approach to both agreement reality and experiential reality. Scientists have certain criteria that must be met before they’ll accept the reality of something they haven’t personally experienced. In general, an assertion must have both *logical* and *empirical* support: It must make sense,

and it must not contradict actual observation. Why do earthbound scientists accept the assertion that it's cold on the dark side of the moon? First, it makes sense, because the surface heat of the moon comes from the sun's rays. Second, the scientific measurements made on the moon's dark side confirm the expectation. So, scientists accept the reality of things they don't personally experience—they accept an **agreement reality**—but they have special standards for doing so.

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

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

The *Issues and Insights* box, “Social Research Making a Difference,” gives an example of controlled social research challenging what “everybody knows.”

Ordinary Human Inquiry

Practically all people exhibit a desire to predict their future circumstances. We seem quite willing, moreover, to undertake this task using *causal* and *probabilistic* reasoning. First, we generally recognize that future circumstances

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

epistemology The science of knowing; systems of knowledge.

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

are somehow caused or conditioned by present ones. We learn that swimming beyond the reef may bring an unhappy encounter with a shark. As students we learn that studying hard will result in better grades. Second, we also learn that such patterns of cause and effect are *probabilistic* in nature: The effects occur more often when the causes occur than when the causes are absent—but not always. Thus, students learn that studying hard produces good grades in most instances, but not every time. We recognize the danger of swimming beyond the reef, without believing that every such swim will be fatal.

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

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

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

As I suggested earlier, our attempts to learn about the world are only partly linked to direct, personal inquiry or experience. Another, much larger, part comes from the agreed-on knowledge that others give us. This agreement reality both assists and hinders our attempts to find out for

ISSUES AND INSIGHTS

Social Research Making a Difference

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

Medical science research has generally supported the new technology, but an article in the *Journal of the American Medical Association* in March 2005 sent a shock wave through the medical community. The sociologist Ross Koppel and colleagues used several of the research techniques you'll be learning in this book to test the effectiveness of

the new technology. Their conclusion: CPOE was not nearly as effective as claimed; it did not prevent errors in medication (Koppel et al. 2005).

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

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

ourselves. To see how, consider two important sources of our secondhand knowledge—tradition and authority.

Tradition

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

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

"standing on the shoulders of giants," that is, starting with the knowledge base of previous generations.

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

Authority

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

Like tradition, authority can both assist and hinder human inquiry. We do well to trust the judgment of the person who has special training,

expertise, and credentials in a given matter, especially in the face of controversy. At the same time, inquiry can be greatly hindered by the legitimate authority who errs within his or her own special province. Biologists, after all, do make mistakes in the field of biology.

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

Both tradition and authority, then, are double-edged swords in the search for knowledge about the world. Simply put, they provide us with a starting point for our own inquiry, but they can lead us to start at the wrong point and push us off in the wrong direction.

Errors in Inquiry and Some Solutions

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

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

In contrast to casual human inquiry, scientific observation is a conscious activity. Simply making observation more deliberate can reduce error. If you had to guess what your instructor was wearing the first day of class, you'd probably make a mistake. If you had gone to the first class

meeting with a conscious plan to observe and record what your instructor was wearing, however, you'd likely be more accurate. (You might also need a hobby.)

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

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

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

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

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

Selective Observation One danger of overgeneralization is that it can lead to selective observation. Once you have concluded that a particular pattern exists and have developed a general understanding of why it does, you'll tend to focus on future events and situations

replication Repeating an experiment to expose or reduce error.

that fit the pattern, and you'll ignore those that don't. Racial and ethnic prejudices depend heavily on selective observation for their persistence.

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

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

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

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

business executive who is kind and feminine is taken as "proof" that all other female executives are mean and masculine.

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

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

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

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

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

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

THE FOUNDATIONS OF SOCIAL SCIENCE

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

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

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

Theory, Not Philosophy or Belief

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

This means that scientific **theory**—and science itself—cannot settle debates on value. Science cannot determine whether capitalism is better or worse than socialism except in terms of agreed-on criteria. To determine

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

scientifically whether capitalism or socialism most supports human dignity and freedom, we would first have to agree on some measurable definitions of dignity and freedom. Our conclusions would depend totally on this agreement and would have no general meaning beyond it.

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

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

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

Social Regularities

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

Actually, the vast number of formal norms in society create a considerable degree of regularity.

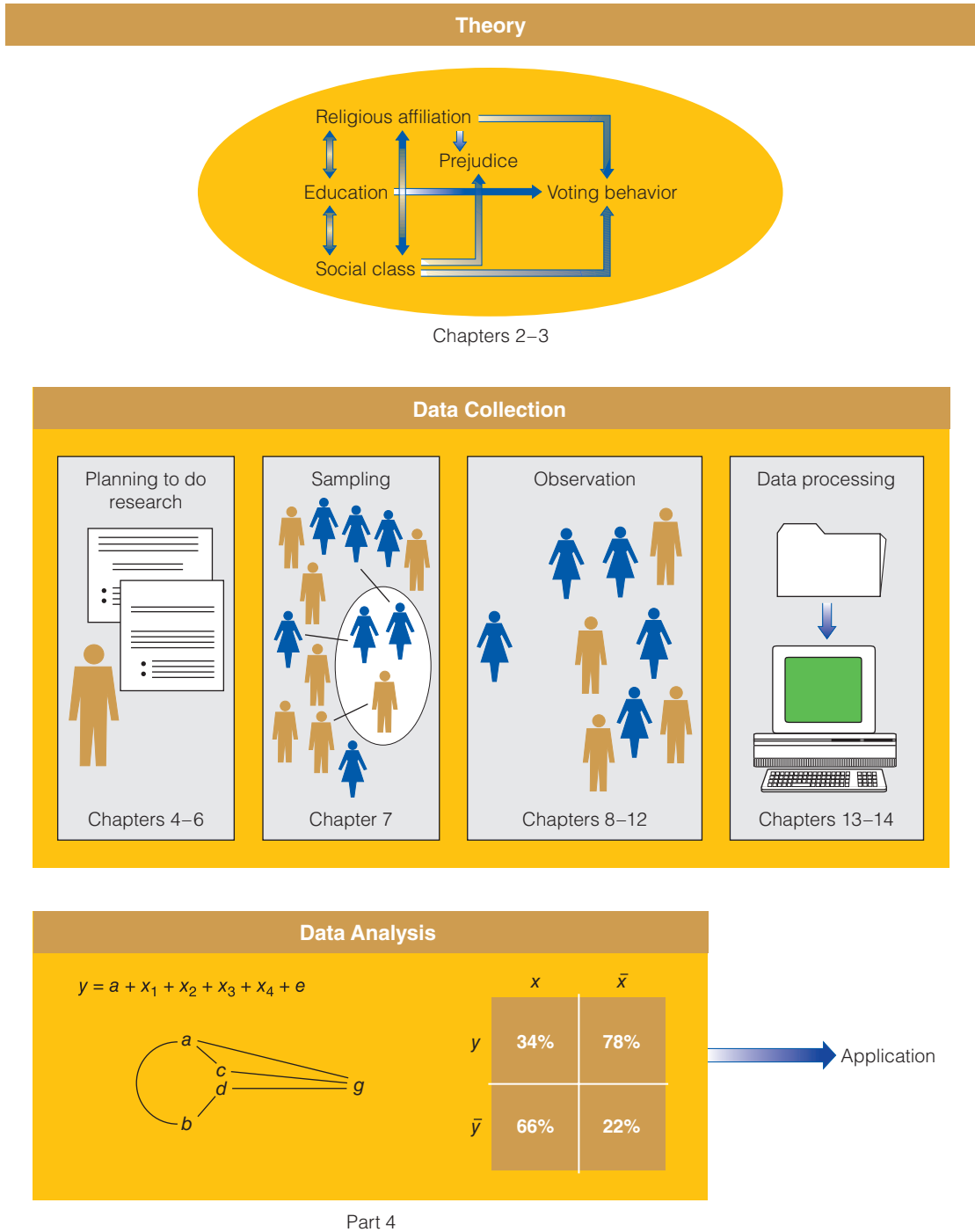


FIGURE 1-1 Social Science = Theory + Data Collection + Data Analysis. This figure offers a schematic overview of the major stages of social research, indicating where each is discussed in this book.