SECOND EDITION

Understanding Research

W. LAWRENCE NEUMAN

Pearson

Understanding Research

Second Edition

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Pearson

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Preface

To the Student

Welcome to *Understanding Research, 2nd Edition*. Learning how to do social research can be fun, but many students believe they know little about the topic and are intimidated by it. You have already encountered the results of social research studies. They are in course materials, newspapers, Internet sources, and news programs. Most professional work settings, businesses, and agencies regularly use research results. While you may have encountered the results of research, this course looks behind the scene to examine the processes of doing research that produced the results.

Here are four basic ideas about social research to keep in mind as you read this text:

- Social research is a process that produces a product, namely research results.
- The research process and its results have relevance for individuals, organizations, communities, and nations.
- The research process grew out of the combined wisdom and experience of thousands of people across many decades.
- You can master the fundamentals of doing research.

Social research is a process or an ongoing activity that takes place over time. People do research; it does not just happen. They engage in a series of actions to produce the product, i.e., research results. As a process or activity, real people make decisions, take risks, engage in various steps, write things down, and think seriously. The principles, techniques, and stages of this process are outcome of thousands researchers who worked over many decades to iron out difficulties and seek the best ways to learn about the social world. The purpose of a course on research is to help you learn about doing research and understand the process by which we acquire knowledge about the social life around us.

At times, the research process and some of its results seem obscure or esoteric, but most of the time studies have real consequences. They are relevant to daily life and to being a citizen, a friend, a parent, a professional, an employee, or a business owner. It is not always immediately apparent, but most research studies can have practical consequences for how we make decisions. Some people, out of ignorance, say it is "just research" or "only a study." This occurs when they cannot see the connections of research to their lives and to the lives of people, organizations, and events around them.

Many newcomers feel intimidated by the social research enterprise. Yes, college professors, high-powered research scientists and others with years of advanced schooling and training conduct most research studies. This does not mean that research is beyond a beginning student. To conduct research study only requires an ability to think, to collect evidence, and to examine connections or implications. A beginning student may not grasp very complex, advanced results or be able to conduct a highly sophisticated research study, but grasping the basic principles, key procedures, and overall process is possible with an investment of modest amounts of time and effort. Once you grasp the fundamentals of the research process, it is a short distance to move to doing small-scale studies of your own. Understanding and doing research can open an entire world of studies, findings, and new insights.

To the Instructor

Few students approach a course on research methods with excitement and positive expectations. It is often a required course in the curriculum and tends to generate unnecessary angst and anxiety among many students. Yet, learning how to do research does not have to be unpleasant, difficult, or stressful. Conducting a study can be fun and exciting. After all, by doing social research students explore and learn new things, probe into diverse areas of social life, and feel empowered by creating new knowledge. Conducting a study does require self-awareness, rigor, and discipline—but students acknowledge the need for self-awareness, rigor, and discipline for the interests about which they are motivated, such as athletic competition, a hobby such as video gaming, spectator sports, fashion or music, or a volunteer activity.

My approach to teaching about social research comes from personal experience. I feel genuine joy when I see students learn—and specifically, watch them learn about processes of discovery and knowledge creation. Over the past three decades, I taught social research methods to undergraduates and graduate students, reflecting, adjusting, learning, and improving over that period.

My goal has been to identify what students need to know and present it in a manner that they can easily grasp. This meant reaching to the fundamentals of social science research ideas and techniques, creating a transparent structure to organize material, and providing students with both everyday relevant examples and academic studies that build basic knowledge. My goal has been to make the essentials of doing high-quality research accessible to students in ways that they can become excited about the

research process. In short, I seek to distill the core principles, process, and procedures of research and present them in a manner that students will want to learn them.

Many professions, applied fields, and academic disciplines use the findings and techniques of social science research. My own background has been as an eclectic and wide-ranging sociologist. I am committed to a broad, ecumenical approach to social scientific inquiry. The scientific-research community has produced diverse approaches and techniques for conducting social scientific research. I believe it is a serious error to fixate on a single research approach or technique—be it the experiment or survey, quantitative methods in general, or qualitative ethnographic research. It is a serious error because it limits our understanding of a complex, changing social world, and because it misinforms students about the scope and promise of research. By being inclusive with regard to diverse forms that social science research can take, we gain much and lose little.

To me, it is unwise to disengage the concrete and technical aspects of conducting research from the broader epistemological issues and the ethical-political dimensions of the social science enterprise. I view social research as an accomplishment by human actors that takes place in specific social-historical contexts. Removing human agency and context from how we think about the research process only introduces distortion and diminishes understanding.

I believe applying the principles, process, and results of social research is consequential for the choices and decisions we make in our daily lives and in organizational settings. When we apply an open-ended understanding of the logic and results of social research, better choices and decisions in our organizations, communities, and lives frequently follow. Students can improve their lives and the life conditions of the people around them when they understand the research process. A corollary of this point is that the failure to understand research will likely condemn the next generation to fall behind and make many unwise decisions. Few students who learn about social research become full-time professional research scientists, but most will become parents, friends, colleagues, employees, citizen-voters, and community members. I believe having a sound understanding of the processes and principles of social research is likely to improve how they will fulfill those life-long roles.

New to the Edition

The second edition of *Understanding Research* seeks to expand upon the core principles of this course: to make the essentials of doing high quality research accessible to students in ways that they can become excited about the research process. As you have come to expect with this course, core principles, processes, and procedures of research are distilled and presented in a manner that students will want to learn them. It is a stress-free and enjoyable approach to the research methods course by providing salient real world examples throughout.

- Each chapter opens with a vignette/case that has real world relevance and connections to the content material of the chapter.
- Data and examples throughout the course represent what is happening right now in research methods with most examples drawn from studies published recently in academic journals.
- The course offers new tools and methods for applying classic concepts like expanded strategies for approaching a literature review and ways to think critically and creatively about nonreactive research techniques.
- In addition to offering guidance on the fundamentals of writing a research report, this edition offers a stronger emphasis on the seriousness of preparing a research report and the importance of communicating findings clearly and efficiently.
- In addition to end of chapter summaries and quizzes, each chapter now has periodic reviews of major points and student self-tests for regular feedback.

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Features

Students need to have both the cognitive and affective dimensions of the learning process addressed to learn and understand material fully. The pedagogical features in this

course guide a student's travels through each chapter's content, stimulate their interest, and enhance both their content learning and their engagement with the material. Designed to move beyond the primary cognitive objective of content mastery, the features enhance affective objectives as well. Presenting accurate content in a well-organized manner is insufficient. Students struggle to stay focused when they believe material to be irrelevant to their lives and the world around them, and if they feel overwhelmed by and insecure about the material. This makes stimulating student interest and actively engaging them essential to facilitate their learning. The pedagogical features work together to accomplish these tasks in four ways.

Increasing students' motivation to learn by demonstrating that the material has "real world" relevance and connections to other issues and knowledge areas.

Students tend to engage with material that they see as being relevant, consequential, and interconnected. Each chapter opens with a research topic, drawn from a variety of fields. Some of these topics are fast food advertising directed at children (Chapter 1), people who are "rednecks" (Chapter 5), and occupations that require "emotional work" (Chapter 10). In addition, each chapter has "boxed features." Some are case studies of published research on a topic that students may find of interest, or historical events related to the material. As students learn specific methods of doing research, they also see how the methods can reveal new insights about issues in the social world. Two other features, *Making It Practical and Tips for the Wise Consumer*, emphasize how students can apply the material in a chapter. Examples include Using Article Search Tools (Chapter 2), Improving Unclear Questions (Chapter 6), and Recommendations for Taking Field Notes (Chapter 10).

Stimulating student interest in and engagement with the material by arousing their curiosity.

Student interest and excitement tend to grow when they can see how material offers a pathway to discovering what was previously unknown or contains aspects of a puzzle or mystery that they can solve. The interactive hide/reveal features in the book's electronic version use curiosity to increase engagement.

Addressing student feelings of anxiety and insecurity about the material by promoting a sense of accomplishment.

Periodical feedback that signals success can circumvent student feelings of uncertainty, disappointment, and defeat when facing material the student finds to be challenging and complex at first. Once a student recognizes that he or she is capable of learning complex material, positive feelings about self and about the material often develop. The student also gains the confidence needed to move onto higher-level material. As a student moves through each chapter, he or she will encounter periodic *Summary Review* tables of major points, and journaling opportunities for regular instructor feedback. In addition, key terms have links to their definition when first introduced, and again when the term reappears and is used with material in subsequent chapters. This repetition reinforces learning as it builds student confidence.

Sparking critical thinking by including unresolved dilemmas, moral-political dimensions of material, and the reasons why researchers use certain procedures.

Interest often fades when a student encounters a research procedure without a rationale for its use or closed-ended material, i.e., material for which all issues have been resolved and uncertainty removed. Interest can grow when a student confronts areas of disagreement and debate, and is able to see the rationale for using particular procedures. In addition to providing key historical context, the *Learning from History* feature presents students with an opportunity to analyze and reflect upon past issues and compare them to more recent research and events. Each chapter concludes with a *Shared Writing* exercise, which allows the student to write open/ended reflections, opinions, and ideas about issues in the material that he or she can share with other students.

Chapter Content

Each chapter of the text has a similar format and mixes the practical-applied aspects of research with the foundational principles and techniques of doing a study. After a brief opening study to stimulate interest, students learn about a specific aspect of the research process anchored with learning objectives for each module.

Chapter 1 outlines the basics of what social research entails. It explains why a student will find it beneficial to understand the research process. There are updates to the explanations on the meaning and importance of critical thinking as well as on the idea of having "standards of evidence" for data in social science research. They see the steps in conducting a research study and learn about some of the purposes for doing a research study. In addition, new examples from the recent research literature are used to illustrate the variety of types of social research.

In Chapter 2 readers learn about the process of moving from a broad topic of interest to specific study design issues, including how to conduct a literature review. The opening issue of tattoos is carried into the chapter. A new feature is the organization of topics in a question-answer format, including the practical design issues for conducting both qualitative and quantitative research. The discussion on variables and hypotheses shows readers how to move from having general ideas about a cause-effect relationship to drawing a diagram a causal explanation.

Chapter 3 considers both traditional issues in research ethics and some of the social-political concerns of doing social research. The current edition adds an entry on the

controversy a year ago surrounding Facebook mining user data, and how this event raised issues of consent and privacy. The chapter also asks readers to consider the role of a whistle-blower in research and pressures on researchers from funding organizations or government bodies.

Chapter 4 begins with a study of teens in large urban areas of the United States, especially those with high concentrations of crime and poverty, carrying illegal guns or other weapons to raise the question of how a researcher might go about drawing a sample of such a group. Throughout the chapter, readers learn to distinguish representative from non-representative sampling, and the importance of different forms of random samples. The emphasis is on mastering fundamental sampling concepts, although sampling in specialized situations is also discussed. This includes cluster sampling, and the chapter uses a recent article on whether local beliefs about the law and law enforcement influence levels of violence in U.S. urban neighborhoods to illustrate how to conduct a cluster sample.

Chapter 5 provides readers with both the general ideas of social science measurement and several specific illustrations of central idea that researchers make aspects of the social world visible and turn it into research data. Readers also learn how the processes of conceptualization and operationalization jointly make this possible. Most of the illustrative examples in the chapter are from recent studies of U.S. racial-ethnic relations. In addition to general discussions of reliability and validity, and a review of major scales or indexes, readers see how qualitative researchers measure. The 2012 study by Desmond on evictions of inner-city people in Milwaukee illustrates how he used various quantitative and qualitative measures. The example of quantitative measurement includes examples of the 2010 index of dissimilarity scores for U.S. cities (in which Milwaukee has the highest black–white segregation). Readers learn about the Guttman scaling pattern and then see an example by Xie and Zhou (2012) who measured whites' preference for housing in a racially mixed neighborhood for several large U.S. cities. A 2009 study on white Anglo's social distance from Latinos and its connection with their immigration views illustrates the Borgadus Social Distance scale.

Chapter 6 is a condensed introduction to survey research. This edition opens with an example of a recent survey on same-sex marriage. The chapter uses other recent examples from the research literature as the readers learn about various survey issues, such as survey question wording, question order effect, and social desirability in survey interviewing. The chapter intentionally avoids treating the survey technique in isolation from related methodology issues. The discussion of the survey is connected to a discussion of correlational versus experimental research approaches, the general process of operationalizing variables, preparing data for analysis, and ethics involved in reporting survey results.

In Chapter 7 readers learn about the great power of experimental research for demonstrating causality as well as the many specifics of experimental design. The chapter makes clear the similarities and differences between random sampling from a large population and randomization in research participant selection into experimental groups. The chapter highlights the contrast between a highly controlled laboratory setting and the value of a natural and field experiment where control by the experimenter is difficult.

Chapter 8 covers an array of non-reactive research techniques, including content analysis and using existing statistical sources. This edition includes a new emphasis that encourages readers to use their creativity and powers of observation and to consider how they might unobtrusively observe, document, and analyze data on an issue. As an illustration, the chapter has an example study that measured the relative "walkability" of urban areas through the careful observation and the documentation of specific physical features. At the same time, the text asks readers to consider issues of possibility violating privacy in such studies.

Chapter 9 is a very elementary introduction to statistical ideas and techniques used in social research. It begins by explaining how to organize and manage quantitative data, and closes with a review of several common statistical tests and ways to interpret their results. The emphasis of the chapter is to provide readers with a conceptual understanding and to develop their quantitative reasoning skills, more than to have them engage in computation. The chapter illustrates several concepts or techniques using actual data or examples from recent studies on the issues of cohabitation and teen pregnancy.

Chapter 10 introduces readers to ethnographic field research. The sequence of chapter topics follows the chronology of what a person does as he/she conducts a field research study. The chapter opens with a study on the concept of "emotion work." Readers see this concept continued in other chapter examples. The goal is to show readers not only the specific techniques to use when conducting a field research study, but also the ways by which researchers can develop or elaborate upon a concept, or engage grounded theorizing, during the process of doing field research.

In Chapter 11 readers learn the value of the historical comparative approach for answering the "big questions" as they used it to study and reveal a great deal about several topic through examples taken from the recent literature on incarnation rates, workplace flexibility, and acts of genocide. Since many student readers find this approach difficult, the chapter makes it accessible and manageable providing them with a step-by-step guide on to how one would conduct a historical-comparative study.

Chapter 12 is an overview of how to write research reports and proposals. As in the first edition, readers learn many tips about the writing process, but also that writing is serious, time-consuming work. Readers see the differences

in the writing tasks between a qualitative study report, a quantitative study report, and a research proposal. New to this edition is illustrating how to write a qualitative data study by showing it in an article that was introduced in the chapter on field research. Readers not only learn about the process of conducting the research, but also learn ways to write up findings in a formal report.

Available Instructor Resources

The following resources are available for instructors. These can be downloaded at http://www.pearsonhighered.com/irc. Login required.

- **PowerPoint**—provides a core template of the content covered throughout the text. Can easily be added to customize for your classroom.
- **Instructor's Manual**—includes chapter summaries and outlines; learning objectives; key terms with definitions; online resources; suggested readings, class exercises and activities; and video resources.
- **Test Bank**—includes additional questions beyond the REVEL in multiple choice and open-ended—short and essay response—formats.
- **MyTest**—an electronic format of the Test Bank to customize in-class tests or quizzes. Visit: http://www.pearsonhighered.com/mytest.

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I dedicate this text to Diane, for all her patience and support.

W. Lawrence Neuman

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Chapter 1
Why Do Research?

Learning Objectives

1.1 Describe the role of research as one of the foundations of decision making

1.2 Explain why empirical social research is more than gathering information and the role of critical thinking in the research process

1.3 Summarize quantitative and qualitative data collection techniques

1.4 Examine how the purpose of research depends upon the outcome that the researcher is trying to accomplish

1.5 List the seven steps in the research process

Perhaps you have young children, or siblings or nieces/nephews, or maybe you will have children of your own in the future. Any parent will tell you that a child's eating habits are a major concern. In the United States, a rapid increase in childhood obesity and diabetes over the past decade has become a serious public health issue. Advertising greatly influences children, and one-half of all advertising targeted at children is for food. A study (Gantz et al., 2007) reported that children ages 2 through 7 see an average of 12 food ads per day on TV (30 hours per year), whereas those ages 8 to 12 see an average of 21 food ads per day (50 hours per year). Most food advertising is for high calorie, low nutrition snacks, candy, soda, or fast food. Only 4 percent of ads are for dairy products, 1 percent is for fruit juices, and no ads are for fresh

fruits or vegetables. This is why several nations ban television advertising that targets children. Norway, Quebec (Canada), and Sweden ban all advertisements during children's television programs, and 30 countries put limits on advertising.

Like other companies, fast food chains use branding to attract children (or their parents) as customers. "Branding" is when a company attaches its name and logo to products or services and promotes them in ways to create a strong mental and emotional connection within potential consumers. An example of branding is McDonald's, which has more than 31,000 restaurants serving 60 million people worldwide each day. Researchers (Robinson et al., 2007) wanted to learn whether McDonald's branding affected the food choices of young children (ages 3 to 5). They placed two sets of food items in front of the children—one food item (milk, French fries, hamburger, chicken nuggets, and baby carrots) was in a McDonald's wrapper, and the other was not. They asked, "Can you tell me which is from McDonald's?" to make certain the children saw the difference. They next asked the children to take one bite and taste each food item, then tell the researchers whether the food was the same or one tasted better than the other did. In fact, the food was identical. They also asked parents about television viewing habits and fast food restaurant visits. Results (see Figures 1.1 and 1.2) showed that more children said that the item in the McDonald's package tasted better for all five food items.

Figure 1.1 Number of Televisions in Households as a Moderator of Taste Preferences

Total preference scores may range from –1 (preferred the unbranded food in all comparisons) to 1 (preferred the McDonald's branded food in all comparisons).

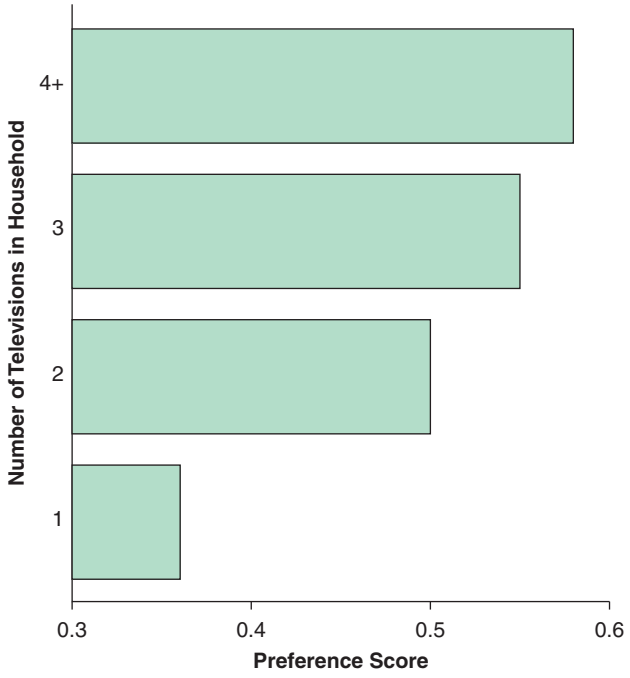
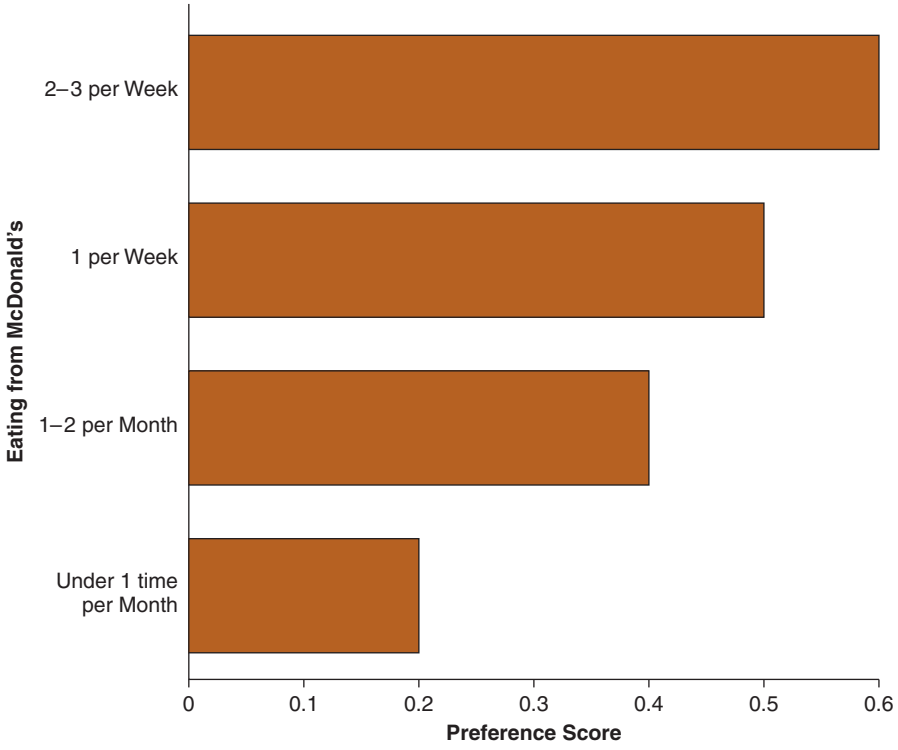


Figure 1.2 Frequency of Eating at McDonald's as a Moderator of Taste Preferences

Total preference scores may range from –1 (preferred the unbranded food in all comparisons) to 1 (preferred the McDonald's branded food in all comparisons).



Note that McDonald's did not sell baby carrots at the time of this study. In addition, children whose parents had taken them to McDonald's were most likely to prefer McDonald's. The researchers concluded that by the age of five the children had internalized the McDonald's brand as indicating superior food taste. Studies such as these help parents, citizens, and public officials understand how young children make food choices.

We do not have to send children to a research laboratory to study food choices. At times we can study changes in a local setting. Studies (Bernhardt et al., 2013) found fast food advertising that targets at children emphasizes giveaways, games, and fun to entice the children. In 2010, Santa Clara County, California, banned restaurants from giving away toys with fast food meals if the meals failed to meet certain nutritional standards. Before the ban, only five of 120 children's meal combinations (4 percent) at fast food restaurants met the standards. Under the ban, a restaurant could continue to give away toys as a sales promotion, but only for healthy meals that met the standards. A team of researchers (Otten et al., 2012) compared pre-ban versus post-ban meal sales at four restaurants within the ban area and at four restaurants several miles outside of it. They found dramatic changes in the ban area, with a two- to three-fold increase in the sales of healthy meals over pre-ban period, but no change in healthy meal sales outside the ban area. Other communities have required fast food restaurants to include calorie and nutritional information on menus, but studies found that changes to menu labels alone do not increase healthy eating.[1]

Researchers conduct studies on topics such as children's food choices or fast food sales to understand what is actually occurring in the social world. We can use the study's findings to make decisions that affect our own lives, our families, and our communities. Once you learn how researchers conduct studies, you will be in a better position to make decisions and choices.

1.1: On What Basis Do We Make Decisions?

1.1 Describe the role of research as one of the foundations of decision making

Each day you make thousands of choices and decisions. Most are trivial, such as what to have for breakfast; whether to text a friend; whether to purchase pink, white, or blue facial tissue; and which TV show to watch. Others are important, such as monitoring your child's TV watching and eating habits. Many decisions have real consequences for personal and family life, the community, or a career. Most of us make decisions using a mix of common sense; advice from experts, friends, and family; past experiences; cultural literacy; and school knowledge. Some of us also use religious faith, personal prejudice and values, horoscopes and lucky numbers, guesswork, or folklore. Few of us turn to research, so you might ask, how will a book on social research help me make decisions?

Social research does not offer all the answers, but it can help you do the following:

- Make better decisions about your daily life (What type of person should I marry to reduce the odds a divorce? How should I raise my child to be healthy and happy? Which college major will help me advance in a career and earn a good income 10 years from now?).
- Understand events in the larger world around you (Why are many people getting divorced? Do racially integrated schools really reduce inter-racial tension? What community development plans will reduce traffic congestion and improve the environment in the future?).
- Decide professional issues (Which product is likely to sell the most? How do I find out whether my employees are happy? Which children's reading program is most effective?).

You undoubtedly have heard of people doing research, or you may have read research findings or done some research. We use the word "research" in multiple ways. It is a process in which we apply specific principles and techniques to create high-quality knowledge; it is a body of knowledge (i.e., information, ideas, or theories) built up over time, and it is an orientation or frame of mind to apply when looking at and thinking about information, questions, or issues.

What do you think of when you hear the word "research"?

Compare Your Thoughts

Table 1.1 Responses to the Question: What Is Research?

Response to question	Evaluation of response
It is fun and exciting.	Usually, research allows you to exercise your creativity and discover new things that are almost always fun.
It is difficult and mysterious.	Often, research has some difficult parts that may seem mysterious until you learn about them, but most aspects of research are easy to grasp.
It is practical and relevant.	Usually, it yields results you can use to make a difference in real life.
It is valuable and rewarding.	Most of the time. Properly conducted research can have a big payoff for life decisions you make, workplace effectiveness, and job prospects.
It is a waste of time and effort.	Not exactly. Research can take time and effort, but it is rarely a waste if done properly.
It is always correct.	No, it is not always right. Nonetheless, it is more likely to be right than the alternatives, such as relying on tradition, authority, or your personal experience. It is also useful to distinguish between better and worse research.

[1] On fast food restaurant labels and healthy eating, see Elbel, Gyamfi, and Kersh (2011), Stutts et al. (2011), and Tandon et al. (2011).

1.1.1: Alternatives to Research

We make most everyday decisions without doing research, checking on research findings, or using a research orientation. Most of the time, this works just fine, especially for trivial decisions. Unfortunately, studies suggest that few of us are great decision makers. Often we rely on distorted thinking and are unaware of misjudgments or bias. This is where a reliance on research helps; it reduces misjudgment, bias, and distorted thinking.

Even though research produces valuable information and expands understanding, it is not 100 percent foolproof. It does not guarantee perfect results every time or yield "absolute truth." Don't be discouraged. In a head-to-head comparison with all the other ways we reach decisions, research wins easily. This is why professional organizations, well-educated people, and most leaders rely on research when they make important decisions. Centuries ago, people went to oracles, looked at the leaves at bottom of a teacup, or consulted the stars to make major decisions. Today, people in all fields—medicine, business, education, law enforcement, public policy—look to research publications or study research findings for guidance.

Relying on social research for decisions is not always simple. You may have heard the dozens of contradictory and confusing research-based recommendations about health and diet in the mass media.

What is so great about research if there is so much disagreement?

Compare Your Thoughts

A lot of what fills the mass media using the terms research or scientific does not actually involve scientific research. Unfortunately, people use the word "research" in the media when no real research backs a statement. Some of what you hear may be research backed, but it could be selective or incomplete, overstated, or distorted. The media "noise machine" jumbles together many different types of statements. It is little wonder that many people are skeptical of research. Media distortion of research or social issues creates confusion. You may hear of a terrible social problem in the mass media, but closer inspection may reveal that it was seriously distorted. Real knowledge grows from the outcomes of many well-conducted research studies, not a single isolated study.

A study by Heneghan et al. (2012) examined the advertising claims of 100 such products of this multi-billion dollar industry in magazines and on the web. The authors viewed 1,035 web pages and 615 advertisements for such products in 110 magazines in the United States and the United Kingdom in March 2012. When the advertisements provided no solid evidence for claims, study authors contacted the companies requesting any research to back the claims. They concluded, "There is a striking lack of evidence to support the vast majority of sports-related products that make claims related to enhanced performance or recovery, including drinks, supplements and footwear." They found no evidence at all for over one-half the products, and of those with evidence, for one-half it was too vague and uninformative to allow an evaluation. This left 74 studies to back product claims. The authors concluded that of the 74 studies that did contain sufficient information to allow an appraisal, only 3 percent to 4 percent, were quality, serious studies. Thus, little solid evidence supports claims of most products to enhance health or sports performance that they actually can do what they promise.

DO YOU HAVE RESEARCH PHOBIA? By the time you read this, you have heard about research and science as you sat in classrooms, did homework, and read textbooks. Unless you had talented, enthusiastic teachers, you might have had an unpleasant experience or developed "research phobia." Maybe it was smelly science labs or

Do you use "performance-enhancing" drinks, footwear, supplements or use special devices clothing and devices like wrist bands and compression stockings that guarantee health or improved sports performance?

Some people become intimidated by scientific research, or fear being labeled a geek or nerd, or imagine the fictional mad scientist from fiction stories or horror movies.

challenging math tests without enough preparation time. In many schools, only about 10 percent of students really "get into" research. Many others see it as being irrelevant or strange at best.

Some people believe that only college professors, people with medical or Ph.D. degrees, and high-powered professional scientists can do research. Maybe you watched a famous researcher being interviewed on television or have picked up an obscure research publication filled with incomprehensible jargon, statistics, and exotic formulas. You may feel that research is beyond you and has little relevance for your daily life or career. Don't be turned off by research, after just one class on social research, millions of students improved their decision making by using the techniques, insights, and information-gathering skills of research.

One purpose of this book is to demonstrate that empirical social research is not frightening and beyond your ability, nor is it irrelevant. I won't lie, doing research can be hard work. It allows little room for being sloppy, lazy, "spaced out," or careless. Research takes concentration, serious thinking, rigor, and self-discipline. In this respect, it is not special. Making quality music or art, cooking fantastic food, growing an outstanding garden, starting up a new business, being a star athlete, or repairing complex machinery also take concentration, serious thinking, rigor, and self-discipline. However, doing research is also creative, exciting, and fun.

LEARNING TO DO RESEARCH AND USING IT IN "REAL" LIFE Why don't more people learn to do research and use it in their lives? A simple answer is ignorance. If you do not know it, you cannot use it. However, some people reject the results or method of research not from ignorance, but because the results contradict an intensely held belief, a traditional way of doing things, or because it runs counter to "what everybody knows."

Large numbers of people, even in the United States in the twenty-first century,[2] continue to believe in things that research repeatedly demonstrates to be false, such as the following:

- UFOs and ESP (extrasensory perception)
- Horoscopes and astrology
- Unscientific thinking about age of the earth or basic forces of nature
- Goblins, demons, witches, evil spirits, and devils

Although the average level of schooling has risen, many people cling to magical-fantasy thinking. National averages in reading comprehension, critical thinking skills, basic social-geographic knowledge, and understanding of scientific research have changed little over the past decades.[3] Part of the answer is that many people stop practicing and applying the knowledge and thinking skills acquired in their school years later in their daily life or job decisions. Another part of the answer is a simple matter of numbers. Imagine that 25,000 educated people want to be better informed. They read a book written by an expert who has researched a topic for six years. At the same time, 100 million people, who are just a little lazy, go out to watch an entertaining, glitzy 90-minute movie on the same topic. Like most movies, it contains a lot of inaccurate and distorted information. More people's views and thinking will be shaped by the inaccurate and distorted information from the movie than an expert's book. It is easy to be swayed if a large number of people agree. Just because most people believe something to be true does not make it true.

WRITING PROMPT

Making Decisions

What approach do you use to make a major purchase or life decision (e.g., which college to attend)? What factors do you rely on to inform your decision?

The response entered here will appear in the performance dashboard and can be viewed by your instructor.

Submit

1.1.2: Frustrations and Misunderstandings about Research

Three features of social science research can create frustration. Some people turn away from research because they misunderstand the significance of such features. One feature is that research does not deliver immediate answers; rather, research knowledge accumulates slowly over time.

What is the use of doing research if it cannot give me an answer right now?

It may give an answer, but a provisional one. We rely on research because it is better than the alternatives, and its answers tend to improve over time. What we, as a society or all humanity, knew last year may differ little from this year; however, what research tells us today differs significantly from what we knew 20 years ago regarding many issues.

A second feature that causes frustration is that research findings are not fixed and unchanging. Its statements or theories[4] about events change if there is new or better evidence. Research-based statements, findings, or theories are provisional, not 100 percent absolute and fixed for all time.

[2] See Harris Interactive (2009). King Burton, Hicks, and Drigotav (2007).
[3] See Pew Research Report (2007, 2009).
[4] Theories are systematic, abstract, general explanations about why events occur or how some aspect of the world operates. They contain assumptions, arguments, and a set of interconnected ideas.

They only stand as long as most of the evidence backs them. Moreover, the quality and amount of evidence determine the amount of confidence we place in a statement, idea, or theory.

A related third feature that causes frustration is that research findings are usually in the form of chance-like statements, such as the following statements, "teacher attention is likely to affect a child's learning," "providing flexible benefits or work hours increases the likelihood of high employee satisfaction," or "being overweight increases the chances you will develop diabetes." Few of us accurately evaluate the risks and probabilities of things we do every day: the risk of being injured or killed, the probability of winning the lottery, the likelihood that we will make a profit in the stock market, and so forth, and we are slow to learn from our misjudgments (Mills and Keil, 2004). By contrast, most research carefully estimates the odds that events will occur. So, while people like 100 percent certainty, research findings are stated as the chances or odds of being true.

Despite the comfort of simple, fixed answers, you probably already learned that such answers are very rare for complex issues in the real world. Research is an ongoing process of searching and working toward the truth. Its knowledge accumulates over time. Research may not offer us 100 percent certainty, but it is the best available human knowledge, better than the alternatives; plus, it improves over time.

In the media, in public debates over issues, and in face-to-face discussions about how things are now, why events or behaviors occur as they do, and what might be the best way to resolve an issue, people "make arguments." The word "argument" as it is being used here does not mean the type where someone gets angry and shouts down another person. Rather, it means building up a set of logically connected statements that start simple and move toward a clear general conclusion that pulls everything together. My students and much of the public confuse two types of argument—the scientific or research-based argument and arguments that rely on a moral position, religious doctrine, or ideological belief. The latter builds on moral, religious, or ideological forms of reasoning. By contrast, research arguments use critical thinking that rests on systematic empirical evidence. We examine the bases of research arguments in the next section.

WRITING PROMPT

Frustrations with the Research Process

Explain your experience with one of the frustrations of research. Describe the level of frustration you felt when trying to make decisions.

▶ `The response entered here will appear in the performance dashboard and can be viewed by your instructor.`

Submit

1.2: What Is Empirical Social Research and Why Is It Respected?

1.2 Explain why empirical social research is more than gathering information and the role of critical thinking in the research process

Research takes many forms. Let us say, I want to purchase a new car so I do "research" by reading websites about car features, by visiting showrooms and test driving cars, by examining reports on crash test, safety and mechanical reliability, and by comparing specifications such as legroom length or tire size. Doing **empirical social research** also involves gathering information, but it is much more than that.

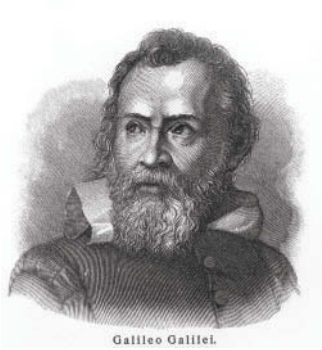
We use the word "research" in the multiple ways, such as the following four:

1. Research is gathering existing reports or findings from respected sources (i.e., academic journals or official government reports) and making sense of it. You first search for and collect information, next evaluate what you found, and finally synthesize the findings. In the process, you may weigh some evidence (your friend says a car looks cool) differently than other evidence (test driving the car or reading about its mechanical failure rate).
2. Research is examining and carefully inspecting a "body of evidence" or data. The evidence may be in the form of numbers, charts, tables, graphs, and statistics, or it can be specific documents (such as interview transcripts, religious texts such as the Bible or Koran, legal texts such as the Constitution or court decisions, historical texts, or even paintings or music scores). Doing research, a person carefully examines, evaluates, and re-examines the evidence to attain a deeper understanding, to reveal patterns and themes, or to find the "truth."
3. Research is a process of applying accepted techniques and principles. The process is to ask questions in certain ways, gather information systematically, observe in detail, measure precisely, draw a sample, analyze using statistics, or perform experiments.
4. Research is a way of thinking and making arguments. It means applying critical thinking (discussed next) and adopting a critical orientation and skeptical perspective. You examine assumptions, consider alternatives, and do not accept what you see at face value. You reflect on how you and others arrived at decisions.

Empirical social research can involve all four of these activities. It is also an ongoing process of accumulating

information, with results stated in terms of likelihood or probabilities and not as fixed absolutes. Because it is evidence based, findings can change as the accumulated evidence reveals new insights and understandings. The findings from empirical research might differ from what some religious doctrines or leaders say.

Learning from History
Research and Religion



Galileo Galilei, Italian astronomer (1564–1642)

Research usually wins out over horoscopes, lucky numbers, or superstition, but organized religion is a more sensitive subject. Most people, especially in the United States, profess a belief in God and feel a deep attachment to a specific religion (usually Judeo-Christian). Scientific research and religion, including non-Judeo-Christian religious beliefs, like Islam and Buddhism, can disagree. This is nothing new. It has been going on at least since Galileo Galilei (1564–1642). Although he remained loyal to his religion, Galileo was also committed to scientific research, honesty, and truth. He rejected a blind allegiance to philosophical and religious authority. Based on careful research and systematic empirical evidence, his views on how the world works changed. He insisted the earth went around the sun and not vice versa, as held by leading religious authorities at that time. Because he opposed established religious doctrine, authorities placed him under house arrest and banned his books. Today we recognize that Galileo was right, and in time, religious authorities relaxed their views and altered their position.

The science versus religion conflict is easily overdrawn. At one extreme are some highly devout people who reject all science and believe exclusively in a specific religious faith. Whether it is gravity, age of the earth, medical care, or causes of crime, they believe that religion alone has the only true answers. At the other extreme are nonreligious people who think all religion is false and put their faith in science alone. Whether it is social justice, moral decisions of right or wrong, or life after death, they feel that science offers all the correct answers. Most people, including most scientists, fall in between the extremes. Religious extremists of any religion (Christianity, Islam, Hinduism, or others) and science extremists each believe they have all the answers. Most people find value in both sides and see each side addressing certain types of issues better than other types.

Science-based research may be better than religion at providing answers for some types of questions. Science cannot tell moral right from wrong, whether there is a God, whether we have a soul, or what happens to us after death. In the past, religious authorities made rather foolish statements about astronomy, biology, and many social issues (such as supporting slavery). The line between what belongs to religion or to science is always shifting. At one time, science only dealt with the physical world (planets, chemistry, or plants) and religious thinking dominated all social issues. As research techniques and scientific thinking advanced, people applied them to social issues—such as why crime rates rise and whether children raised in certain ways are better adjusted. Over time, people turned from the old answers, such as the devil or evil spirits caused errant behavior, and increasingly looked to research-based that identified causes such as increased economic distress, child rearing without strong, clear values, or a weakening of community ties.

Research can answer many questions that overlap with religious–moral issues but cannot answer questions, such as: Should I marry John? Is abortion immoral? Is the death penalty right or wrong? Will prayer cure my mother's cancer? Nevertheless, research can answer related questions, such as: If one marries someone with a background of emotional instability and excessive alcohol or illegal drug use, is one likely to experience physical abuse and divorce? Do women who have an abortion experience less or more social, educational, and economic success? Does having a death penalty lower murder rates? Does praying for a person reduce the spread of cancer? Answers to these questions may help us make decisions about moral and religious concerns even if they do not provide simple, fixed answers.

For example, suppose research showed that the death penalty has no effect on reducing murder rates. You may still favor it for other reasons (e.g., lower costs, revenge, or religious beliefs). At least if you know the research findings, you can consciously make judgments based on the facts or something else (e.g., moral or religious belief). Suppose studies showed that praying for a seriously ill person has no impact on recovery rates. You may still want to pray for other reasons. Perhaps it makes you feel better and gives your life a focus, or it gives the ill person a feeling of hope and reduces his or her distress. In short, research and moral–religious reasoning differ, but they can work together and be compatible.

WRITING PROMPT

Questions That Research Can Help Answer

Research can help provide answers to a great many questions, but not every possible question. What are 2–3 questions that social research can provide answers to, and 2–3 that are outside the scope of research? Explain the key feature separating the answerable versus unanswerable questions.

▶ **The response entered here will appear in the performance dashboard and can be viewed by your instructor.**

Submit

1.2.1: What Are Critical Thinking Skills?

One good reason for you to learn to think critically and to conduct research properly is so you do not simply follow what most other people think when it is wrong. Some people are confused about **critical thinking** because the word "critical" has three meanings:

1. being very serious, or being an urgent need, such as being critically ill;
2. being highly negative or antagonistic and looking for flaws, building on the verb to criticize; and
3. being very aware, judging carefully, and questioning by not accepting anything that happens to come along.

The meaning of "critical" in critical thinking refers to the last meaning, although the first one sometimes also fits.

Critical thinking is a way to think and see things. Psychologists and others who study how we think have cataloged a long list of common misperceptions or logical fallacies. Just as we can be misled when we look into a distorted mirror, we can fall for these fallacies.

WRITING PROMPT

Thinking Critically

Consider what you knew about "critical thinking" prior to completing this section. Compare your initial thoughts with how the text defines critical thinking. Describe the differences in the definitions.

▶ The response entered here will appear in the performance dashboard and can be viewed by your instructor.

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THE IMPORTANCE OF THINKING CRITICALLY Critical thinking helps us avoid common fallacies. It also discourages us from rushing to arrive at a fixed, closed, or set answer. Many people feel uncomfortable with ambiguity or an open-ended process of constant searching. They seek an absolute correct answer, here and now. Critical thinking warns us that one quick, simple answer is rarely correct and it should be distrusted.

It also points to the value of looking at a question, issue, or evidence from more than one point of view. It tells us that adopting a single point of view often blinds us to important aspects of a question, issue, or problem.

Finally, critical thinking leads us to uncover hidden assumptions. Assumptions—unstated premises or untested starting points—are necessary, and we use them all the time. There is nothing wrong with having assumptions. However, assumptions may block off certain avenues of inquiry while favoring others. Problems can arise when we fail to recognize or examine our assumptions. Critical thinking tells us to notice assumptions and see the ways that they can limit choices. If we adopt alternative assumptions, the outcome may be very different.

Often debates or disagreements reach an impasse because participants are using different assumptions. Revealing hidden assumptions can shift the discussion and allow a resolution or at least clarify the real issue.

Example 1

Two executives, Mark and Susan, disagree over whether to advance product X or product Y. Product X costs less to produce, has a three-year life expectancy, and yields a $10 profit for each item sold. Product Y has slightly higher production costs but is of higher quality. It lasts six years and yields an $8 profit per item. Mark favors item X. He projects that it will sell 10,000 units to produce $100,000 in total profits. Susan favors item Y. She projects that it will sell 15,000 units for $120,000 in total profits. Their disagreement is not over cost or profits, but over time horizon and customer loyalty. Mark assumes a two-year timeframe and that retaining customers and building brand loyalty are minor concerns. Susan assumes a longer timeframe and that building brand loyalty among customers is important.

Example 2

A school district creates two charter schools. New principals of each school want to create a high-quality learning environment. After the schools have been operational for 10 years, 80 percent of students from both schools enter a 4-year college and equal numbers go on to have very successful careers. However, the two principals recruited students differently and attracted very different student bodies based on their assumptions. Principal A assumed that a small sector of society has the talents required to succeed and that academics alone are important. Principal B assumed that most students are capable of success if given a chance and that a socially diverse classroom and student cooperation skills are equally important as academic test scores. Principal A recruited based on academic test scores alone, taking top-scoring students. Principal B recruited one-third of the students based on academics and two-thirds based on other talents (art, athletics, drama, music, or volunteering) or strong motivation. At Principal A's school, 85 percent of students come from one section of town, Eliteville. It is where the high-income, well-educated residents live. Only 25 percent of students at Principal B's charter school come from Eliteville; 75 percent come from all over the community. Despite having the identical outcomes in terms of student success, different assumptions about students by the principals created different student bodies and had divergent social consequences.

One feature of critical thinking is to unveil hidden assumptions and reveal how assumptions influence outcomes. Besides critical thinking, social scientific research uses a particular form of argument, one that

builds logically from explicit assumptions and past studies, then rests on empirical evidence (discussed in next section).

Summary Review

Critical Thinking Skills

- Avoid logical fallacies; practice careful thinking using "cold, hard logic."
- Maintain an open mind and look at all aspects of an issue; be cautious about simple, fast, and easy solutions offered for serious, complex issues.
- Do not get locked into a single point of view; constantly look at issues from multiple perspectives.
- Examine hidden assumptions; be aware of assumptions and their implications.

WRITING PROMPT

Finding Hidden Assumptions

Finding hidden assumptions is the most difficult part of critical thinking. Briefly outline a personnel policy or physical arrangement in a workplace that contains a hidden assumption about people fulfilling traditional gender roles. [Assume the workplace employs an equal number of men and women.]

▶ **The response entered here will appear in the performance dashboard and can be viewed by your instructor.**

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1.2.2: What Counts as Evidence?

Social research builds on systematic **empirical evidence**. We use evidence all the time and evaluate it in everyday life. Would you accept a third-hand rumor as better evidence than a written statement witnessed and co-signed by two neutral observers? Courts of law have rules of evidence that outline what is acceptable and what is not. In many other areas of life, we also adopt standards of what counts as solid, legitimate evidence, and use rules about how to interpret or assign meaning to evidence. Without shared standards and rules, different people might look at the same evidence but arrive at different conclusions. For this reason, social research provides rules of evidence—how to collect it, what counts as good evidence, and how to interpret it. Our confidence in research grows when we have a lot of strong evidence versus scanty or very weak evidence. Research requires you to look at empirical evidence. Moreover, we must collect the empirical evidence carefully and systematically according to rules or standards. The standards of evidence are the key.

Suppose a person is in a boat going down the Colorado River in the Grand Canyon. An artist looks at the rock formations and sees beauty based on aesthetic standards. An environmentalist sees serious erosion based on standards of water flow and soil/rock removal. A geologist sees evidence of ancient geological shifts or volcanic action using standards from the field of geology. A Native American sees evidence of messages from the Great Spirit based on standards from religious beliefs and folklore. Someone else sees evidence of UFO visits based on standards from reading lots of science fiction or fantasy literature. Besides *evidence* we need standards for specific types of evidence.

Where do the standards for evidence come from?

Compare Your Thoughts

Over several decades, thousands of researchers conducted tens of thousands of studies, and other people examined the studies searching for flaws. Today's standards developed slowly as people repeatedly evaluated, critiqued, and suggested areas for improvement in studies. A shorthand way to summarize the standards-creating process is to say that it comes from the scientific community.

Many standards for research evidence follow common sense. Suppose you have two samples of all the students at a large university. One sample contains 100 students and another contains 1,000. Everything else about the samples is identical. Common sense says you should use the one with 1,000 students. Suppose you want to find out a person's attitude about a subject. You can ask that person once in one way with a single question, or you can ask him or her in more than one way, using multiple questions and at multiple time points. Common sense tells you that asking with multiple ways, questions, and times is the better way to learn a person's true attitude. Other standards in research can get more technical or differ from common-sense thinking.