

DOING SOCIAL PSYCHOLOGY RESEARCH

This chapter examines how social psychologists do their research. We begin by asking, “Why should you learn about research methods?” We answer this question by discussing how learning about research methods can benefit you both in this course and beyond. Then we consider how researchers come up with and develop ideas and begin the research process. Next, we provide an overview of the research designs that social psychologists use to test their ideas. Finally, we discuss the issues of culture, ethics, and new standards and practices in social psychology research.

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Culture and Research Methods

Ethics in Research

New Research Standards and

Practices

Cesar Silva

LEARNING OBJECTIVES

- 2.1 Identify the benefits of learning about how social psychologists conduct their research.
- 2.2 Describe how social psychologists come up with their ideas, develop hypotheses and theories, and conduct basic and applied research.
- 2.3 Understand how social psychologists create operational definitions of their variables and use self-reports, observations, and technology.
- 2.4 Compare the advantages and disadvantages of descriptive, correlational, and experimental research.
- 2.5 Summarize the roles of culture and of ethics in social psychological research and the development of new research standards and practices that are becoming more prominent in the field.

You're starting a new term at school, and you're just beginning to settle into a new schedule and routine. You're looking forward to your new courses. It's an exciting time. But there's one major catch: As you spend more and more time with your new classmates and new responsibilities, you're leaving someone behind. It could be a romantic partner or a close friend—someone who is not involved in what you are doing now. You may now live far apart, or your new commitments in school may shrink your time together. The romantic in you says, "Together forever." Or at least, "No problem." But the realist in you worries a bit. Will your love or friendship be the same? Can it survive the long distance, the new demands on your time, or the new people in your lives? Your friends or family may have advice to offer. Some might smile and reassure you, "Don't worry. Remember what they say, 'Absence makes the heart grow fonder.' This will only strengthen your relationship." Others might call you aside and whisper, "Don't listen to them. Everybody knows, 'Out of sight, out of mind.' Be careful."

Taking your mind off this problem, you begin to work on a class project. You have the option of working alone or as part of a group. Which should you do? You consult the wisdom of common sense. Maybe you should work in a group. After all, everyone knows that "two heads are better than one." As some members of your group begin to miss meetings and shirk responsibilities, though, you remember that "too many cooks spoil the broth." Will you regret having been so quick

to decide to join this group? After all, haven't you been taught to "look before you leap"? Then again, if you had waited and missed the chance to join the group, you might have regretted your inaction, recalling that "he who hesitates is lost."

Questions about the course of relationships, the efficiency of working in groups, and the regret from action versus inaction are social psychological questions. We all are interested in predicting and understanding people's behaviors and their thoughts and feelings about each other, and so we all wonder about social psychological questions like these. That's a big part of the fun of it. But if the discipline of social psychology were built only on the personal experiences, observations, and intuitions of everyone who is interested in social psychological questions, it would be a mess of contradictions, ambiguities, and relativism. Instead, social psychology is built on the scientific method.

Scientific? It's easy to see how chemistry is scientific. When you mix two specific compounds in the lab, you can predict exactly what will happen. The compounds will act the same way every time you mix them if the general conditions in the lab are the same. But what happens when you mix together two chemists—or any two people—in a social context? Sometimes you get great chemistry between them; other times you get apathy or even repulsion. How, then, can social behavior, which seems so variable, be studied scientifically?

To many of us in the field, that's the great excitement and challenge of social psychology—the fact that it *is* so dynamic and diverse. In spite of these characteristics, social psychology can—and should—be studied according to scientific principles. Social psychologists develop specific, quantifiable hypotheses that can be tested empirically. If these hypotheses are wrong, they can be proven wrong. In addition, social scientists report the details of how they conduct their tests so that others can try to replicate their

findings. They integrate evidence from across time and place. And slowly but steadily they build a consistent and ever more precise understanding of human nature.

How social psychologists investigate social psychological questions scientifically is the focus of this chapter. Before we explain the methodology they use, we first explain why it's important and, we hope, interesting for you to learn about these matters.

"The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!' (I found it!) but 'That's funny.'" —Isaac Asimov

Why Should You Learn About Research Methods?

One important benefit of learning about research methods is that it can make you a better, more sophisticated consumer of information. Training in research methods in psychology can improve your reasoning about real-life events and problems (Betancur et al., 2019; Freng, 2020; VanderStoep & Shaughnessy, 1997). We are constantly bombarded with “facts” from news and social media, from sales pitches, and from other people. Much of this information turns out to be wrong or, at best, oversimplified and misleading. We are told about the health benefits of eating certain kinds of food or the college entrance exam score benefits of certain preparation courses. To such pronouncements, we should say, “Prove it.” What is the evidence? What alternative explanations might there be?

For example, a commercial tells us that most doctors prefer a particular brand of aspirin. So, should we buy this brand? Think about what it was compared with. Perhaps the doctors didn't prefer that brand of aspirin more than other (and cheaper) brands of aspirin but rather were asked to compare that brand of aspirin with several non-aspirin products for a particular problem. In that event, the doctors may have preferred *any* brand of aspirin, so it would be fine to get the cheaper aspirin. Thinking like a scientist while reading this text will foster a healthy sense of doubt about claims such as these. You will be in a better position to critically evaluate the information to which you're exposed and separate fact from fiction.

More immediately, learning about research methods should help you better understand the research findings reported in the rest of this book, which will in turn help you on tests and in subsequent courses. If you simply read a list of social psychological findings without knowing and understanding a bit about the evidence behind these findings, you may discover later that the task of remembering which were the actual findings and which merely sound reasonable can be difficult. Being able to understand and therefore remember the research evidence on which social psychological principles are based should provide you with a deeper comprehension of the material.



We are bombarded with information in our everyday lives, such as in the countless advertisements designed to persuade us to buy particular products or adopt particular opinions or attitudes. Learning the methods used in social psychology research can help students become more sophisticated consumers of this information.

Alexander Spatari/Getty Images

Developing Ideas: Beginning the Research Process

The research process involves coming up with ideas, refining them, testing them, and interpreting the meaning of the results obtained. This section describes the first stage of research—coming up with ideas. It also discusses the roles of hypotheses and theories and of basic and applied research.

Getting Ideas and Finding Out What’s Been Done

Every social psychology study begins with a question. And the questions come from everywhere. As discussed in Chapter 1, one of the first social psychology experiments published was triggered by the question “Why do bicyclists race faster in the presence of other bicyclists?” (Triplett, 1898). Ever since, social psychologists have been using their own observations, often from everyday life, to generate research ideas. And much more informally, we all ask these questions. Only a select few people sit around and spontaneously ask questions about most disciplines (“Hey, Emily, what do you say we get some wine and talk about variable markets in labor?”), but we all enjoy speculating about social psychological questions (“Hey, Emily, why do you think it’s so hard to get our teammates to work well together?”)

“Education is not the filling of a pail, but the lighting of a fire.” —William Butler Yeats

Questions can come from a variety of sources, from something tragic, such as a controversial interracial shooting of an unarmed man; to something perplexing, such as why men are less likely to ask for help than are women; to something amusing, such as whether the old song is true that people in the bar seem more attractive as closing time approaches (Eberhardt, 2019; Pennebaker et al., 1979; Rosette et al., 2015).

Ideas also come from reading about research that has already been done. The most important research not only answers some pressing questions but also raises new ones, inspiring additional research. The most reliable way to get ideas for new research, therefore, is to read about research already published. Even if you already have an idea, you’ll need to search the social psychological literature to find out what’s been published already. How do you find these published studies? Textbooks such as this one offer a good starting point. General searches online will generate a lot of information, but they can be wildly variable in their relevance, quality, and accuracy. Instead, scholars in the field rely on electronic databases of published research, typically available via college or university library systems. Some of these databases, such as PsycINFO, are specific to the psychology literature; others, like Google Scholar, are more general. These databases allow one to instantly search massive numbers of published articles and books.

“The currency of science is not truth, but doubt.” —Dennis Overbye

Hypotheses and Theories

An initial idea for research may be so vague that it amounts to little more than a hunch or an educated guess. Some ideas vanish with the break of day. But others can be shaped into a **hypothesis**—an explicit, testable prediction about the conditions under which an event will occur. Based on observation, existing theory, or previous research findings, one might test a hypothesis such as “Teenage boys are more likely to be aggressive toward others if they have just played a violent video game for an hour than if they played a nonviolent video game for an hour.” This is a specific prediction, and it can be tested empirically. Formulating a hypothesis

Hypothesis: A testable prediction about the conditions under which an event will occur.

is a critical step toward planning and conducting research. It allows us to move from the realm of common sense to the rigors of the scientific method.

As hypotheses develop and data are collected to test the hypotheses, a more advanced step in the research process may take place: the proposal of a **theory**—an organized set of principles used to explain observed phenomena. Social psychologists aspire to do more than collect a list of findings. The goal is to explain these findings, to articulate the connections between the variables that are studied, and to thereby predict and more completely understand our social worlds. All else being equal, the best theories are efficient and precise, encompass all of the relevant information, and lead to new hypotheses, further research, and better understanding. Good social psychological theories inspire subsequent research designed to test various aspects of the theories and the specific hypotheses that are derived from them. Whether it truly is accurate or not, a theory has little worth if it cannot be tested. Through this testing, theories ideally evolve, becoming more accurate and complete.

Theory: An organized set of principles used to explain observed phenomena.

“Give people facts and you feed their minds for an hour. Awaken curiosity and they feed their own minds for a lifetime.” —Ian Russell

Basic and Applied Research

Is testing a theory the purpose of research in social psychology? For some researchers, yes. **Basic research** seeks to increase our understanding of human behavior and is often designed to test a specific hypothesis from a theory. **Applied research** focuses more specifically on making applications to the world and contributing to the solution of social problems.

Despite their differences, basic and applied research are closely connected in social psychology. Some researchers switch back and forth between the two—today basic, tomorrow applied. Some studies test a theory and examine a real-world phenomenon simultaneously. As a pioneer in both basic and applied approaches, Kurt Lewin (1951) set the tone when he encouraged basic researchers to be concerned with complex social problems and urged applied researchers to recognize that “there is nothing so practical as a good theory.”

Basic research: Research whose goal is to increase the understanding of human behavior, often by testing hypotheses based on a theory.

Applied research: Research whose goal is to make applications to the world and contribute to the solution of social problems.

“Close cooperation between theoretical and applied psychology can be accomplished . . . if the theorist does not look toward applied problems with highbrow aversion or with a fear of social problems, and if the applied psychologist realizes that there is nothing so practical as a good theory.” —Kurt Lewin

Refining Ideas: Defining and Measuring Social Psychological Variables

To test their hypotheses, researchers always must decide how they will define and measure the variables in which they are interested. This is sometimes a straightforward process. For example, if you are interested in comparing how quickly people run a 100-meter dash when alone versus when racing against another person, you’re all set if you have a stopwatch and some willing runners. Many other times, however, the process is less straightforward. Imagine, for example, that you are interested in studying whether mood affects how helpful people are to others. Sounds simple, right? But wait. You need to step back and ask yourself, “What do I mean by mood? How would I measure or manipulate it? What do I mean by ‘helpful to others?’” You will need to define these concepts, and there may be countless ways to do this. Which ones should you pick?



From this picture, we can guess that the child sitting alone is lonely, but how do researchers precisely define and measure conceptual variables such as loneliness?

aldomurillo/iStockphoto

Operational definition:

The specific procedures for manipulating or measuring a conceptual variable.

From the Abstract to the Specific: Conceptual Variables and Operational Definitions

When a researcher first develops a hypothesis, the variables typically are in an abstract, general form. These are *conceptual variables*. Examples of conceptual variables include mood, helpfulness, prejudice, conformity, love, and social anxiety. In order to test specific hypotheses, we must then transform these conceptual variables into variables that can be manipulated or measured in a study. The specific way in which a conceptual variable is manipulated or measured is called the **operational definition** of the variable. Part of the challenge—and fun—in designing research in social psychology is figuring out how to take an abstract conceptual variable such as love or group pressure and deciding how to operationally define it so as to manipulate or measure it.

Imagine, for example, that you want to conduct a study on the effects of alcohol intoxication on aggression. One of your conceptual variables is intoxication. There are several ways of operationally defining this variable, most of which are relatively straightforward. For instance, you might define intoxication as when a participant has a blood alcohol level of .10 or more. Another way would be to define it as when participants say they feel drunk. Your other conceptual variable in this study is aggression. Measuring aggression in experiments is particularly difficult because of ethical and practical issues—we can't let participants in our studies attack each other. Researchers therefore may assess some relatively unusual behaviors, such as having participants deliver shocks, blasts of noise, or even hot sauce to another person as part of a specific task. Often there is no single best way to transform a variable from the abstract (conceptual) to the specific (operational). A great deal of trial and error may be involved.

Researchers evaluate how well they manipulate and measure their variables in terms of their **construct validity**. Construct validity refers to the extent to which (1) the manipulations in an experiment really manipulate the conceptual variables they were designed to manipulate and (2) the measures used in a study (experimental or otherwise) really measure the conceptual variables they were designed to measure.

Measuring Variables: Using Self-Reports, Observations, and Technology

Social psychologists measure variables in many ways, but most can be placed into one of two categories: self-reports and observations. We discuss each of these methods in the next sections, along with how advances in technology are enabling social psychologists to measure variables in new ways.



The challenge of measuring variables. This may not be the most precise way to measure height, but it's pretty adorable.

Dominic Lipinski/PA Images/Alamy Stock Photo

Self-Reports Collecting self-reports—in which participants disclose their thoughts, feelings, desires, and actions—is a widely used measurement technique in social psychology. Self-reports can consist of individual questions or sets of questions that together measure a single conceptual variable. For example, one popular self-report measure, the Rosenberg Self-Esteem Scale, consists of a set of questions that measures individuals' overall self-esteem. Respondents

are asked the extent to which they agree with statements such as “I feel that I have a number of good qualities” and “All in all, I am inclined to feel that I’m a failure.” This scale, first developed by Morris Rosenberg in the 1960s, continues to be used today in a wide variety of settings in countries around the world because many researchers consider it to have good construct validity (Čerešník et al., 2022; Cong & Cheong, 2023; Donnellan & Rakhshani, 2023).

Self-reports give the researcher access to an individual’s beliefs and perceptions. But self-reports are not always accurate and can be misleading. For example, the desire to look good to ourselves and others can influence how we respond. Researchers therefore may use various techniques to try to assure participants’ anonymity or to obscure the purpose behind their questions so that their responses would be more honest.

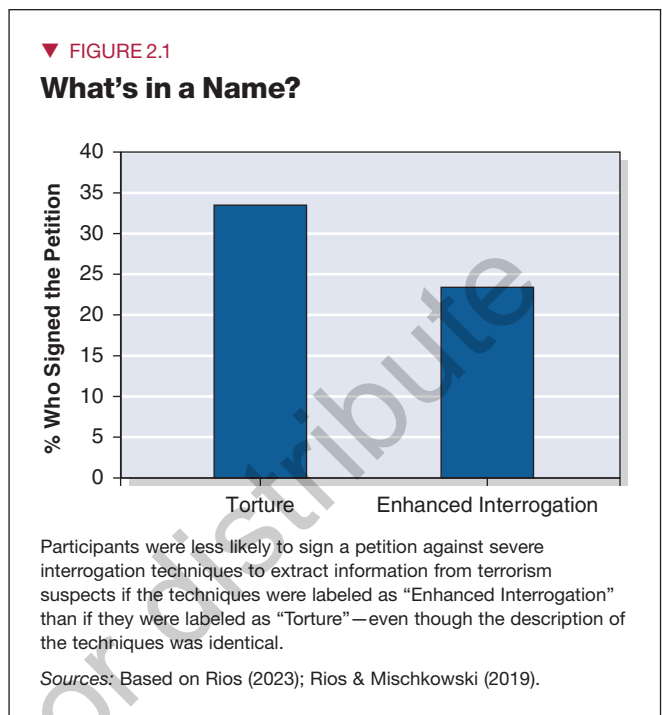
Self-reports are also affected by the way that questions are asked, such as how they are worded or in what order or context they are asked (Hauser & Schwarz, 2018; Schwarz, 2019). For example, Kimberly Rios and Dominik Mischkowski (2019) had participants read about controversial interrogation techniques, such as waterboarding, used on suspects of terrorism to try to get information from them. All participants read the exact same two paragraphs of information describing the techniques, except that for half of them, the information was entitled, “Enhanced Interrogation of Terrorism Suspects,” but for the other half it was labeled “Torture of Terrorism Suspects.” The participants were then given the opportunity to sign a petition to the United States Congress to make these techniques less severe. Participants were significantly less likely to sign the petition if they had read the “Enhanced Interrogation” title than if they had read the “Torture” title (Figure 2.1).

Subtle changes in how questions are asked and contextualized can have significant implications. For example, consider a study in which participants were asked how effective they felt condoms were in stopping a sexually transmitted disease. When condoms were said to have a “95 percent success rate,” a large majority (88%) of respondents reported that condoms were effective. However, when condoms were said to have a “5 percent failure rate” (which is merely another way of saying the same thing), less than half (42%) of the participants indicated that condoms were effective (Linville et al., 1992).

There are theoretical explanations that can account for the seemingly irrational results reported in these studies, but the point here is that subtle factors can have significant effects on the attitudes and opinions that people report, and researchers must be careful to try to minimize the chance of such issues affecting their results.

Observations. Self-reports are but one tool social psychologists use to measure variables. Another method is to observe people’s actions. Sometimes these observations are very simple, as when a researcher notes which of two items a person selects. At other times, however, the observations are more elaborate, as when judging whether someone is acting warmly or coldly toward another person, and require that interrater reliability be established. **Interrater reliability** refers to the level of agreement among multiple observers of the same behavior. Only when different observers agree can the data be trusted.

The advantage of observational methods is that they avoid our sometimes-faulty recollections and distorted interpretations of our own behavior. Actions can speak louder than words. Of course, if individuals know they are being observed, their behaviors, like their self-reports,



Construct validity: The extent to which the measures used in a study measure the variables they were designed to measure and the manipulations in an experiment manipulate the variables they were designed to manipulate.

Interrater reliability: The degree to which different observers agree on their observations.

may be biased by the desire to present themselves in a favorable light. Therefore, researchers sometimes make observations much more subtly. For example, in experiments concerning interracial interactions, researchers may record participants' eye contact or body language to demonstrate biases that would not be revealed using more overt measures.

Technology. Social psychologists use more than merely their eyes and ears to observe their subjects, of course. Various kinds of technology are used to measure cognitive and physiological responses such as reaction time or heart rate, levels of particular hormones, and sexual arousal. Eye-tracking technology, for example, is used to measure exactly where and for how long participants look at someone or something, and computers can record how many fractions of a second it takes someone to make a decision.

Researchers today can open a window into the live human brain—fortunately, without having to lift a scalpel. Brain-imaging technologies take and combine thousands of images of the brain in action. These images can show researchers what parts of the brain seem to “light up”—or show increased activity—in response to a particular stimulus or situation. For example, although participants in a study may show no signs of intergroup bias on their self-reports or through easily observable behavior in the lab, their patterns of brain activity may reveal very different emotional reactions to someone on the basis of their perceived group membership (Amodio & Cikara, 2021; Lasko et al., 2023).

Testing Ideas: Research Designs

The previous section was about how social psychologists measure variables. Now we turn to how they design studies to test their research hypotheses, to try to find evidence to support or disconfirm their ideas. Although methods vary, the field generally emphasizes objective, systematic, and quantifiable approaches. Social psychologists do not simply seek out evidence that supports their ideas; rather, they test their ideas in ways that could very clearly prove them wrong. We can divide these types of tests into three categories: descriptive, correlational, and experimental.

Descriptive Research: Discovering Trends and Tendencies

One obvious way of testing ideas about people is simply to record how frequently or how typically people think, feel, or behave in particular ways. The goal of *descriptive research* in social psychology is, as the term implies, to describe people and their thoughts, feelings, and behaviors. This method can test questions such as the following: Do most people support capital punishment? What percentage of people who encounter a person lying on the sidewalk would offer to help that person? What do people say are the things most likely to make them jealous of their partner? Particular methods of doing descriptive research include observing people, studying records of past events and behaviors, and surveying people. We discuss each of these methods in this section.

“You can observe a lot just by watching.” —Yogi Berra

Observational Studies. We just discussed using observations as a way to measure and assess variables. Many social psychologists use these methods to test ideas involving descriptive research. For example, researchers who want to test an idea about gender and age differences in the frequency and severity of bullying among adolescents may observe schoolchildren's behavior in school yards and playgrounds. Indeed, researchers have done this by carefully watching and taking notes on the children's interactions, sometimes using hidden cameras and microphones (with the schools' and parents' consent) (Frey et al., 2009; Hawkins et al., 2001). Other researchers have used footage from police body cameras to study whether police treat motorists differently during traffic stops as a function of race (Eberhardt, 2019; Voigt et al., 2017).

One particularly interesting study involved professional basketball games in the National Basketball Association (NBA). Graeme Haynes and Thomas Gilovich (2010) wanted to see how often players missed free-throw attempts in cases when they were awarded the shots because of an obviously wrongly called foul call against the other team. The researchers were testing the idea that when players benefit from an obviously inaccurate call by the referee, they subtly, even unknowingly, may be troubled by the sense that they were awarded something they didn't deserve, leading them to be more likely to miss their free-throw attempt.

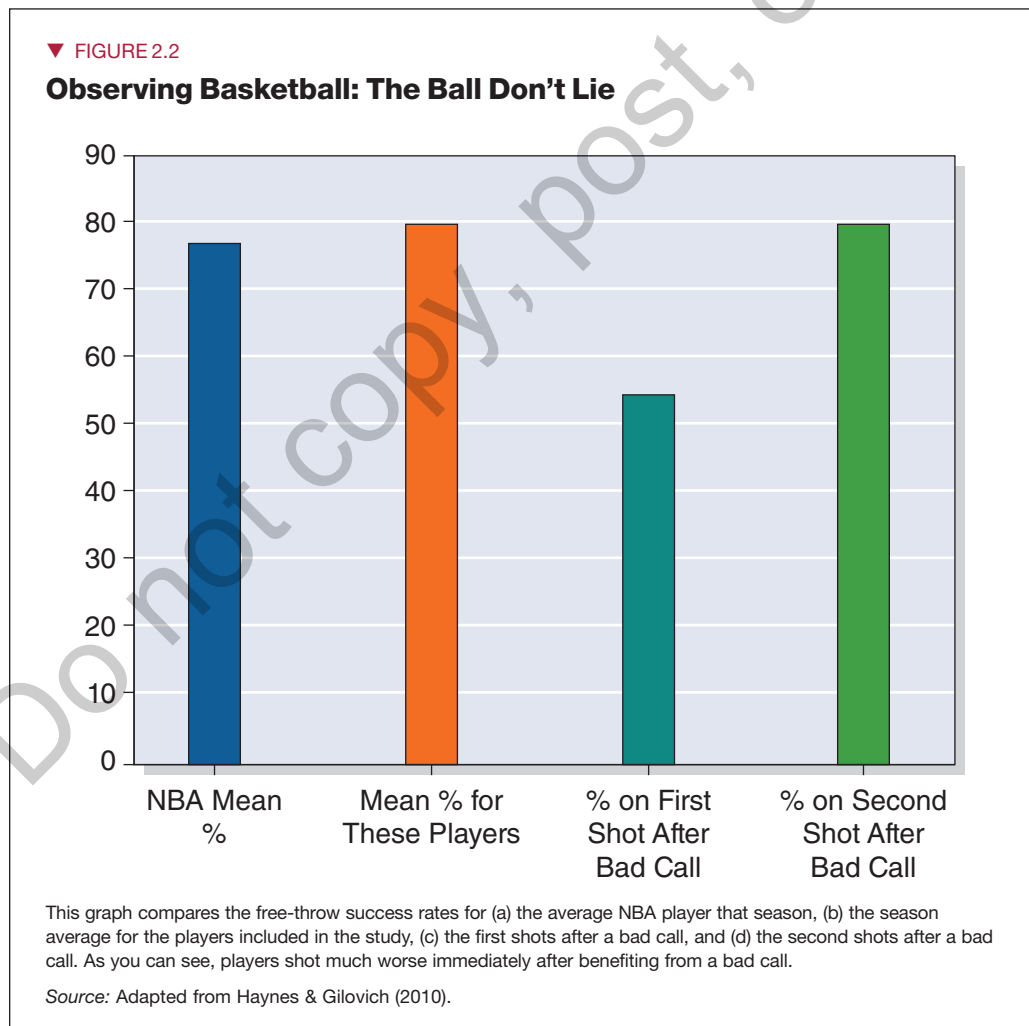


The researchers couldn't run an experiment in which they induced refs into making bad calls during actual games, so they did the next best thing: They watched tapes of NBA games. A lot of them. One hundred and two games, to be precise. Obviously bad foul calls were identified, and whether the subsequent free-throw shooter made or missed his ensuing shots was noted.

Consistent with the adage used by some athletes, "The ball don't lie," the results indicated that justice was indeed served, specifically on the first of the two free throws players took after the bad call. As can be seen in Figure 2.2, the percentage of shots made on the first shot after the bad call was significantly lower than normal. This effect disappeared, however, by the time of the second shot.

Are professional basketball players more likely to miss a free throw if they were awarded the shot because of an obviously bad call by the referee? An observational study reported here attempted to answer that question.

Jesse D. Garabrant/National Basketball Association/Getty Images



Archival Studies. Archival research involves examining existing records of past events and behaviors, such as newspaper articles, medical records, Google searches, retweets on Twitter (also known as X more recently), sports statistics, profiles on dating apps, crime statistics, or hits on a website. A major advantage of archival measures is that because the researchers are observing behavior secondhand, they can be sure that they did not influence the behavior by their presence. A limitation of this approach is that available records are not always complete or sufficiently detailed, and they may have been collected in a nonsystematic manner.

Archival measures are particularly valuable for examining cultural and historical trends. In Chapter 11, for example, we report a number of trends concerning how the rates of violent crimes have changed in recent years. These data come from archival records, such as the records of police stations, the Federal Bureau of Investigation (FBI), and the United Nations. Other examples of archival research include studies that analyzed the content of TV programming or the wording of job ads or performance evaluations to examine if they were biased as a function of gender stereotypes (Smith et al., 2018; Wille et al., 2018). Researchers are beginning to use machine learning to thoroughly search and analyze archival data to detect such biases (Frissen et al., 2023).

Surveys. It seems that nobody in politics today sneezes without first conducting an opinion poll. Surveys have become increasingly popular in recent years, and they are conducted on everything from politics to attitudes about social issues to whether toilet paper should be positioned to go over or under the roll. (OK, we'll tell you: According to a poll by cnet.com, 70% of respondents preferred "over" [Specktor, 2022]).

Conducting surveys involves asking people questions about their attitudes, beliefs, and behaviors. Surveys can be conducted in person, over the phone, by mail, or online. Many social psychological questions can be addressed only with surveys because they involve variables that are impossible or unethical to observe directly or manipulate, such as people's sexual behaviors or their optimism about the future. Although anyone can conduct a survey (and sometimes it seems that everyone does), there is a science to designing, conducting, and interpreting the results of surveys properly and to avoid the kinds of problems we described earlier in this chapter about how wording and context can bias self-reports.

One of the most important issues that survey researchers face is how to select the people who will take part in the survey. The researchers first must identify the *population* in which they are interested. Is this survey supposed to tell us about the attitudes of North Americans, shoppers at Walmart, or students in an Introduction to Social Psychology course at University X, for example? From this general population, the researchers select a subset, or *sample*, of individuals. For a survey to be accurate, the sample must be similar to or representative of the population on important characteristics such as age, gender, race, income, education, and cultural background. The best way to achieve this representativeness is to use **random sampling**, a method of selection in which everyone in a population has an equal chance of being selected for the sample. Survey researchers use randomizing procedures to obtain a random sample of individuals for their studies.

To see the importance of random sampling, consider a pair of U.S. presidential elections (Rosnow & Rosenthal, 1993). Just before the 1936 election, a magazine called the *Literary Digest* predicted that Alfred Landon, the Republican governor of Kansas, would win by 14 percentage points over Franklin Roosevelt. The *Digest* based its prediction on a survey of more than 2 million Americans, which was a massive survey back then. In fact, though, Landon *lost* the election by 24 percentage points. The magazine, which had been in financial trouble before the election, declared bankruptcy soon after.

Twenty years later, the Gallup survey's prediction of Dwight Eisenhower's victory was almost perfect—it was off by less than 2%. The size of its sample? Only about 8,000. How could the 1936 survey, with its much larger sample of 2 million people, be so wrong and

Random sampling: A method of selecting participants for a study so that everyone in a population has an equal chance of being in the study.

the much smaller 1956 survey be so right? The answer is that the 1936 sample was not randomly selected. The *Digest* contacted people through source such as phone books and club membership lists. In 1936, many people could not afford to have phones or belong to clubs. The people in the sample, therefore, tended to be wealthier than much of the population, and wealthier people preferred Landon. In 1956, by contrast, Gallup pollsters randomly selected election districts throughout the country and then randomly selected households within those districts. Today, because of improved sampling procedures, surveys conducted on little more than 1,000 Americans can be used to make accurate predictions about the entire U.S. population.

Correlational Research: Looking for Associations

Although there is much to learn from descriptive research, social psychologists typically want to know more. Most research hypotheses in social psychology concern the relationship between variables. For example, is there a relationship between how physically attractive people are and how much money they make?

One way to test such hypotheses is with correlational research. Like descriptive research, **correlational research** can be conducted using observational, archival, or survey methods. Unlike descriptive research, however, correlational approaches measure the *relationship* between different variables. The extent to which variables relate to each other, or *correlate*, can suggest how similar or distinct two different measures are (for example, how related are people's self-esteem and popularity) and how well one variable can be used to predict another (for example, how well we can predict academic success in college from college entrance exam scores). It is important to note that researchers doing correlational research typically do not manipulate the variables they study; they simply measure them.

In one interesting correlational study, a team of researchers got access to 826 million tweets (!) from people across more than 1,300 counties in the United States. The researchers wanted to examine the relationship between the language that people used on Twitter and measures of health (from public records). They found, for example, that communities in which people tended to tweet using angry language also tended to have greater rates of heart disease mortality (Eichstaedt et al., 2015).

Correlation Coefficient. When researchers examine the relationship between variables that vary in quantity (such as height or degree of self-esteem), they can measure the strength and direction of the relationship between the variables and calculate a statistic called a correlation coefficient. **Correlation coefficients** can range from +1.0 to -1.0. The absolute value of the number (the number itself, without the positive or negative sign) indicates how strongly the two variables are associated. The larger the absolute value of the number, the stronger the association between the two variables, and thus the better either variable is as a predictor of the other. Whether the coefficient is positive or negative indicates the direction of the relationship. A positive correlation coefficient indicates that as one variable increases, so does the other.

For example, college entrance exam scores correlate positively with grades. The positive direction of this relationship indicates that higher entrance exam scores are associated with higher grades and that lower entrance exam scores are associated with lower grades.



In the 1948 U.S. presidential election, pollsters nationwide predicted that Thomas Dewey would defeat Harry Truman by a wide margin. As Truman basked in his victory, pollsters realized that their predictions were based on nonrandom samples of voters. Random sampling would have led to much more accurate predictions.

Underwood Archives/Alamy Stock Photo

Correlational research: Research designed to measure the association between variables that are not manipulated by the researcher.

Correlation coefficients: Statistical measures of the strength and direction of the association between two variables.



Similarity is correlated with attraction—the more similar two people are (such as in their attitudes and personalities), the more attractive they are likely to find each other. But a correlation cannot identify the cause of this attraction. Chapter 9 discusses correlational and experimental research on the role of similarity in the attraction process.

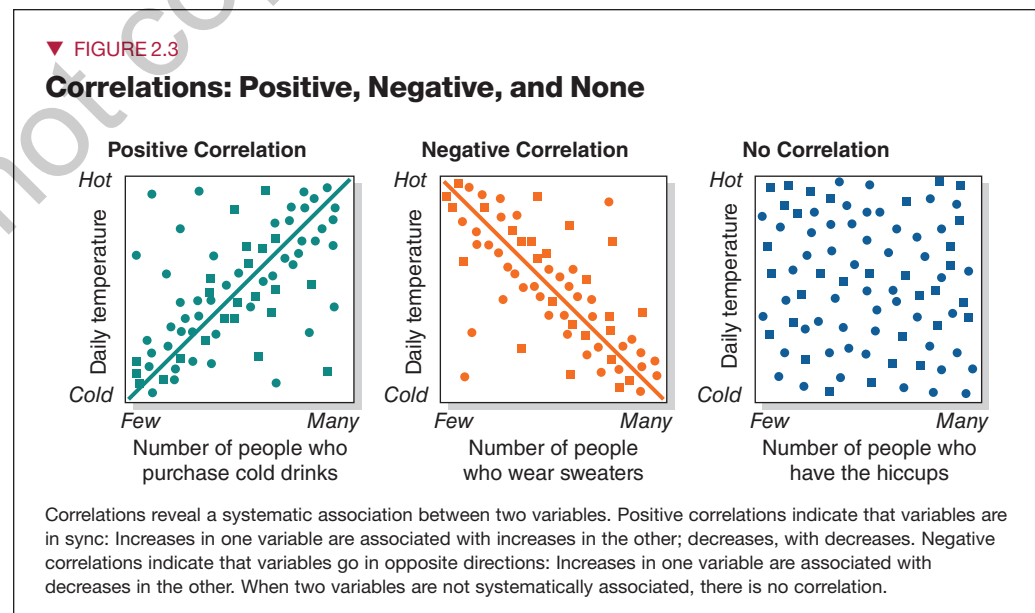
PeopleImages/iStockphoto

This correlation is not perfect; some people with high entrance exam scores have poor grades and vice versa. Therefore, the correlation is less than +1.0, but it is greater than 0 because there is some association between the two. A negative coefficient indicates that the two variables go in opposite directions: As one goes up, the other tends to go down. For example, number of classes missed and grade point average are likely to be negatively correlated. And a correlation close to 0 indicates that there is no consistent relationship at all. These three types of patterns are illustrated in Figure 2.3. Because few variables are perfectly related to each other, most correlation coefficients do not approach -1.0 or $+1.0$ but have more moderate values, such as $+0.39$ or -0.57 .

Some correlational studies involve a variable that does not vary in quantity, such as race, gender, political affiliation, or whether one's favorite food is Italian, Mexican, or Thai. In this case, researchers cannot compute a typical correlation coefficient but instead use different kinds of statistical analysis. The same point applies, though, as the researchers can determine if there is a relationship between the two variables.

Advantages and Disadvantages of Correlational Research. Correlational research has many advantages. It can study the associations of naturally occurring variables that cannot be manipulated or induced—such as ethnicity, age, and income. It can examine phenomena that would be difficult or unethical to create for research purposes, such as love, hate, and abuse. And it offers researchers a great deal of freedom in where variables are measured. Participants can be brought into a laboratory specially constructed for research purposes, or they can be approached in a real-world setting (often called “the field”), such as a plaza or train station.

Despite these advantages, however, correlational research has one very serious disadvantage. And here it is in bold letters: **Correlation is not causation.**



In other words, a correlation cannot demonstrate a cause-and-effect relationship. Instead of revealing a specific causal pathway from one variable, A, to another variable, B, a correlation between variables A and B contains within it three possible causal effects: A could cause B, B could cause A, or a third variable, C, could cause both A and B. For example, imagine learning that the number of hours per night one sleeps is negatively correlated with the number of colds one gets. This means that as the amount of sleep increases, colds decrease in frequency; conversely, as sleep decreases colds become more frequent. One reasonable explanation for this relationship is that lack of sleep (variable A) causes people to become more vulnerable to colds (variable B). Another reasonable explanation, however, is that people who have colds can't sleep well, and so colds (variable B) cause lack of sleep (variable A). A third reasonable explanation is that some other variable (C) causes both lack of sleep and greater frequency of colds. This third variable could be stress, which can cause both sleepless nights and health problems. Figure 2.4 describes another correlation that can be explained in many ways—the correlation between playing violent video games and aggression.

We can guarantee you this: There will be countless times in your life when you'll encounter reports in the media that suggest cause-and-effect relationships based on correlational research. Even the most respectable news sources are guilty of this repeatedly. If you look for it, you can find numerous examples on a weekly basis. One of the great benefits of learning and gaining experience with the material in this chapter is that you can see the flaws in media reports such as these and become less likely to be taken in by them. Correlation is not causation.

Do we learn nothing, then, from correlations? To say that would be to take caution too far. Correlations tell researchers about the strength and direction of relationships between variables, thus helping them understand these variables better and allowing them to use one variable to predict the other. Correlations can be extremely useful in developing new hypotheses to guide future research. And by gathering large sets of correlations and using complicated statistical techniques to crunch the data, we can develop highly accurate predictions of future events.

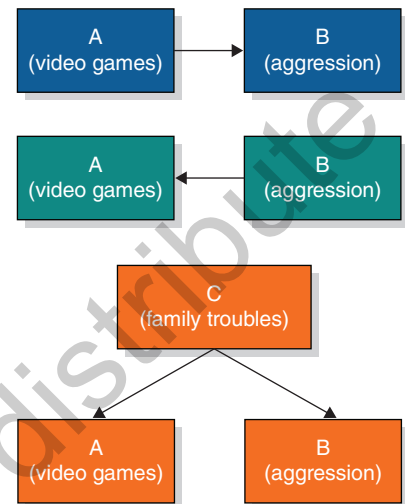
Experiments: Looking for Cause and Effect

Social psychologists often want to examine cause-and-effect relationships. Although it would be informative to know, for example, if playing a lot of violent video games is correlated with violent behavior in real life, the inevitable next question would be whether playing these video games *causes* an increase in violent behavior. If we want to examine cause-and-effect relationships, we need to conduct an experiment. **Experiments** are the most popular method of testing ideas in social psychology, and they can range from the very simple to the incredibly elaborate. All of them, however, share two essential characteristics.

1. The researcher has control over the experimental procedures, manipulating the variables of interest while ensuring uniformity elsewhere. In other words, all participants in the research are treated in exactly the same manner—except for the specific differences the experimenter wants to create.

▼ FIGURE 2.4

Explaining Correlations: Three Possibilities



A positive correlation between how much children play violent video games and how aggressively they behave could potentially be explained in each of the following ways:

1. Playing violent video games causes aggressive behavior.
2. Children who behave aggressively like to play a lot of violent video games.
3. Children who have family troubles, such as parents who are not very involved in the children's development, tend both to play a lot of violent video games and to behave aggressively.

Experiments: A form of research that can demonstrate causal relationships because (1) the experimenter has control over the events that occur and (2) participants are randomly assigned to conditions.

Random assignment:

A method of assigning participants to the various conditions of an experiment so that each participant in the experiment has an equal chance of being in any of the conditions.

- 2. Participants in the study are *randomly* assigned to the different manipulations (called “conditions”) included in the experiment. This might be determined by flipping a coin or using an app or program. **Random assignment** means that participants are not assigned to a condition on anything other than random chance. Through random assignment, the experimenter attempts to ensure a level playing field. *On average, the participants randomly assigned to one condition are no different from those assigned to another condition.* Their personalities, their attitudes, their preferences, heck, even their earlobe lengths, should all be equivalent. Differences that appear between conditions after an experimental manipulation can therefore be attributed to the impact of that manipulation and not to any preexisting differences between participants.

Because of experimenter control and random assignment of participants, an experiment is a powerful technique for examining cause and effect. Both characteristics serve the same goal: to eliminate the influence of any factors other than the experimental manipulation. By ruling out alternative explanations for research results, we become more confident that we understand just what has, in fact, caused a certain outcome to occur. Table 2.1 summarizes the distinctions between correlational and experimental research.

Random Sampling Versus Random Assignment. You may recall that we mentioned random sampling earlier, in connection with surveys. It’s important to remember the differences between random *sampling* and random *assignment*. Random sampling concerns how individuals are selected to be in a study. Because random sampling helps ensure that the results obtained from a sample can generalize to a broader population, it is very useful for survey research. Random assignment concerns not who is selected to be in the study but rather how participants in the study are assigned to different conditions. Random assignment is essential to experiments because it is necessary for determining cause-and-effect relationships; without it, there is always the possibility that any differences found between the conditions in a study were caused by pre-existing differences among participants. Random sampling, in contrast, is not necessary for establishing causality. For that reason, and because random sampling is difficult and expensive, very few experiments use random sampling.

A Social Psychology Experiment on Presidential Debates. Because of the important role that experiments play in social psychology, let’s take a close look at the elements of experiments by focusing on one example.

While watching a debate between candidates for the presidency of the United States, one of the authors of this textbook wondered if the applause, laughter, and jeering of people in the audience at the debate might affect the judgments of the millions of potential voters watching on television. This led to a series of experiments, including one in which college students watched a video of a 1984 presidential debate between Ronald Reagan and Walter Mondale

▼ TABLE 2.1

Correlations Versus Experiments

	Correlational Research	Experimental Research
<i>What does it involve?</i>	Measuring variables and the degree of association between them	Random assignment to conditions and control over the events that occur
<i>What is the biggest advantage of using this method?</i>	Enables researchers to study naturally occurring variables, including variables that would be too difficult or unethical to manipulate	Enables researchers to determine cause-and-effect relationships—that is, whether the independent variable can cause a change in the dependent variable

(Fein et al., 2007). During that debate, Reagan fired off a pair of one-liners that elicited a great deal of laughter and applause from the audience. Political analysts have wondered whether those one-liners may have won the debate—and possibly the election—for Reagan. The one-liners comprised only seconds of a long debate concerning the most important issues of the day. Could these few seconds have made such a difference?

To study this issue, we had students watch 40 minutes of the debate under one of three conditions. One-third of the students saw the debate as it was, without any editing. One-third of the students saw the debate with the two one-liners and the ensuing audience reaction edited out. By comparing these two conditions, we could see whether the presence versus absence of this pair of jokes could make a large difference in people's impressions of Reagan from the debate. However, there was also a third condition. One-third of the students saw the debate with the one-liners intact but the audience reaction edited out. That is, Reagan told his jokes, but there appeared to be no audience response, and the debate continued uninterrupted.

After watching the debate, the students judged the performance of the candidates on a scale ranging from 0 (terrible) to 100 (excellent). As you can see from the first two bars in Figure 2.5, the students who saw the entire unedited video did not rate Reagan much more positively than did the students who saw the debate without the one-liners. This suggests that Reagan's jokes did not have much impact on these viewers' perceptions of him. But look at the third bar in the figure. It illustrates that the students who saw the version of the debate with the one-liners kept in but the audience reaction edited out rated Reagan much less positively than did either of the other groups. What could explain their negativity toward Reagan's debate performance? Perhaps when Reagan's jokes appeared to elicit no reaction, the students unknowingly used the lack of reaction as an indication that Reagan's attempts at wit were inept, and this conclusion caused them to see Reagan in a much less positive light.

What is interesting about these results from a social psychological standpoint is that the students' judgments were influenced more by other people's *reactions* to what Reagan said (that is, whether or not the audience appeared to laugh) than by the *content* of what he said (that is, whether or not the one-liners were edited out of the video). And it is important to note that these "other people" were not in the room with the students; they were simply sounds on a video recorded many years before. Findings such as this demonstrate that the "social context" can be very subtle and yet can have very powerful effects on our thoughts, feelings, and behaviors.

Independent and Dependent Variables. Now that we've looked at an experiment, let's focus on some of the specific elements. In an experiment, researchers manipulate one or more **independent variables** and examine the effect of these manipulations on one or more **dependent variables**. In the experiment we've just described, there was only one independent variable: the variations of the debate video, with each participant randomly assigned to one of the three versions. The dependent variable was the ratings of Reagan's performance. It was the dependent variable because the researchers were interested in seeing if the ratings would *depend* on (that is, be influenced by) the manipulation of the independent variable (that is, by which version of the debate they watched).

Subject Variables. Some experiments include variables that are neither dependent nor truly independent. The gender, ethnicity, and prior political leanings of the participants may vary, for example, and researchers may have interesting hypotheses about these. These variables cannot



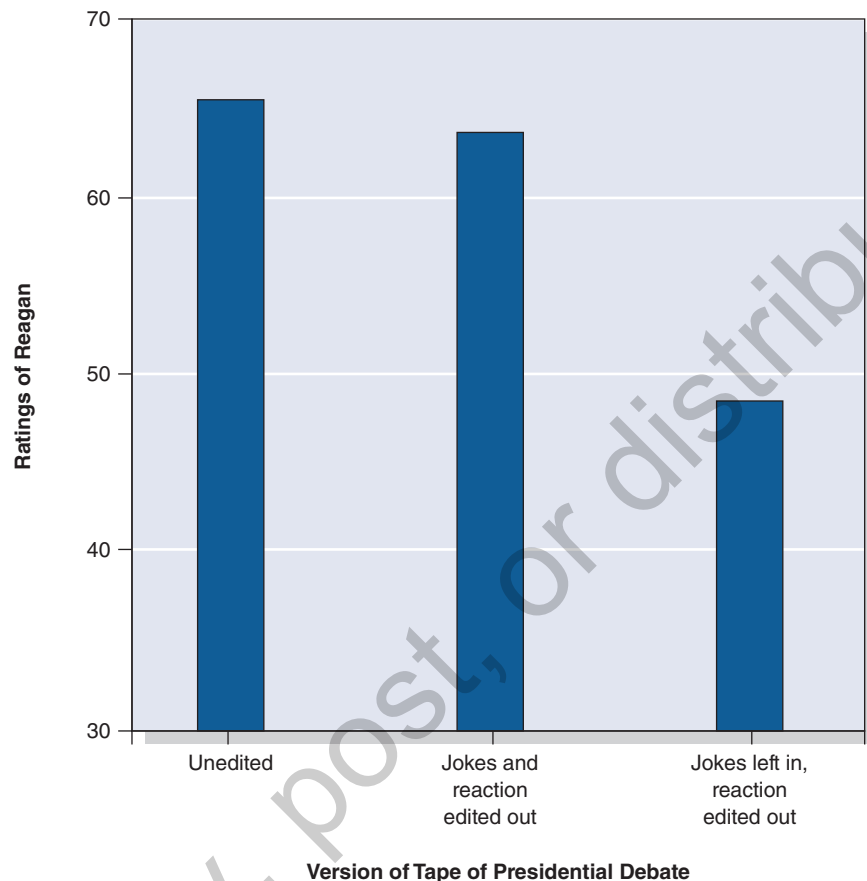
Do people enjoy a comedian's jokes more if they hear other people laughing? Can an audience's reaction influence our judgments about much more important issues, such as who we think was more impressive in a presidential debate? Social psychological research illustrates the power of this kind of social influence even for very significant judgments. Shuran Huang/Washington Post/Getty Images

Independent variables: In an experiment, the factors that experimenters manipulate to see if it affects the dependent variable.

Dependent variables: In an experiment, factors that experimenters measure to see if it is affected by the independent variable.

▼ FIGURE 2.5

Influence of Others' Reactions



Participants in this experiment saw different versions of a video of a presidential debate between Ronald Reagan and Walter Mondale. During the debate, Reagan had delivered a pair of witty one-liners that elicited a positive audience reaction. Participants who saw an unedited version of the video and participants who saw a version with the jokes and the audience reaction edited out judged Reagan's performance similarly. Participants who saw a version with the jokes left in, but the audience reaction edited out (suggesting that the audience didn't find the jokes funny or appropriate) rated Reagan much more negatively.

Source: Adapted from Fein et al. (2007).

Subject variables: Variables that characterize preexisting differences among the participants in a study.

be manipulated and randomly assigned, so they are not true independent variables; they are not influenced by the independent variables, so they are not dependent variables. Variables such as these are called **subject variables** because they characterize preexisting differences among the subjects, or participants, in the experiment. If a study includes subject variables but no true, randomly assigned independent variable, it is not a true experiment. But experiments often include subject variables along with independent variables so that researchers can test whether the independent variables have the same or different effects on different kinds of participants. In our presidential debate experiment, for example, we could have examined if the results might have varied not only as a function of our manipulated variable (the version of the debate) but also as a function of the participants' gender identity. (In fact, we did look at this, and gender did not make a difference.)

Statistical Significance and Replications. In the presidential debate experiment, the average rating of Reagan in the unedited condition was 66 on a 0–100-point scale, and it was 49 in the condition in which the jokes remained but the audience reaction was removed. Is the difference between 66 and 49 large enough to be meaningful, or could this difference simply be due to chance (that is, just random variation, like flipping a coin 10 times and getting heads 6 times and tails 4)? The answer is that you can't tell just by looking at these numbers alone. Results obtained in an experiment are examined with statistical analyses that allow the researcher to determine how likely it is that the results could have occurred by random chance. The standard convention is that if the statistical analyses indicate that the results could have occurred by chance fewer than 5 times in 100 possible outcomes, then the result is **statistically significant** and should be taken seriously.

The fact that results are statistically significant does not mean, however, that they are absolutely certain. In essence, statistical significance is an attractive betting proposition. The odds are quite good that the effects didn't occur by random chance, but there is still the small possibility. This is one reason why **replication** is so important—that is, to repeat the experiment and find similar results. If similar results are found, the probability that these results could have occurred by chance both times becomes exponentially more remote. Statistical significance is relevant not only for the results of experiments but also for many other kinds of data as well, such as correlations. A correlation between two variables may be statistically significant or not, depending on the strength of the correlation and the number of participants or observations in the data.

Very recently there has been a growing emphasis—not only in psychology but across many sciences—on the importance of both replicating research findings and using statistical techniques that serve as alternatives to the focus on statistical significance. We return to these issues in the final section of this chapter.

Internal Validity: Did the Independent Variable Cause the Effect?. When an experiment is properly conducted, its results are said to have **internal validity**: There is reasonable certainty that the independent variable did, in fact, cause the effects obtained on the dependent variable (Cook & Campbell, 1979). As noted earlier, both experimenter control and random assignment seek to rule out alternative explanations of the research results, thereby strengthening the internal validity of the research.

If some other factor varies consistently along with the manipulation, this other factor is called a **confound**. A confound is a serious threat to internal validity and, therefore, makes the issue of cause and effect in the experiment uncertain. For example, if the students in the presidential debate study who watched the unedited version of the debate did so in one room and the students who watched the edited versions did so in a different room, then this would be a confound. It would be impossible to know if it was the manipulation of the version of the debate or if it was some difference between the rooms (such as the temperature, the art on the wall, etc.) that caused the effect on ratings of Reagan's performance. Fortunately, the experimenters knew to avoid this problem.

Experiments often include *control groups* for purposes of internal validity. Typically, a control group consists of participants who experience all of the procedures except the experimental treatment. In the debate study, for example, the participants who watched the unedited video were the control group, which provided a baseline against which to compare the judgments of participants who watched the other versions.

Outside the laboratory, creating control groups in natural settings that examine real-life events raises many practical and ethical problems. For example, researchers testing new medical treatments for deadly diseases face a terrible dilemma. Individuals randomly assigned to

Statistically significant:

Results are said to be statistically significant if analyses determine the probability that the results could have been achieved by random chance is sufficiently low; the most typical convention is that the probability must be less than 5 out of 100.

Replication: Repeating a research study to see if the results are similar to those found in the original study.

Internal validity:

The degree to which there can be reasonable certainty that the independent variables in an experiment caused the effects obtained on the dependent variables.

Confound: A factor other than the independent variable that varies between the conditions of an experiment, thereby calling into question what caused any effects on the dependent variable.

the control group are excluded for the duration of the study from what could turn out to be a lifesaving new intervention. Yet without such a comparison, it is extremely difficult to determine which new treatments are effective and which are useless.

In assessing internal validity, researchers need to consider their own role as well. Unwittingly, they can sometimes sabotage their own research. For example, imagine you are a researcher and you know which participants are in which conditions of your experiment. You will no doubt have expectations (and possibly even strong hopes) about how your participants will respond differently between conditions. Because of these expectations and without realizing it, you may treat the participants a little differently between conditions. It turns out that even very subtle differences in an experimenter's behavior can influence participants' behavior (Rosenthal, 1976). Therefore, because of these **experimenter expectancy effects**, the results you find in your experiment may be produced by your own actions rather than by the independent variable.

The best way to protect an experiment from these effects is to keep experimenters uninformed about assignments to conditions. This is sometimes called being “blind to the conditions” in a study. If the experimenters do not know the condition to which a participant has been assigned, they cannot treat participants differently as a function of their condition. Of course, there may be times when keeping experimenters uninformed is impossible or impractical. In such cases, the opportunity for experimenter expectancy effects to occur can be reduced at least somewhat by minimizing the interaction between experimenters and participants. For example, rather than receiving instructions directly from an experimenter, participants can be asked to read the instructions on paper or a screen.

External Validity: Do the Results Generalize?. In addition to guarding internal validity, researchers are concerned about **external validity**, the extent to which the results obtained under one set of circumstances would also occur in a different set of circumstances (Berkowitz & Donnerstein, 1982). When an experiment has external validity, its findings can be assumed to generalize to other people and to other situations. Both the participants in the experiment and the setting in which it takes place affect external validity.

To help increase external validity, social psychologists would love to conduct their experiments with huge samples of participants that are representative of the general population. Usually, however, they must rely on convenience samples drawn from populations that are readily available to them, which explains why so much research is conducted on college students. There are very practical reasons for the use of convenience samples. Representative samples are fine for surveys that require short answers to a short list of questions. But what about complex, time-consuming experiments? The costs and logistical problems associated with this would be staggering.

Advocates of convenience samples contend that the more basic the principle, the less it matters who participates in the research. For example, people from different cultures, regions, and ages might differ in the *form* of aggression they typically exhibit when angry, but the situational factors that cause people to be *more likely to aggress*—in whatever way that aggression is expressed—may be similar for most individuals across time and place. Yet in spite of these arguments, having the most diverse, representative samples of research participants as possible is ideal. The growing interest in cross-cultural research in the field is certainly one step in the right direction.

Another promising development is the rapidly increasing use of online data collection, which allows for far more diverse sets of participants. There are numerous challenges associated with this approach as well, however, such as having less control over what participants are seeing or doing as they participate in the study from afar. Fortunately, research testing the data collected via one of the most popular online services, called Mechanical Turk, suggests that the data often

Experimenter expectancy effects: The effects produced when experimenters' expectations about the results of an experiment affect their behavior toward participants and thereby influence the participants' responses.

External validity: The degree to which there can be reasonable confidence that the results of a study would be obtained for other people and in other situations.

are at least as reliable as data collected through traditional methods and offer a much greater diversity of participants, although some reasons for caution have been noted as well (Buhrmester et al., 2018; Sheehan, 2018).

The external validity of an experiment may also depend in part on how realistic the study is for the participants. But what is meant by realistic is not as straightforward as you might think. Two types of realism can be distinguished: mundane versus experimental (Aronson & Carlsmith, 1968). **Mundane realism** refers to the extent to which the research setting resembles the real-world setting of interest, such as a lab that resembles a game room or in an actual subway station or park.

In contrast, **experimental realism** refers to the degree to which the experimental setting and procedures are real and involving to the participant, regardless of whether they resemble real life or not.

According to those who favor experimental realism, if the experimental situation is compelling and real to the participants while they are participating in the study, their behavior in the lab—even if the lab is in the basement of the psychology building—will be as natural and spontaneous as their behavior in the real world. The majority of social psychologists who conduct experiments emphasize experimental realism.

Deception in Experiments. Researchers who strive to create a highly involving experience for participants often rely on **deception**, providing participants with false information about experimental procedures. Toward this end, social psychologists sometimes employ **confederates**, people who act as though they are participants in the experiment but are really working for the experimenter.

For example, in Solomon Asch's (1956) classic research on conformity, research participants made judgments about the lengths of lines while in the midst of a number of confederates—who were pretending to be ordinary participants—who at various times all gave wrong answers. The researchers wanted to see if the real participants would conform to the confederates and give the obviously wrong answer that the confederates had given (you can see the details and results in Chapter 7). Although it was a very odd setting, the situation was a very real one to the participants (and therefore was high in experimental realism), and many of the participants clearly struggled with the decision about whether or not to conform.

Deception not only strengthens experimental realism but also provides other benefits: It allows the experimenter to create situations in the laboratory that would be difficult to find in a natural setting, such as a regulated, safe environment in which to study potentially harmful behaviors like aggression or discrimination. Some research has shown that participants are rarely bothered by deception and often particularly enjoy studies that use it (Smith & Richardson, 1983; Uz & Kimmelmeier, 2017). Nevertheless, the use of deception creates ethical concerns, leading to debate about whether and how it should be used. Fortunately, as we will see a bit later in the chapter, procedures have been put in place to try to ensure the ethical integrity of research today.

Meta-Analysis: Combining Results Across Studies

We have seen that social psychologists conduct descriptive, correlational, and experimental studies to test their hypotheses. Another way to test hypotheses is to use a set of statistical



Many individuals earn money at home by participating in online research projects, such as through a service provided by Amazon called Mechanical Turk. Online services like this now allow social psychologists to reach out to vastly more diverse samples of people from around the world to participate in their studies.

AsiaVision/iStock

Mundane realism: The degree to which the experimental situation resembles places and events in the real world.

Experimental realism: The degree to which experimental procedures are involving to participants and lead them to behave naturally and spontaneously.

Deception: In the context of research, a method that provides false information to participants.

Confederates: Accomplices of an experimenter who, in dealing with the real participants in an experiment, pretend to be ordinary participants.



The setting in which children attend school can vary dramatically across cultures. Here students sit outside in a class in Malawi, Africa. Recognizing cultural variation has become increasingly important in social psychology today, and social psychologists are conducting their research across a wider range of cultures and contexts than ever before.

Bartosz Hadyniak/iStock

Meta-analysis: A set of statistical procedures used to review a body of evidence by combining the results of individual studies to measure the overall reliability and strength of particular effects.

procedures to examine, in a new way, relevant research that has already been conducted. This technique is called **meta-analysis**. By “meta-analyzing” the results of a number of studies that have been conducted in different places and by different researchers, researchers can measure precisely how strong and reliable particular effects are. For example, studies published concerning the effects of alcohol on aggression may sometimes contradict each other. Sometimes alcohol increases aggression; sometimes it doesn’t. By combining the data from all the studies that are relevant to this hypothesis and conducting a meta-analysis, a researcher can determine what effect alcohol typically has, how strong that effect typically is, and perhaps under what specific conditions that effect is most likely to occur. This technique is being

used with increasing frequency in social psychology today, and we report the results of many meta-analyses in this textbook.

Culture, Ethics, and New Research Standards and Practices

In this concluding section of this chapter, we explore the role of culture in research methods, some of the issues concerning ethics in research, and some exciting new developments in how social psychologists conduct their research.

Culture and Research Methods

Throughout this book you will see examples of social psychological research that examines differences and similarities across cultures. One of the advantages of this approach is that it provides better tests of the external validity of research. By examining whether the results of an experiment generalize to a very different culture, social psychologists can begin to answer questions about the universality or cultural specificity of their research. It is important to keep in mind that when a finding in one culture does not generalize well to another culture, this should not be seen simply as a failure to replicate but instead may be an opportunity to learn about potentially interesting and important cultural differences.

Cultural investigations present special challenges to researchers. For example, cultural differences have been found in how affected people are by the context of questions as they complete a survey or about the assumptions respondents make about what the researchers have in mind for a given question (Schwarz et al., 2010; Uskul et al., 2013). It also can be difficult for researchers to translate materials from one language into another. Although it is relatively easy to create literal translations, it can be surprisingly challenging to create translations that have the same meaning to people from various cultures. Table 2.2 presents examples—from signs displayed around the world—of what can go wrong when simple sentences are poorly translated.

An even more subtle point about language is that multilingual people may think or act differently as a function of what language is being used in a particular setting. A study by Nairán Ramírez-Esparza and others (2008) illustrates this point. They found that how agreeable a sample of bilingual Mexican American participants appeared to be—either on a self-report questionnaire or in their behavior in an interview—varied significantly as a function of whether the study was conducted in Spanish or in English.

Ethics in Research

Researchers in all fields have a moral and legal responsibility to abide by ethical principles. In social psychology, the use of deception has caused some concern about ethics, as we indicated earlier. In addition, several studies have provoked fierce debate about whether the procedures used in the studies went beyond the bounds of ethical acceptability.

The most famous of these controversial studies was designed by Stanley Milgram in the early 1960s. Milgram (1963) designed a series of studies to address the question, “Would people obey orders to harm an innocent person?” To test this question, he put volunteers into a situation in which an experimenter commanded them to administer painful electric shocks to someone they thought was another volunteer participant. (In fact, the other person was a confederate who was not actually receiving any shocks.) The experiment had extremely high experimental realism—many of the participants experienced a great deal of anxiety and stress as they debated whether they should disobey the experimenter or continue to inflict pain on another person. The details and results of this experiment will be discussed in Chapter 7, but suffice it to say that the results of the study made people realize how prevalent and powerful obedience can be.

Milgram’s research was inspired by the obedience displayed by Nazi officers in World War II. No one disputes the importance of his research question. What has been debated, however, is whether the significance of the research topic justified exposing participants to possibly harmful psychological consequences. Even though no one in Milgram’s studies actually received the electric shocks, the participants were quite stressed during the study because they *thought* they were harming another person until the experimenter finally told them the truth at the conclusion of the experiment.

Another famous study that sparked great controversy is known as the Stanford Prison Experiment. Philip Zimbardo and others simulated a prison environment in the basement of Stanford University’s psychology department building to study how ordinary people can be affected in extraordinary ways by the roles they are assigned in a prison environment (Haney et al., 1973). This study is discussed in detail in Chapter 12. Under today’s provisions for the protection of human participants, Milgram’s and Zimbardo’s classic studies probably could not be conducted in their original form. (In an interesting twist, even though conducting these studies might be impossible now, in popular culture today individuals endure far greater stress and even humiliation in numerous unscripted TV shows for the entertainment of viewers at home.)

Today, virtually every social psychology study is evaluated for its ethics by other people before the study can be conducted. In the following sections, we describe current policies and procedures as well as continuing and new concerns about ethics in social psychological research.

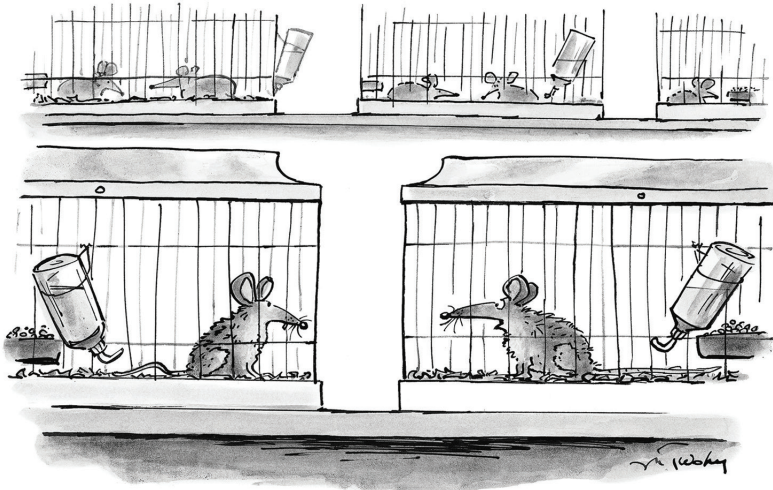
Institutional Review Boards and Informed Consent. In 1974, the agency then called the U.S. Department of Health, Education, and Welfare established regulations designed to protect human participants in research. These regulations created institutional review boards (IRBs) at all institutions seeking federal funding for research involving human participants. IRBs

▼ TABLE 2.2

Lost in Translation

- | |
|---|
| • “Drop your trousers here for best results.” (a dry cleaner in Thailand) |
| • “You are invited to take advantage of the chambermaid.” (a hotel in Japan) |
| • “Ladies are requested not to have children in the bar.” (a cocktail lounge in Mexico) |
| • “Take one of our horse-driven city tours—we guarantee no miscarriages.” (a tourist agency in the former Czechoslovakia) |
| • “We take your bags and send them in all directions.” (an airline in Denmark) |

Source: Adapted from Triandis (1994).



“What if these guys in white coats who bring us food are, like, studying us and we’re part of some kind of big experiment?”

CartoonStock.com

One reason for the use of deception in an experiment is so that the participants will act more naturally when they are not aware of what is being studied. In these cases, it is especially important for the researchers to provide a full and thorough debriefing.

Mike Twohy/New Yorker/Cartoon Bank

Informed consent:

An individual’s deliberate, voluntary decision to participate in research, based on the researcher’s description of what will be required during such participation.

Debriefing: A disclosure, made to participants after research procedures are completed, in which the researcher explains the purpose of the research, attempts to resolve any negative feelings, and emphasizes the scientific contribution made by the participants’ involvement.

only anonymous questionnaires, naturalistic observations, or archival research that puts no one at risk.

Debriefing. Just as informed consent is important at the beginning of most studies, so too is **debriefing** at the end of them, especially if deception was used. Debriefing is a process of disclosure in which researchers fully inform their participants about the nature of the research in which they have participated. During a debriefing, the researcher explains what happened in the study and why. The researcher discusses the purpose of the research, reveals any deceptions, and makes every effort to help the participant feel good about having participated. A skillful debriefing can greatly enhance the experience for participants. Indeed, we have known students who became so fascinated by what they learned during a debriefing that it sparked their interest in social psychology, and eventually they became social psychologists themselves.

Ethics and Consent Online. Along with the tremendous benefits of our ever-expanding online worlds has come troubling losses of privacy. This loss of privacy has opened the window for corporations, marketers, and researchers to peek in to record your actions in ways that raise new questions about ethics.

For instance, a firestorm of controversy erupted when scientists working with Facebook published a paper in which they revealed having conducted an experiment on nearly 700,000 Facebook users—without their knowledge—by manipulating their news feeds and recording how the manipulation affected users’ subsequent status updates. As the opening line of a *New York Times* article about the controversy put it, “To Facebook, we are all lab rats” (Goel, 2014). This characterization of Facebook took on even greater significance when evidence came to light of massive attempts from Russia to use Facebook to interfere with the U.S. presidential election in 2016 and to collect private data from millions of Facebook users (Granville, 2018; Shane & Goel, 2017).

More recently, fears about how the popular app TikTok tracks and manipulates its many millions of users have some calling it a biological weapon intended to destroy democracy (Gurwinder, 2023). Technically, social media users give consent to being “lab rats” for the apps’ researchers when they agree to their terms of service, but in reality we all know that very

became a key safeguard for research, taking on the responsibility of reviewing research proposals to ensure that the welfare of participants is adequately protected. Psychology researchers must also abide by a code of conduct stipulated by the American Psychological Association to protect the rights of everyone who participates in their studies.

One extremely important practice is to obtain **informed consent**. Through informed consent, individuals are asked whether they wish to participate in the research project and must be given enough information to make an informed decision, so that they understand any risks or potential concerns before participating. Participants must also know that they are free to withdraw from participation in the research at any point. Informed consent may not be necessary in some cases, such as in research involving

few people pay attention to all that fine print when they begin to use a new app or service. Questions about ethics and informed consent in the online world will no doubt continue to be wrestled with in the coming years.

New Research Standards and Practices

It is absolutely essential that researchers conduct and report their research with complete honesty. It is therefore both shocking and deeply disturbing when a case of fraud is revealed. One such example rocked the field toward the end of 2011, when it was discovered that a Dutch social psychologist had committed a massive amount of dishonesty, involving the fabrication of data published in dozens of studies for about a decade (Bartlett, 2011). The news of this scandal, together with the announcements of a few subsequent cases of fraud or suspected fraud, caused some social psychologists to question the field's practices. In 2023, a pair of prominent behavioral economists were accused of fraud in their research—research that itself was about dishonesty (Stern, 2023)!

When some teams of researchers published reports indicating that a wide variety of published findings did not replicate when other labs repeated the studies (Klein et al., 2018; Open Science Collaboration, 2015), this led to additional concerns. Although some researchers argued that many of these attempted replications were conducted poorly and thus had little value, others supported this work (Anderson et al., 2016; Gilbert et al., 2016).

"[Objectivity in science] is willingness (even the eagerness in truly honorable practitioners) to abandon a favored notion when testable evidence disconfirms key expectations."—Stephen Jay Gould

These controversies and discussions are not at all limited to social psychology, as they are occurring in a variety of other fields across the sciences. With all this in the air, new standards and practices for research are developing to protect against these problems. They include requiring much larger sample sizes (that is, number of participants) in studies, using more advanced and precise statistical methods to better and more fairly test researchers' ideas, ensuring that researchers make their materials and data available to others, and placing greater emphasis on replicating each other's research. One important idea is **preregistration**, in which researchers report their predictions and plans for data analyses *before* the data are collected, and to encourage journals to agree to publish the results of preregistered studies no matter how the data turn out. As discussed in Chapter 1, an "open science" movement promotes making researchers' materials and data accessible and therefore transparent to everyone.

It is important to note that the strong reaction by the social psychology community to these issues is a testament to how much it cares about its integrity and will work diligently to reassert and protect it in the years to come. These new practices to ensure integrity and accuracy are exciting and energizing, particularly for the next generation of new social psychologists who are beginning to take the reins of the field as it grows rapidly in its findings, scope, and importance.

In these first two chapters, we have, step-by-step, defined social psychology, reviewed its history and anticipated its future, explained its research methods, and discussed culture, ethics, and new developments concerning research practices. As you study the material presented in the coming chapters, the three of us who wrote this book invite you to share our enthusiasm. You can look forward to information that overturns commonsense assumptions, to lively debate and heated controversy, and to a better understanding of yourself and other people. Welcome to the world according to social psychology. We hope you enjoy it!

Preregistration: The practice of researchers reporting their research design, predictions, and plans for data analyses before conducting their study.

REVIEW

TOP 10 KEY POINTS IN CHAPTER 2

1. Theories in social psychology attempt to explain and predict social psychological phenomena. The best theories are precise, explain all the relevant information, and generate research that can support or disconfirm them. They should be revised and improved as a result of the research they inspire.
2. The goal of basic research is to increase understanding of human behavior; the goal of applied research is to make applications to the world and contribute to the solution of social problems.
3. Researchers often must transform abstract, conceptual variables into specific operational definitions that indicate exactly how the variables are to be manipulated or measured. The construct validity of a study is the extent to which the variables were operationalized well.
4. Researchers use self-reports, observations, and technology to measure variables.
5. Correlational research examines the association between variables. Correlation does not indicate causation; the fact that two variables are correlated does not necessarily mean that one causes the other.
6. Experiments require (1) control by the experimenter over events in the study and (2) random assignment of participants to conditions. Experiments examine the effects of one or more independent variables on one or more dependent variables.
7. Experimental findings have internal validity to the extent that changes in the dependent variable can be attributed to the independent variables. Research results have external validity to the extent that they can be generalized to other people and other situations.
8. Meta-analysis uses statistical techniques to integrate the quantitative results of different studies.
9. Institutional review boards are responsible for reviewing research proposals to ensure that the welfare of participants is adequately protected.
10. Recent controversies have led to a variety of suggestions for how the field of social psychology should better protect itself against bias or dishonesty and to improve its research and reporting standards, including using larger sample sizes, more emphasis on replication, use of different statistical analyses, sharing of materials and data, and preregistration.

KEY TERMS

Applied research 23
Basic research 23
Confederates 37
Confound 35
Construct validity 25
Correlational research 29
Correlation coefficients 29
Debriefing 40
Deception 37
Dependent variables 33

Experimental realism 37
Experimenter expectancy effects 36
Experiments 31
External validity 36
Hypothesis 22
Independent variables 33
Informed consent 40
Internal validity 35
Interrater reliability 25
Meta-analysis 38

Mundane realism 37
Operational definition 33
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