# PART I

# ESTABLISHING THE ISSUE

# OVERVIEW OF THE RESEARCH PROCESS

## LEARNING GOALS

- Identify the different sources of knowledge and how they relate to scientific observation.
- Distinguish between basic and applied research
- Distinguish between qualitative and quantitative research
- Identify the four main research goals
- Summarize the relationship between research and theory via inductive and deductive research
- Follow the steps in the deductive research process

In 2018, a gunman using an automatic rifle killed 17 students and staff as well as injured 17 others at Marjorie Stoneman Douglas High School in Parkland, Florida. To the public, this seemed like the most recent incident in an increasing trend of mass school violence that started almost 20 years prior, in 1999, with the mass shootings at Columbine High School in Columbine, Colorado. These visible acts of mass violence in our schools have led parents, community members, educators, and politicians to ask "What can we do?"

If you are reading this textbook, you are most likely majoring in sociology, social work, criminal justice, or some other discipline where you plan on "helping" people and/or you want to find answers to sociological issues like school shootings. But how do you know what works to help people? Or how do you know what are social issues rather than isolated private troubles?

You are most likely learning about the issues, theories, and challenges of your discipline in your other classes; but, how do your professors know what to teach? And if your career goal is to "help people," how will *you* know if your interventions work effectively for as many people as possible? Because you are reading this textbook, you may already suspect part of the answer to these questions: research and statistics. What we know about our social world and how to influence it comes from various types of theory and research. Understanding how to read and to do research is important because making decisions that influence human behavior without evidence can lead to a waste of money at best or additional harm to those we want to help at worst.

## SOURCES OF KNOWLEDGE

Take the tragic instances of mass school shootings like Columbine in 1999, Sandy Hook in 2012, and Stoneman Douglas in 2018, just to name some high-profile cases. These occurrences have made the public more sensitive to school bullying and to what feeling like an outsider might lead people to do. But how can we sift through different types of knowledge to answer the question "What can we do?" There are many forms of knowledge people use to answer questions. Four common sources are tradition, experience, common sense, and **authority**. Let's take a look at each in more detail regarding our issue of school violence.

**Tradition** is the idea that "that is the way it's always been." For example, it is a tradition that when you have a cold, you eat chicken soup. We probably all have memories of mom or someone we love giving us chicken soup when we were sick and we commonly associate that soup with comfort. It's probably a good bet that none of us have scientifically tested whether or not this association is true, but the link between chicken soup, sickness, and comfort is so entrenched in our traditions that the phrase beginning "chicken soup for_____" has become the basis of folk sayings, book titles, and memes, and is just…well…*known*. In fact, it wasn't until fairly recently that scientific study supported this traditional knowledge (Rennard, Ertl, Gossman, Robbins, & Rennard, 2000). To link traditional knowledge to what we can do about school violence, we might realize that Americans have a tradition of confronting problems head-on in a direct manner. Popular slogans such as "Get tough on crime," "War on Drugs," and "War on Terrorism" reflect our tradition of approaching a problem directly by actions such as tightening enforcement to decrease a threat. Therefore, tradition might suggest that in the instance of school shootings, we should implement actions like zero tolerance for various school offenses or by tightening security.

But there are some problems to basing knowledge, especially knowledge to address a problem, on tradition. First, tradition can be distorted. When we think of the past, we tend to pick the pieces that we *want* to remember. For example, Americans tend to have a nostalgic view of the 1940s and the 1950s, which are exemplified by the folk art of Norman Rockwell. We think of the 1950s as a simpler time where neighbors knew each other, people were civically engaged, women stayed home to raise children, and men worked hard to economically support their families. However, what we neglect to remember is that these times were often rife with racial

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**PHOTO 1.1** Schools have recently implemented many new strategies to reduce school violence. But do they work?

segregation, social isolation of women, the economic dependence of women, and a quiet tolerance of interpersonal violence.

Obviously, our world has changed since then; but that leads to the second problem with traditional knowledge. What was accurate or accepted in the past may not be now. Even a popular comic when I was young had a main character routinely tormenting another by pulling a football away from him every time he was about to kick it and calling him names…and it was considered funny. But this is less likely to be the case today. In fact, the traditional view might also actually be more tolerant of behavior like bullying and fighting. Familiar sayings like "boys will be boys" and "sticks and stones may break my bones but words can never hurt me" hark back to a time when kids were "tougher," so maybe the problem isn't with the violence per se, it's that children today can't handle adversity and, therefore, are not likely to know how to appropriately deal with it. Therefore, traditional knowledge doesn't always account for cultural, social, or statistical change, so maybe we need to continue to look elsewhere for an answer to our school violence problem.

Another source of knowledge is **experience**[1], the old "seeing is believing" adage. If we experienced it, then it must be true. In the case of the Columbine shootings, the two shooters, Eric Harris and Dylan Klebold, came from wealthy families with employed mothers. At the time of the shootings, working middle-class mothers, who embodied a shift in traditional gender roles, were a common scapegoat to many changes being observed in children's behaviors. Presumably, if mothers worked, they were not home by the time their children got out of school; and this lack of supervision was directly responsible for all sorts of adolescent deviance.

[1]All bolded terms in the chapters are defined in the Glossary in the back of the book.

The link between these boys' backgrounds and the shootings gave "evidence" to the "seeing is believing" arguments of social and political conservatives. But this form of knowledge is limiting as well. First, it assumes that our personal experiences represent the experiences of *everyone*. Of course, that isn't true. The experiences of an economically disadvantaged female who identifies as a racial minority are not likely to be the same as that of an economically advantaged white male. Secondly, using experience as the basis of knowledge assumes that what worked in one situation will work in another; but again it ignores that the two situations may not be similar. Furthermore, like tradition, experience runs the risk of selective observation. Blaming the actions at Columbine on adolescents having working mothers ignored the millions of other children whose mothers were employed but who did *not* participate in mass school shootings. Lastly, people have a vested means in perceiving their experiences in ways that benefit them. If a student does poorly on an exam, they are likely to blame the professor (the exam was too hard, the professor doesn't like me), which enables the student to feel less bad. The professor, on the other hand, is likely to put the responsibility on the student (the student didn't study hard enough, didn't ask questions in class, and didn't come to office hours for help) to also feel less responsible. The situation is the same (poor test grade), but different interpretations of cause depend on the perspective. Professional feedback (experience) is especially vulnerable to this bias as research has found that professionals in the field have an empirically observable tendency to see improvement whether it exists or not and/or to have more confidence in their ability to judge client progress than more objective measures would indicate (Hannan et al., 2005; Lambert et al., 2003; Worthen & Lambert, 2007). Therefore, at least in the world of research, we should always be skeptical of whether we should believe what we see—at least until we have a better understanding of the context in which we are "seeing" human behavior. So let's keep looking at the other sources of information.

We still have two other common sources of knowledge to address. The third, although not an entirely unique form, is **common sense**, which is the knowledge that stems from combining tradition and experience. If we have been told something long enough (like the chicken soup) and we have experienced it ourselves (hot soup is soothing), then the knowledge "makes sense." The knowledge that makes sense is common sense. Because we already covered the flaws in the two forms of knowledge that contributed to common sense, then common sense as a primary source of information would be flawed for the same reasons.

So what about knowledge stemming from "authority"? Surely experts have it right...after all, they are *experts*. Often, they are right, but we still have to be skeptical. For example, many of you probably have learned from some history teacher in your life that Christopher Columbus made his famous sail to find a viable trade route to China and had a hard time obtaining financing for this expedition because the educated elite in Spain thought that the world was flat and that Columbus (and his expensive ships) would fall off the earth. Your history teachers are experts, correct? Although teachers *are* experts in their field, it turns out that even experts can learn incorrect information because Columbus's flat earth story is a myth. Educated people of Columbus's time studied the works of the ancient Greeks who knew that the world was not flat since 500 B.C. (Singham, 2007). So how did this myth become a "fact" that has been taught in classrooms for so many years? It turns out that Washington Irving, the writer

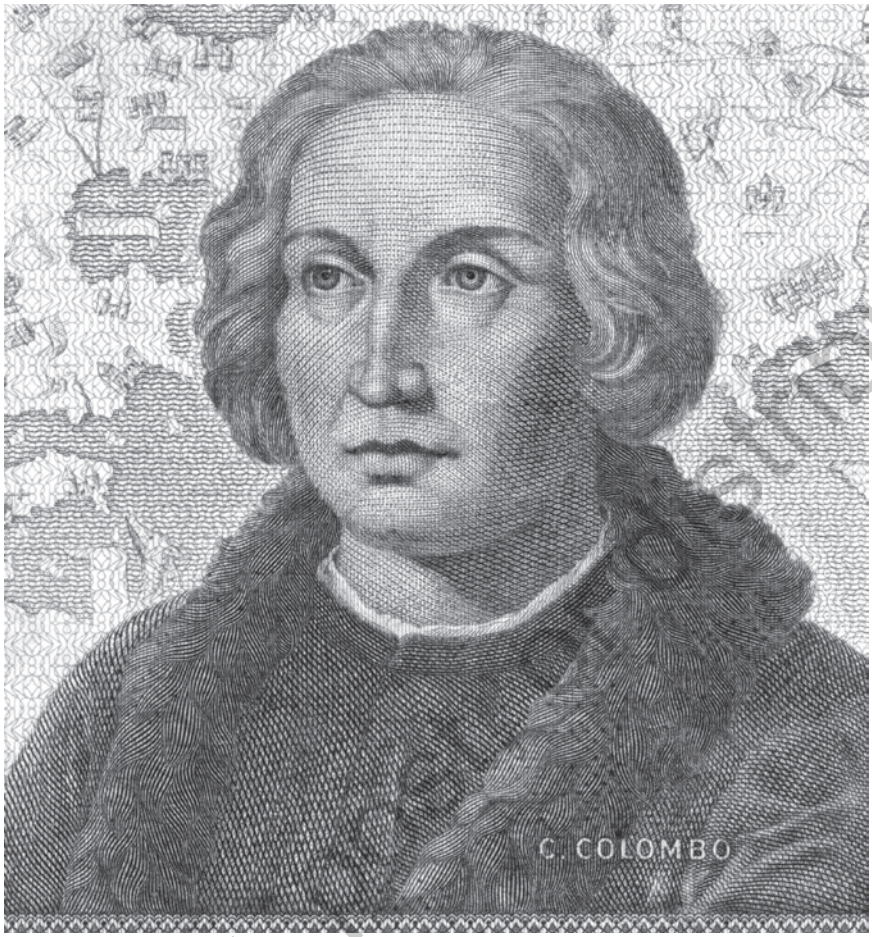


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**PHOTO 1.2** Contrary to what you may have learned in history class, Christopher Columbus had no interest in "proving" that the earth was flat. The educated people of his time already knew that.

of stories such as *The Legend of Sleepy Hollow* and *Rip Van Winkle*, embellished what he read in archives about Christopher Columbus when he wrote the explorer's biography. I guess we shouldn't be surprised. After all, Irving *was* a storyteller, not a historian!

Skepticism about even expert knowledge is especially relevant today because now we live in a time where we are seemingly inundated with expert knowledge at every turn. If someone has letters, such as M.D., J.D., or Ph.D., after their name, we assume that they know what they are talking about. However, just because someone has an advanced degree in one field does not make that person an expert in another. I have a Ph.D. in sociology. If I made comments about astrophysics and just signed my comments as Loreen Wolfer, Ph.D., I wouldn't *technically* be lying; but, I wouldn't be honest either because my Ph.D. has nothing to do with the expertise of astrophysics. Especially with the proliferation of online "experts," anyone can share "expert" knowledge, even if it is out of their area of training, they were poorly trained,

or their training is outdated. So look at the available information, look at the credentials of an expert, and look at whether that expert is current in their knowledge. Don't just trust someone because they have letters after their name or claim to be an expert.

It may seem as if we got away from our example of school violence, but we really did not. Using tradition, experience, common sense, and even authority as the basis of knowledge has led schools to respond to school violence by installing metal detectors, security cameras, on-site police or security officers, shooter drills, and student/staff identification cards (Fisher, Mowen, & Boman, 2018). So the real question is: Do these measures reduce the original concern, which is the risk of various forms of school victimization? After all, the implementation of any of these measures is costly and we need to know if they work for the original purpose of making schools safer.

Although the evidence is mixed, most research, which address scientific knowledge, suggest that the answer is: no. There is some evidence that implementing these measures may make communities feel safer, give citizens a sense of control over their environment, and increase officials' ability to document incidences of violence for identification and/or prosecution, all of which have some merit. But, contrary to tradition and experience, there is also evidence that the *more* security measures a school employs, the *greater* the likelihood of some form of violence occurring in a school (Crawford & Burns, 2016; Fisher et al., 2018; Tanner-Smith, Fisher, Addington, & Gardella, 2017), which is contrary to the original goal of decreasing school violence. So why would scientific evidence provide such seemingly counter-intuitive information; and why should we give **science** any merit? Well, there are a couple of characteristics of science (research) that tradition and experience, for example, lack. Unlike the other two forms of knowledge, science is empirical and theoretical. It is empirical in that it is based on direct, objective observation of our world and it is theoretical in that theory provides context and explanation to our observations. For example, to study the effectiveness of school security measures on student safety, Fisher et al. (2018) used data from the Educational Longitudinal Study to test various theories of student safety. They tested opportunity theories that argue that increased security would reduce the opportunity for victimization. This would be consistent with the traditional view of "cracking down" on deviance by limiting opportunities for it and it also "makes sense" from a common-sense perspective. Another group of theories however, called critical theoretical perspectives, argue that security measures would actually degrade the school environment by leading adolescents to think of their schools as dangerous. If students think of their school as dangerous, they will have an increased perception of victimization and feel unsafe. Critical theorists also argue that such measures may weaken social bonds by fostering distrust. According to Fisher et al., a third possible explanation says that schools that employ heavy security measures have other provisional characteristics, such as racial composition, that may lead to differential effects of security on victimization. So science doesn't just document, it puts observations into a broader theoretical context of why. *Why* will increased security decrease (or not) school victimization? We will get to the relationship between science and theory in a bit, but let's first spend some more time distinguishing science from the other avenues of knowledge we identified.

Second, science is systematic. Unlike the other forms of knowledge, science is based on generally agreed-upon steps that are organized, publicized, and recognized by other scientists. We will discuss this overview of the systematic process later in this chapter, but this systematic nature is important because it allows for replication. The more studies that show similar findings, the more confident we are, as researchers, that what we observe is accurate. For example, did you notice earlier that when I said that increased school security does not work, I cited *multiple* studies? The point I made was not based on just my experience or one study, but rather it was based on more than one study that followed the scientific process and reached similar conclusions. Another example of the importance of following this scientific process is a now-classic, albeit infamous, study of arrest and domestic violence in Minneapolis by Sherman and Beck (1984), which found preliminary evidence that arresting men suspected of domestic violence reduced the likelihood of them committing future assaults.

Because Sherman and Beck's findings had not yet been replicated by other studies using the same systematic procedure, they urged caution in interpreting their results; but many law enforcement agencies quickly adopted this approach because it was based on research (expert knowledge since it was published) and it made sense (common sense). However, when the US National Institute of Justice funded replication of the study in six other cities, the deterrent effect of arrest on future assaults was not supported. In fact, this more vigorous study found that arrest actually *increased* the likelihood of future assaults (Sherman, 1992). Because the scientific form of knowledge has systematic steps, replication was able to show that the original findings were not only false but that in reality, the problem of abuse worsened using this tactic.

Last, scientific knowledge is probabilistic and provisional. This means that in research we are never 100% sure; we never prove beyond any doubt that something is absolutely true and/or will always happen in all instances. Instead, science means that we can establish with confidence (such as 95%) that something is *likely* to happen (probabilistic), and the more factors we identify (provisional) the more accurate our findings. In fact, going back to our discussion of school violence, one of the findings at the 95% confidence level (probabilistic) from Fisher et al.'s study (2018) supported the third theoretical explanation by finding that race did affect both the type of victimization students experienced and whether security measures were successful in reducing said victimization. Therefore, Fisher et al.'s (2018) study illustrates both the probabilistic side of science (95% likely to be related) and the provisional nature (when considering race as a factor) of scientific observation. For these reasons, science, which involves research and statistics, is a fifth form of knowledge that is the most suitable for providing information about how to address the problem of school violence. However, this is not to say that the other forms of knowledge are not useful; they definitely can be if they are incorporated into a research design and, as we will see, are especially useful in designing applied and evidence-based research, which is the focus of this book.

Therefore, it is important to be clear what the goals of any research project of intervention are and to base decisions on well-designed and implemented scientific knowledge that may be fueled by the other sources of knowledge. If the main goal of school security measures is to reduce victimization, perhaps the money spent on security measures can be more effectively used elsewhere. If the main goals are community relations and sense of well-being among

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**PHOTO 1.3** Adopting a program or policy based on one study can be misleading, as was learned by replicating the Minneapolis domestic violence study of Sherman and Beck (1984).

parents (regardless of whether that sense is misplaced), then the aforementioned measures fit the goal. In reality, the goals are probably a bit of both, so the suggestion, if one was familiar with the existing applied research regarding school safety, would perhaps be to utilize some basic forms of security that are comparatively affordable for that area and to use the rest of available funds to experiment or to explore other means of reducing victimization. The point is, without research, basing policy or practices solely on tradition, experience, or common sense may lead to a false sense of security and the misuse of funds better invested elsewhere.

### LEARNING CHECK 1.1: AREAS OF KNOWLEDGE

1. Why is experience not necessarily the best form of knowledge to serve as the foundation for program design and evaluation?
2. Identify three ways in which science is a more relevant use of knowledge for social programs than the other forms of knowledge.

**Answers to be found at the end of the chapter.**

## CLASSIFYING RESEARCH

### Basic versus Applied

Although there is some overlap, one of the first points we have to make is the difference between applied research and basic or academic research. **Basic research**, sometimes also called academic, foundational, or pure research, is research aimed at expanding general knowledge for knowledge's sake. This type of research is research for the sake of improving

our understanding of some type of phenomena, but it does not seek to solve or correct that phenomena. To go back to our earlier example of school violence, examples of basic research questions could be: Are incidents of school violence becoming more frequent over the last 30 years? Who is more likely to be a victim of school violence? Is online bullying a form of school violence? Basic research, therefore, helps to define the phenomena and to describe the underlying process of it.

**Applied research**, on the other hand, is research designed to solve practical problems or to address some known phenomena that the researcher sees as problematic. Applied research generally wants to find ways to improve the human experience. Research questions that are applied and relate to our initial example could be: Do antibullying school programs reduce the incidence of school violence? Do harsh punishments decrease future bullying behavior? Do metal detectors increase students' sense of safety? These questions are focused on trying to reduce the incidence or perception of school violence; they are not documenting trends or defining the behavior. They recognize a problem (violence) and will systematically observe whether a policy or program successfully reduces it. Fisher et al.'s (2018) research regarding whether increased security measures in schools reduced student victimization is an example of applied research.

In fact, when it comes to applied research, pure academics are frequently criticized for being disconnected from the realities of professionals in the field. Similarly, in the past, professionals were criticized for basing their conclusions on anecdotal evidence or gut feeling that lacked empirical testing, which, as I already discussed, can be biased. In the social sciences, applied research has broadened not just to refer to research that can be used for practical purposes but also to include research that incorporates into its design the practical experience of those in the field. This newer approach, which actually started in the medical field, is frequently called **evidence-based research** and has become part of a movement to blend research and practice in a way in which practitioners are encouraged to employ practices that have been empirically tested and supported, whereas researchers are encouraged to seek input from practitioners, such as with identification of goals and the development of research concepts, into the research design (Sackett, 1997; Urban & Trochim, 2009).

As I previously said, there is an overlap between basic and applied (including evidence-based) research; and, the two broad forms are complementary to each other. Clearly applied research cannot work to address problems without having the more foundational knowledge about the problem that basic research provides, and foundational knowledge without any idea of how it can be used to better the social world seems to be…well…a futile effort. Therefore, the two forms of research just look at the same issue (e.g., school violence) from the different perspectives of "what is it?" and "what can we do about it?" where neither one is "best."

## Qualitative versus Quantitative

I have already used the terms *qualitative* and *quantitative* in passing, but let's discuss them in a bit more detail. Racism, for example, is a very complex, multidimensional topic that might

have a different meaning today than it did at the start of the Civil Rights movement over 60 years ago. Furthermore, everyday interactions, and not just blatant newsworthy exhibitions, can be racist. In order to study the more routine concepts of racism, Walton, Priest, and Paradies (2013) used cognitive interviews and focus groups to explore the meaning of racism in everyday life. Cognitive interviews and focus groups are methodological designs in which subjects can express their own definitions or views in an unstructured, fluid way that enables them to "talk it out" so to speak. As such, these designs are examples of **qualitative research** because, in both designs, researchers focused on the detailed nuances of individuals' self-expressed subjective contexts of what racism is today. Once the researchers had all the subjects' definitions in their own words, they searched to see if there were any common themes expressed among those definitions. They did not prompt individuals to agree or disagree with preconceived definitions of racism to achieve a count or to conduct statistical tests. For example, Walton et al. (2013) noted that whether people considered a mundane comment or action to be racist depended on the speaker's intention that surrounded it. To illustrate this conclusion they presented the following:

> Racism is intent. Intent to be mean because someone is different from you that's what I think. (…)
>
> (Focus Group 4, female blue-collar)

> So you can understand sometimes it's maybe a term of endearment but it depends on how it's delivered isn't it, whether the comment is meant to be nasty or not.
>
> (Interview 1, female white-collar)
>
> Walton et al. (2013, p. 81)

**Quantitative research**, however, is less focused on the subjectivity of individual meaning and more concerned with objectively trying to consistently measure concepts so that they can be numerically analyzed. As such, quantitative research focuses on well-defined concepts by the researcher (as opposed to subjective definitions of the respondent) that are designed to have clear and consistent means of measuring that meaning. Priest et al. (2014) conducted a quantitative analysis of racism where they tested for a statistical connection between self-identified experiences of racism and various mental health outcomes among secondary school students. To do this study, they used the Localities Embracing and Accepting Diversity (LEAD) program, which was a community-based intervention to address racial discrimination and promote cultural diversity among 263 primary and secondary students across five primary and secondary schools in Australia. Priest and colleagues selected seven items and their corresponding answer options that *they* defined as racial discrimination that a child personally experienced and three additional items of discrimination that a child witnessed toward other students. The researchers provided the specific definitions and answer options for the questions about racism in order to *reduce* respondents' subjectivity and variability in how to define racism. In this study, the researchers were not concerned with subjects' definitions of

what constituted racism but rather whether subjects experienced what the researchers defined as racist acts (based on the information they gathered from others) and the outcome of these. Another difference is that findings of quantitative information are presented as numerical statistical tests to assess the likelihood that observed differences in the sample might also apply to the larger population rather than quoted excerpts. For example, in their quantitative study, Priest and colleagues note that there was a statistically significant and noticeable relationship between experiencing racial discrimination and loneliness. Last, quantitative research tries to do, as the name implies; it *quantifies* differences between groups.

For example, in 2020 the world experienced the COVID-19 pandemic that changed the world as we know it for at least the foreseeable future. In fact, I am still writing parts of this book while quarantined at home and teaching classes remotely due to the pandemic! While we are still learning about the possible social and economic consequences of this pandemic, groups like the PEW Research Center were able to use large, nationally representative samples of the US population to describe people's early COVID-19 experiences and to *quantify* whether there were any noticeable differences in experience based on factors such as income, race, and gender. By surveying about 11,500 US adults between March 19 and March 24, 2020, and almost an additional 5,000 US adults between April 7-12, 2020, PEW researchers were able to provide some of the earliest, quantified evidence that showed that, in many ways, the coronavirus affected Hispanics and Blacks more negatively than it did whites. For example, PEW researchers found that 61% of Hispanic adults and 44% of Black adults said that they or someone in their household experienced a job or wage loss due to the coronavirus outbreak, compared to just 38% of white adults, and that members of these two groups were less likely to have emergency financial reserves to help them weather this challenge. The findings also indicated that Black (48%) and Hispanic (44%) respondents were more likely to claim that they could not pay some bills or could only make partial payments compared to whites (26%) (Lopez, Rainie, & Budiman, 2020). The large, nationally representative sample and the percentages are all characteristic of quantitative data, as the purpose of the PEW study was to describe trends in who is *more likely* to be affected (a quantitative issue) by COVID-19.

Even with this very truncated summary of both studies, we can identify some common (but not universal) differences between qualitative and quantitative research. First, as I said, quantitative research is more focused on the subject's idiosyncratic expression of a concept and it is the job of the researcher to find patterns in these idiosyncratic expressions across people. In quantitative studies, on the contrary, researchers are more likely to direct the respondent to what the *researcher* means by a concept and the subject will react, also in a predefined way, to that definition, as illustrated by the 10 total items that the researchers in the Priest and colleague's study of racism used. In quantitative research, however, researchers may use information learned in more qualitative studies to reach these definitions. Second, qualitative studies frequently have smaller sample sizes than quantitative ones. Walton et al.'s qualitative study had between 35 and 39 participants (the exact number of participants in each focus group is not presented in the original article), whereas Priest and colleagues' quantitative study had more than 200. Although quantitative studies can be done on smaller samples, having samples larger than 50 is common. Table 1.1 summarizes some of the key differences between qualitative and quantitative research, some of which we will discuss in a bit.

TABLE 1.1 ⬢ QUALITATIVE VS. QUANTITATIVE INFORMATION

| Quantitative Research | Qualitative Research |
|---|---|
| • Researcher is expert | • Subject is expert |
| • Research is deductive | • Research is inductive |
| • Concepts are clearly defined with specific measures prior to data collection | • Concepts are not defined until after data collection |
| • Systematic steps for research facilitate replication | • Few or no systematic research steps as replication is less of a research goal |
| • Data are predominantly numerical | • Data are primarily in the form of subject explanations or descriptions, hence quoted or paraphrased conversations |
| • Analysis involves statistical tests for inferential significance and association | • Analysis is in the form of general trends. Any numerical analysis is descriptive with no detailed statistical tests for significance or association |

## Four Main Research Goals

But applied or basic, qualitative or quantitative, are not the only ways research is classified. Within both typology sets, research can serve different goals, which, in turn, have different methodological needs and statistical outcomes. For example, research can be explorative, descriptive, explanatory, or evaluative, or some combination thereof. Explorative research is used for topics that we know little about and/or for which we want a broad, unstructured examination of what is going on. For example, when social media first starting becoming popular (I know, to you all, it was *always* popular), people knew little about how it would affect social relationships. Did social media affect the frequency of face-to-face interaction? How do people work to craft online identities? How do people present themselves online knowing that people from different parts of their social lives (e.g., friends, classmates, parents, potential employers) would all see the same presentation of self? Much of the early research regarding social media was exploratory. Researchers doing **exploratory research** are frequently interested in obtaining a preliminary understanding of phenomena, so this research is frequently qualitative in nature, although it doesn't have to be.

A second purpose of research is description. Almost all research has a descriptive component that broadly describes the demographics of the sample (e.g., 62% of the sample was male and 74% was white) and the research situation (e.g., 82% of participants completed the program) to put a study and its participants into context. There are even statistics that facilitate this (Chapter 11). However, some research begins and ends with description, which is just fine. Common government databases such as the US Census, the Uniform Crime Reports, and the Current Population Survey all aim to describe various aspects of the American experience. **Descriptive research** can also be inferential, where research using a sample aims to describe a wider population that was not directly studied. Examples of these questions could be: What percent of the American population is married? What is the average prison sentence for men compared to women convicted of the same crime? How long does it take for people to get off of welfare?

For example, Solé-Auró and Crimmins (2014) used data from the 2006 Survey of Health, Ageing, and Retirement in Europe, the 2006 wave of the English Longitudinal Study of Aging, and the 2006 wave of the USA Health and Retirement Study to estimate the probability of people aged 50 or older in Spain, England, and the United States, respectively, receiving some form of care. They found that receipt of within home care was more common for men than for women in all three countries and that the elderly in Spain were the least likely to receive care from outside the household. In all three countries, when care was provided outside the household, it was most likely to be provided by a child (Solé-Auró and Crimmins, 2014). This study used large data sets from multiple countries, but it still just describes. Therefore, as just illustrated, descriptive studies can be very large, very detailed, and very informative. Descriptive research is not a "weak" research goal. Researchers just have to be mindful of the kinds of conclusions they can draw with these studies. As the name implies, descriptive statistics do not explain a situation, they do not answer "why," and they simply document or compare.

**Explanatory research** is the form of research mostly focused on answering "why" or "how." It is frequently associated with establishing a causal connection between issues in a way that is linked to theory. Descriptive research might find that the rate of suicide increased among youth over the past 20 years. Explanatory research would try to figure out why. For example, explanatory research would link variables related to a theory of either social integration, peer association, or even the use of technology to test how well those variables and theory explained any observed variation. Litwiller and Brausch (2013) did just that when they used data from a large-scale community mental health screening of adolescents at 27 high schools in 7 county regions of a Midwestern state in the United States to examine whether cyberbullying and physical bullying affected suicidal behavior differently. They related this comparison to the interpersonal theory of suicide arguing that bullying creates an environmental cause of suicide by making adolescents feel that they do not belong to their environment and that they are a burden to those around them, which in turn ultimately leads to their suicidal behavior. They found that cyberbullying especially correlated with low self-esteem, anxiety, and depression, which when taken together created an environment of isolation and perceived burden. This sense of isolation and of being a burden, in turn, correlated to suicidal behavior (Litwiller & Brausch, 2013). By linking theory and research, these researchers helped shed light on the explanation for why social media may be related to suicidal behavior among adolescents. As you can probably see, explanatory research is more complex than exploratory or descriptive research. It strives to establish a cause/effect relationship (Chapter 2); therefore, it would require clear measures (Chapter 4), probabilistic sampling (Chapter 5), and statistical analysis (Chapters 11–14).

The last purpose of research is evaluation, which can take many forms. It can involve systematically and statistically showing a need for some type of intervention. It can involve systematically and statistically examining whether a policy or program is being implemented as designed. Or, it can be the more obvious examination of whether a policy or program works—whether it produces the desired outcomes. Evidence-based research, which we will be discussing soon, is a form of **evaluation research**; and, as you will see, it can be both descriptive and explanatory. What distinguishes the evaluation goal from the other three goals is

its applied focus. So we see that these typologies do not need to exist independently. They *can*, but as we will see later in this book, the strongest studies have components of more than one typology and/or more than one method of observation. Fisher et al.'s (2018) study, for example, exhibited characteristics of both evaluation (Does increased security reduce victimization?) and explanation (Is racial context a contributing factor in explaining the different levels of effectiveness?).

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**PHOTO 1.4** Can you think of a different research question for each of the four types of research that would fit this picture?

So, why do we need to know the different purposes of research? Although there are many theoretical and academic reasons to know the different types of research, from a more practical perspective it comes down to assessing the strengths/weaknesses of particular studies for your needs. I already mentioned that even if you don't get a job where you are going to regularly be conducting research and collecting data, you *are* likely to have to read and determine

### LEARNING CHECK 1.2: FOUR MAIN GOALS OF RESEARCH

Identify research goal implied in each of the following research topics/scenarios. More than one research goal may be applicable.

1. A researcher examines whether there is a gender difference in the preference for dogs compared to cats.
2. In accordance with the Broken Windows Theory, a researcher tests whether fixing up a neighborhood, both in terms of houses and yards, leads to a reduction in drug-related crime in that neighborhood.
3. Does increased Internet use lead to decreased face-to-face interaction?

**Answers to be found at the end of the chapter.**

the strength/relevance of the research of others for your various professional interests. Professionals in many fields like sociology, criminal justice, social work, and mental health, are increasingly expected to improve skills, implement programs, and make decisions that are based on the research of others. They are expected to adopt evidence-based practices that stem from evidence-based research. However, without an understanding of research and statistics, it is very difficult to do this. Just because something is published in what appears to be an academic source, does not mean that that information is good. Or, at times you will encounter published studies with contradictory findings. How do you know which study to "believe"? Some of the answers lie in understanding the different typologies we just described and the type of information they produce. We can't think of research as a dichotomy of "good/bad" or "useful/not useful," because the value and usefulness of research frequently lie on a continuum. For example, research that is explanatory aims to do more than research that is purely descriptive; therefore, it should be held to a higher methodological and statistical standard. Or a researcher might have complete control over the design of research that is descriptive or explanatory but not evaluative and that is to be expected. Therefore, identifying the research purpose also helps us recognize when methodological limitations and deciding whether those limitations discount a study are within acceptable bounds of quality and relevance.

But before we move on, I want to take some time to briefly discuss this idea of limitations. If you look at any published scholarly research, you should see that toward the end of the study the researcher will discuss the limitations of the research. A researcher's identification of study limitations is not a weakness to the overall research; it is actually a strength. All research is socially constructed and therefore none of it is perfect. When I say that research is socially constructed, it means recognizing that researchers are merely people who decide how to define a problem, how to measure it, how to sample it, how to record it, and how to analyze it; and, different people may make different decisions about any of these steps. These different decisions made by people (social) influence how a phenomenon is studied (constructed); but, this variability does not mean research is useless. Because it is a systematic, more unbiased (when done ethically) form of observation, it is a stronger foundation for decisions than the other sources of knowledge I discussed. Its systematic nature, as I said previously, also means that it can be replicated and problems with findings, like we saw with the Sherman and Berk (1984) study, can be identified. Therefore, research is better than other forms of observations for many reasons; but it is not perfect. Reputable researchers recognize this and will alert the reader to these issues by noting their own study's limitations, hence the importance of including this in any research report.

We also have to remember what I said in our earlier discussion of the characteristics of science, which is that in research we never "prove" anything. We are never 100% sure. Incidentally, this is the same in the traditional sciences as well. For example, it is a well-known scientific finding that smoking tobacco, eating sugary and fatty foods in excess, and drinking too much alcohol can all contribute to an early death. This does not mean though that you can be 100% sure that if you smoke tobacco, have poor eating habits, and/or drink too much alcohol, you *will* (prove) die young. We can all probably think of people we know who do all three of these behaviors and are quite old *or* we know of people who were "health nuts" and who died before

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**PHOTO 1.5** Smoking and consuming alcohol are scientifically shown to increase the probability of an earlier death, but that association does not prove that one will die young from smoking and drinking. We probably all know people who have defied this relationship.

they were 60. So this is an example of the continuum. These habits increase the *likelihood* of an earlier death, but practicing these behaviors does not *prove* beyond any doubt that someone *will* die young.

## A BRIEF DISCUSSION OF RESEARCH AND THEORY

As mentioned a number of times in this chapter, most forms of research do not happen in a theoretical vacuum. Research tells us what is occurring; theory works on the deeper explanation of why we see what we see. Because this is a research methods and statistics book, it is not the place to get into a detailed discussion of theory. However, in the spirit of "getting the job done," I do briefly want to distinguish theory from ideology because this distinction is relevant to research. Ideologies are explanations that are offered with absolute certainty and frequently get tied into moral debates. As such, ideologies are hard to research because the research is less about objective observation and more about showing support for a specific side. Theory, on the other hand, as I said previously, seeks to find the reason why behind the why. For example, according to Miron and colleagues (2019), in 2017 there were 47% more suicides among 15 to 19 year olds than there were in 2000. As I already covered, some researchers have found a link between social media use and adolescent suicide (Litwiller & Brausch, 2013; Luxton, June, & Fairall, 2012; Van Orden et al., 2010). An ideological approach might stop there. Such an approach would claim that the increased use of social media contributes to adolescent suicide and, as such, would encourage parents to restrict social media usage, monitor their children's behavior online, etc. Now, there might be merit to all of these suggestions, but

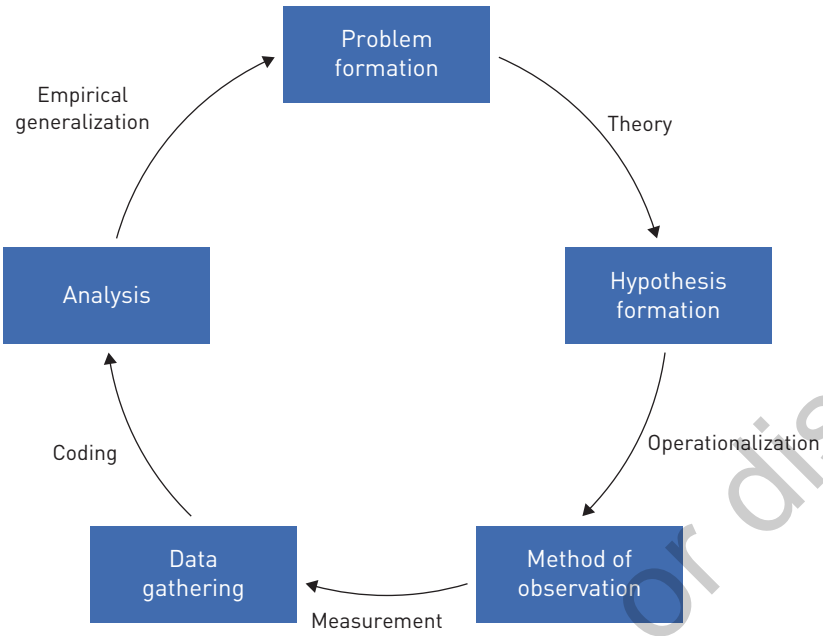
from a *theoretical* viewpoint, this explanation is insufficient. Contrary to an ideology, a theory would try to explain *why* social media may contribute to teen suicide. It would look for the why of the why. In other words, for the problem of adolescent suicide, an ideology would find the link between social media and teen suicide and stop there. A theory, on the other hand, would think more deeply to try to figure out *why* social media is linked to teen suicide. What is it about being online in that type of environment or what is it about adolescents today, who live in a digital age, that contributes to teen suicide? After all, lots of people, especially teenagers, use social media and most do not attempt suicide. Furthermore, teens have always experienced "angst" during this life stage and they have always experienced peer pressure and bullying. So what about social media makes things different now? That why behind the why is what theory would get at. Furthermore, theory, by its design, is meant to be empirically tested and altered based on the findings, like we saw in the earlier research examples about teen suicide (Litwiller & Brausch, 2013) and school shootings (Fisher et al., 2018). So theories lend themselves to empirical observation, whereas ideologies, though also observable, border on a moral or value-driven focus; and, as we will see in Chapter 2, that does not make good research.

A last word about theory and research is the difference between inductive and deductive research. The classic research model (and the one we will take for much of this book) is that of deductive research. **Deductive research** starts with a review of the existing research to find out what people in the field already know about an issue, a tentative application of a theory (pending a study's findings), a test of hypothesis by observation, and conclusions based on what the evidence suggests, all of which are then related back to theory. In **inductive research**, the researcher begins with observation, finds patterns in the observations, and uses these patterns to form a general explanation (theory) to account for the observations. Inductive research is usually qualitative in order to capture the subjectivity and nuances of the human experience and aligns with most exploratory or basic descriptive research. Deductive research, on the other hand, tends to be (but is not always) more quantitative, focusing more on numbers and establishing statistical trends. Therefore, deductive research tends to focus on more complex descriptive, explanatory, or evaluative research. Both approaches have their strengths and the strongest research designs, as we will later see, work to have components of both approaches.

## STEPS IN THE RESEARCH PROCESS

Because the focus of this book is on research *and* statistics I will center our discussion on the systematic steps of the deductive research process, as shown in Figure 1.1. Let's discuss some general points about this process. First, as you see in Figure 1.1, it is cyclical, meaning that current research is based on what we have learned from previously published research. Second, notice that the lines between the steps are just that, lines, not arrows. That is because these steps do not occur as a neat checklist where you cover one step and then move on to the next without ever possibly returning to earlier steps. If new evidence, such as a newly published study, comes to light while researchers are refining hypotheses and measures, then

**FIGURE 1.1 ⬢ STEPS IN THE DEDUCTIVE RESEARCH PROCESS**




researchers will revisit their literature review, possibly add this new information, and perhaps end up altering their hypotheses or measures as a result. Let's walk through this process with an example.

Although the deductive research process is cyclical, we nonetheless have to start somewhere so for us let's start with formulating a research problem, which is essentially what the researcher wants to study. Research topics come from a variety of sources, such as personal interest, bosses, and/or professional needs, but they don't really emerge fully developed on their own. Instead, they are a product of a literature review (Chapter 2) and experience, coupled with theory. I might be interested in studying the relationship between peers and crime; and, after doing a literature review, I might decide that differential association theory is the best fit for the gaps in the research and what I want to study. Based on this, I might refine my research topic to whether age affects the type of criminal behavior children under age 18 exhibit.

Once a researcher has a topic and theory, the researcher might link these steps to hypothesis formation, which is a statement that researchers empirically test. In my example, I might choose to hypothesize that the older the peer group, the more serious the criminal acts they are likely to exhibit. As shown in Figure 1.1, the next steps are to identify and define the concepts relevant to the hypothesis (operationalization, Chapter 4) and to select a method of observation (Chapters 7–10) that will best address these concepts. Let's actually start with what we mean by operationalized concepts. Talk to five of your friends and ask them what crime means. One friend might say that crime is anything that breaks a law. A second friend

might provide examples of traditional street crime, such as burglary, assault, and murder, whereas a third might also mention street crime, but add other crimes such as embezzlement and fraud to the list. You get the idea. The point is that if you ask five different friends what crime is, you might get five different answers. This can be a problem when trying to study a phenomenon via the deductive approach; we can't have our subjects thinking different things when we ask them questions. So in order to avoid this, researchers have to be very careful about what they mean by various concepts, the process of which is called operationalization. This is a detailed process that I will explain more in Chapter 4 but for our current brief illustration, I might decide to focus on the specific crimes of petty vandalism, theft, and assault. I might also decide to group my peers into the age categories of 9–12, 13–15, and 16–18.

Once our process of operationalization is complete, then we are ready to incorporate our definitions into our method of observation. There are multiple choices for how to observe people and collect data. We can do experiments or quasi-experiments (Chapter 6), surveys (Chapter 7), interviews (Chapter 7), case studies (Chapter 8), or focus groups (Chapter 8), just to name a few of many possibilities. In fact, strong research will use a mixed-methods approach that incorporates more than one method of observation (which we will discuss later). For now, let's say I decide to conduct a survey of 300 adolescents and to interview a subset of 30 of them. Remember that the lines (rather than arrows) in Figure 1.1 indicate that this process is fluid. So I may have an idea of how I want to measure these terms (as covered in the previous step), but the method of observation I decide to use might lead me to alter these decisions. For example, I might have very specific definitions of crime for the survey to which the respondent answers yes/no regarding whether they ever committed that act; but in the interview, my questions might be open-ended and more ambiguous so I can get a sense of the subjects' definition of their own behaviors. Therefore, in reality, researchers are probably thinking about operational definitions, methods of observation, and measurement simultaneously. However, in order to teach about these processes, we have to treat them as separate steps.

The data-gathering stage is really where we just go out and implement our method of observation. To put it another way: we actually get our data. Once we have our information, we have to somehow make sense of it. We want to find patterns in responses that we can relate to theory and, for us, practical use. For quantitative methods like surveys, for example, much of data analysis involves computers, and computers frequently involve numbers. So our next step is to translate our language responses to numbers that a computer can "read." But even for qualitative methods like interviews, researchers need to clearly articulate and identify themes in responses to organize their data into meaningful patterns. Both of these practices are forms of coding (Chapter 11). In quantitative analysis, computers use this information to summarize the patterns for us via various statistical techniques (Chapters 12–15). In qualitative methods patterns in codes are often identified by the researcher, but computer programs do exist that can help with this sort of analysis as well. In both cases, once research is analyzed it is shared with the academic or professional community and becomes fuel for further research, thereby continuing the cycle.

As I said, this was a very cursory overview of the research process and the general organization of our book. Subsequent chapters will discuss each phase of the deductive process in more detail; and, although research methods and statistics can be very sophisticated, our focus will be on how to "get the job done." Therefore, the material in this book will provide you with the foundation in research and statistics for those of you who plan on going to graduate school, but it will also provide enough basic detail to be useful to those of you who plan on entering your field of choice sooner and need to "get the job done."

### LEARNING CHECK 1.3: STAGES OF RESEARCH

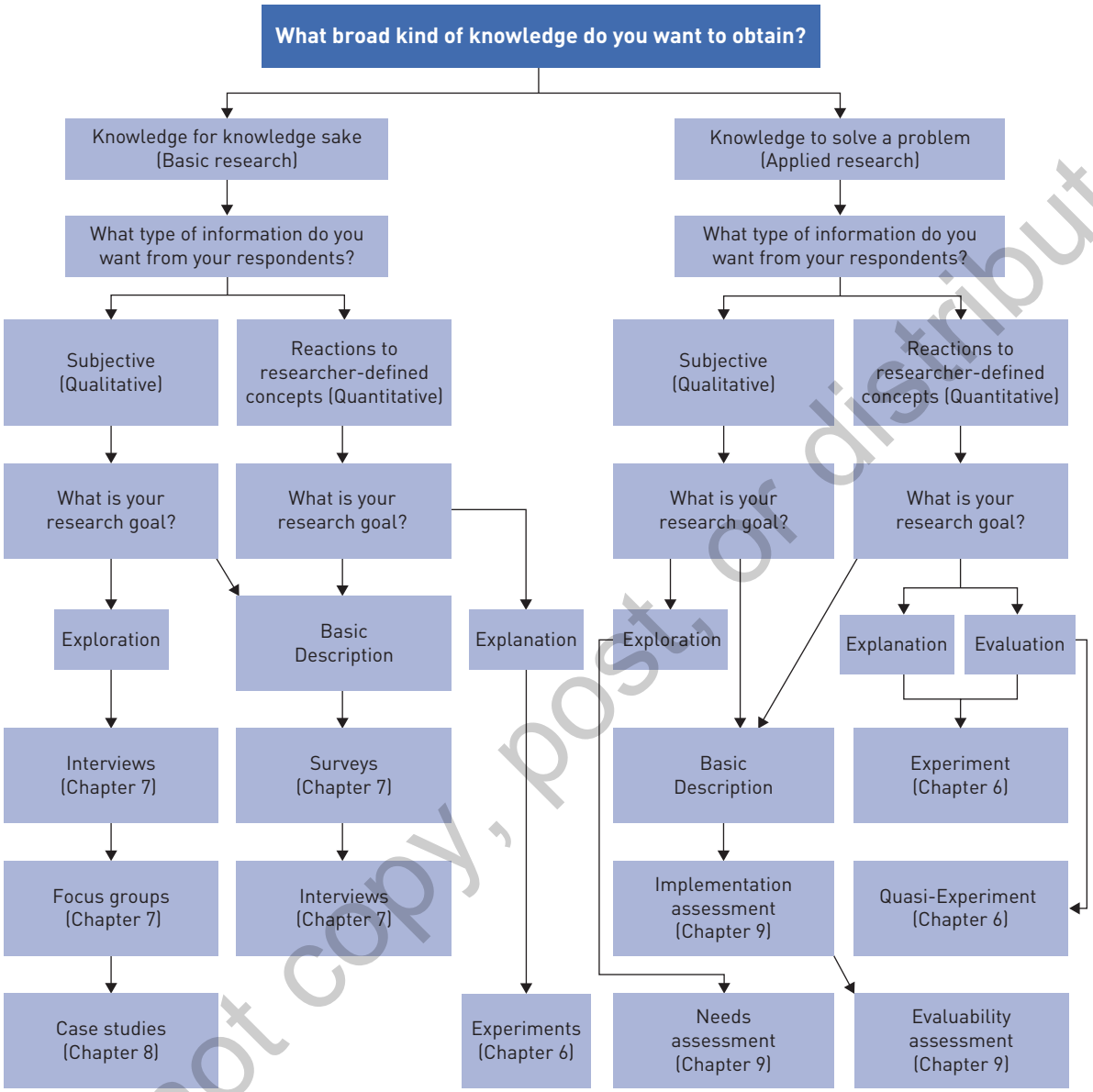
1. In the deductive research model, where does the researcher learn about what is already known about a research topic?
2. In the deductive research model, where can the researcher get ideas about how to refine his/her researcher interests, to measure concepts and problems that might arise in studying a topic?
3. True/false: Stages of the research process are unique and independent of each other, meaning that once you have completed a stage, you can progress to the next stage without ever needing to go back and reconsider information from a previous stage.

**Answers to be found at the end of the chapter.**

## MAKING DECISIONS

Your overall research goal, whether you decide to do basic or applied research, and quantitative or qualitative research all affect the method of observation that you will select. For example, case studies and focus groups really do not lend themselves to quantitative analysis; likewise, experiments are the best design choice for explanatory studies. To give you an idea of what types of methodologies fit the board research characteristics I discussed in this chapter, Figure 1.2 has a flowchart of one possible way they all relate, along with the chapters for which the different methodologies are covered. Remember, however, that research methods can be very complex. This flowchart is just one possible way of reaching a decision of a method that matches your goals. There are other methodological options that might be viable; and, as I said earlier, the strongest research designs incorporate more than one goal and approach. Therefore, incorporating multiple sections of the flowchart and doing a mixed-methods design is another possibility.

**FIGURE 1.2 ⬢ MAKING DECISIONS: BROAD RESEARCH ISSUES**




## CHALLENGES

We have not had the opportunity yet to really get into the specifics of research methods or statistics, so we don't have many *methodological* challenges to specifically address here. However, as I cover the individual steps of the research process in more detail in future chapters, I will also identify some common challenges researchers may encounter as well as some possible solutions to those challenges.

## Key Terms

Applied research
Authority (knowledge)
Basic research
Common sense (knowledge)
Deductive research
Descriptive research
Evaluation research
Evidence-based research
Experience (knowledge)
Explanatory research
Exploratory research
Inductive research
Qualitative research
Quantitative research
Science
Tradition (knowledge)

## Answers to Learning Check Questions

### Learning Check 1.1: Areas of Knowledge

1. Some possible reasons are: experience is limited, we have selective perception about our experiences, we tend to interpret experiences in ways that align or benefit us, and experience in one situation does not necessarily translate to other situations
2. Some possible reasons are that science is: (1) empirical (observable); (2) theoretical; (3) systematic (so it can be replicated); (4) probabilistic; and (5) provisional.

### Learning Check 1.2: Four Main Goals of Research

1. Descriptive. There is no indication that a causal connection is being made, nor is this testing an intervention.
2. Evaluation: There is an intervention (cleaning up the neighborhood) that is being evaluated to see if it works. If you said explanation, you are close because in evaluation the intervention is supposed to "cause" a change in the outcome, but because this is an applied cause, even though it is related to theory, it is an evaluation.
3. Explanation: Although there are a lot of factors to be addressed in the research design to make this causal claim, the wording of the question itself implies causality because it implies that internet use is responsible for (or causes) changes in face-to-face interaction.

### Learning Check 1.3: Stages of Research

1. Literature review
2. Literature review
3. False. Decisions in the early stages of the process affect the later stages and new information that may come to light at the later stages may cause re-evaluation, and possible changes, to decisions made at the earlier stages.

## End-of-Chapter Problems

1. Knowledge that stems from the way we have always done things is knowledge based on
   a. Common sense
   b. Tradition
   c. Experience
   d. Science

2. When we combine traditional knowledge and experience we have what type of knowledge?
   a. Common sense
   b. Science
   c. Expert

3. When we say science is systematic, we mean that
   a. there is a generally agreed-upon order of steps that researchers describe regarding their study that helps other researchers replicate a study.
   b. it is value-free
   c. it is empirically observable
   d. the more criteria (provisions) we can specify, the more likely we will be able to explain our findings.

4. True or False: We use science to prove hypotheses about social behavior.

5. True or False: A study to test the effectiveness of a campus antidrinking campaign would be an example of applied research.

6. True or False: A researcher samples 400 comments to an online article from a reputable news source to study how people react to disagreeing perspectives online. This would be an example of basic research.

7. A researcher conducted focus groups of 40 children under age 10 to see which toys would be the popular ones coming this holiday season. She is doing what type of research?
   a. Exploratory
   b. Descriptive
   c. Explanation
   d. Evaluation

8. A researcher wants to examine whether an in-prison coaching prisoner on the "soft skills" of interviewing helped them find jobs upon release. What research purpose would this be?
   a. Exploratory
   b. Descriptive
   c. Explanation
   d. Evaluation

9. True/False: A researcher wants to examine the dating experiences of people who identify as gender-fluid, so the researcher conducts interviews with 15 self-identified gender-fluid individuals about their dating practices, transcribes the interviews, finds common themes, and then relates those themes to theory as part of her reporting. This is an example of deductive research.

10. True/False: In deductive research, once a researcher is done with one part of the wheel (process), the researcher moves on to the next, never looking ahead or returning to parts of the process.