CHAPTER 1

UNDERSTANDING RESEARCH

LEARNING OBJECTIVES

- Understand theories, hypotheses, and where research questions come from.
- Understand the fundamental research distinctions of qualitative vs. quantitative, basic vs. applied, and traditional vs. action research.
- Understand the elements and importance of a research proposal.
- Understand the elements and importance of research ethics.
- Obtain an introduction to basic SPSS terminology and operations.

Some students do not like research. Those who pursue degrees in social sciences such as psychology, communication, sociology, anthropology, or education do so with a passion for understanding the human condition, and often with a desire to be of service to humankind. For some of these energetic students, a course in how to conduct social research is not a top priority. Why should students care about a research class, especially if they have no plans to become researchers after college?

It is crucial to remember that research is, for social scientists, the fundamental way the people in their field understand human beings. Furthermore, the practical applications of that research and those understandings by teachers, social workers, and therapists are also based on research. For example, why do facilities that treat substance abusers use one kind of therapy instead of another? Because research on the treatment of substance abuse has demonstrated that certain techniques are more effective than others (Kaminer, Burleson, & Goldberger, 2002). Why might it be ineffective for grade-school teachers to

rely too heavily on rewards and reinforcements to motivate students? Because research suggests that extrinsic rewards cause children to choose less difficult academic tasks (Harter, 1978). How do parents decide whether spanking is an effective form of discipline? Most likely they read books on parenting—and it is hoped that those books are informed by research. Research suggests that spanking results in higher immediate compliance with parents' demands, but also more aggression on the part of the spanked children in the long run (Gershoff, 2002). Such conclusions in research are not always straightforward, however; other researchers have looked at the use of spanking as a discipline technique and found it not to be as detrimental as supposed (Baumrind, Larzelere, & Cowan, 2002). As you will discover through this book, research involves the collection, analysis, and interpretation of data, and not all researchers agree on the meaning of the same research evidence.

Whether or not you ever conduct your own research study, whether you need to make crucial decisions at your place of employment, or whether you are dealing with a family member who needs psychological help, understanding and interpreting social science research is crucial to effective and informed citizenship. This book will help you develop the skills you need. It will do so in two ways.

First, this book will make you a *consumer* of research. Some of you may become professional social researchers, spending most of your work lives actually engaged in social science research. (Remember, though, that even the most active professional researchers only spend their time doing research on a very narrow area of social inquiry.) However, most of you will spend the majority of your professional lives reading research rather than doing it. In fact, people trained in the social sciences use their research skills in life domains other than their chosen professions. Researchers use their research skills when they read the newspaper, discuss politics, and parent their children. After reading this book, you will have the tools necessary to critically evaluate the claims of advertisers, educators, pollsters, and others who assert that statements are factually correct. Being an informed consumer of research is vital to competency in an information-rich world.

Second, this book will also teach you to be a *producer* of research. If your interests are in human services, you may not think you will ever conduct a research study. However, being able to conduct research will make you extremely valuable to your organization. We firmly believe that practitioners who can conduct research will be highly prized by social service organizations. In real-life employment settings, research skills are greatly needed yet underutilized; this book is an attempt to make future practitioners more comfortable with consuming and producing research. If you can market yourself as the "research person" on your staff, you will be highly valued in your workplace—and you will save your organization a lot of money in outside research services.

Many of you may also pursue advanced study in psychology, communication, education, sociology, or some other social science field. Most master's degrees require a research-based thesis, for which the skills covered in this book are fundamental. Those who pursue terminal degrees in social science, particularly doctoral degrees, will spend a significant portion of their professional lives engaged in research. In short, this book will speak to many different students at many different levels. We hope that you find this book helpful

to your current academic inquiry, but also that the skills you learn from this book will stay with you for years to come.

This chapter covers five fundamental topics essential to the research enterprise. First, we describe the traditional understanding of the research process. Second, this book focuses on both quantitative and qualitative approaches to social science research, and we discuss the basic distinction between the two methods of inquiry. Each approach is expanded upon in subsequent chapters (quantitative methods are covered in Chapters 3 through 6 and qualitative methods are covered in Chapters 7 through 10). Third, we discuss the purpose of and strategies for writing a research proposal. Planning out intentions for research prior to data collection is essential to ensuring quality. Fourth, we explore the issue of research ethics. This concept is often overlooked by the general public, but as a member of the research community it is incumbent upon you to become familiar with the ethical standards to which researchers must adhere. Finally, we introduce the elements of using a statistical-computing software package (SPSS). We will cover more advanced techniques in subsequent chapters. In this chapter we simply identify the preliminary techniques needed to get started with a research project.

THE RESEARCH PROCESS

The classic research-process model involves starting with a theory, generating hypotheses, testing the hypotheses, and interpreting your results. As Figure 1.1 illustrates, the research process is cyclical, not linear. The results of one study feed back into the system and inform future research. Researchers will tell you that the process is actually not that clear-cut. Often researchers will get an innovative idea about what to study and not be very informed about what theories might support it; however, after some initial investigations, they may go back and explore what other related research says.

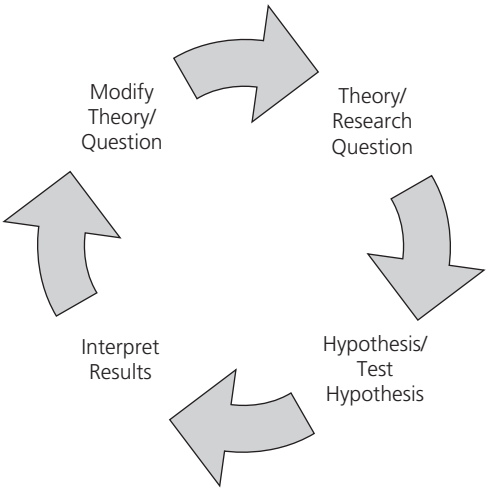

FIGURE 1.1. *Classic research process model*

For those just beginning in research, however, starting with theory and hypothesis generation is probably the most secure method for starting a research project. Having a good idea is important, but it is just as important to know how your idea fits in with other related ideas and research that has been done previously in the area. An idea that is not grounded in a previous theory is often not very useful to the larger research community.

Consider one practical example of the idea of starting with theory. One dissertation advisor always gave students who had an interesting research idea the following suggestion: Go learn as much as you can about what other people have already done. Getting familiar with previous research begins the process of becoming an expert in the field and helps you figure out where your idea fits into the overall theory. It also allows you to make sure you are asking a question that is consistent with methods that others have used before.

Theories and Research Questions

Theories are sets of organizing principles that help researchers describe and predict events. When non-scientists use the word *theory*, they are making a claim about the knowledge they have of a particular phenomenon. Non-scientific theories usually consist of a statement or set of statements that describe something, explain why something happens, and/or predict what will happen in the future. A scientific theory has the additional feature of allowing testable hypotheses to be generated from the theory. A scientific theory must have enough specificity and clarity for the theory to be testable.

Consider an example. One theory in the field of social psychology is the theory of cognitive dissonance, which states that when we feel tension between what we believe and what we do, we will justify our actions or change our beliefs to make our attitudes and beliefs consistent (Festinger, 1957; Myers, 2008). From this theory, a researcher can make predictions about what people will do when faced with conflict between what they do and what they believe. Theories gain support if experiments, surveys, or other techniques (discussed throughout this book) provide evidence that the theory is accurate. Thus, a theory in science will survive if the evidence supports it. The viability of theories is not based on popularity contests. Rather, if the collective research evidence supports a theory, the theory will survive. If the evidence does not support the theory, the theory fades from the collective scientific dialog (or perhaps gets modified).

Students commonly ask, "Where do theories come from?" Sometimes theories come from reading the existing literature in an area of interest (as discussed earlier). Sometimes theories come from our intuitions and observations. Perhaps you are a social worker with a full client load of pregnant teenagers. You notice that those young women who function better differ from those who struggle, and you come to believe that their better functioning is a result of social support from extended family. With this intuition, you can begin to develop a theory that social support positively influences pregnant teenagers.

Theories are tied closely to a **research question**, which is a clearly articulated statement about the topic of interest. Some research questions come from theory. Some come from observation. Some come from intuition. In terms of specificity, a research question rests in the middle between a theory, which is very broad, and a hypothesis, which is very precise. Asking a research question serves to narrow your focus on the topic of interest.

For example, you may be interested in the relationship between political beliefs and attitudes toward sexuality. Your theory might be that political beliefs inform sexual attitudes (or perhaps vice versa). Your research question, in turn, might be: "Is there a difference between people with socially conservative political beliefs and people with fiscally (money-related) conservative political beliefs with regard to attitudes toward sexuality?" The research question brings you one step closer to testing your theory. From this research question, you can construct a hypothesis to test.

Hypotheses

Whereas theories are general statements and research questions are mid-level statements, **hypotheses** (plural of hypothesis) are specific predictions about what will happen according to the theory. As we will learn throughout this book, a theory can be tested in several ways (which we will teach you in the book). In the preceding example of pregnant teenagers, the theory could be tested by constructing a questionnaire measuring the teens' social support, interviewing the pregnant teenagers themselves, or interviewing the teens' family and friends. The results of the investigation will confirm or refute the hypothesis that social support from extended family promotes healthy functioning in pregnant teens.

As another example, consider the cognitive dissonance theory discussed previously. A researcher might generate the hypothesis that when people are forced to act in a certain way, they will show more positive support for the attitude that aligns with the behavior. For example, cognitive dissonance theory would say that if you *force* someone to wear a seatbelt, eventually that person's attitude toward wearing the seatbelt will become more positive. This hypothesis stems directly from the theory, but is phrased in terms that are specific enough to be tested. What distinguishes a theory from a hypothesis is that a theory is stated in general terms and a hypothesis is stated in a specific, testable form.

This proposed hypothesis, generated from cognitive dissonance theory, must be tested to determine if the evidence confirms or refutes it. Notice we say that evidence confirms or "supports" the hypothesis. The reason researchers say *support* (rather than *prove*) is because social science by its nature is a probabilistic endeavor. As you will learn in this book, we make research claims based on a belief that there is a high probability that we are correct. We never have 100% certainty in social science, but the more research studies that support a hypothesis, the more likely it is that the scientific community will accept the theory and hypothesis as true.

Even if researchers find support for a hypothesis in one research study, they are careful not to conclude that such findings will *always* occur. Thus, social scientists tend to avoid using the word *prove*. Rather, researchers express their findings in terms of probabilities: it is likely that the findings of a particular study are true, and therefore the hypothesis is supported. For example, Steinberg and Dornbusch (1991) hypothesized that teenagers who participated in for-pay employment would suffer negative consequences in other aspects of life. They collected data on adolescents' work behavior and their social and academic functioning. The data supported their hypothesis: greater amount of paid work *was* related to lower grades, less participation in positive behaviors, and increased experimentation with drugs and alcohol. Because the hypothesis was supported with

empirical evidence, we can be confident that the relationship between adolescent work and negative adolescent behaviors probably exists and that the theory is true. However, unlike other disciplines, such as formal logic and many types of mathematics, which have hard-and-fast rules that apply in *all* cases, social scientists do not claim that findings from a particular study will hold true in all circumstances and contexts.

Such an approach may sound tentative, but it actually adds to the integrity of the research process. Social science researchers seek **replication**—demonstration of the same findings of a study in a different place or with a different group of people. That is, they hope to repeat their findings in their own research and that of other researchers who are exploring the same question. As evidence that confirms, disconfirms, or modifies the initial findings is discovered or collected, researchers shape their understanding of what they are studying.

This illustrates an important element of social science research, the fact that it is self-correcting. Just as ballots are counted on election night, scientific theories continue to be updated as more evidence is gathered from the field (research labs in the case of social science, voting precincts in the case of elections). Whereas elections eventually end, the self-correcting nature of research allows evidence to be gathered without a restriction on time. In science, the polls never close. This allows the scientific community to change its collective mind based on the evidence. Through the integrity of researchers, an emphasis on replication of research findings, and reliance on independent verification from other researchers, researchers modify their theoretical claims in ways that most honestly, accurately, and fully account for the evidence.

A good example of this self-correction comes from research in education and psychology on what motivates people. Research in the 1950s on operant conditioning illustrated the power of reinforcements in increasing desirable behavior and punishments in extinguishing undesirable behavior (Skinner, 1997). To this day, reinforcements are seen as powerful ways to motivate people. Tools such as increased pay, increased praise, and increased recognition are all ways in which teachers, employers, and athletic coaches motivate their staffs. Later research, however, demonstrated situations in which people were not motivated by reinforcements. For example, Lepper, Greene, and Nisbett (1973) asked children to play with toys in a laboratory. Randomly selected children were told that they would receive a reward for playing with the toys; these children actually played for less time with the toys than children who were *not* told that they would get a reward. The idea that children who anticipate a reward engage in the rewarded behavior *less* than those who do not get a reward for doing so is in direct conflict with the prediction from operant conditioning that rewards increase behavior. These researchers concluded that the reward actually served as an explanation for the children of *why* they were playing with the toy (that is, "I must play with this toy because I am getting a reward"), which served to decrease the children's intrinsic motivation (engaging in a behavior for its own sake) for playing with the toy. Such modifications of previous research findings serve to delineate the boundaries of the theories being explored. In other words, does a certain theory explain behavior in all situations, or only under certain conditions? Operant conditioning can explain behavior under many circumstances, but not under the conditions set forth in the experiment by Lepper and his colleagues. This example illustrates that after a

theory is proposed, and a hypothesis is tested and supported, science always keeps the door open to modification of our existing understanding based on new evidence.

TYPES OF RESEARCH

Once a researcher understands the basic research model (described in the preceding section), he or she needs to choose an approach to investigate the topic of interest. Although this is a broad-brush distinction, most research is best understood as being either quantitative or qualitative in nature. In general, **quantitative research** specifies numerical assignment to the phenomena under study, whereas **qualitative research** produces narrative or textual descriptions of the phenomena under study. Although we describe each approach in detail in following chapters, it is helpful to outline the general advantages and disadvantages of both types at the outset. As you will see, the upsides and downsides of each approach are inverses of each other (Figure 1.2).

The advantage of quantitative research is that the findings from the sample under study will more accurately reflect the overall population from which the sample was drawn (more will be said about this in Chapter 2). For example, the Institute for Social Research at the University of Michigan conducts annual surveys of adolescent drug use (www.monitoringthefuture.org). In 2007, the Institute found that 16% of eighth-graders, 33% of tenth-graders, and 44% of twelfth-graders reported using alcohol at least once in the 30 days prior to being surveyed. This finding is based on reports from more than 40,000 teenagers. With such a large sample, we can be fairly confident that these figures accurately portray the status of adolescent alcohol use in America.

Characteristic	Quantitative Research	Qualitative Research
Type of data	Phenomena are described numerically	Phenomena are described in a narrative fashion
Analysis	Descriptive and inferential statistics	Identification of major themes
Scope of inquiry	Specific questions or hypotheses	Broad, thematic concerns
Primary advantage	Large sample, statistical validity, accurately reflects the population	Rich, in-depth, narrative description of sample
Primary disadvantage	Superficial understanding of participants' thoughts and feelings	Small sample, not generalizable to the population at large

FIGURE 1.2. *Quantitative versus Qualitative Research*

The disadvantage of the quantitative approach is that, because the study contains so many participants, the answers research participants are able to give do not have much depth. They have to be superficial, or else the researchers would be overwhelmed by information that cannot adequately be analyzed. In the University of Michigan study, we know what percentage of teenagers have used alcohol, tobacco, and other drugs, but we know very little else. Although the survey is interesting, consider a few questions the survey does *not* answer:

- Why do these teenagers drink?
- What are their thoughts and feelings while they drink?
- Do adolescents ever talk about alcohol use with their parents, and if so, what do they discuss?

These more narrative questions (and answers) could be very revealing, but are not easily handled with a quantitative study. As we will see throughout this book, each approach has its own advantages and disadvantages. Ideally, a two-pronged approach that employs both quantitative and qualitative techniques can be employed. However, practically speaking, limitations of resources and time often prohibit such an exhaustive endeavor. Therefore, it is best to match the particular research goal to the research strategy that will help achieve that goal. If a large, accurate sample that will generalize to the larger population is desired, quantitative research would be preferred. If a detailed narrative account of a particular subgroup is desired, then qualitative research is recommended. The goal of this book is to help you match method to problem. Throughout this book, we provide details on the advantages and disadvantages of each approach to help you better understand which method would be the best match for your research question.

If a researcher desires a more narrative understanding, then a qualitative strategy would be preferred. The main advantage of qualitative research is that it provides a richer and more in-depth understanding of the population under study. Techniques such as interviews and focus groups allow the research participants to give very detailed and specific answers. For example, imagine that you are hired by a hospital to explore people's experience with holistic (also called alternative or complementary) medicine. In such a project, conducting a focus group with patients who suffer from chronic pain and asking them to respond to several questions would provide a rich description of these people's experiences. Questions might include what symptoms they have (for example, migraine headaches), what alternative treatment modalities they have tried, and what effects those treatments have had on their symptoms. The results of these interviews could produce an interesting narrative that would reveal insights into the benefits of holistic medicine that a quantitative study could not.

The main disadvantage of qualitative research is that sample sizes are usually small and non-random, and therefore the findings may not generalize to the larger population from which the sample was drawn. Furthermore, the samples are often non-random, and thus the people who participate may not be similar to the larger population. In the preceding example regarding holistic-medicine use, you can imagine that most of the focus-group participants would praise or give anecdotal evidence of the benefits of holistic

medicine, but it would not be possible to know whether these few people are representative of others who were not interviewed. If the participants are more likely to suffer from chronic pain, it is also likely that they believe traditional medicine has been inadequate for them and therefore they are more likely to embrace alternative techniques.

Another distinction often made by professional researchers is between **basic research**, an investigation that adds to the knowledge of a particular area of study, but may not have obvious and immediate applications to real-world settings; and **applied research**, an investigation that does have obvious and immediate applications. Research that is done in laboratories or via computer simulation is most often basic research. Applied research more often takes place in real-life settings such as schools, hospitals, or nursing homes. Survey research (discussed in detail in Chapter 4) is often applied research, as it has immediate application regarding drug use, customer satisfaction, or whatever topic is being addressed in the survey.

Educational researchers make yet another distinction between traditional research and action research (Mills, 2003). **Traditional research** tries to describe, predict, and control the area being investigated. According to Mills, traditional research is conducted by professional researchers (for example, university professors) in controlled environments using mainly quantitative methods, with the goal of generalizing to the larger population. **Action research** is conducted by educational practitioners, with the goal of improving the particular institution at which they work. Action research is conducted by teachers and principals with students in that school as participants. Action research has as its focus the improvement of the organization in which the research is being conducted.

Below is the first Your Turn box. You will find several of these in each chapter. We offer these as homework problems, in a sense. We strongly encourage you to jot down the answers to the Your Turn exercises in your text or on a separate sheet of paper. We firmly believe that it will deepen your understanding of the material presented in this book.

YOUR TURN

Qualitative or Quantitative Research

For each of the settings listed below, describe in one or two sentences two interesting research topics that could be performed at that site. Select one research topic that could be studied using qualitative methods and one that could be studied using quantitative methods. Explain why a qualitative or quantitative study is appropriate for that problem. The sites are:

1. School playground
2. Hospital
3. Supermarket

RESEARCH PROPOSALS

Once a general strategy has been selected (either quantitative or qualitative), the next step is to describe in as much detail as possible the process by which the research will be completed. The document that describes the planned research process is called a **research proposal**. Research will be successful only when it is carefully planned. When the authors first started doing research for our master's theses and doctoral dissertations, we both found research proposals boring. We now realize that research proposals are necessary to execute the project effectively, we require our students to prepare them in research methods classes, and we even view writing research proposals as enjoyable. They are enjoyable because writing a research proposal allows you to mentally explore ways in which the study could be conducted. For those who like doing research, such mental exploration is invigorating.

Components of Research Proposals

A research proposal has several features. It should clearly explain why the study you are proposing is a vital component of discovery in the field. In other words, the proposal should make a compelling case as to why your study is the "next best" study to conduct. The proposal should also be very specific about methodology: the research participants you will study, what instruments or techniques you will use to study them, and how you will analyze the data collected. Finally, the proposal should answer the "so what" question: Assuming the study goes forward, how will the findings from this study make a difference to other researchers (basic research study) or practitioners in the field (applied research study)? By the end of the proposal, the reader should have a clear idea of how the study will be conducted and why it is important (Table 1.1). Your goal should be to make the reader as excited about reading the results of the research as you are about conducting the research.

Literature Reviews Almost all proposals require some review of previous research literature. The extent of the required review varies by the type of proposal. A doctoral dissertation will require a nearly exhaustive review of the relevant literature. A response to a **request for proposals (RFP)**, which is a call from an organization for researchers to submit a plan to conduct research on a specific question unique to that organization, may not require much literature review at all. A grant application to a government agency or an undergraduate honors thesis would usually fall somewhere in the middle of these two extremes.

The literature review serves two purposes. First, it should convince the reader that the researcher is familiar with the literature and competent to conduct investigations. Second, it should convince the reader that the proposed study fits into the existing body of knowledge and explain how the proposed study is needed to fill a gap in the literature.

It is important to know your audience with respect to reviewing the literature. Organizations involved in the delivery of social services may only care that you are competent to conduct their specific study. For example, from 2001–2004, author VanderStoep conducted an evaluation for a church organization that was interested in determining the beneficial effects of its homelessness interventions. This proposal needed very little in the way of literature review. In fact, for very specialized research projects there may not be any existing literature. In contrast, if you are proposing your doctoral dissertation or

TABLE 1.1 Elements of a Good Proposal

Component	Possible Technique
Compelling reason why the study should be conducted	Describe previous research and why it is incomplete. Explain why your study will fill in this gap in knowledge. Make it your goal to convince readers that yours is the next-best study. Present a sufficient literature review; this will depend on the study being proposed and the audience reading the proposal. The review should convince readers that the researcher is knowledgeable and that the study is needed to fill a gap in the existing literature.
Specification of the methodology	Identify the sample of participants you want to study. Describe the instruments or techniques you will use to observe these participants. Specify particular data analysis techniques that match the type of data you will obtain.
Convincing argument for the reader that the outcomes of the study will be important	Assume that the reader is skeptical—anticipate a "so what" question in response to your proposal. Tell pure researchers how your study will add to the body of knowledge. Tell applied researchers and practitioners why your findings will be important to those working in the field. Aim to get the reader as excited about the study as you are.

master's thesis, part of demonstrating your research competency is showing that you have read and understood the existing literature. Thus, a thorough literature review is advised. You should know more about your topic than anyone else on your thesis committee.

YOUR TURN

Literature Review

Lists of possible articles to read for a literature review can be built quite quickly using keyword searches of electronic databases. There are several social science databases. The most common are PsychINFO, EconLit, SocINDEX, and JStor.

Do a *keyword search* in each of these four databases using some combination of *two* of the following terms: *children, religion, poverty, family.* Did the searches in the four different databases yield different articles? What might explain the differences?

RESEARCH ETHICS

Research ethics deals with how we treat those who participate in our studies and how we handle the data after we collect them. Each discipline will have its own ethical guidelines regarding the treatment of human research participants. The general principles that we outline here largely cut across disciplinary boundaries. Many of the current ethical guidelines have their origins in the Belmont Report, a report prepared by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (A copy of this 1979 report is found on the National Institutes of Health website.) Prominent and leading organizations, such as the American Psychological Association, post their ethical guidelines on their websites and in printed materials (for example, Sales & Folkman, 2000). Regardless of your specific area of study, you will need to be familiar with ethical issues.

According to the Belmont Report, researchers must be concerned with three ethical issues:

- *Respect for Persons*: Researchers must recognize research participants as autonomous agents, and those who have diminished autonomy (for example, the young, the disabled) must be granted protection.
- *Beneficence*: Researchers will secure the well-being of participants by not harming them and, further, maximizing possible benefits and minimizing possible risk.
- *Justice*: There must be fairness in the distribution of benefits and possible risks across all research participants. The iniquitous Tuskegee experiments, in which research participants were infected with syphilis and subsequently not given treatment, is an example from the bad old days before ethical guidelines. That the research participants were poor, black men who were not informed of the nature of the study made this research endeavor particularly villainous and a clear violation of the justice guideline.

Institutional Review

Most colleges and universities have institutional review boards, often referred to as IRBs. These committees oversee research projects conducted on campus. Proposals must be approved by the IRB before data collection begins. Most committees require researchers to submit a thorough plan for data collection, a copy of the informed consent sheet you will give participants (see, for example, Exhibit 1.1), and a description or sample of any instruments you will administer to participants or stimuli to which they will be exposed. For research conducted with or on animals, there is often a separate committee for animal care, which usually consists of several professors, one off-campus member, an ethicist, and a veterinarian.

Although the preponderance of the burden for ethical conduct lies with the researcher, the participants also have an implicit ethical obligation to be honest as they answer questions and to avoid sabotaging the research process. For example, completing a paper-and-pencil survey by filling in random survey bubbles or by answering the opposite of one's true feelings is also an ethical violation. Unfortunately, there is little a researcher can do

EXHIBIT 1.1 Informed Consent Document

Informed Consent Form
Epistemic and Religious Beliefs among College Students
Fall 2005

This study examines students' beliefs about learning and knowing, and the relationship of those beliefs to learning and problem solving.

This research is being conducted by Scott VanderStoep, a professor at Hope College. He hopes to obtain normative, descriptive data about students' beliefs about learning, and how those beliefs relate to students' thinking about contemporary problems. **All your responses and scores will be confidential. We will not describe or identify any individual responses, only responses across groups of people.**

Completing these questionnaires and answering the open-ended questions should take 40–50 minutes and should be done **in one sitting in a quiet environment.**

You have certain rights as a participant. They include:

1. Voluntarily agreeing to participate in this research.
2. Refusing to participate (in part or in full) with NO penalty to you whatsoever.
3. Withdrawing from participation at any time without penalty.

If you begin the experiment and then choose not to participate, please notify the experimenter.

By agreeing to participate you verify that:

1. You are 18 years of age or older.
2. You have read and understand the information written above.
3. You voluntarily agree to participate in this research.
4. You agree to complete this task by yourself and that you will answer the questions honestly.
5. You understand that you are free to withdraw from participation at any time without penalty.

If you have any questions about this study or comments/suggestions about your participation in this research, please contact Dr. Scott VanderStoep in 243 VZH (ph. 395-7417). This study has been approved by Hope College's Institutional Review Board. If you agree to the terms noted above, please sign and print your name below:

_____
Signature

_____
Printed Name

to combat such deception. Much social research is predicated on the assumption that research participants are behaving ethically and telling the truth.

Informed Consent

People who participate in a research study usually have the right to know that they are part of that study. Informed consent involves several components:

- Describing the details of the research study to the participants (or their legal representatives, in the case of children or others who are not able to give informed consent).
- Identifying any potential risks, such as informing participants that they have the right to withdraw from the study at any time.
- Identifying any potential costs to withdrawing. If college students are participating as part of course requirements, the researcher should alert them to an alternate assignment of equivalent time commitment and expected educational value as research participation. In the field of psychology, for example, it is implicitly assumed that psychology students who take part in a research study will gain some knowledge about psychological research by serving as participants. If the student does not participate in, or withdraws from, a research study, an alternative educational assignment should be given.

The exception to informed consent would be with naturalistic observation (see Chapter 4) in which the people "participating" are anonymous to the researcher. Because their behavior is naturally occurring and no identification of the person is made, informed consent is not required.

Opportunity to Withdraw

Participants who volunteer for a study must also be allowed to discontinue participation. If research participants feel stressed, tired, or otherwise unable to continue the study to completion, there should be no implied or stated threat of penalty for withdrawing. The informed consent should make it clear what the results of terminating will be, even if the probability of withdrawal is low. One approach to this problem is to provide participants with prorated compensation based on the percentage of the study they completed. If participants are being paid $25 for participating in a focus group, and the focus group begins to explore issues that make the participant uneasy (for example, a focus group for a hospital that asks sensitive questions about private behaviors), a withdrawing participant should be paid for the part of the focus group that she or he completed. For college students who participate for course credit, such partial credit could be harder to construct—but you should have a plan, especially if you think participants might not finish the study. As with many parts of the research process, it is wise to prepare for low-probability events. They are easier to deal with in advance than after they occur.

Offering Incentives

Although participation in research is technically voluntary, it is also the case that research participants should be compensated for their time and effort. Such compensation should

vary depending on time, task complexity, and risk. Researchers at universities very commonly offer course credit as the main incentive. Researchers might also give financial incentives of varying amounts. A minimal-risk interview or experiment would yield a low incentive. For example, a group of undergraduates (Balmer, Siler, & Sorenson, 2004) conducted hour-long interviews with graduating seniors as part of their work on college students' cognitive and motivational development. Each student subject was paid $15 for his or her time. Researchers at hospitals will pay much more, as much as $100, for studies involving positron emission tomography (PET). A PET study would be considered higher-than-normal risk, because the participant must be injected with radioactive material that attaches to a naturally occurring body compound (such as glucose). The general rule is: the higher the risk, the higher the incentive.

On the other end of the continuum, incentives are not always needed. Debra Swanson and I (Johnston & Swanson, 2004) interviewed full-time working mothers, part-time working mothers, and at-home mothers about parenting and marriage. Because we were well known in our small community, we were able to recruit participants who participated for free. Because we did not have sufficient funds to pay participants, we recruited interviewees without offering any financial incentives. In such situations, researchers should make it clear to the participants that no incentive will be offered or granted.

Using Deception

For some areas of social science, particularly certain areas of experimental social psychology, deception is a crucial issue on which reasonable people will likely disagree. At its core, **deception** is the practice of giving false information to research participants about some aspect of the study. The purpose of deception is to get participants to reveal their true thoughts, feelings, or behaviors, which they would not otherwise provide if the true nature of the experiment were made known to them. As soon as possible following the study, the researchers need to inform participants that the information they received during the experiment was in fact a ruse. This is done in the debriefing (see below).

An example of a deception experiment is a study published in the *Journal of Personality and Social Psychology*, the leading journal in social psychology (Baumeister, Twenge, & Nuss, 2002). In their experiments, these researchers asked participants to take a test that they claimed measured people's propensity to end up alone later in life. Some of the participants were randomly assigned to receive the following statement from the researchers from the "results" of this so-called test:

> *You're the type who will end up alone later in life. You may have friends and relationships now, but by your mid-20s most of these will have drifted away. You may even marry or have several marriages, but these are likely to be short-lived and not continue into your 30s. Relationships don't last, and when you're past the age where people are constantly forming new relationships, the odds are you'll end up alone (p. 819).*

These researchers were interested in studying social exclusion. They wanted to test whether being socially excluded (by being given the preceding feedback) would produce more aggression, retaliation, and depression among the participants. The researchers did

indeed find that those who were given this feedback were more aggressive, retaliatory, and depressed than others who were given another type of bad news.

The irony of such false-feedback experiments is that to be effective, they have to be believable, and to be believable they have to be very obvious; the more obvious they are, the more potentially hurtful they could be. Those who believe that deception is a necessary component of some social research argue that it is the only way in which true thoughts and behaviors will be demonstrated. The decision to use deception is made by weighing the potential benefits of the research findings against the risk of the deception.

Those researchers who feel that deception should not be used see the collateral damage of deception studies as, at the very least, inestimable and maybe even quite harmful. It is fair to say that most deception research is done in psychology, and also to say that most psychology researchers at a university share the same participants (college undergraduates). So imagine students who participate in a deception experiment first, then go to a non-deception experiment later in the semester. Now that these students have been told they were in an experiment in which they were deceived, there are several possible negative consequences. For example, students might be on guard for another deception experiment, and thus concentrate not on the task at hand but rather on trying to discern the expected deception in the current experiment. Or, they could harbor hostility about research in general after having been fooled and in turn try to sabotage the current experiment. To the best of our knowledge, no one has ever tried to calculate any possible ill effects that deception experiments have on participants' behavior in subsequent non-deception research.

On the other side of the fence, some argue that researchers can combat the negative effects of deception with thorough debriefing, which is discussed in the next section (Blanck, Bellack, Rosnow, Rotheram-Borus, & Schooler, 1992). The purpose of this section is not to convince you that deception is always wrong or even sometimes wrong. Rather, the goal is to alert you to the fact that any decisions regarding research must be made against the backdrop of the ethical criteria discussed earlier.

Debriefing

Debriefing of participants takes place at the conclusion of the study, and it involves revealing the purposes of the research. It should be done as soon as possible after completion of the study, preferably immediately after participation. It is important to provide a written debriefing so that participants leave the research experience with a tangible description of the activities they just performed. An oral debriefing is also recommended if the research participation was stressful or the research design was complicated.

Debriefing serves at least two purposes. First, it clears the air about the rationale of the study. Participants can hear, in the researcher's own words, why she conducted the study. Second, it can educate participants about the topic at hand, thereby increasing the community's collective knowledge about the issue. The debriefing can be done in person, upon completion of the study, or it can be done via correspondence (surface mail or email) after the researchers have completed some of their analyses. Waiting until this point has the disadvantage of providing delayed rather than immediate feedback, but it has the advantage of providing the participants with interesting, first-hand knowledge of the study findings.

Exhibit 1.2 is a letter that Debra Swanson and I sent after the motherhood study described earlier. Mothers who participated in this study were very interested in the rationale for the study. They were also interested in the results, so after we completed the study we sent the participants another letter summarizing our findings from the study. Providing this information created goodwill among the participants because it showed them that they were an important part of the project.

EXHIBIT 1.2 Debriefing Letter from Researchers Sent to Interviewees

July 25, 2002

Dear Friend:

Thank you for your participation in our research study on the Social Construction of Motherhood. For some of you, your interview took place over two years ago! We have been busy transcribing the over 100 interviews that we did, cleaning and organizing the data, and reading all of the interesting stories. We have enjoyed learning more about you and about your thoughts on mothering.

We wanted to share a couple of our preliminary findings with you and to give you a chance to respond. We found that work decision had a major impact on how a woman constructed her ideas of good mothering. (For this letter, I will use the distinction of employed, part-time worker, and stay-home for stylistic purposes. We know that all mothers work.)

- Stay-home mothers are not conflicted about their decision to stay home—they have consciously decided to be with their preschool children—but many of them miss having adult interaction. Those stay-home mothers that have adequate access to good outside support (parents, a spouse with flexible hours, neighbors at home) enjoy being home more than stay-home mothers who don't (far from family, spouse who works long hours, neighbors who are all gone during the day). This may sound too obvious, but what it says is that we could be more supportive as a community by helping isolated families with organized play groups, mom support networks, and built-in flexibility for the spouse's job.
- Employed mothers are not conflicted about their decision to work—many of them trained for their positions or want to work to maintain a certain lifestyle—but miss time with their families. They often spend just as much time doing one-on-one activities with their children as stay-home mothers, at the expense of time with spouse or housework. These women would like to have more flexibility built into their jobs while their children are young without sacrificing their careers. Another solution would be a shorter work week for all full-time workers, men and women. These extra hours could be used for family activities, care for elderly, parents, or community volunteer services.

- Part-time working mothers were the happiest on life satisfaction and mood inventories. Part-time working mothers believed they had the best of both worlds, but tended to compartmentalize their lives between work and home. Likewise, they tended to quantify their time with children: counting up the number of craft activities, sports, or lessons their children were able to participate in. These part-time working mothers note that adequate home help from their spouses was a problem more than other moms.

You may find that your story doesn't really fit your category, and that is true of research that is done on people. Not everyone fits the pattern. But we were surprised at the number of women who did fit. As you can see, there are strengths, and weaknesses, to all of the decisions.

We are planning on using this research to write a book. Our overall goal is not to suggest that one decision is better than the other, but rather what it is that we can do to support families and all the choices they make about their children. Mothers do what they do because they want the best for their kids.

We will send you a postcard to update you in the future when the book has a publication date. In the meantime, please feel free to contact us with your comments.

Sincerely,
Deirdre D. Johnston
Associate Professor of Communication
Hope College

Debra H. Swanson
Associate Professor of Sociology
Hope College

Plagiarism

Research ethics prohibit an investigator from presenting the ideas or data of others as his or her own. A breach of this ethical dimension could be manifested in several ways:

- Theoretical or conceptual ideas generated by one researcher are presented in a paper, presentation, or grant proposal by another researcher.
- Data collected and presented by one researcher are presented by another researcher. It would not be considered plagiarism, however, if a publicly available dataset (such as from the U.S. Census Bureau) were used by multiple researchers. In fact, it is likely that this will happen among researchers exploring the same line of investigation. Furthermore, it is expected that researchers will make their data available to, in the words of the American Psychological Association, "other competent professionals" to verify the findings. What one should avoid is using previously published data and presenting it as original. This is perhaps most likely for researchers within the

same research program. For example, consider a researcher who submits for publication a paper that uses data he already used in a previous paper. If the second paper merely references the previous paper, there is no problem. However, if the same data are used as the focus of the second paper, this ethical line has been crossed. In theory, the same should be true of conference presentations. However, anyone who has attended research conferences and has seen the same people present from year to year knows that often a presentation in one year looks a lot like the presentation made in a previous year. The standard is probably not as strict for conference presentations, because conferences are often times for researchers to "demo" their newest ideas, and sometimes the whole story of the new data cannot be told without the context of old data that were presented at an earlier conference.

An egregious example of plagiarism, or what might be better labeled fraud, is the generation of fraudulent data. A rising star in the field of social psychology, Karen Ruggiero, had her work cited in such highly visible places as *Psychology Today*. In 2001, Ruggiero was forced to admit that she had fabricated data in studies while she was at Harvard University. She was forced to retract four published studies and was banned from receiving federal funding for five years. Although such tragic examples are rare, they highlight both the pressure that some researchers feel to produce publishable results and also the personal integrity that is absolutely essential in scientific inquiry. Above all, social scientists need to be truth-tellers, and they must put truth-telling in front of any personal preferences or pressures.

Ethics Example

In 2001, author VanderStoep was approached by people who were interested in children's safety, particularly with respect to children's ability to manipulate car trunk-release devices. The company gave me the following question to answer: At what age could children successfully manipulate different types of trunk-release devices? I enlisted the help of my social psychologist colleague Mary Inman to determine the best design for the study. Before we could write the proposal, we had to answer several questions, among them:

- Where should the experiment take place?
- Should the children be in the dark (like in a car trunk)?
- Should the parents be in the room with the children (unlike a trunk)?
- How much about the study should children be told? (We feared that making the experiment too much like a game would fail to signal the dangers of playing near or in open car trunks.)

After many hours of discussion, we decided on a plan (Inman, VanderStoep, & Lynman, 2003). From that plan we wrote a proposal.

What you will likely find as you determine what method to use is that each decision has certain advantages and certain disadvantages. These advantages and disadvantages have to be filtered through the ethical considerations such as respect for persons, beneficence,

informed consent, and opportunity to withdraw. As you prepare your proposal, you should make those decisions based on maximizing the advantages and minimizing the disadvantages *as they relate* to your particular research questions.

Consider the solutions to the ethical dilemma we faced:

1. We proposed to conduct the experiment in a psychology laboratory room rather than a real-life setting like a dark room in the child's house, or even more realistically, in the trunk of a car. We chose this because we wanted the control of a lab setting to cut down on any unwanted variance that different locations might produce. We were also worried about the ethical implications of actually putting children in a real-life setting. Even though we could guarantee their safety by having adults present and not completely closing the trunk, we did not feel comfortable giving children the actual experience of being in a trunk, for fear that, on the one hand, they might find it novel and exciting; or, on the other hand, be so traumatized by the experience that they had long-lasting negative effects.
2. We decided to conduct the experiment in a darkened room. Although we lost **mundane realism**—making the research setting simulate actual life events—with this approach, we found the ethical concerns about the clearly more realistic setting of an automobile trunk to be sufficiently troubling that we opted for the less realistic setting. The disadvantage of the approach we took is that we might not get an adequate assessment of the children's performance.
3. We decided to have the parents accompany the children during the experiment. Again, the loss of mundane realism was a concern, but we did not want the situation to become overly frightening for the children.
4. We decided not to tell the children it was a study about car trunks. We did this partly to avoid scaring them, and partly to avoid giving them any ideas that being in a trunk might be fun. At the conclusion of the experiment, we spoke with children about the importance of having parents always know their whereabouts, and stressing that they should never go anywhere without their parents knowing where they are headed.

As is probably obvious from the ethics-related decisions we made, the study became more a study of children's manual dexterity in the dark than about their ability to open a trunk-release device in a real-life setting. Because the experimental situation was more optimal than what a child locked in a trunk would encounter, we saw the success rates in the experiments as "upper bounds" of actual performance in a real-life trunk situation. We were clear in our discussion and interpretation of the data, for we did not want our data to be misinterpreted by people who might someday make decisions about the manufacturing of such products.

GETTING ACQUAINTED WITH SPSS

In Chapters 2 through 6, many of the Your Turn boxes will involve performing data-analysis procedures using a statistical-computing program called SPSS (Statistical Package for Social Scientists). This is a user-friendly and powerful statistics package that is

available on most university campuses. There are various options for statistical computing, however, and much of what we teach in this book could be performed with the spreadsheet program Microsoft Excel. In this section we show you a variety of SPSS operations. These are the basic operations, and may look familiar to anyone who is proficient with spreadsheet programs. We will introduce the more advanced statistical operations when we cover each particular topic in the text. We include only the information on SPSS necessary to teach the topics we intend to cover. There are excellent texts specifically dedicated to SPSS if you want to learn more (for example, Green & Salkind, 2005).

Getting Started

After you open SPSS, you are asked which of several things you would like to do. Most of the time you will want to select either *Type in data* (if you need to create a dataset) or *Open an existing data source* (if you have already entered data or were given a dataset). If you type in data, the interface is almost identical to that of a spreadsheet program (with one added feature, discussed next). If you want to edit an existing dataset, it is easy to browse for your file. You can also open other types of documents, including Excel, Lotus, or SAS files. Because using SPSS is similar to using a spreadsheet, common operations, such as Copy, Cut, Save As, and others, can be used in both Mac and Windows platforms.

Variable View versus Data View

SPSS allows you to view your spreadsheet in one of two ways: Data View or Variable View. *Data View* arranges the names of the variables in the columns (down) and the cases (participants who filled out or completed your data) across the rows. This is the standard way in which most spreadsheets are viewed. *Variable View* allows you to see the list of variables and their features but not the actual cells of the spreadsheet. To select this option, click on the *Variable View* button in the bottom left-hand corner of the screen. *Variable View* is convenient if you have a dataset with hundreds of variables. Instead of scrolling across the screen to find the name of the variable you need, *Variable View* shows all of the variables in the first column.

Types of Variables

The two most common types of variables in SPSS are *string variables* and *numeric variables*. You should specify a numeric variable for quantitative variables and a string variable for variables that include text (for example, male, female). The variable name can have a maximum of eight characters, regardless of whether it is string or numeric. String variables can have a maximum of 32,760 characters as the data input. Numeric variables have a maximum of 40 numeric values in front of the decimal place and 16 values beyond the decimal point. *Numeric variable* is the default selection, but the type of variable can be changed by left-clicking the gray box inside the variable type column (the second column in *Variable View*).

To enter data, go to *Data View* and begin typing as in any other spreadsheet. You can also cut and paste data from a text file or spreadsheet file. For numeric variables, simply

enter the values from your computer's numeric keypad. For string variables, type the characters (for example, *male*) in the appropriate cell.

Labels and Values

After you have entered the data, SPSS allows you to enter variable labels (called *Labels*) when in *Variable View*. Because the name of the variable can be only eight characters, the label is very helpful in identifying the variable. Imagine a survey question that asks, "All things considered, how happy would you consider your life to be?" The name of the variable must be less than eight characters; perhaps you could call it *lifesat*. The *Label* field, however, allows you to type in the whole survey question. This is particularly helpful when you have many variables or when your collaborators use the data but do not know or remember the exact items.

The *Values* field allows you to use words to describe your numeric values. Imagine a survey that has a five-point scale with 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. In the cells of the data file you would enter the appropriate numbers. To help you and other researchers identify what those numbers correspond to, you would enter the descriptive words (for example, "strongly agree") in the *Label* column (see Figure 1.3). This assists the researchers in identifying what the numbers mean. These values also get printed on any output that is produced, making it easier to read the results.

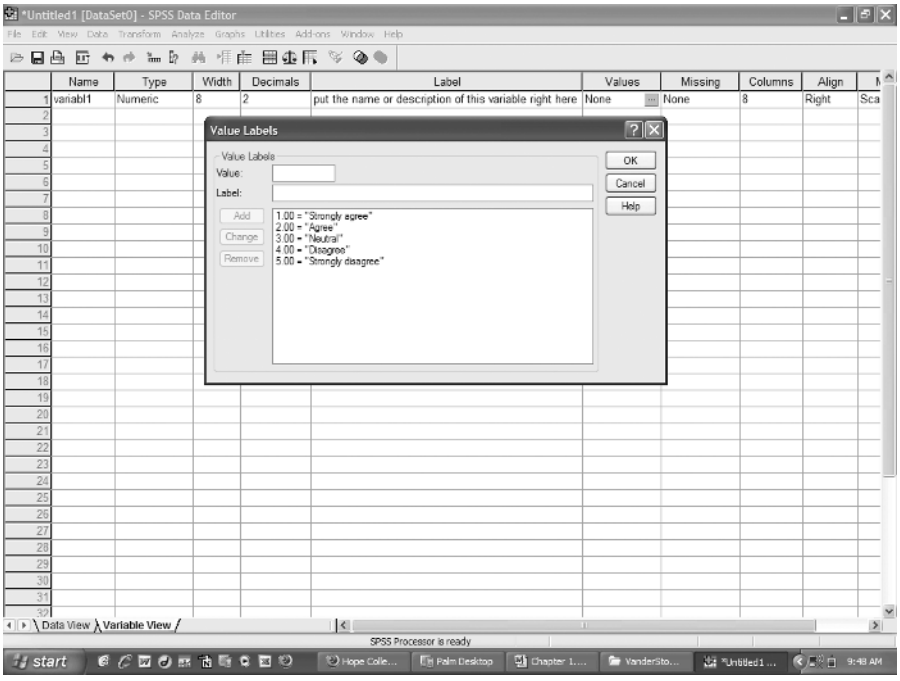

FIGURE 1.3. *SPSS screen showing labels*

YOUR TURN

SPSS

1. Open SPSS.
2. Select *Type in data.*
3. Go to *Variable View.*

Enter the following variable names: ID (numeric), gender (string), act (numeric), gpa (numeric), yearsch (numeric), satis (numeric).

Enter the following labels for the six variables: student ID number, student gender, ACT score, cumulative college GPA, year in school, satisfaction with school measure.

Enter the following as values for the variable *satis:* (1 = I'm very dissatisfied with this university, 2 = I'm fairly dissatisfied with this university, 3 = I'm undecided with this university, 4 = I'm fairly satisfied with this university, 5 = I'm very satisfied with this university). Enter the following as values for the variable *yearsch:* 1 = freshman, 2 = sophomore, 3 = junior, 4 = senior.

Enter the following data as sample entries:

ID	gender	ACT	GPA	yearsch	satis
001	male	23	3.2	1	3
002	female	24	3.4	3	4

SUMMARY

Research can begin with an intuition that you want to subject to scientific scrutiny. It can also begin with a business's or organization's need for a specific answer to a specific question. The research process involves generating a question (hypothesis), collecting data to test that hypothesis, then analyzing and interpreting the results of your investigation. Research can be quantitative or qualitative in nature, depending on whether you want to collect statistical information or narrative information. Whatever the purpose or strategy of research, it all must be conducted and understood through an ethical lens, which sees research participants as worthy of respect and protection, and considers that the purpose of the research is ultimately to try to benefit humankind. Researchers can analyze quantitative data with statistical-computing packages such as SPSS, the basics of which were shown in this chapter. More advanced techniques are shown in subsequent chapters.

KEY TERMS

action research
applied research
basic research
debriefing
deception
hypotheses
mundane realism
qualitative research
quantitative research
replication
request for proposals (RFP)
research proposal
research question
theories
traditional research