

# 2

## THE PROCESS AND PROBLEMS OF RESEARCH RELATED TO CRIME AND CRIMINOLOGY

**At the end of the semester, a professor asked if I would be interested in doing some research on sexual harassment in the workplace for her over the summer. For the research, I had to read research articles and summarize them for the professor. While I was reading the articles, I would come across the research methods the authors used, with data analysis tables. I thought it was incredible how I came full circle back to the research methods I learned! My research methods class set me on a course that has changed my time in college and possibly influenced my future career.**

**Emily G., Student**

### WHAT DO WE HAVE IN MIND?

Intimate partner violence is a major problem in countries around the world. In a U.S. survey of 16,507 men and women sponsored by the Department of Justice and the Centers for Disease Control and Prevention, 35.6% of women and 28.5% of men said they had experienced rape, physical violence, or stalking by an intimate partner at some time in their lives (Black et al., 2011). An international survey by the World Health Organization (WHO) of 24,000 women in 10 countries estimated lifetime physical or sexual abuse ranging from a low of 15% in Japan to a high of 71% in rural Ethiopia (WHO, 2005) (see Exhibit 2.1).

What can be done about this problem? In 1981, the Police Foundation and the Minneapolis Police Department began an experiment to determine whether immediately arresting accused spouse abusers on the spot would deter future offending incidents. For misdemeanor cases, the experimental course of

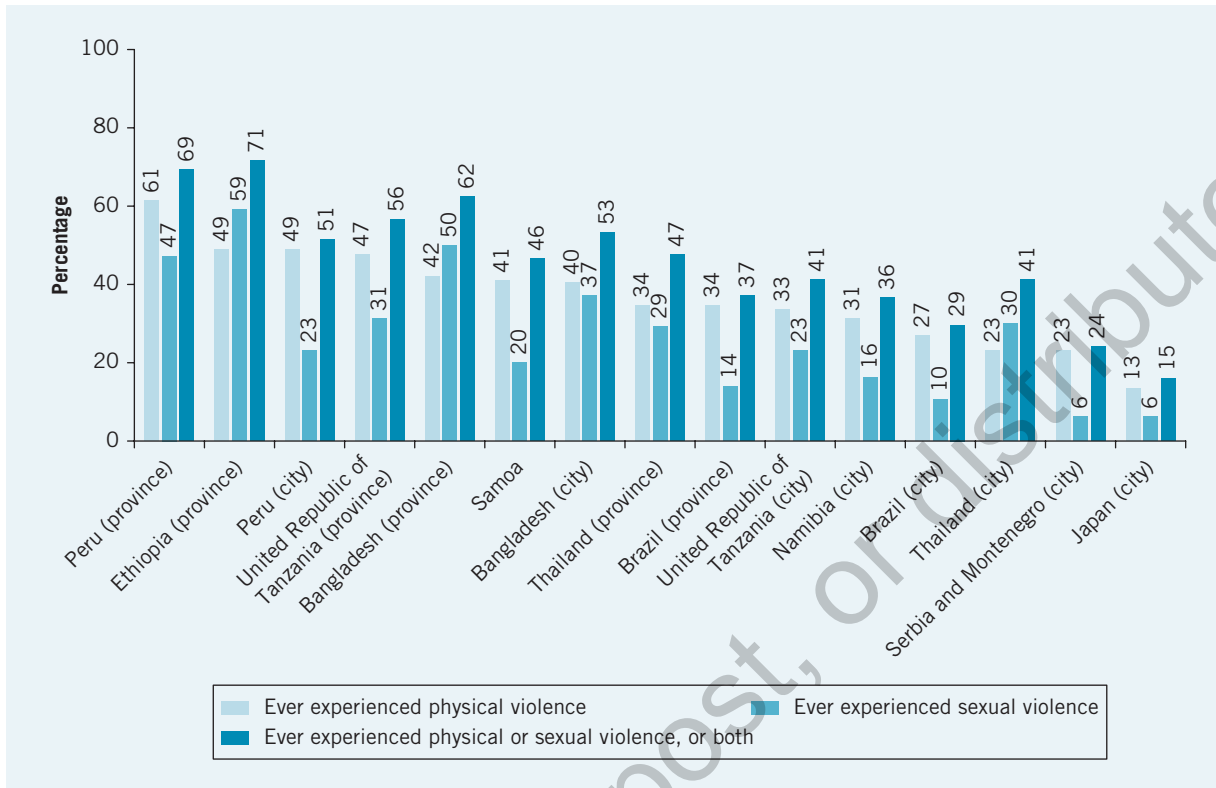
### Learning Objectives

1. Describe the importance of theory to research.
2. Understand the difference between deductive and inductive reasoning.
3. Describe the difference between a research question and a research hypothesis.
4. Explain how the research circle is really a research spiral.
5. Know the difference between an independent and dependent variable.
6. Define the different types of validity and generalizability.

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**Exhibit 2.1 International Prevalence of Lifetime Physical and Sexual Violence by an Intimate Partner, Among Ever-Partnered Women by Site**



Source: World Health Organization 2005. Multi-country Study on Women's Health and Domestic Violence: Summary Report.

action involved the random assignment of police to respond by either arresting the suspect or giving the suspect a simple warning. The experimental treatment, then, was whether the suspect was arrested, and the researchers wanted to know whether arrest was better than not arresting the suspect in reducing recidivism. The study's results, which were widely publicized, indicated that arrest did have a deterrent effect. Partly as a result of the reported results of this experiment, the percentage of urban police departments that made arrest the preferred response to complaints of intimate partner violence (IPV) rose from 10% in 1984 to 90% in 1988 (Sherman, 1992, p. 14). Six other cities later carried out studies similar to the Minneapolis Domestic Violence Experiment (collectively, this was called the Spouse Assault Replication Program [SARP]), but from city to city, the results were mixed (Buzawa & Buzawa, 1996; Hirschel, Hutchison, & Dean, 1992; Pate & Hamilton, 1992; Sherman, 1992; Sherman & Berk, 1984). In some cities (and for some people), arrest did seem to prevent future incidents of domestic assault; in other cities, it seemed only to make matters worse, contributing to additional assault; and in still other cities, arrest seemed to have no discernible effect.

After these replications of the original Minneapolis experiment, people still wondered, "Just what is the effect of arrest in reducing IPV cases, and how should the police respond to such cases?" The answer simply was not clear. The Minneapolis experiment, the studies modeled after it, and the related controversies provide many examples for a systematic overview of the social-research process.

## IDENTIFYING A RESEARCH QUESTION

The first concern in criminological research—indeed, in any research—is deciding what to study. That is, how does one go about selecting an issue, problem, or question to address? A **research question** is a question about some aspect of crime or deviance that the researcher seeks to answer through the collection and analysis of firsthand, verifiable, empirical data. The types of questions that can be asked are virtually limitless. For example, “Are children who are violent more likely than nonviolent children to use violence as adults?” “Does the race of a victim who is killed influence whether someone is sentenced to death rather than life imprisonment?” “Why do some kinds of neighborhoods have more crime than others? Is it due to the kinds of people who live there or characteristics of the neighborhood itself?” “Does community policing reduce the crime rate?” “Has the U.S. government’s war on drugs done anything to reduce the use of illegal drugs?” So many research questions are possible in criminology that it is more of a challenge to specify what does *not* qualify as a research question than to specify what does.

That being said, specifying which research question to ask and pursuing its answer are no easy tasks. In fact, formulating a good research question can be surprisingly difficult. We can break the process into three stages: identifying one or more questions for study, refining the questions, and then evaluating the questions.

### Where to Start?

How does a researcher interested in criminology and criminal justice–related issues decide what to study and research?

Formulating a research question is often an intensely personal process, in addition to being a scientific or professional one. Curiosity about the social world may emerge from your “personal troubles,” as Mills (1959) put it, or personal experiences. Examples of these troubles or experiences could range from how you feel about injustices raised against you in your past or present to an awareness you may have that crime is not randomly distributed within a city but that there seem to be “good” or safe parts of town and “bad” or unsafe areas. Can you think of other possible research questions that flow from your own experience in the world?

The experience of others is another fruitful source of research questions. Knowing a relative who was abused by a partner, seeing a TV special about violence, or reading a gang member’s autobiography can stimulate questions about general criminological processes. Can you draft a research question based on a relative’s experiences, a TV show, or a book?

The primary source of research questions for many researchers is theory. Many theoretical domains are used to inform research questions in our discipline, including sociological, psychological, and criminological theories. Some researchers spend much of their careers conducting research intended to refine an answer to one central question. For example, you may find rational choice theory to be a useful approach to understanding diverse forms of social behavior, such as crime, because you think people seem to make decisions on the basis of personal cost–benefit calculations. So you may ask whether rational choice theory can explain why some people commit crimes and others do not or why some people decide to quit committing crimes while others continue their criminal ways.

Finally, some research questions adopt a very pragmatic rationale concerning their research design. You may focus on a research question posed by someone else because doing so seems to be to your professional or financial advantage. For instance, some researchers conduct research on specific questions posed by a funding source in what is termed a *request for proposals* (RFP). (Sometimes the acronym *RFA* is used, meaning *request for applications*.) Or you may learn that the public defenders in your city are curious as to whether they are more successful in getting their clients acquitted of a criminal charge than private lawyers.

● **Research question:**  
A question that is answered through the collection and analysis of firsthand, verifiable, empirical data

## Refining Research Questions

As you have no doubt guessed, coming up with interesting criminological questions for research is less problematic than focusing on a problem of manageable size. We are often interested in much more than we can reasonably investigate with our limited time and resources (or the limited resources of a funding agency). Researchers may worry about staking a research project (and thereby a grant) on a narrowly defined problem, so they commit to addressing several research questions at once and often in a jumbled fashion. It also may seem risky to focus on a research question that may lead to results discrepant with our own cherished assumptions about the social world.

The best way to avoid these problems is to develop the research question one bit at a time with a step-by-step strategy. Do not keep hoping that the perfect research question will just spring forth from your pen. Instead, develop a list of possible research questions as you go along. Narrow your list to the most interesting, most workable candidates. Repeat this process as long as it helps to improve your research questions. Keep in mind that the research on which you are currently working will likely generate additional research questions for you to answer.

## Evaluating Research Questions

In the third stage of selecting a criminological research question, you evaluate the best candidate against the criteria for good social-research questions: feasibility given the time and resources available, social importance, and scientific relevance (King, Keohane, & Verba, 1994).

The research question in the Minneapolis Domestic Violence Experiment—“Does the formal sanction of police arrest versus nonarrest inhibit IPV?”—certainly meets the criteria of social importance and scientific relevance, but it would not be a feasible question for a student project because it would require you to try to get the cooperation of a police department.

### Feasibility

You must be able to conduct any study within the time frame and with the resources you have. If time is limited, questions that involve long-term change—for example, “If a state has recently changed its law so that it now permits capital punishment for those convicted of murder, does it eventually see a reduction in the homicide rate over time?”—may not be feasible. This is an interesting and important question, but it is also one that requires years of data collection and research. Another issue is the people, groups, or files that you can expect to gain access to. Although experienced researchers may be granted access to police or correctional department files to do their research, less seasoned and less well-known researchers or students may not be granted such access.

### Social Importance

Criminological research is not a simple undertaking, so you must focus on a substantive area that you feel is important and that is important either to the discipline or for public policy. You also need to feel personally motivated to carry out the study; there is little point in trying to answer a question that does not interest you.

In addition, you should consider whether the research question is important to other people. Will an answer to the research question make a difference for society? Again, the Minneapolis Domestic Violence Experiment is an exemplary case. If that study showed that a certain type of police response to IPV reduced the risk of subsequent victimization, a great

deal of future violence could be prevented. But clearly, criminology and criminal justice researchers are far from lacking important research questions.

### Scientific Relevance

Every research question in criminology should be grounded in the existing empirical literature. By *grounded*, we mean the research we do must be informed by what others before us have done on the topic. Whether you formulate a research question because you have been stimulated by an academic article, because you want to investigate a current public policy problem, or because you are motivated by questions regarding your own personal experiences, you must turn to existing criminological literature to find out what has already been learned about this question. (Appendix A explains how to find information about previous research using both printed and computer-based resources.)

For example, the Minneapolis experiment was built on a substantial body of contradictory theories about the impact of punishment on criminality (Sherman & Berk, 1984). Deterrence theory predicted that because it was a more severe penalty, arresting people would better deter them from repeat offenses than not arresting them. Labeling theory, on the other hand, predicted that arrest would make repeat offenses more likely because it would stigmatize offenders. Studies among adults and nonexperimental research had not yielded consistent findings about the effects of arrest on recidivism in IPV cases. Clearly, the Minneapolis researchers had good reason to perform another study. Prior research and theory also helped them develop the most effective research design.

## THE ROLE OF THEORY

We have already pointed out that criminological theory can be a rich source of research questions. What deserves more attention at this point is the larger role of **theory** in research. We have also noted that research investigating criminal justice and criminology-related questions relies on many theories, including criminological, sociological, and psychological theories. These theories do many things:

They help us explain or understand things, such as why some people commit crimes or commit more crimes than others, why some people quit committing crimes and others continue, and what the expected effect of good families, harsh punishment, or other factors might be on crime.

- They help us make predictions about the criminological world: “What would be the expected effect on the homicide rate if we employed capital punishment rather than life imprisonment?” “What would be the effect on the rate of property crimes if unemployment were to substantially increase?”
- They help us organize and make sense of empirical findings in a discipline.
- They help guide future research.
- They help guide public policy: “What should we do to reduce the level of IPV?”

Social scientists such as criminologists, who connect their work to theories in their discipline, can generate better ideas about what to look for in a study and develop conclusions with more implications for other research. Building and evaluating theory are therefore among the most important objectives of a social science such as criminology.

For centuries, scholars have been interested in developing theories about crime and criminals. Sometimes, these theories involve very fanciful ideas that are not well developed or

• **Theory:** A logically interrelated set of propositions about empirical reality; examples of criminological theories include social learning, routine activities, labeling, general strain, and social disorganization theory

**Theoretical constructs:**

Parts of a theory that describe what is important to look at to understand, explain, predict, and “do something about” the subject

**Falsifiable:** Being capable of being proven wrong; that is, having the capacity to be empirically tested and falsified

organized, whereas at other times, they strike us as being very compelling and well organized. Theories usually contain what are called **theoretical constructs**. In criminology, these theoretical constructs describe what is important to look at to understand, explain, and predict crime. Some criminological theories reflect a substantial body of research and the thinking of many social scientists; others are formulated in the course of one investigation. A few have been widely accepted, at least for a time; others are the subject of vigorous controversy, with frequent changes and refinements in response to criticism and new research.

We can use the studies of the police response to domestic assault to illustrate the value of theory for social research. Even in this very concrete and practical matter, we must draw on social theories to understand how people act and what should be done about those actions. Consider three action options that police officers have when they confront a domestic assault suspect (Sherman & Berk, 1984, p. 263). Fellow officers might encourage separation to achieve short-term peace, police trainers might prefer mediation to resolve the underlying dispute, and some groups may advocate arrest to protect the victim from further harm. None of these recommendations is really a theory, but each suggests a different perspective on crime and legal sanctions. Remember that social theories do not provide the answers to research questions. Instead, social theories suggest the areas on which we should focus and the propositions that we should consider for a test. That is, theories suggest testable hypotheses about phenomena, and research verifies whether those hypotheses are true. In fact, one of the most important requirements of theory is that it be *testable*, or what philosophers of science call **falsifiable**; theoretical statements must be capable of being proven wrong. If a body of thought cannot be empirically tested, it is more likely philosophy than theory.

The original Minneapolis experiment (Sherman & Berk, 1984) was actually a test of predictions derived from two alternative theories concerning the impact of punishment on crime: deterrence theory and labeling theory.

*Deterrence theory* presumes that human beings are at least marginally rational beings who are responsive to the expected costs and benefits of their actions. Committing a crime nets certain benefits for offenders; therefore, if we want to inhibit crime, there must be a compensating cost that outweighs the potential benefits associated with the offense. One cost is the criminal sanction (arrest, conviction, punishment). Deterrence theory expects punishment to inhibit crime in two ways: (1) General deterrence is operating when people believe that they are likely to be caught and punished for criminal acts. Those who are punished serve as examples for those who have not yet committed an offense but who might be thinking of what awaits them should they engage in similarly punishable acts. (2) Specific deterrence occurs when persons who are punished decide not to commit another offense so they can avoid further punishment (Lempert & Sanders, 1986, pp. 86–87). Deterrence theory leads to the prediction that arresting spouse abusers will reduce the likelihood of their reoffending compared with a less serious sanction (not being arrested but being warned or counseled).

*Labeling theory* distinguishes between primary deviance (the acts of individuals that lead to public sanctions) and secondary deviance (the deviance that occurs in response to public sanction) (Hagan, 1994, p. 33). Arrest or some other public sanction for misdeeds labels the offender as deviant in the eyes of others. Once the offender is labeled, others will treat the offender as a deviant, and he or she is then more likely to act in a way that is consistent with the deviant label. Ironically, the act of punishment stimulates more of the very behavior that it was intended to eliminate (Tannenbaum, 1938). This theory suggests that persons arrested for IPV are more likely to reoffend than those who are caught but not punished because the formal sanction of arrest is more stigmatizing than being warned or counseled. This prediction about the effect of formal legal sanctions is the reverse of the deterrence theory prediction.

Exhibit 2.2 summarizes how these general theories relate to the question of whether or not to arrest spouse abusers.

Does either deterrence theory or labeling theory make sense to you as an explanation for the impact of punishment? Do they seem consistent with your observations of social life?

### Exhibit 2.2 Two Social Theories and Their Predictions About the Effect of Arrest for Intimate Partner Violence

	Rational Choice Theory	Symbolic Interactionism
Theoretical assumption	People's behavior is shaped by calculations of the costs and benefits of their actions.	People give symbolic meanings to objects, behaviors, and other people.
Criminological component	Deterrence theory: People break the law if the benefits of doing so outweigh the costs.	Labeling theory: People label offenders as deviant, promoting further deviance.
Prediction (effect of arrest for domestic assault)	Abusing spouse, having seen the costs of abuse (namely, arrest), decides not to abuse again.	Abusing spouse, having been labeled as "an abuser," abuses more often.

More than a decade after Sherman and Berk's (1984) study, Paternoster, Brame, Bachman, and Sherman (1997) decided to study punishment of IPV from a different perspective. They turned to a social psychological theory called *procedural justice theory*, which explains law-abiding behavior as resulting from a sense of duty or morality (Tyler, 1990). People obey the law from a sense of obligation that flows from seeing legal authorities as moral and legitimate. From this perspective, individuals who are arrested seem less likely to reoffend if they are treated fairly, irrespective of the outcome of their case, because fair treatment will enhance their view of legal authorities as moral and legitimate. Procedural justice theory expands our view of the punishment process by focusing attention on how police act and how authorities treat subjects, rather than only on the legal decisions they make. Thus, it gives us a sense of the larger importance of the research question.

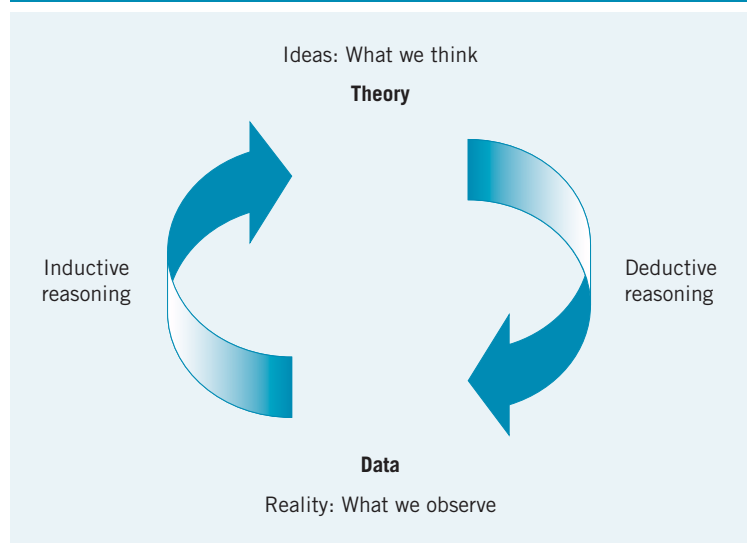
Are you now less certain about the likely effect of arrest for IPV? Will arrest decrease recidivism because abusers do not wish to suffer from legal sanctions again? Will it increase recidivism because abusers feel stigmatized by being arrested and thus are more likely to act as criminals? Or will arrest reduce abuse only if the abusers feel they have been treated fairly by the legal authorities? By posing such questions, social theory makes us much more sensitive to the possibilities and so helps us to design better research. Before, during, and after a research investigation, we need to keep thinking theoretically.

## SOCIAL RESEARCH STRATEGIES

All social research, including criminological research, is the effort to connect theory and empirical data. As Exhibit 2.3 shows, theory and data have a two-way, mutually reinforcing relationship.

Researchers may make this connection by starting with a social theory and

### Exhibit 2.3 The Links Between Theory and Data



**Deductive reasoning:** The type of reasoning that moves from the general to the specific

**Inductive reasoning:** The type of reasoning that moves from the specific to the general

**Serendipitous findings (anomalous findings):** Unexpected patterns in data that stimulate new ideas or theoretical approaches

**Research circle:** A diagram of the elements of the research process, including theories, hypotheses, data collection, and data analysis

**Deductive research:** The type of research in which a specific expectation is deduced from a general premise and is then tested

**Hypothesis:** A tentative statement about empirical reality involving the relationship between two or more variables

then testing some of its implications with data. This is the process of **deductive reasoning**; it is most often the strategy used in quantitative methods. Alternatively, researchers may develop a connection between social theory and data by first collecting the data and then developing a theory that explains the patterns in the data. This is **inductive reasoning** and is more often the strategy used in qualitative methods. As you'll see, a research project can draw on both deductive and inductive strategies.

Both deductive reasoning and inductive reasoning are essential to criminologists. We cannot test an idea fairly unless we use deductive reasoning, stating our expectations in advance and then designing a way to test the validity of our claims. A theory that has not survived these kinds of tests can be regarded only as very tentative. Yet theories, no matter how cherished, cannot always make useful predictions for every social situation or research problem that we seek to investigate. We may find unexpected patterns in the data we collect, called **serendipitous findings** or **anomalous findings**. In either situation, we should reason inductively, making whatever theoretical sense we can of our unanticipated findings. Then, if the new findings seem sufficiently important, we can return to deductive reasoning and plan a new study to formally test our new ideas.

## The Research Circle

This process of conducting research, moving from theory to data and back again or from data to theory and back again, can be characterized as a **research circle**. Exhibit 2.4 depicts this circle. Note that it mirrors the relationship between theory and data shown in Exhibit 2.3 and comprises three main research strategies: deductive research, inductive research, and descriptive research.

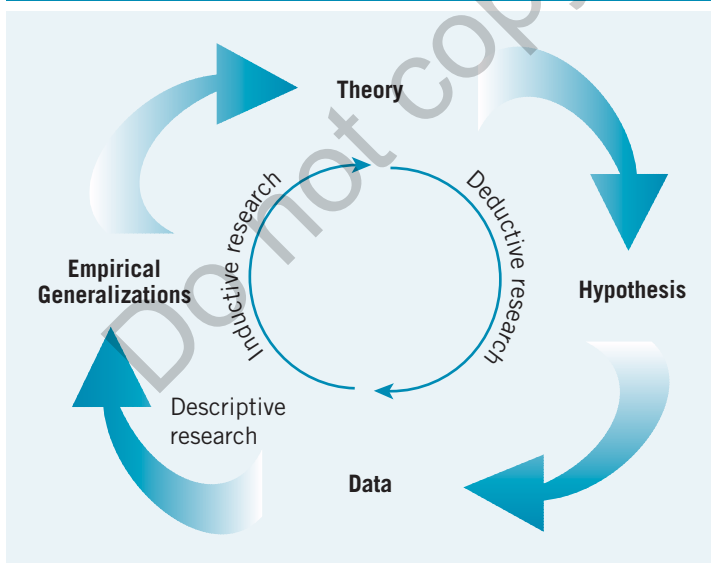
### Deductive Research

As Exhibit 2.4 shows, **deductive research** proceeds from theorizing to data collection and then back to theorizing. In essence, a specific expectation is deduced from a general premise and then tested.

Notice that a theory leads first to a **hypothesis**, which is a specific implication deduced from the more general theory. Researchers actually test a hypothesis, not the complete theory itself, because theories usually contain many hypotheses. A hypothesis proposes a relationship between two or more theoretical constructs or variables. A **variable** is a characteristic or property that can vary. A **constant** is a characteristic or a property that cannot vary. For example, if we were to conduct some research in a male adult penitentiary, the theoretical construct "type of crime committed" would be a variable because persons will have been incarcerated for different offenses (one person for armed robbery, another for rape, etc.). However, the theoretical construct "gender" would be a constant because every inmate in the penitentiary would be male.

Variables are of critical importance in research because, in a hypothesis, variation

Exhibit 2.4 The Research Circle





in one variable is proposed to predict, influence, or cause variation in the other variable. The proposed influence is the **independent variable**; its effect or consequence is the **dependent variable**. Another way to think about this distinction is to say “the dependent variable ‘depends’ on the independent variable.” After the researchers formulate one or more hypotheses and develop research procedures, they collect data with which to test the hypothesis.

Hypotheses can be worded in several different ways, and identifying the independent and dependent variables is sometimes difficult. When in doubt, try to rephrase the hypothesis as an if-then statement: “If the independent variable increases (or decreases), then the dependent variable increases (or decreases).” Exhibit 2.5 presents several hypotheses with their independent and dependent variables and their if-then equivalents.

### Inductive Research

In contrast to deductive research, **inductive research** begins at the bottom of the research circle and then works upward (see Exhibit 2.4). The inductive researcher begins with specific data, which are then used to develop (induce) a general explanation (a theory) to account for the data. The patterns in the data are then summarized in one or more **empirical generalizations**.

The motive for inductive research is exploration. For example, in the last chapter, you read about an exploratory study of how schools averted mass shootings. In strictly inductive research, researchers already know what they have found when they start theorizing. The result can be new insights and provocative questions. But the adequacy of an explanation formulated after the fact is necessarily less certain than that of an explanation presented prior to the collection of data. Every phenomenon can always be explained in some way. Inductive explanations are thus more trustworthy if they are tested subsequently with deductive research.

• **Example of a hypothesis:** The higher the level of poverty in a community, the higher its rate of crime

**Variable:** A characteristic or property that can vary (take on different values or attributes)

**Constant:** A number that has a fixed value in a given situation; a characteristic or value that does not change

**Independent variable:** A variable that is hypothesized to cause, or lead to, variation in another variable

**Dependent variable:** A variable that is hypothesized to change or vary depending on the variation in another variable

**Exhibit 2.5 Examples of Hypotheses**

Original Hypothesis	Independent Variable	Dependent Variable	If-Then Hypothesis
1. The greater the social disorganization in a community, the higher the rate of crime.	Social disorganization	Crime rate	If social disorganization is higher, then the crime rate is higher.
2. As one's self-control gets stronger, the fewer delinquent acts one commits.	Self-control	Self-reported delinquency	If self-control is higher, then the number of delinquent acts is lower.
3. As the unemployment rate in a community decreases, the community rate of property crime decreases.	Unemployment rate	Rate of property crime	If the unemployment rate is lower, then the rate of property crime is lower.
4. As the level of discrepancy between one's aspirations and expectations increases, one's level of strain increases.	Discrepancy level between one's aspirations and expectations	Level of strain	If the level of discrepancy between one's aspirations and expectations is high, then the level of strain is high.
5. Crime is lower in those communities where the police patrol on foot.	Presence of foot patrols	Level of crime	If a community has police foot patrols, then the level of crime is lower.

**Example of an independent variable:** Poverty level in a community (percentage of population living below the poverty level)

**Example of a dependent variable:** The rate of crime in a community per 1,000 residents

**Inductive research:** The type of research in which specific data are used to develop (induce) a general explanation

**Empirical generalizations:** Statements that describe patterns found in data

**Replications:** When a research study is conducted again using the same research methods to answer the same research question to determine if the original findings occur again

## Case Study: A History of Investigating the Effects of Arrest for Intimate Partner Violence and the Research Circle

The Sherman and Berk (1984) study of IPV is a classic example of how the research circle works. In an attempt to determine ways to prevent the recurrence of IPV, the researchers repeatedly linked theory and data, developing both hypotheses and empirical generalizations.

### Phase 1: Deductive Research

The first phase of Sherman and Berk's (1984) study was designed to test a hypothesis. According to deterrence theory, punishment will reduce *recidivism*, or repeated offending. From this theory, Sherman and Berk deduced a specific hypothesis that arrest for spouse abuse would reduce the risk of repeat offenses. In this hypothesis, arrest is the independent variable, and variation in the risk of repeat offenses is the dependent variable. (It is hypothesized to depend on arrest.)

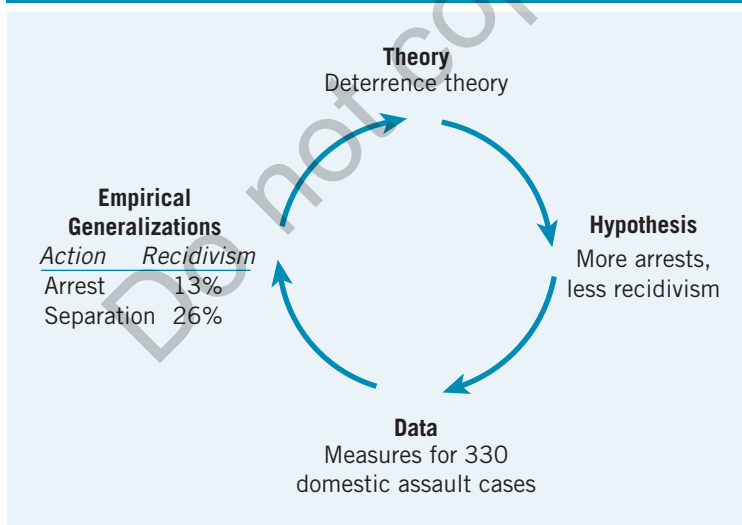
Sherman and Berk tested their hypothesis by setting up an experiment in which the police responded to the complaints of spouse abuse in one of three ways: (1) arresting the offender, (2) separating the spouses without making an arrest, or (3) simply warning the offender. When the researchers examined their data (police records for the persons in their experiment), they found that of those arrested for assaulting their spouse, only 13% repeated the offense, compared with a 26% recidivism rate for those who were separated from their spouse by the police without any arrest. This pattern in the data, or *empirical generalization*, was consistent with the hypothesis that the researchers deduced from deterrence theory. The theory thus received support from the experiment (see Exhibit 2.6).

Because of their doubts about the generalizability of their results, Sherman, Berk, and other researchers began to journey around the research circle again with funding from the National Institute of Justice for **replications** (repetitions) of the experiment in six more cities. These replications used the same basic research approach but with some improvements. The

random-assignment process was tightened in most of the cities so that police officers would be less likely to replace the assigned treatment with a treatment of their own choice. In addition, data were collected about repeat violence against other victims, as well as against the original complainant. Some of the replications also examined different aspects of the arrest process to see whether professional counseling helped and whether the length of time spent in jail after the arrest mattered at all.

By the time results were reported from five of the cities in the new study, a problem was apparent. In three of the cities—Omaha, Nebraska; Charlotte, North Carolina; and Milwaukee, Wisconsin—researchers were finding long-term increases in IPV incidents among arrestees. But in two—Colorado Springs,

**Exhibit 2.6 The Research Circle: Minneapolis Domestic Violence Experiment**



Colorado, and Dade County, Florida—the predicted deterrent effects seemed to be occurring (Sherman, Smith, Schmidt, & Rogan, 1992). Sherman and his colleagues had now traversed the research circle twice in an attempt to answer the original research question, first in Minneapolis and then in six other cities. But rather than leading to more confidence in deterrence theory, the research results were questioning it. Deterrence theory now seemed inadequate to explain empirical reality, at least as the researchers had measured this reality. So the researchers began to reanalyze the follow-up data from several cities in an attempt to explain the discrepant results, thereby starting around the research circle once again (Berk, Campbell, Klap, & Western, 1992; Pate & Hamilton, 1992; Sherman et al., 1992).

## Phase 2: Adding Inductive Reasoning to Deductive Research

As we noted previously, inductive research begins with specific data, which are then used to develop (induce) a general explanation (a theory) to account for the data. Another way to think of this process is represented in Exhibit 2.7. In deductive research, reasoning from specific premises results in a conclusion that a theory is supported, but in inductive research, the identification of similar empirical patterns results in a generalization about some social process.

As we noted, inductive reasoning often enters into deductive research when we find unexpected patterns, called anomalous or serendipitous findings, in the data we have collected for testing a hypothesis.

The domestic violence research took an inductive turn when Sherman and the other researchers began trying to make sense of the differing patterns in the data collected in the different cities. Could systematic differences in the samples or in the implementation of arrest policies explain the differing outcomes? Or was the problem an inadequacy in the theoretical basis of their research? Was deterrence theory really the best way to explain the patterns in the data they were collecting?

Pate and Hamilton (1992) found that individuals who were married and employed were deterred from repeat offenses by arrest, but individuals who were unmarried and unemployed were actually more likely to commit repeat offenses if they were arrested. What could explain this empirical pattern? The researchers turned to *control theory*, which predicts that having a “stake in conformity” (resulting from inclusion in social networks at work or in the community) decreases a person’s likelihood of committing crimes (Toby, 1957). The implication is that people who are employed and married are more likely to be deterred by the threat of arrest than are those without such stakes in conformity. And this is indeed what the data revealed.

Now the researchers had traversed the research circle almost three times, a process perhaps better described as a spiral (see Exhibit 2.8). The first two times, the researchers had traversed the research circle in a deductive, hypothesis-testing way. They started with theory and then deduced and tested hypotheses. The third time, they were more inductive: They started with empirical generalizations from the data they had already obtained and then turned to a new theory to account for the unexpected patterns in the data. At this point, they believed that deterrence theory made correct predictions, given certain conditions, and that another theory, *control theory*, might specify what these conditions were.

### Exhibit 2.7 Deductive and Inductive Reasoning

#### Deductive

Premise 1: *All unemployed spouse abusers recidivate.*

Premise 2: *Joe is an unemployed spouse abuser.*

Conclusion: **Joe will recidivate.**

#### Inductive

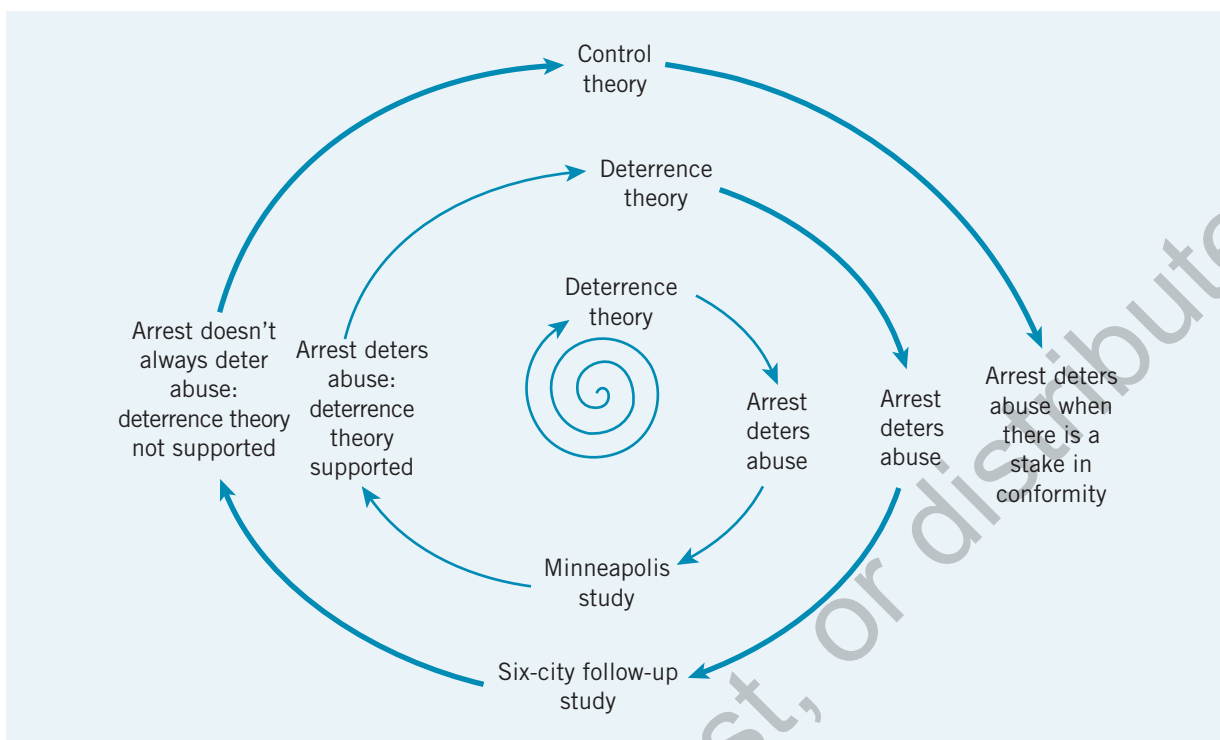
Evidence 1: *Joe, an unemployed spouse abuser, recidivated.*

Evidence 2: *Harold, an unemployed spouse abuser, recidivated.*

Evidence 3: *George, an employed spouse abuser, didn't recidivate.*

Conclusion: **All unemployed spouse abusers recidivate.**

## Exhibit 2.8 The Research Spiral: Domestic Violence Experiment



This inductive step in their research made for a more complex—but also conceptually richer—picture of the impact of arrest on IPV. The researchers seemed to have come closer to understanding how to inhibit IPV. But they cautioned us that their initial question—the research problem—was still not completely answered. Employment status and marital status do not solely measure the strength of social attachments; they are also related to how much people earn and the social standing of victims in court. So maybe social ties are not really what make arrest an effective deterrent to IPV. The real deterrent may be cost-benefit calculations (“If I have a higher income, jail is more costly for me”) or perceptions about the actions of authorities (“If I am a married woman, judges will treat my complaint more seriously”). Additional research was needed (Berk et al., 1992).

### Phase 3: Deductive Research

What other factors may explain the discrepancy in the findings? In 1997, Paternoster et al. reexamined data from one of the replication sites in Milwaukee to test hypotheses derived from yet another theory, procedural justice theory. As explained earlier in this chapter, procedural justice theory predicts that people will comply with the law out of a sense of duty and obligation if they are treated fairly by legal authorities. In the Milwaukee sample, arrest had a criminogenic effect: Those who were arrested were subsequently more likely to abuse their spouses than those who were simply warned. Paternoster et al. (1997) thought that this effect might have been due to the way subjects were treated when they were arrested rather than simply to the fact that they were arrested. One of their hypotheses spells out the reasoning:

Among those persons arrested for spouse assault, those who perceive themselves as being treated in a procedurally unfair manner will be more likely to commit acts of

spouse assault in the future than those arrested persons who perceive themselves as being treated in a procedurally fair manner, net of other determinants of violence. (p. 173)

This reanalysis of the data qualifies as deductive research because the hypotheses were derived from theory and then tested with the data rather than being induced by the data. The procedural justice hypotheses were supported: Persons who were arrested in the Milwaukee experiment became more likely to reoffend only if they perceived that they had been treated unfairly by the police. Otherwise, their rate of rearrest was similar to that for the persons who were not arrested. Thus, another element was added to our understanding of the effects of the police response to IPV.

Clearly, our understanding of effective responses to IPV will never truly be complete, but research to date has greatly improved our knowledge of this social problem. The future should yield an even better understanding, even though at times it may be hard to make sense of conflicting findings from different studies. Science is an ongoing enterprise in which findings cumulate and eventually yield greater insight or even radical revisions in our understanding. Needless to say, researchers do not need to worry about running out of work to do.

#### Phase 4: Adding Exploration to the Mix

While researchers were grappling with the results of the randomized experiments, other researchers were engaged in inductive research by interviewing victims and offenders in depth and then developing an explanation for what was found. Because qualitative research is often exploratory and, hence, inductive, researchers often ask questions such as “What is going on here?” “How do people interpret these experiences?” or “Why do people do what they do?” Rather than testing a hypothesis, the researchers are trying to make sense of some social phenomenon.

### Case Study: Police Decision Making

Eryn O’Neal and Cassia Spohn (2017) wanted to explore the factors that influence arrest and charging decisions in cases of intimate partner sexual assault cases. In addition to examining quantitative data on these two variables in Los Angeles, they interviewed 52 Los Angeles Police Department (LAPD) detectives and examined Los Angeles district attorney charge evaluation sheets. Results of the quantitative data indicated that the primary factor influencing whether an arrest was made was whether victims sustained injuries as the result of the attack. To explore this further, O’Neal and Spohn (2017) asked the LAPD detectives, “What are the decision rules that you follow in deciding whether to make an arrest or not?” (p. 720). To this, one detective replied, “I had a case, excuse my French, where the victim got the shit beat out of her. Her face was punched in. She was bruised all over and you could tell she fought him off her” (p. 720).

Other issues related to arrest discovered by O’Neal and Spohn were delayed reporting and victim’s cooperation. Several of the detectives believed that intimate partners were less likely to cooperate with the prosecutors after reporting compared with victimizations perpetrated by strangers. This was further complicated when victims did not report the incident to police soon after the attack. For example, one LAPD detective stated:

Every victim is different. But delayed reporting results in lack of evidence. Good cases are those with a cooperative [victim], witnesses who notify the police in a timely manner so that the evidence is preserved . . . Timely reporting is a lot easier to investigate (p. 721).

These qualitative interview data allowed O’Neal and Spohn (2017) to understand the process of making an arrest from the detectives’ perspective. The researchers note that the interviews allowed, “the interviewer to engage in model-building, model-testing, theory-construction, and theory verification within the same interview session” (p. 715).

Explanations developed inductively from qualitative research like these interview narratives can feel authentic because we have heard what people have to say in their own words, and we have tried to see the social world as they see it. Explanations derived from qualitative research will be richer and more finely textured than they often are in quantitative research, but they are likely to be based on fewer cases from a limited area. We cannot assume that the people studied in this setting are like others or that other researchers will develop explanations similar to ours to make sense of what was observed or heard. Because we do not initially set up a test of a hypothesis according to some specific rules, another researcher cannot come along and conduct the same test.

## RESEARCH STANDARDS

Research can improve our understanding of *empirical reality*, the reality we encounter firsthand, by conducting research that leads to valid knowledge about the world. But when is knowledge valid? In general, we have reached the goal of validity when our statements or conclusions about empirical reality are correct. If you look out your window and observe that it is raining, this is probably a valid observation, if your eyes and ears are to be trusted. However, if you pick up the newspaper and read that the majority of Americans favor the death penalty, this may be of questionable validity because it is probably based on a social survey. In fact, you will see in Chapter 7 that attitudes toward the death penalty vary substantially depending on the wording of the questions asked.

### Number of Reported Rapes Climbs in New York City

The New York City mayor, Bill de Blasio, held a press conference to explain his theory of why the number of reported rapes had increased by nearly 23% in 2018, while other violent crimes remained relatively stable. Recall from Chapter 1 that we measure victimization in many different ways, including official police reports and from victimization surveys. This increase was based on official reports to the police. During the preceding year, allegations of sexual misconduct by famous people sparked the #MeToo movement, which compelled many survivors to come forward. Like reports from victimization surveys, the vast majority of people who reported a rape victimization to NYC police in 2018 were attacked

by intimate partners or acquaintances rather than strangers.

#### For Further Thought

1. What do you believe played a role in the increased number of people reporting their sexual assault victimizations to police in NYC in 2018 compared with earlier years?
2. Do you think the spike in reports represents a real spike in the number of rapes, or may it reflect an increased willingness of victims to report to law enforcement officials? Why, or why not?

*Source:* Southall, A. (2019, January 6). As the number of reported rapes climb, mayor points to #MeToo. *New York Times*. Retrieved from <https://www.nytimes.com/2019/01/06/nyregion/rape-reports-nyc-me-too.html>

To some of you, the goal of validity may sound a bit far-fetched. After all, how can we really be sure our understandings of phenomena are correct when we can perceive the world only through the filter of our own senses? Hopefully, this concern will remind you to be skeptical about new discoveries!

This book is about validity more than anything else, about how to conduct research that leads to valid interpretations of the social world. We will refer to validity repeatedly, and we ask you to register it in your brain now as the central goal of all the research conducted in our field. The goal of research conducted by social scientists investigating issues related to criminology and criminal justice is not to come up with conclusions that people will like or conclusions that suit their personal preferences. The goal is to determine the most valid answers through empirical research methods.

We must be concerned with three aspects of validity: measurement validity, generalizability, and causal validity (also known as *internal validity*). Each of these three aspects of validity is essential: Conclusions based on invalid measures, invalid generalizations, or invalid causal inferences will themselves be invalid. We will also be concerned with the goal of authenticity, a concern with reflecting fairly the perspectives of participants in a setting that we study.

Imagine that we survey a sample of 250 high school seniors and ask them two questions: “Do you have friends who have taken illegal drugs in the past six months?” (the measure of peer behavior) and “Have you taken illegal drugs in the past six months?” (respondents’ behavior). We then compare the frequency of illegal drug use between students who have friends who have used illegal drugs and those whose friends have not used illegal drugs. We find that students who have friends who have used illegal drugs in the past six months are more likely to have used drugs themselves, and we conclude that drug use is, in part, due to the influence of peers.

But did our questions indeed tell us the frequency with which the students and their peers took illegal drugs? If they did, we achieved measurement validity. Do our results hold true of the larger adolescent population to which our conclusion referred? If so, our conclusion would satisfy the criterion for generalizability. Did the likelihood of students taking drugs actually increase if they had friends who also took drugs? If so, our conclusion is causally valid.

## Measurement Validity

**Measurement validity** is our first concern in establishing the validity of research results because without having measured what we think we’ve measured, we really don’t know what we’re talking about.

The first step in achieving measurement validity is to specify clearly what it is we intend to measure. Patricia Tjaden and Nancy Thoennes (2000) identified this as one of the problems with research on IPV: “Definitions of the term vary widely from study to study, making comparisons difficult” (p. 5). To avoid this problem, Tjaden and Thoennes (2000) presented a clear definition of what they meant by *intimate partner violence*: “rape, physical assault, and stalking perpetrated by current and former dates, spouses, and cohabiting partners, with cohabiting meaning living together at least some of the time as a couple” (p. 5).

Tjaden and Thoennes also provided a measure of each type of violence. For example, “physical assault” is defined as behaviors that threaten, attempt, or actually inflict physical harm” (Tjaden & Thoennes, 2000, p. 5). With this definition in mind, Tjaden and Thoennes (2000) then specified the set of questions they would use to measure intimate partner violence (the questions pertaining to physical assault):

Not counting any incidents you have already mentioned, after you became an adult, did any other adult, male or female, ever:

- Throw something at you that could hurt?
- Push, grab, or shove you?

• **Measurement validity:**  
The type of validity that is achieved when a measure measures what it is presumed to measure

- Pull your hair?
- Slap or hit you?
- Kick or bite you?
- Choke or attempt to drown you?
- Hit you with some object?
- Beat you up?
- Threaten you with a gun?
- Threaten you with a knife or other weapon?
- Use a gun on you?
- Use a knife or other weapon on you? (p. 6)

Do you believe that answers to these questions provide a valid measure of having been physically assaulted? Do you worry that some survey respondents might not report all the assaults they have experienced? Might some respondents make up some incidents? Issues like these must be considered when we evaluate measurement validity. Suffice it to say that we must be very careful in designing our measures and in subsequently evaluating how well they have performed. Chapter 4 introduces several different ways to test measurement validity. We cannot just *assume* that measures are valid.

## Generalizability

The generalizability of a study is the extent to which it can be used to inform us about persons, places, or events that were not studied. You have already learned in this chapter that Sherman and Berk's findings in Minneapolis about the police response to IPV simply did not hold up in several other cities: the initial results could not be generalized. As you know, this led to additional research to figure out what accounted for the different patterns in different cities. Chapter 5 on sampling will give you the tools you need to answer questions such as these.

Generalizability has two aspects. **Sample generalizability** refers to the ability to generalize from a sample, or subset, of a larger population to that population itself. This is the most common meaning of generalizability. **Cross-population generalizability** refers to the ability to generalize from findings about one group, population, or setting to other groups, populations, or settings. Cross-population generalizability can also be referred to as **external validity**. (Some social scientists equate the term *external validity* to *generalizability*, but in this book, we restrict its use to the more limited notion of cross-population generalizability.)

### Sample generalizability:

Exists when a conclusion based on a sample, or subset, of a larger population holds true for that population

### Cross-population generalizability (external validity):

Exists when findings about one group, population, or setting hold true for other groups, populations, or settings; also called *external validity*

**Causal validity:** Exists when a conclusion that *x* leads to or results in *y* is correct; also called *internal validity*

## Causal Validity

**Causal validity**, also known as **internal validity**, refers to the truthfulness of an assertion that *x* causes *y*; it is the focus of Chapter 6. A great deal of research seeks to determine what causes what, so social scientists frequently must be concerned with causal validity. Sherman and Berk (1984) were concerned with the effect of arrest on the likelihood of recidivism by people accused of IPV. To test their causal hypothesis, they designed their experiment so that some accused persons were arrested and others were not. Of course, it may seem heavy-handed for social scientists to influence police actions for the purpose of a research project, but this step reflects just how difficult it can be to establish causally valid understandings about the social world. It was only because police officials did not know whether arrest caused spouse abusers to reduce their levels of abuse that they were willing to allow an experiment to test the effect of different policies.





## CONCLUSION

Criminological researchers can find many questions to study, but not all questions are equally worthy. Those that warrant the expense and effort of social research are feasible, socially important, and scientifically relevant. The simplicity of the research circle presented in this chapter belies the complexity of the social-research process. In the following chapters, we will focus on particular aspects of that process.

Ethical issues also should be considered when evaluating research. As Chapter 3 will show, ethical issues in research are no less complex than the other issues researchers confront. It is inexcusable to jump into research involving people without paying attention to how our work can and does affect their lives.

## KEY TERMS

Authenticity	39	Empirical generalizations	32	Research question	25
Causal validity (internal validity)	38	Falsifiable	28	Sample generalizability	38
Constant	31	Hypothesis	30	Serendipitous findings (anomalous findings)	30
Cross-population generalizability (external validity)	38	Independent variable	31	Theoretical constructs	28
Deductive reasoning	30	Inductive reasoning	30	Theory	27
Deductive research	30	Inductive research	32	Variable	31
Dependent variable	31	Measurement validity	37		
		Replications	32		
		Research circle	30		

## HIGHLIGHTS

- Research questions should be feasible (within the time and resources available), socially important, and scientifically relevant.
- A theory is a logically interrelated set of propositions that helps us make sense of many interrelated phenomena and predict behavior or attitudes that are likely to occur when certain conditions are met.
- Building criminological theory is a major objective of criminological research. Investigate relevant theories before starting criminological projects, and draw out the theoretical implications of research findings.
- The type of reasoning in most criminological research can be described as primarily deductive or inductive. Research based on deductive reasoning proceeds from general ideas, deduces specific expectations from these ideas, and then tests the ideas with empirical data. Research based on inductive reasoning begins with specific data and then develops general ideas or theories to explain patterns in the data.
- It may be possible to explain unanticipated research findings after the fact, but such explanations have less credibility than those that have been tested with data collected for the purpose of the study.
- The scientific process can be represented as circular, with connections from theory to hypotheses to data to empirical generalizations. Research investigations may begin at different points along the research circle and travel along different portions of it. Deductive research begins at the point of theory; inductive research begins with data but ends with theory. Descriptive research begins with data and ends with empirical generalizations.
- Replications of a study are essential to establish its generalizability in other situations. An ongoing line of research stemming from a particular question should include a series of studies that, collectively, travel around the research circle multiple times.
- Criminologists, like all social scientists, should structure their research so that their own ideas can be proved wrong, disclose their methods for others to critique, and recognize the possibility of error. Nine specific guidelines are recommended.

- Valid knowledge is the central concern of scientific research. The three components of validity are measurement validity, generalizability (both from the

sample to the population from which it was selected and from the sample to other populations), and causal (internal) validity.

## EXERCISES

### Discussing Research

1. State a problem for research related to a criminological topic or issue of interest to you. Write down as many questions as you can about this topic.
  - a. Considering your interest, opportunities, and findings from past research, which of your research questions do not seem feasible or interesting?
  - b. Pick out one question that seems feasible and that your other coursework suggests has been the focus of prior research or theorizing. Write this research question in one sentence. Elaborate on your question in a single paragraph. List at least three reasons why it is a good research question to investigate.
  - c. Ultimately, how would you characterize this research effort? Does it contribute to the discipline, policy, or society at large?
2. Search the scholarly literature on your topic of interest. (You can find articles on the Student Study Site, [edge.sagepub.com/bachmanfrcej5e](http://edge.sagepub.com/bachmanfrcej5e).) Copy at least 10 citations to recent articles reporting research relevant to your research question.
  - a. Look up at least three of these articles. Write a brief description of each article, and evaluate its relevance to your research question. What additions or changes to your thoughts about the research question are suggested by these sources?
  - b. Would you characterize the findings of these articles as largely consistent or inconsistent? How would you explain discrepant findings?
  - c. How well did the authors summarize their work in their abstracts for the articles you consulted? What important points would you have missed if you had relied on only the abstracts?
3. Using one of the research articles you consulted for Exercise 2, identify and look up one of the cited articles or websites. Compare the cited source with what was said about it in the original article or on the original site. Was the discussion in the cited source accurate?

### Finding Research on the Web

1. Search the scholarly literature on your topic of interest. Refer to Appendix A for guidance on conducting the search, if necessary.
  - a. Copy at least 10 citations to recent articles reporting research relevant to your research question.
  - b. Look up at least three of these articles. Write a brief description of each article, and evaluate its relevance to your research question. What additions or changes to your thoughts about the research question are suggested by these sources?
  - c. Would you characterize the findings of these articles as largely consistent or inconsistent? How would you explain discrepant findings?
  - d. How well did the authors summarize their work in their abstracts for the articles you consulted? What important points would you have missed if you had relied on only the abstracts?
2. You have been assigned to write a paper on domestic violence and the law. To start, find out what the American Bar Association's stance is on the issue. Go to the American Bar Association Commission on Domestic Violence's website ([www.americanbar.org/groups/domestic\\_violence.html](http://www.americanbar.org/groups/domestic_violence.html)). What is the American Bar Association's definition of domestic violence? How does it suggest one can identify a person as a victim of domestic violence?
3. Go to the Bureau of Justice Statistics (BJS) website ([www.bjs.gov](http://www.bjs.gov)). Go to "Publications & Products." Browse the list of publications for topics related to domestic violence or intimate partner violence. List the titles of all publications focusing on violence between intimate partners. Choose the most recent publication. How does the BJS define *intimate partners*? What are some of the characteristics of IPV? What trends are identified in the report? Based on the data presented, what might you induce from the findings about police reporting of violence exhibited in particular kinds of relationships (married, divorced, by age of victim, etc.)?

## Critiquing Research

1. Using one of the research articles you consulted in the last section, identify and look up one of the cited articles or websites. Compare the cited source with what was said about it in the original article or website. Was the discussion in the cited source accurate?
2. Using the same research article you focused on for the last exercise, identify the stages of the research project corresponding to the points on the research circle. Did the research cover all four stages? Identify the theories and hypotheses underlying the study. What data were collected or used for the study? What were the findings (empirical generalizations)?

## Making Research Ethical

1. Review the ethical guidelines adopted by the American Sociological Association (1999, p. 63). Indicate whether you think each guideline was followed in the Sherman and Berk (1984) research on the policy response to IPV. If you find it hard to give a simple *yes* or *no* answer for each guideline, indicate the issues that make this evaluation difficult.
2. Concern with how research results are used is one of the hallmarks of ethical researchers, but deciding what form that concern should take is often difficult. You learned in this chapter about the controversy that occurred after Sherman and Berk (1984) encouraged police departments to adopt a pro-arrest policy in domestic abuse cases based on findings from their Minneapolis study. Do you agree with the researchers' decision to suggest policy changes to police departments based on their study in an effort to minimize domestic abuse? Several replication studies failed to confirm the Minneapolis findings. Does this influence your evaluation of what the researchers should have done after the Minneapolis study was completed? In one paragraph, propose a policy that researchers should follow about how much publicity is

warranted and at what point in the research it should occur.

## Developing a Research Proposal

The next exercises are very critical first steps in writing a research proposal.

1. State a problem for research. If you have not already identified a problem for study or if you need to evaluate whether your research problem is doable, a few suggestions should help to get the ball rolling and keep it on course:
  - a. Jot down a few questions you have had about some issue. Now, take stock of your interests and your opportunities. Which of your research questions no longer seem feasible or interesting?
  - b. Write out your research question in one sentence, and elaborate on it in one paragraph. List at least three reasons why it is a good research question for you to investigate.
2. Search the literature (and the Internet) for information on the research question you identified. Refer to Appendix A for guidance on conducting the search. Copy down at least 10 citations to articles and five citations to websites reporting research that seems highly relevant to your research question. Inspect the article bibliographies and the links in the websites, and identify at least one more relevant article and one more relevant website from each source. What additions or changes to your thoughts about the research question are suggested by the sources?
3. Propose at least two hypotheses that pertain to your research question. Justify these hypotheses in terms of the literature you have read.
4. Which standards for the protection of human subjects might pose the most difficulty for researchers on your proposed topic? Explain your answers, and suggest appropriate protection procedures for human subjects.

## Performing Data Analysis in SPSS or Excel

Data for Exercise	
Dataset	Description
Youth.sav	These data are from a random sample of students from schools in a southern state. While not representative of the United States, this file covers a variety of important delinquent behaviors and peer influences.

Variables for Exercise	
Variable Name	Description
D1	A binary variable based on the number of delinquent acts a respondent reported. A 0 indicates that the respondent reported one or fewer acts, while a 1 indicates two or more.
Supervision	This is a binary variable based on a scale of parental supervision. High scores (six or greater) are coded 1; low scores (five or lower) are coded 0.
Heavytvwatcher	A binary variable based on the number of hours a respondent reported watching per week. A value of 1 indicates 15 or more hours of TV per week; a value of 0 indicates 14 or fewer.
Studyhard	A binary variable based on the number of hours a respondent reported studying per week. A value of 1 indicates nine or more hours per week; a value of 0 indicates eight or fewer.
Gender	Gender of the respondent
Drinkingnotbad	A binary variable based on a question about whether a respondent's friends view drinking as wrong

- Consider the following pairs of variables:
  - Delinquent behavior and parental supervision
  - Hours watching TV per week and hours studying per week
  - Gender and how wrong one's friends think it is to drink
- Do the following for each pair of variables:
  - Articulate a research question involving the two variables
  - Hypothesize a relationship between the two variables (or lack thereof). Explain why you think the variables will be related in this fashion.
  - Identify the independent and dependent variable.
  - State the direction of the association that is expected.
- With these hypotheses in hand, let's see how they hold up using real data! For these tests, you'll be constructing basic cross-tabulations, which allow you to compare two binary variables easily. Start off by clicking "analyze->descriptives->crosstabs." Then, place your independent variable in the "columns" box and your dependent variable in the "rows" box. Lastly, select the "cells" option and make sure that "column" is selected under the percentages window. The output that you get will allow you to see, for instance, if people with a high score on the independent variable also are more likely to have a high score on the dependent variable.
  - Start off by cross-tabulating variables "d1" and "supervision."
    - How do these results line up with your hypothesis?
    - What is the direction of the association found, if any?
  - Then, compare the variables "heavytvwatcher" and "studyhard."
    - Do these results support your hypothesis?
    - What is the direction of the association found, if any?
  - Compare the variable "gender" and "drinkingnotbad."
    - How do these results compare with your hypothesis?
    - What is the direction of the association found, if any?

## STUDENT STUDY SITE



Get the tools you need to sharpen your study skills. SAGE Edge offers a robust online environment featuring an impressive array of free tools and resources. Access practice quizzes, eFlashcards, video, and multimedia at [edge.sagepub.com/bachmanfrccj5e](https://edge.sagepub.com/bachmanfrccj5e).