# The Language of Research

2

Vignette 2-1   Researchese?

Still pondering the instructor's comments about research papers, you remain puzzled. In many previous classes, you have been asked to write research papers, and now you are being told you have never written one. You raise your hand. When called upon, you ask, "What do you mean that we have never written a research paper? I know I have written several." The instructor acknowledges expecting this query. Yet the response is not what you had expected. Your instructor asks, "Have you ever studied a foreign language?" You reply that you took a few years of Spanish in high school. The instructor then asks whether you recall a word or words that have a specific meaning yet are often broadly used. When you reply positively, the instructor says that this is precisely what is happening here with the word *research*. It is quite common for students and teachers alike to use the term research to describe a paper assignment that is actually a literature review. The instructor goes on to explain that it is necessary to understand the specific language of research before one can proceed with conducting research. Laypeople often refer to the use of legal terminology by lawyers as "legalese." In that same vein, one might refer to the language of research by criminal justice scholars as "researchese."
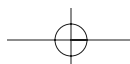
Chapter Objectives

After studying this chapter, the student should be able to:

- Define theory and explain how it relates to research.
- Describe the conceptualization process.
- Describe what takes place during operationalization.
- Define variable. Discuss how dependent and independent variables differ from one another.
- Describe a hypothesis and how it differs from an assumption. Present and discuss the types of hypotheses.
- Identify a population and discuss how it is related to a sample. Provide examples of some different types of samples.
- Define validity and describe the various types of validity.
- Define reliability. Explain how it relates to validity.
- Describe data and the four levels of data.
- Discuss the steps in the research process.

■ The Language of Research

It is quite common for students and teachers alike to use the term research to describe a paper assignment that is actually a literature review. As previously noted, with respect to criminal justice and criminology, there is more to research than reviewing literature. This synonymous use of the term *research* is just one example of the need to understand language associated with this field. In Chapter 1, the term research was defined. In this chapter, various associated terms—such as *theory*, *hypothesis*, and *variable*—will be defined or further expanded upon.

Theory

There is an interesting debate one could have regarding the term *theory*, which is reminiscent of the age-old argument: Which came first, the chicken or the egg? With respect to theory, one side of the debate argues that theories drive the research (theory-then-research) or deductive logic. The other side would argue that research creates the theory (research-then-theory) (Berg 2004) or inductive logic (see **Box 2-1**).

In reality, the two types of logic are actually extensions of one another. Observation may lead to theory construction, which then leads to more observation in order to test the theory. Therefore, even research that is initially inductive in nature ultimately becomes deductive in that the theory that is generated is tested by observation. In short, all criminal-justice practice is grounded in criminological theory. Theory is defined here as *an explanation that offers to classify, organize, explain, predict, and/or understand the occurrence of specific phenomena.*

> **Box 2-1**
> **Theory Debate Models**
>
> | *Theory-then-research* | *Research-then-theory* |
> |---|---|
> | Theory = | Investigation + |
> | Construction + | Measurement + |
> | Selection + | Analysis + |
> | Design + | Acceptance = |
> | Reject/Accept | Theory |
> | Reject/Accept Theory | |

Based on the definition, a theory is a statement that attempts to make sense of reality. Reality consists of those phenomena that we can identify, recognize, and observe. For example, in criminology, criminal behavior is observed. Therefore, people breaking the law are a reality. A question that arises from this reality is, What causes people to break the law? It is here that theory comes into the picture. Criminology is replete with criminal-behavior theories that focus on causes that include biological, psychological, and sociological factors (see Box 2-1).

Research is conducted to determine if theories have any merit or are truly applicable. Proving that a theory is valid is a common goal of criminological and criminal-justice researchers. However, in order to research a theory, the first step is to focus on a concept.

Conceptualization

A concept is best defined as an *abstract label that represents an aspect of reality (usually in the form of an object, policy, issue, problem, or phenomenon)*. Every discipline has its own concepts. For example, common concepts in criminal justice and criminology include criminality, law, rehabilitation, and punishment.

Concepts are viewed as the beginning point for all research endeavors, and are often very broad in nature. They are the bases of theories, and serve as a means to communicate, introduce, classify, and build thoughts and ideas. To conduct research, the concept must first be taken from its conceptual or theoretical level to an observational level. In other words, one must go from the abstract to the concrete before research can occur. This process is often referred to as conceptualization. As with the definition of theory, there is more than one way to approach conceptualization. This text promotes the two-phase (theory and research levels), five-stage (conceptual level, conceptual components, conceptual definitions, operational definitions, and observational level) approach (Nachmias and Nachmias 2000) (see **Box 2-2**). All too often, research fails to explain the conceptualization process. Therefore, it is important that the researcher provide a clear picture of how he or she took the concept from the abstract to the concrete.

To achieve the second part of the conceptualization model—the research phase—the concepts must now be measured. Although concepts can be qualitative, they are most often converted into variables through a process called *operationalization*.
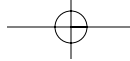
Box 2-2?

Box 2-2
Examples of Theories in Criminology

Biological
1. A person's physique is correlated to the type of crime one commits.
2. Criminality is genetic.
3. A chemical imbalance in one's brain can lead to criminal behavior.

Psychological
1. Criminal behavior is the result of an inadequately developed ego.
2. Inadequate moral development during childhood leads to criminal behavior.
3. Criminals learn their behavior by modeling it after other criminals.

Sociological
1. Socializing with criminals produces criminal behavior.
2. Society's labeling of an individual as deviant or criminal breeds criminality.
3. Failure to reach societal goals through acceptable means leads to criminality.

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Operationalization

The act of operationalizing is the describing of how a concept is measured. This process is best defined as *the conversion of the abstract idea or notion into a measurable item.* In other words, it involves taking something that is conceptual and making it observable, or going from abstract to concrete.

Operationalization is one of the more important tasks prior to conducting any research. However, there is no one right way to go about operationalizing; how this is accomplished is up to the researcher. Unfortunately, it is common for researchers to publish their results without ever explaining how their concepts were operationalized. As a result, many students have difficulty fully comprehending the notions of conceptualizing and operationalizing variables. It is up to the researcher to clearly explain the process.

Variables

The primary focus of the operationalization process is the creation of variables and the subsequent development of a measurement instrument to assess those variables. Variables are concepts that may be divided into two or more categories or group-
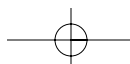
METHODOLOGICAL LINKS

Researchers often do not report how they conceptualized their concept. When they do, it provides a better understanding of the research. From the following excerpt, can you fit the pieces into the first phase—the theoretical phase— of the conceptualization model?

Community empowerment is a concept used to describe individuals living in close proximity who as a group unite to combat a common problem. The focus of the group is the common problem. If a community is to be empowered, the residents must first be aware that a problem exists (community awareness) to such an extent that it is disturbing or troubling (community concern), resulting in organization of the community (community mobilization) to fight against it (community action) (Moriarty 1999, 17).

ings known as attributes. The ability to divide the variables into categories enables us to study their relationships with other variables. Attributes are the grouping into which variables may be divided. As an example, "male" is an attribute of the variable "gender." There are two types of variables: dependent and independent.

Dependent Variables

A dependent variable is a factor that requires other factors to cause or influence change. Dependent variables are factors over which the researcher has no control. Basically, the dependent variable is the outcome factor or that which is being predicted. In criminal justice and criminology, criminal behavior is a dependent

Box 2-3

Conceptualization-Process Model

Theoretical Phase
   Conceptual Level
      The main concept or theory
   Conceptual Components
      Concepts that are part of the main concept
   Conceptual Definitions
      Terms that describe and differentiate the concept
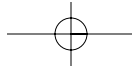
Research Phase
   Operational Definitions
      Procedures that describe activities to be undertaken
   Observational Level
      Responses to the operational definitions

There are 2 boxes as 2-3

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METHODOLOGICAL

LINKS

The following excerpt shows how a concept is operationalized. *Community awareness* was conceptualized as the level of knowledge about the use of alcohol and other drugs in the community. Four variables reflected community awareness: drug usage in the neighborhood, drug dealing in the neighborhood, alcohol-/drug-prevention messages,; and availability of certain drugs (eight different drugs in all). The following are the actual questions used to establish each variable:

- Drug usage in the neighborhood: Respondents were asked, "How many people in this neighborhood use drugs?" Responses included "many, some, not many or no residents use drugs."
- Drug dealing in the neighborhood: Respondents were asked, "How often do you see drug dealing in this neighborhood?" The responses included "very often, sometimes, rarely, never."
- Alcohol/drug prevention message: Respondents were asked if they had heard or seen any drug or alcohol prevention messages in the past six months.
- Availability of certain drugs: Respondents were asked about the difficulty or ease of obtaining specific drugs in the county. The list of drugs included marijuana, crack cocaine, other forms of cocaine, heroin, other narcotics (methadone, opium, codeine, paregoric), tranquilizers, barbiturates, amphetamines, and LSD. Each drug available represents one variable. (Moriarty 1999, 18)

variable because it requires other factors in order for it to exist or change. These other factors are the independent variables.

Independent Variables

The independent variable is the influential or the predictor factor. These are the variables believed to cause the change or outcome of the dependent variable, and are something the researcher can control. Some better-known independent variables used in criminal-justice and criminological research are gender, race, marital status, and education.

Identifying and recognizing the difference between the variables is important in research, but sometimes may get lost. Therefore, it is important for research to specifically call attention to the variables.

The key to any research is to be able to operationalize the concepts into understandable and measurable variables. Failing to complete this task will make the creation and testing of the hypothesis more difficult.

Hypotheses

Once the concept has been operationalized into variables that fit the theory in question, most research focuses on testing the validity of a statement called a
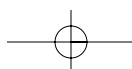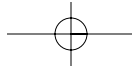
METHODOLOGICAL

LINKS

Researching attitudes among different criminal-justice practitioners is popular. Gordon (1999) looked at the attitudes of correctional officers toward delinquents and delinquency, and whether the type of institution they work in made a difference. In describing the research, she is clear as to the variables used and how they are measured. This makes the finding much easier to understand.

Variable	*Measurement*
Dependent Variables	
PUNITIVENESS	Examines attitudes toward punitiveness. Higher scores indicate disagreement with punitiveness as a means to reduce crime. Range 3–12, Mean 6.38.
DELINQUENCY	Examines attitudes toward delinquency. Higher scores indicate disagreement that crime is a result of environmental and opportunity factors. Range 3–12, Mean 7.49.
TREATMENT	Examines attitudes toward treatment of youth. Higher scores indicate disagreement with the ability of "treatment" programs to change offenders' behaviors. Range 4–16, Mean 10.34.
Independent Variables	
FACILITY	0 = Open-Security, 1 = Closed-Security
AGE	In years
GENDER	0 = Female, 1 = Male
RACE	0 = White, 1 = Nonwhite
EDUCATION	0 = Less than High School, 1 = High School, 2 = Some College, 3 = Bachelor Degree, 4 = Graduate Degree
LENGTH AT CURRENT POSITION	In months

hypothesis. The hypothesis is a *specific statement describing the expected relationship between the independent and dependent variables*. There are three common types of hypotheses: research, null, and rival.

Research Hypothesis

The foundation of a research project is the research hypothesis. This is a statement of the expected relationship between the dependent and independent variables. The statement may be specified as either a positive (as one increases, the other increases) or a negative (as one increases, the other decreases) relationship. The hypothesis is not always clearly delineated, but it is preferable for it to be.

METHODOLOGICAL

LINKS

Holcomb, Williams, and Demuth (2004), in their research of white females and death-penalty disparity, clearly stated their hypothesis: Defendants convicted of killing white females are significantly more likely to receive death sentences than are killers of victims with other race-gender characteristics (877).

Cooper, McLearen, and Zapf (2004), in their study of police officers' dispositional decisions involving the mentally ill, used this hypothesis: Arrest dispositions would be chosen more often than involuntary-hospitalization dispositions, and experience will be correlated with lack of formal action (295).

Finally, Wilson and Jasinski (2004), in looking at the public satisfaction with the police in domestic-violence cases, hypothesized that: Domestic-violence victims whose expectations are fulfilled by the police will be more satisfied than those victims whose expectations are not fulfilled (235).
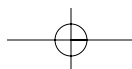
Null Hypothesis

Some would argue that the results of the research should support the research hypothesis. Others will claim that the goal is to disprove the null hypothesis, which is a statement indicating that no relationship exists between the dependent and independent variables. For example, in Colomb and Damphouse (2004), although their research hypothesis is not made clear to the reader, the null hypothesis is: A moral panic did not occur in the late 1990s regarding hate crimes because of the disproportionate amount of media attention given to the issue (149).

By rejecting the null hypothesis, the research goal has been fulfilled. However, rejecting the null hypothesis does not necessarily mean that the results have established the validity of the research hypothesis.

Rival Hypothesis

Prior to starting the research, it is customary to establish the research hypothesis, which is generally what the researcher hopes to validate or demonstrate. However, sometimes the results may reject both the null hypothesis and the research hypothesis. This allows for the creation of what is called a rival hypothesis. The rival hypothesis is a statement offering an alternate prediction for the research findings.

For example, the research hypothesis of Holcomb, Williams, and Demuth (2004) that "defendants convicted of killing white females are significantly more likely to receive death sentences than are killers of victims with other race-gender characteristics" might call for a rival hypothesis, perhaps along the lines of "Nonwhite defendants convicted of killing white females are significantly more likely to receive death sentences than are white killers of white females."

It is usually the goal of the research to be able to reject the null hypothesis. Testing the research hypothesis becomes central to the research, making identifying the hypothesis an important aspect of the research. However, although hypotheses often take center stage in research, there is another type of statement that can find its way into the research: *assumptions*. However, these types of statements should be avoided whenever possible.

Assumptions

Hypotheses are educated guesses about the relationship between variables. These educated guesses must be proved by the research. An *assumption* is *a statement accepted as true with little supporting evidence*. From a research perspective, assumptions are problematic. It is expected that statements of inquiry or fact be backed up by research to substantiate them. Fortunately, assumptions can often lead to research. For example, a researcher might assume, based on the perceived natural caring instincts of women, that women would make better police officers than would males. Since there is little evidence to validate this assumption, and it would not be a readily accepted statement, at least among males, there would be a need to research this assumption. In this situation, the researcher could move beyond the untestable assumption that women would be better officers because they are more caring by converting it into hypotheses that can be tested. Variables could be created to measure what is meant by "caring" and what is meant by "officer performance."

Theory, concept, operationalize, variable, hypothesis, and *assumption* are all key words in the language of research. Still, they are just the building blocks and causes for other terms with which the student should be familiar.

■ Other Key Terms

There are many other terms a student should be familiar with before undertaking a research effort. Because these remaining terms are covered in greater detail in later chapters, only a brief definition will be offered, but in the same context as previous definitions.

Once the researcher has managed to conceptualize and operationalize his or her research, it is then time to choose who will be targeted to respond to the dependent variables. A unit of analysis is the level at which the researcher will focus his or her attention. It could be individuals, groups, communities, or even entire societies, depending on the nature of the research. The researcher then selects samples from the population that is being studied.

Population

A population is *the complete group or class from which information is to be gathered*. For example, police officers, probation officers, and correctional officers are each a population. For every member of a population to provide the information sought would in most cases be logistically impractical, not to mention inefficient and wasteful of the researcher's time and resources. Therefore, most researchers choose to obtain a sample from the targeted population.
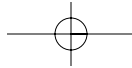
Sample

A sample is *a group chosen from within a target population to provide information sought*. Choosing this group is referred to as sampling, and may take one of several forms. Sampling is important enough to warrant an entire chapter of its own later in the text. Some examples of samples follow.

> *Random: A random sample is one in which all members of a given population have the same chances of being selected. Furthermore, the selection of each member must be independent from the selection of any other members.*

> *Stratified Random: This is a sample that has been chosen from a population that has been divided into subgroups called strata. The sample is composed equally of members representing each stratum.*

> *Cluster: The sample comprises randomly selected groups rather than individuals.*

> *Snowball: This sample begins with an individual or individuals who provide names of other people for the sample.*

> *Purposive: Individuals are chosen to provide information based on the researcher's belief that they will provide the necessary information. This type of sample is also known as a judgmental or convenience sample.*

Once the sample has been identified, the information is collected. The various collection techniques will be covered in detail in a later chapter. In collecting this information, two concerns for the researcher are the validity and the reliability of the data-collection device.

Validity

Validity is a term describing whether the measure used accurately represents the concept it is meant to measure. There are four types of validity: face, content, construct, and criterion. Validity can also be categorized as either internal (truthfulness of the findings with respect to the individuals in the sample) or external (truthfulness of the findings with respect to individuals not in the sample).

> *Face Validity: This is the simplest form of validity, and basically refers to whether the measuring device appears, on its face, to measure what the researcher wants to measure. This is primarily a judgmental decision.*

> *Content Validity: Each item of the measuring device is examined to determine whether the element measures the concept in question.*

> *Construct Validity: This validity inquires as to whether the measuring device does indeed measure what it has been designed to measure. It refers to the fit between theoretical and operational definitions of the concept.*

> *Criterion (or Pragmatic) Validity: This type of validity represents the degree to which the measure relates to external criteria. It can*
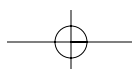
be either concurrent (does the measure enhance the ability to assess
the current characteristics of the concept under study?) or predic-
tive (the ability to accurately foretell future events or conditions).

Reliability

Reliability refers to how consistent the measuring device would be over time. In other words, if the study is replicated, will the measuring device provide consistent results? The two key components of reliability are stability and consistency. Stability means the ability to retain accuracy and resist change. Consistency is the ability to yield similar results when replicated.

Having established the validity and reliability of the measuring device, the sample can now be approached for information. The information gathered is known as data.

Data

Data are simply pieces of information gathered from the sample. The pieces may describe events, beliefs, characteristics, people, or other phenomena. These data may exist at one of four levels:

1. Nominal Data: These data are categorical based on some defined characteristic. The categories are exclusive and have no logical order. For example, gender is a nominal-level data form.

2. Ordinal Data: Ordinal data are also categorical, but their characteristics may be rank-ordered. These data categories are also exclusive, but are scaled in a manner representative of the amount of characteristics in question, along some dimension. For example, types of prisons may be broken down into the categories of minimum, medium, and maximum.

3. Interval Data: Categorical data for which there is a distinctive, yet equal, difference among the characteristics measured are interval data. The categories have order and represent equal units on a scale with no set zero starting point (for example, the IQ of prisoners).

4. Ratio Data: This type of data is ordered, has equal units of distance, and a true zero starting point (for example, age, weight, income).

As the text continues, other terms will be introduced and defined. Because a sufficient number of terms have been introduced, it is now possible to review the research process in a researchese manner.

■ The Research Process

Now that you have been introduced to research and its language, the last item you will need to understand is a model of the research process through terminology. This model begins with a theory usually identifying some concept. The concept is then conceptualized and operationalized to create dependent variables. Completing the identification of both the independent and dependent variables leads then to developing the hypothesis or hypotheses. Finally, a sample is cho-

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Box 2-3
The Research Process in Brief

Conceptualization
Identify a relevant social issue or phenomenon worthy of study
Review prior research regarding the identified social issue
Decide what the focus of your research into the social issue is to be
Determine the theoretical orientation/explanation upon which the research
   is based
Determine the various concepts used within the primary theoretical
   explanation
Identify the concepts employed within the theoretical explanation
Define these concepts so that others can understand their meanings
Think about how these concepts may relate to one another

Operationalization
Create variables that may be used to measure concepts
Identify whether the variables are dependent or independent
Develop hypotheses that will enable you to evaluate the relationships
   among variables
Determine how you will collect data regarding your variables
Determine how you will analyze the data that are collected
Determine the population to be studied
Determine how the population is to be sampled
Determine what will be done with the results of the research

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sen, measurement or information is gathered from the sample, the information
is converted into the proper data for analysis, and the results are reported (see
Box 2-3). This process will become functionally clearer as the text progresses.

■ Summary

To become proficient in research, one needs to know the language. Several terms
have been introduced that are important to mastering research as a language. The
main terms include theory, concept, operationalize, variables, hypothesis, and
sample. There are two types of variables: independent and dependent. A sample
may be random, stratified, clustered, snowball, or purposive. Other terms are
validity (face, content, construct, and criterion), reliability, and data (nominal,
ordinal, interval, and ratio). With knowledge of these terms, the research process
can be taken to the next level.
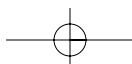
METHODOLOGICAL QUERIES

1. Taking both sides of the debate about theory, apply the definition of theory to this statement: Crime is a direct result of poverty.

2. How would you convert or operationalize the following concepts: professionalism, stress, and ethnicity?

3. What are the null hypotheses for the three research hypotheses offered in the Methodological Link?

4. Convert this assumption into a hypothesis: Due to the natural caring instincts of women, they will make better police officers.

5. How would you demonstrate the research process using the turnover rate of federal probation officers as the concept under study?

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